BY AUTHORITY

ORDINANCE NO. _____

SERIES OF 2013

COUNCIL BILL NO. CB13-0234

COMMITTEE OF REFERENCE:

BUSINESS, WORKFORCE, & SUSTAINABILITY

A BILL

For an ordinance approving a proposed Agreement between the City and County of Denver and URS Corporation related to on-call electronics and communication system support services at Denver International Airport.

BE IT ENACTED BY THE COUNCIL OF THE CITY AND COUNTY OF DENVER:

Section 1. The proposed Agreement between the City and County of Denver and URS Corporation, in the words and figures contained and set forth in that form of Agreement available in the office and on the web page of City Council, and to be filed in the office of the Clerk and Recorder, Ex-Officio Clerk of the City and County of Denver, under City Clerk's Filing No. 2013-0277, is hereby approved.

COMMITTEE APPROVAL DATE: April 11, 2013

MAYOR-COUNCIL DATE: April 16, 2013

PASSED BY THE COUNCIL: _____, 2013

_____ - PRESIDENT

APPROVED: _____ - MAYOR _____, 2013

ATTEST: _____ - CLERK AND RECORDER, EX-OFFICIO CLERK OF THE CITY AND COUNTY OF DENVER

NOTICE PUBLISHED IN THE DAILY JOURNAL: _____, 2013; _____, 2013

PREPARED BY: Kevin Cain, Assistant City Attorney DATE: April 18, 2013

Pursuant to section 13-12, D.R.M.C., this proposed ordinance has been reviewed by the office of the City Attorney. We find no irregularity as to form, and have no legal objection to the proposed ordinance. The proposed ordinance is submitted to the City Council for approval pursuant to § 3.2.6 of the Charter.

Douglas J. Friednash, City Attorney for the City and County of Denver

BY: _____, Assistant City Attorney DATE: April 18, 2013

AGREEMENT

THIS AGREEMENT, (Contract Number 201208363-00) made and entered into as of the date set forth on the City signature page, below, (the "Effective Date") by and between the **CITY AND COUNTY OF DENVER**, a municipal corporation of the State of Colorado, for and on behalf of the Department of Aviation (hereinafter referred to as the "City"), Party of the First Part, and **URS CORPORATION,** a Nevada corporation authorized to do business in the State of Colorado, (the "Consultant"), Party of the Second Part;

W I T N E S S E T H:

WHEREAS, the City owns, operates and maintains Denver International Airport, (hereinafter referred to as "DIA," or the "Airport"); and

WHEREAS, the City desires to obtain professional electronics and communication engineering and related support services for the design and management of various projects relating to the electronics and communication systems at DIA; and

WHEREAS, the Consultant has submitted a proposal and is qualified and ready, willing and able to perform the services on an "on-site and on-call" basis as set forth in this Agreement;

NOW, THEREFORE, for and in consideration of the premises and other good and valuable consideration, the parties hereto agree as follows:

1. **LINE OF AUTHORITY:** The City's Manager of Aviation, his designee or successor in function (hereinafter referred to as the "Manager of Aviation" or the "Manager") authorizes all work performed under this Agreement. The Manager hereby delegates his authority over the work described herein to the Deputy Manager of Aviation/Information Technologies, hereinafter referred to as "Deputy Manager," as the Manager's authorized representative for the purpose of administering, coordinating and approving work performed by the Consultant under this Agreement. The Deputy Manager's authorized representative for day-to-day administration of the Consultant's services under this Agreement is the Project Manager. The Consultant shall submit its reports, memoranda, correspondence and submittals to the Project Manager. The Manager and the Deputy Manager may rescind or amend any such designation of representatives or delegation of authority and the Deputy Manager may from time to time designate a different individual to act as Project Manager, upon notice to the Consultant.

2. **PROFESSIONAL SERVICES:**

A. The Consultant will, after it receives a written Notice to Proceed from the Deputy Manager, furnish all of the technical, administrative, professional and other labor; all supplies and materials, equipment, printing, vehicles, local travel, office space and facilities, testing and analyses, calculations, and any other facilities or resources required to perform and complete the work included in each project which is assigned hereunder, all in accordance with the attached **Exhibit A**. This work is hereinafter referred to in this Agreement as the

"Consultant's Scope of Work."

B. The Consultant shall faithfully perform the work required under this Agreement in accordance with standards of care, skill, training, diligence and judgment provided by highly competent professionals who perform work of a similar nature to the work described in this Agreement.

3. COMPENSATION AND PAYMENT:

A. Fee: The City hereby agrees to pay the Consultant, and the Consultant agrees to accept as its sole compensation for its services rendered under this Agreement, an amount based on the hourly billing rates for the respective stated classifications as set forth in **Exhibit C.**

The fee for each project undertaken by the Consultant hereunder shall be determined in accordance with **Exhibits A, B** and **C** and shall be approved in advance by the Deputy Manager. Monthly progress payments shall be made to the Consultant based on monthly invoices submitted by the Consultant which have been audited and approved by the City.

B. Subconsultants; Reimbursable Expenses: The Consultant shall be reimbursed for services provided by its approved subconsultants. The Consultant may also be reimbursed, at cost, for its reasonable expenses necessarily incurred in connection with its services rendered hereunder. The Consultant shall obtain prior approval of its proposed reimbursable expenses for each project in accordance with **Exhibits A** and **B**. Reimbursable expenses shall be payable for the following items to be approved in advance by the Deputy Manager.

Item	Amount
Blue prints	At cost
Photocopies 8½ x 11	At cost
Photocopies 11 x 17	At cost
Sepias	At cost
6 ml Mylars	At cost
Presentation boards	At cost
Graphics printing	At cost
Photographic supplies (film)	At cost
Long distance telephone charges, fax charges, postage, courier delivery charges (when necessary)	At cost
Extraordinary expenses related to the Consultant's services which are approved in advance by the Deputy Manager	At cost

Mileage (paid in accordance with City fiscal rules)	$0.565
Travel costs	As described below

Travel costs, for travel outside the Denver Metropolitan Area approved by the Deputy Manager, shall be eligible for reimbursement as follows:

(1) All reimbursable travel shall have received prior written approval of the Deputy Manager or his authorized representative.

(2) Vehicle rental costs will be allowed only if it can be demonstrated that such rental costs afforded the most economical travel method available, taking into consideration the element of time. Use of such vehicle for personal travel shall not be included.

(3) No reimbursement shall be approved for air fare costs greater than the most economical rate available to the traveler at the time of his or her trip. Hourly billing rates for the traveler shall not be billed for any period of time for which the trip was extended for personal convenience.

(4) Meals for travelers shall not exceed the per diem amount as established for City and County of Denver employees at the time of travel.

(5) Sleeping accommodation costs shall be limited to a reasonable amount, taking into account costs of alternate accommodations in the location and other relevant factors.

(6) Personal expenses such as personal telephone expenses and nonbusiness entertainment shall not be included.

It is presumed that the Consultant's hourly fee includes all expenses other than those set forth above, and no other expenses shall be separately reimbursed hereunder.

C. Scheduling, Progress Reports and Invoices: Monthly payments shall be made to the Consultant based on monthly invoices submitted by the Consultant in accordance with the provisions of this Agreement, including the provisions of **Exhibit B** which invoices have been audited and approved by the City. Each such invoice shall bear the signature of an authorized officer of the Consultant certifying that the information set forth in the invoice is true and correct.

4. TERM: The term of this Agreement shall commence on the Effective Date and shall terminate thirty-six (36) months thereafter, unless earlier terminated in accordance with the Agreement. The term of this Agreement may be extended for two periods of one (1) year each, on the same terms and conditions, including pricing, by written notice from the Manager to the Consultant of an offer of such extension, which must be accepted by the countersignature of the

Consultant and returned to the Manager prior to the expiration of the original term. Notwithstanding any other extension of term under this paragraph 4, the term of this Agreement may be extended by the mutual agreement of the parties, confirmed by written notice from the City to the Consultant, to allow the completion of any work which has been commenced prior to the date upon which this Agreement otherwise would terminate. However, no extension of the Term shall increase the Maximum Contract Liability stated herein; such amount may be changed only by a duly executed written amendment to this Agreement.

5. MAXIMUM CONTRACT LIABILITY: Any other provision of this Agreement notwithstanding, in no event shall the City be liable for payment for services rendered and expenses incurred by the Consultant under the terms of this Agreement for any amount in excess of the sum of Ten Million Two Hundred Thousand Dollars and No Cents ($10,200,000.00), unless this Agreement is amended to increase such amount.

6. CONTRACT FUNDING:

All payments under this Agreement shall be paid from the "City and County of Denver Airport System Capital Improvement and Replacement Fund," "Capital Equipment Fund" and the "DIA Operating and Maintenance Fund" as encumbered at the time of execution of this Agreement by the City, and from no other funds or sources. The City is under no obligation to make payments from any other source.

7. COORDINATION AND LIAISON: The Consultant agrees that during the term of this Agreement it shall fully coordinate all services that it has been directed to proceed upon and shall make every reasonable effort to fully coordinate all such services as directed by the Deputy Manager with any City agency, or any person or firm under contract with the City doing work which affects the Consultant's work.

8. CITY REVIEW OF PROCEDURES: The Consultant agrees that, upon request of the Deputy Manager, at any time during the term of the Agreement or three years thereafter, it will make full disclosure to the City of the means, methods, and procedures used in performance of services hereunder.

9. DEFENSE & INDEMNIFICATION:

A. Consultant hereby agrees to defend, indemnify, and hold harmless City, its appointed and elected officials, agents and employees against all liabilities, claims, judgments, suits or demands for damages to persons or property arising out of, resulting from, or relating to the willful misconduct or negligent performance of work 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 Consultant 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.

B. Consultant'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. Consultant'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.

C. Consultant 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.

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

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

10. INSURANCE:

A. The Consultant shall obtain and keep in force during the entire term of this Agreement, insurance policies as described in the City's form of insurance certificate issued with the Request for Proposals for this contract. A copy of the certificate is attached to this Agreement as **Exhibit D** and incorporated herein. The certificate specifies the minimum insurance requirements the Consultant and any subconsultants must satisfy in order to perform work under this Agreement. The original of such certificate shall be executed before a notary by the authorized party as specified on the certificate.

B. Upon execution of this Agreement, the Consultant shall submit to the City a fully completed and executed original of the insurance certificate form, which specifies the issuing company or companies, policy numbers and policy periods for each required coverage. In addition to the completed and executed certificate, the Consultant shall submit a copy of a letter from each company issuing a policy identified on the certificate, confirming the authority of the broker or agent to bind the issuing company, and a valid receipt of payment of premium.

C. The City's acceptance of any submitted insurance certificate is subject to the approval of the City's Risk Management Administrator. All coverage requirements specified in the certificate shall be enforced unless waived or otherwise modified in writing by the City's Risk Management Administrator.

D. The Consultant shall comply with all conditions and requirements set forth in the insurance certificate for each required coverage during all periods in which coverage is in

effect.

E. Unless specifically excepted in writing by the City's Risk Management Administrator, the Consultant shall include all subconsultants performing services hereunder as insureds under each required policy or shall furnish a separate certificate (on the form certificate provided), with authorization letter(s) and receipts of payment of premium, for each subconsultant. All coverages for subconsultants shall be subject to all of the requirements set forth in the form certificate and the Consultant shall insure that each subconsultant complies with all of the coverage requirements.

F. If the City requires project specific professional liability coverage under "Optional Coverages" at Section F of the form certificate, the Consultant shall be compensated for the cost of this coverage as direct reimbursable expense for which no mark up will be allowed. Reimbursement shall be based upon the insurance broker or agent quote for such coverage submitted by the Consultant. The Consultant agrees to pass on to the City all savings or discounts on standard professional liability insurance premiums the Consultant or any subconsultant will receive as a result of the use of such coverage on the project. The Consultant's reimbursement for the cost of project specific professional liability coverage shall be reduced by the total amount of any discount or savings the Consultant or any subconsultants shall receive during the period the project specific coverage is in effect. The Consultant agrees to obtain and provide to the City all information necessary to determine the appropriate reimbursement reduction for premium discounts or savings for such coverage. In the event such coverage is purchased, subconsultants performing work hereunder shall not be required to maintain standard professional liability insurance covering their activities.

G. The parties hereto understand and agree that the City and County of Denver, its officers, officials and employees, are relying on, and do not waive or intend to waive by any provisions of this agreement, the monetary limitations or any other rights, immunities and protections provided by the Colorado Governmental Immunity Act, §§ 24-10-101 to 120, C.R.S., or otherwise available to the City and County of Denver, its officers, officials and employees.

11. NO AUTHORITY TO BIND CITY TO CONTRACTS: The Consultant has no authority to bind the City on any contractual matters. Final approval of all contractual matters which obligate the City must be by the City as required by Charter and ordinance.

12. ASSIGNMENT: The Consultant covenants and agrees that it will not assign or transfer its rights hereunder without first obtaining the written consent of the City's Manager of Aviation thereto. Any attempt by the Consultant to assign or transfer its rights hereunder without such prior written consent of the Manager shall, at the option of said Manager, automatically terminate this Agreement and all rights of the Consultant hereunder. Such consent may be granted or denied at the sole and absolute discretion of said Manager.

13. INSPECTION OF RECORDS:

A. In connection with any consulting services performed hereunder on items

of work toward which federal funds may be received under the Airport and Airway Improvement Act of 1982, as amended, the City and County of Denver, the Federal Aviation Administration, the Comptroller General of the United States and any other duly authorized representatives shall have access to any books, documents, papers and records of the consultants which are directly pertinent to a specific grant program for the purpose of making audit, examination, excerpts and transcriptions. The Consultant further agrees that such records will contain information concerning the hours and specific tasks performed along with the applicable federal project number.

B. The City shall also have the right to audit, examine and copy the Consultant's records which are related to work performed under this Agreement without regard to whether the work was paid for in whole or in part with federal funds or was otherwise related to a federal grant program.

14. INFORMATION FURNISHED BY CITY: The City will furnish to the Consultant available information concerning DIA and any such other matters that may be necessary or useful in connection with the work to be performed by the Consultant under this Contract. The Consultant shall be responsible for the verification of the information provided to the Consultant.

15. FEDERAL PROVISIONS: 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. The provisions of the attached Federal requirements are incorporated herein by reference.

16. STATUS OF CONSULTANT AS INDEPENDENT CONTRACTOR: It is understood and agreed by and between the parties hereto that the status of the Consultant shall be that of an independent contractor retained on a contractual basis to perform professional or technical services for limited periods of time as described in Section 9.1.2(C) of the Charter of the City, and it is not intended nor shall it be construed that the Consultant, its employees or subcontractors are employees or officers of the City under Chapter 18 of the Revised Municipal Code or for any purpose whatsoever.

17. TERMINATION:

A. The City has the right to terminate this Agreement without cause, on thirty (30) days written notice to the Consultant, and with cause on ten (10) days written notice to the Consultant. However, nothing herein shall be construed as giving the Consultant the right to perform services under this Agreement beyond the time when such services become unsatisfactory to the Manager.

B. If this Agreement is terminated by the Consultant, or if this Agreement is

terminated by the City for cause, the Consultant shall be compensated for, and such compensation shall be limited to, (1) the sum of the amounts contained in invoices which it has submitted and which have been approved by the City, (2) the reasonable value to the City of the work which the Consultant performed prior to the date of the termination notice, but which had not yet been approved for payment, and (3) the cost of any work which the Manager approves in writing which he determines is needed to accomplish an orderly termination of the work. If this Agreement is terminated for the convenience of the City and without the fault of the Consultant, the Consultant shall also be compensated for any reasonable costs it has actually incurred in performing services hereunder prior to the date of the termination.

C. If this Agreement is terminated, the City shall take possession of all materials, equipment, tools and facilities owned by the City which the Consultant is using by whatever method it deems expedient, and the Consultant shall deliver to the City all drafts or other documents it has completed or partially completed under this Agreement, together with all other items, materials and documents which have been paid for by the City, and these documents and materials shall be the property of the City.

D. Upon termination of this Agreement by the City, the Consultant shall have no claim of any kind whatsoever against the City by reason of such termination or by reason of any act incidental thereto, except for compensation for work satisfactorily performed as described herein.

E. The Consultant has the right to terminate this contract with cause by giving not less than thirty (30) days prior written notice to the City.

18. NOTICES: Notices concerning termination of this Agreement, notices of alleged or actual violations of the terms or conditions of this Agreement, and other notices of similar importance shall be made:

by Consultant to: Manager of Aviation
Denver International Airport
Airport Office Building, 9th Floor
8500 Peña Boulevard
Denver, Colorado 80249-6340

and by City to: URS Corporation
8181 East Tufts Avenue
Denver, CO 80237

19. NO WAIVER OF RIGHT: No assent, expressed or implied, to any breach of any one or more of the covenants, terms and provisions of this Agreement shall be deemed or taken to be by the City a waiver of any succeeding or other breach.

20. ADMINISTRATIVE HEARING: Disputes arising under or related to this Agreement or the work which is the subject of this Agreement shall be resolved by

administrative hearing which shall be conducted in accordance with the procedures set forth in Section 5-17, Revised Municipal Code of the City and County of Denver. The parties hereto agree that the Manager's determination resulting from said administrative hearing shall be final, subject only to the Consultant's right to appeal the determination under Colorado Rule of Civil Procedure, Rule 106.

21. BOND ORDINANCES; GOVERNING LAW; VENUE: This Agreement shall be deemed to have been made in, and construed in accordance with the laws of, the State of Colorado and the Charter and Ordinances of the City and County of Denver. This Agreement is in all respects subject and subordinate to any and all City bond ordinances applicable to the Denver Municipal Airport System and to any other bond ordinances which amend, supplement, or replace such bond ordinances. Venue for any action hereunder shall be in the City and County of Denver, State of Colorado.

22. NO DISCRIMINATION IN EMPLOYMENT: In connection with the performance of work under this Agreement, the Consultant agrees not to refuse to hire, discharge, promote or demote, or to discriminate in matters of compensation, terms, conditions or privileges of employment against any person otherwise qualified, solely because of race, color, religion, national origin, gender, age, military status, sexual orientation, marital status, or physical or mental disability; and the Consultant further agrees to insert the foregoing provision in all subcontracts hereunder.

23. PERSONNEL ASSIGNMENTS:

A. All key professional personnel identified in the Consultant's proposal will be assigned by the Consultant or subconsultants to perform work under this Agreement. The Consultant shall submit to the Deputy Manager a list of any additional key professional personnel who will perform work under this Agreement within thirty days after this Agreement has been executed, together with complete resumes and other information describing their ability to perform the tasks assigned. Such additional personnel must be approved in writing by the Deputy Manager. It is the intent of the parties hereto that all key professional personnel be engaged to perform their specialty for all such services required by this Agreement and that the Consultant's and the subconsultant's key professional personnel be retained for the life of this Agreement to the extent practicable and to the extent that such services maximize the quality of work performed hereunder.

B. If the Consultant decides to replace any of its key professional personnel, it shall notify the Deputy Manager in writing of the changes it desires to make. No such replacement shall be made until the replacement is approved in writing by the Deputy Manager, which approval shall not be unreasonably withheld. The Deputy Manager shall respond to the Consultant's written notice regarding replacement of key professional personnel within fifteen days after the Deputy Manager receives the list of key professional personnel which the Consultant desires to replace. If the Deputy Manager or his designated representative does not respond within that time, the listed personnel shall be deemed to be approved.

C. If, during the term of this Agreement, the Deputy Manager determines that the performance of approved key personnel is not acceptable, he shall notify the Consultant, and he may give the Consultant notice of the period of time which the Deputy Manager considers reasonable to correct such performance. If the Deputy Manager notifies the Consultant that certain of its key personnel should be reassigned, the Consultant will use its best efforts to obtain adequate substitute personnel within ten days from the date of the Deputy Manager's notice.

D. While the Consultant may retain and contract with subconsultants, no final agreement with any such subconsultant shall be entered into without the prior written consent of the Manager. Requests for such approval must be made in writing and include a description of the nature and extent of the services to be provided by the subconsultant, the name, address, the professional experience and qualifications of the subconsultant and any other information which may be requested by the Manager. Approval of the subconsultant shall not relieve the Consultant of any obligations under this Agreement. Any final agreement with the approved subconsultant must contain a valid and binding provision whereby the subconsultant waives any and all rights to make a claim of payment against any City property arising out of the performance of the agreement.

E. Because the Consultant's represented professional qualifications are a consideration to the City in entering into this Agreement, the Manager shall have the right to reject any proposed subconsultant deemed unqualified or unsuitable for any reason to perform the proposed services, and the Manager shall have the right to limit the number of subconsultants.

F. The Consultant shall not retain any subconsultant to perform work under this Agreement if the Consultant is aware, after a reasonable written inquiry has been made, that it is connected with the sale or promotion of equipment or material which is or may be used on work related to or following on from this Agreement, or that any other conflict of interest exists.

24. NON DISCRIMINATION IN THE AWARD OF CITY CONTRACTS: It is the policy of the City and County of Denver to prohibit discrimination in the award of design contracts and subcontracts for public improvements. Further, the City and County of Denver encourages design consultants to utilize minority and women owned businesses and to divide the design services work into economically feasible units or segments to allow the most opportunity for subcontracting.

25. CONFLICT OF INTEREST: The Consultant agrees that it will not engage in any transaction, activity or conduct which would result in a conflict of interest under this Agreement. The Consultant 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 Consultant by placing the Consultant's own interests, or the interest of any party with whom the Consultant has a contractual arrangement, in conflict with those of the City. The City, in its sole discretion, shall determine the existence of a conflict of interest and may terminate this Agreement in the event such a conflict exists after it has given the Consultant written notice which describes the conflict. The Consultant shall have

thirty days after the notice is received to eliminate or cure the conflict of interest in a manner which is acceptable to the City.

26. TAXES AND COSTS: The Consultant shall promptly pay, when due, all taxes, bills, debts and obligations it incurs performing work under this Agreement and shall allow no lien, mortgage, judgment or execution to be filed against land, facilities or improvements owned by the City.

27. COMPLIANCE WITH ALL LAWS AND REGULATIONS: All of the work performed under this Agreement by the Consultant shall comply with all applicable laws, rules, regulations and codes of the United States and the State of Colorado and with the charter, ordinances, and rules and regulations of the City and County of Denver.

28. SEVERABILITY: In the event any of the provisions, or applications thereof, of this Agreement are held to be unenforceable or invalid by any court of competent jurisdiction, the validity and enforceability of the remaining provisions, or applications thereof, shall not be affected.

29. NO THIRD PARTY BENEFICIARIES: The enforcement of the terms and conditions of this Agreement and all rights of action relating to such enforcement, shall be strictly reserved to the City and the Consultant, and nothing contained in this Agreement shall give or allow any such claim or right of action by any other or third person on such Agreement. It is the express intention of the City and the Consultant that subconsultants and any other person other than the City or the Consultant receiving any benefits from this Agreement shall be deemed to be incidental beneficiaries only.

30. ADVERTISING AND PUBLIC DISCLOSURES: The Consultant shall not include any reference to this Contract or to work performed hereunder in any of its advertising or public relations materials without first obtaining the written approval of the Manager, which will not be unreasonably withheld. Any oral presentation or written materials related to Denver International Airport shall include only presentation materials, work product, designs, renderings and technical data which have been accepted by the City. The Manager shall be notified in advance of the date and time of any such presentations. Nothing herein, however, shall preclude the transmittal of any information to officials of the City, including without limitation, the Mayor, the Manager of Aviation, member or members of City Council, or the Auditor.

31. 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.

32. HEADINGS: The heading contained in this Agreement are for reference purposes only and shall not in any way affect the meaning or interpretation of this Agreement.

33. CONTRACT DOCUMENTS; ORDER OF PRECEDENCE: This agreement consists of Articles 1 through 36 which precede the signature page, and the following

attachments which are incorporated herein and made a part hereof by reference:

Exhibit A	Scope of Services
Exhibit B	Scheduling, Progress Reporting and Invoicing
Exhibit C	Consultant's Proposal
Exhibit D	City Insurance Certificate
Appendix No. 1	Standard Federal Assurances
Appendix No. 3	Nondiscrimination in Airport Employment Opportunities
Appendix C	Certification for Contracts, Grants, Loans and Cooperative Agreements

In the event of (i) an irreconcilable conflict between a provision of Articles 1 through 36 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:

Appendices No. 1, 3 and C
Articles 1 through 36 hereof
Exhibit A
Exhibit D
Exhibit B
Exhibit C

34. ENTIRE AGREEMENT: The parties acknowledge and agree that the provisions contained herein constitute the entire agreement and that all representations made by any officer, agent or employee of the respective parties unless included herein are null and void and of no effect. No alterations, amendments, changes or modifications to this Agreement, except those which are expressly reserved herein to the Manager, shall be valid unless they are contained in an instrument which is executed by all the parties with the same formality as this Agreement.

35. ELECTRONIC SIGNATURES AND ELECTRONIC RECORDS: Consultant consents to the use of electronic signatures by the City. The 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 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.

36. CITY EXECUTION OF AGREEMENT: This Agreement is expressly subject to, and shall not become effective or binding on the City, until it is fully executed by all signatories of the City and County of Denver.

[END OF PAGE]

Contract Control Number: PLANE-201208363-00

Contractor Name: URS CORPORATION

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:

DOUGLAS J. FRIEDNASH, Attorney
for the City and County of Denver

REGISTERED AND COUNTERSIGNED:

By_____

By_____

By_____

Contract Control Number: PLANE-201208363-00

Contractor Name: URS CORPORATION

By: Stephen E Eldridge

Name: STEPHEN E. ELDRIDGE
(please print)

Title: Vice President 3-13-2013
(please print)

ATTEST: [if required]

By: Jennifer A Hanson

Name: Jennifer A Hanson 3/13/13
(please print)

Title: Notary Public
(please print)

APPENDIX NO. 1

STANDARD FEDERAL ASSURANCES

NOTE: As used below the term "contractor" shall mean and include the "Party of the Second Part," and the term "sponsor" shall mean the "City".

During the term 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 shall comply with the Regulations relative to nondiscrimination in federally assisted programs of the Department of Transportation (hereinafter "DOT") Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.

2. Nondiscrimination. The contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, sex, creed or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor shall not participate either directly or indirectly in the discrimination prohibited by section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.

3. Solicitations for Subcontractors, 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 shall be notified by the contractor of the contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.

4. Information and Reports. The contractor shall provide all information and reports required by the Regulations or directives issued pursuant thereto and shall 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 (FAA) to be pertinent to ascertain compliance with such Regulations, orders, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information, the contractor shall so certify to the sponsor of the FAA, as appropriate, and shall set forth what efforts it has made to obtain the information.

5. Sanctions for Noncompliance. In the event of the contractor's noncompliance with the nondiscrimination provisions of this contract, the sponsor shall impose such contract sanctions as it or the FAA may determine to be appropriate, including, but not limited to:

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

b. Cancellation, termination, or suspension of the contract, in whole or in part.

6. Incorporation of Provisions. The contractor shall include the provisions of paragraphs 1 through 5 in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations or directives issued pursuant thereto. The contractor shall take such action with respect to any subcontract or procurement as the sponsor or the FAA may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the contractor may request the sponsor to enter into such litigation to protect the interests of the sponsor and, in addition, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

APPENDIX NO. 3

NONDISCRIMINATION IN AIRPORT EMPLOYMENT OPPORTUNITIES

The Party of the Second Part assures that it will comply with pertinent statutes, Executive Orders and such rules as are promulgated to assure that no person shall, on the grounds of race, creed, color, national origin, sex, age, or handicap be excluded from participating in any activity conducted with or benefiting from Federal assistance. This Provision obligates the Party of the Second Part or its transferee for the period during which Federal assistance is extended to the airport program, except where Federal assistance is to provide or is in the form of personal property or real property or an interest therein or structures or improvements thereon. In these cases, this Provision obligates the Party of the Second Part or any transferee for the longer of the following periods: (a) the period during which the property is used by the sponsor or any transferee for a purpose for which Federal assistance is extended, or for another purpose involving the provision of similar services or benefits; or (b) the period during which the airport sponsor or any transferee retains ownership or possession of the property. In the case of contractors, this Provision binds the contractors from the bid solicitation period through the completion of the contract.

It is unlawful for airport operators and their lessees, tenants, concessionaires and contractors to discriminate against any person because of race, color, national origin, sex, creed, or handicap in public services and employment opportunities.

APPENDIX C

Certification for Contracts, Grants, Loans and Cooperative Agreements

The Contractor certifies by execution of this Agreement to the best of its knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the Contractor to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any federal contract, grant loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the Contractor shall complete and submit Standard Form-LLL, "Disclosure of Lobby Activities," in accordance with its instructions.

(3) The Contractor shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this transaction is a prerequisite for making or entering to this transaction imposed by Section 1352 , Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

ON-CALL ELECTRONIC AND COMMUNICATION SYSTEMS SUPPORT SERVICES

EXHIBIT A

SCOPE OF WORK

CONTRACT NUMBER 201208363

1. Introduction

The On-Call Electronic and Communications System Support Services Consultant, hereby referred to as Consultant, as required by the Deputy Manager, will provide Professional Engineering Services to perform formal and incidental design, software support, project management, and other engineering assignments for projects related to electronics, IT and Telecommunication systems at Denver International Airport.

2. Description of the Project

The professional services support required under this scope of work shall include the provisioning of qualified engineering staff to perform design, project management, and software support for new and ongoing projects in the area of electronics, IT and Telecommunication systems at Denver International Airport. This work will require a combination of full-time support staff located at the airport and specialty staff that is available for specific task-based activities.

3. SCOPE OF WORK

3.1 General

3.1.1 The Consultant will be required to provide staff, both on-site and on an on-demand basis to address various elements of work. The on-demand nature of the contract will allow DIA to staff up or staff down depending upon the needs of the project and workload at hand. On-site staff shall be utilized for formal and incidental design work, project management for specific communication projects, and as augmentation to DIA's Telecommunication Group staff. Office and limited support facilities will be provided by DIA for full-time, on-site Consultant staff. Telephony, office computers, access to standard office and DIA applications, file shares, and printing facilities are included in the limited support facilities for Consultants designated as on-site staff. On-demand staff is expected to have little to no support facilities located at DIA and may be required to perform work in an off-site capacity with exceptions such as required visits to DIA in order to complete the nature of work tied to a specific Task Order.

3.1.2 Consultant staff utilized for some Task Order work may be located off site. Work on these projects may be designed and managed from the Consultant's own local office with trips to DIA for meetings, field investigations, inspections and other activities relative to the task-based project.

3.1.3 The Consultant for this work will be required to design, modify and coordinate all inside plant, outside plant, and facility improvements to support all airport voice, data, and network services. This work shall include all type of cabling and services needed to support each of the systems listed below. The City shall retain ownership and rights to all work product produced by the Consultant under this Agreement. This is not an all-inclusive list and the Consultant may be required to work with other new or existing systems at DIA.

3.1.4 DIA Electronic Systems

Access Control and Badging	Meteorological Instrumentation
Automatic Vehicle Identification	Microwave Radio Networks
Broadcast Origination	Outside Plant Design
Building and Perimeter Security	PABX Telephone
Building Management	PATV
Cable Television	Parking and Revenue Control
Clock and Timing	Pay Telephones
Closed Circuit Television	Public Address
Common Use Terminal Equipment	Radio Paging Systems
Communications Centers	Radio Frequency Coordination
Courtesy Telephones	Radio Frequency Distribution Network
Differential GPS	Satellite Communications
Doppler Weather Radar	Software Development
Duress Alarms	SONET / DSCS Networks
Fire Alarm and Detection	System Control and Data Acquisition
Flight Information Display and Dynamic Signage	Systems Integration
Garage Count/Dynamic Signage	Taxi Staging
Inside Plant Design	Telephone Crash & Briefing Networks
Local, Metropolitan and Wide Area Networks	Travelers Information Radio
Logging Recorders	Trunked Radio
	Vehicle Tracking

3.2 SPECIFIC ELEMENTS OF WORK

3.2.1 Budget and Planning

3.2.1.1 The Consultant shall assist in the DIA budget and planning process as it relates to the implementation, maintenance, expansion or replacement of electronics, IT and Telecommunication systems. This assistance shall include identification of projects, preparation of budgetary estimates, and prioritization of projects, project planning documents and participation in planning and budget meetings.

3.2.2 Definition of Project Requirements

3.2.2.1 The Consultant shall assist DIA staff in the definition of requirements for electronics, IT and Telecommunication projects, whether stand-alone or as part of a larger project. The Consultant shall be required to formalize these requirements into scope of work documents for implementation by internal airport staff or include these requirements in design criteria for larger projects to be designed and executed by others.

3.2.2.2 The Consultant shall monitor these requirements through completion, reporting to DIA management on progress and issues. The Consultant shall maintain a database

of action items, responsible parties and originators of requirements as a vehicle for monitoring and reporting progress. The Consultant will be required to follow the standard project delivery methodology employed by the Technologies Division Project Management Office (PMO) and track and report on status accordingly. Use of tools and project management software within the DIA PMO methodology may constitute as a suitable substitute to maintaining a separate database of action items.

3.2.3. Incidental Design

3.2.3.1 The Consultant shall perform incidental design work as requested by DIA management. This work shall include field investigation, production of drawings, procurement documents and other materials, which may be required. Work may also include generation of design documents, updating of standards, and system documentation.

3.2.3.2 Incidental design work is generally produced for execution by internal DIA maintenance or contract staff, for inter-department design coordination or record-keeping purposes. Occasionally this work will require the involvement of a Colorado Registered Professional Engineer when required for permitting purposes.

3.2.4. Task Order Work

3.2.4.1 Certain design projects will be assigned to the Consultant on a Task Order basis. These task orders will require the Consultant to perform a well-defined scope of work which may involve field investigation, analysis, design, production of contract documents, bidding and negotiation support and construction administration. Task orders generally address a well-defined scope of work with well-defined deliverables and outcome. The Consultant will be given a finite time and a maximum fee for performing work under each task order.

3.2.5. Project Management

3.2.5.1 The airport generally has one or more large scale design / construction projects in progress at any time. These projects involve teams of architects, engineers and other designers with varying degrees of familiarity with DIA and its special systems and requirements.

3.2.5.2 The Consultant shall coordinate with third party designers on large multi-discipline projects to ensure that:

1. DIA departmental and end user requirements are incorporated into the third party designer's work.
2. The systems designed by the third party Consultant are in compliance with DIA design guidelines and technical requirements.
3. The systems designed for the project correctly interface with existing portions of the DIA network and correctly utilize common infrastructure elements such as the DIA Premise Wiring and Communications System.

3.2.5.3 The Consultant shall review the third party designer's work prior to bid to ensure that the design fully complies with the items in 3.2.5.2 above.

3.2.5.4 The Consultant shall, if requested, participate in any value engineering or cost reduction exercises to ensure that changes to the design do not adversely affect the ability of DIA to effectively operate or maintain the systems in question.

3.2.5.5 The Consultant shall, if requested, manage the implementation of any project as assigned by the Deputy Manager, or his representative.

3.2.5.6 The Consultant shall participate in project meetings, design sessions and other activities where systems issues are discussed or as assigned by DIA to represent the best interests of DIA and to coordinate various technology aspects of the project.

3.2.5.7 The Consultant shall act on behalf of DIA in all system testing, commissioning and acceptance activities.

3.2.6. Staff Augmentation

3.2.6.1 When requested, the Consultant shall serve as a functional extension of DIA staff. These activities may include participation in internal electronic systems design and planning sessions, project management, contract administration, estimation, scope builds, systems, drawings and technical documentation, management meetings, contract dispute resolution, or any other activity where the DIA requires the Consultant's services.

3.2.6.2 The Consultant shall also provide specially assigned staff for specific purposes as directed by DIA Management. This type of assignment may include such specialty areas as data systems administrator, 24-hour on-call system support or applications development support.

3.2.6.3 The staff augmentation requirement for this scope of work is intentionally broad, allowing DIA management to direct the Consultant's activities to meet the changing needs of the airport. In addition to electronic, IT and Telecommunications engineers, this contract is broad in that it allows for the on-call Consultant to bring other required skills to the contract pending the nature of the project work when it makes sense to bundle the task order. Due to the day to day workload, it is required that "on-site" employees perform their work week on the DIA campus job site. Off-site employees will be required to come on-site as required to complete work related to the Task Order issued.

3.2.6.4 Consultant staff working at DIA shall be required to follow specific work flow practices like other City employees. Examples include but are not limited to project management discipline following DIA specific project delivery methodology and use of tools such as SharePoint or MS Project for reporting on project status and production of reports and task management, or use of work flow ticketing systems like Service Desk Express.

3.2.6.5 The following tables represent the anticipated mix of on-site versus off-site job titles and responsibilities. DIA management will manage the mix of staff on an as needed basis between the two. Generally, the on-site designated employees are considered as staff augmentation and off-site employees are on-demand tied to a specific Task Order and unique statement of work. On-site employees can also be tied to specific Task Orders as well.

Table 3.1

On-Site Job Title	Off-Site Job Title
Program Manager / Sr. Project Manager	Program Manager / Sr. Project Manager
Technology Practice Leader	Sr. Airport Planner/Consultant
Sr. Airport Planner/Consultant	QA / QC Manager
Sr. Systems Specialist	Project Manager
Project Manager	Sr. Electrical Engineer
Communications System Designer	Sr. Communications Designer
Network Security Engineer	Sr. Systems Specialist
Network Engineer	Communications System Designer
Telecommunications Administrator	Systems Specialist
Senior Contract Administrator	Sr. Architect
Contract Administrator	Architectural Designer
CADD Technician	Sr. Mechanical Engineer
Administrative Assistant	Mechanical Designer
	Electrical Engineer
	Cost Estimator
	Scheduler
	CAD / FTP Manager
	CAD Technician
	CAD Drafter
	Project Assistant
	Word Processing

3.2.6.6 The Consultant will provide resumes of all prospective employees whether performance is in a role of staff augmentation or Task Order work prior to work start. DIA Management reserves the right to review all resumes for appropriate experience and conduct interviews prior to bringing prospective employees onto the DIA staff.

4. AVAILABLE DOCUMENTS

The Deputy Manager or representative may make available items described herein to the Consultant as needed and available.

- Drawings and maps of Project Areas
- Design or "Record Drawings" of Project Area
- Reproducible "Background" drawings

The Consultant may be required to update documentation as part of the scope of individual project efforts.

5. PROGRESS REPORTS / TREND ANALYSIS

The Consultant shall prepare a report each month at months end (i.e. the "Monthly Report"), or more frequently if directed by the City, which provides all information outlined in Exhibit B of this Agreement.

6. SPECIFIC CONSULTANT QUALIFICATIONS REQUIRED

In addition to design proficiency with the systems identified in 3.1.4, the Consultant shall have a minimum of 3 years demonstrated experience in a large scale airport campus in the following areas:

- Local area network: Design and master planning; experience in IP addressing and routing master plans, multicast architectures, familiarity with all major routing protocols, switching architectures and ancillary services such as DSL, Wireless LAN and point-to-point wireless networks. System planning and implementation of Gigabit Ethernet Architecture including physical, protocol, and addressing components.

- In planning and design of airport inside / outside plant communications systems cabling and pathways including conduit systems, duct banks, and cable tray as well as cable placement, splicing and terminate of fiber optic and copper transmission media in accordance with regulated telephone company practices, and national practices such as TIA/EIA published Standers including 568B, 569B, 606B, and 607A. Use of current AutoCad or DIA CAD software to maintain system as-builts and assist in construction projects.

- Consultant shall have Cisco Certified Design Professional (CCDP) certification or equivalent in non-certified training; shall have certification as a Registered Communications Distribution Designer (RCDD) in commercial systems designs; shall be a BICSI Registered LAN specialist or equivalent.

- In planning and implementing large scale airport security systems for Federal Aviation Regulation (FAR) 107 compliance; in planning and implementing large scale airport campus Closed Circuit TV (CCTV); in planning and implementing large scale airport electrical, radio, visual display and communications systems.

- In Broadband television design experience in large airport campus cable television environments using optical head-end equipment, single mode plant inside/outside plant distribution and traditional RF distribution design to end users.

- In large scale access control and CCTV networks including digital video storage and retrieval, with both centralized switching and distributed IP cameras with centralized Storage Area Network (SAN) storage.

- In the design of 49CFR 1542 complaint access control systems and be fully familiar with the requirements of RTCA/DO-230A Standards for Airport Security Access Control Systems, and the TSA guidance documents regarding Biometrics for Airport Access Control. Contractor shall address possible applicability and implementation of Transportation Security Administration (TSA) future requirements for airport

access control systems, perimeter security, and vehicle gate security/inspection technologies to future airport security systems design.

- In design of large scale public address and sound reinforcement systems including test and measurement of speech intelligibility, coverage modeling and noise sensing. Innovative Electronics Design (IED) systems certifications are advantageous.

- In highly reflective acoustic environments and interfaces into life safety systems in airport facilities. A working knowledge of Speech Transmission Index (STI) ratings and Common Intelligibility Scale (CIS) required.

- In design and implementation of electronic, IT, and Telecommunications systems that also integrate with Life Safety and Fire Alarm systems. Experience in interpretation and incorporation of NFPA and NEC code requirements into system designs.

- In airport master planning for electronic systems; in design of large scale airport electronic system projects; in budgeting, cost estimating and construction management of large airport campus electronic systems improvement projects.

End of Exhibit A

ON-CALL ELECTRONIC AND COMMUNICATION SYSTEMS SUPPORT SERVICES

EXHIBIT B

SCHEDULING, PROGRESS REPORTING AND INVOICING

CONTRACT NUMBER 201208363

1. Introduction

This Exhibit B describes the On-call Electronic and Communication Systems Support Services Consultant's (hereby referred to as Consultant) obligations to prepare and submit work proposals, project schedules, and progress reports, control its budget and submit invoices. The Consultant shall prepare invoices that are based on its progress toward completing the Consultant's Task Order or project. In the "payment for progress" concept described herein, the Consultant schedules the work and identifies the resources (costs and man-hours) that will be required to complete each Task Order. The Consultant then measures monthly progress and prepares invoices on the basis of percentage completion for each project, task or billing point using the selected progress payment measurement alternative. Progress payment measurement alternatives that the Consultant may propose for written approval for each project are described in paragraph 4 below.

The Consultant may be paid on its progress toward completing each task on its project(s) schedule. Submittal of time sheets may be required concurrent with the submittal of each invoice. In addition, the City reserves the right to require weekly submission of time sheets for staff designated as "on-site" staff to City management.

Time sheet and expense records shall be maintained by the Consultant for all work performed under the Agreement. Time sheets shall be organized and tracked separately for each project or Task Order in separate sets of files, maintained in three ring binder(s) by the Consultant. If one time sheet or expense record identifies work on multiple projects, a copy of the document must be included in each file for each project. Expense records for items such as printing shall not contain multiple project expenses. All time sheets and expenses shall be coded in black indicating the specific DIA code for each Task Order authorization and the phase or work task. The City and the Federal Aviation Administration (FAA) shall have the right to examine and audit these files during regular business hours.

The City project delivery process attempts to follow Project Management Body of Knowledge (PMBOK) best practices. The City reserves the right for on-site Consultant staff to be required to follow the Technologies Division Project Management Office policies and procedures regarding project management. Participation in this methodology and practice for on-site staff may waive the reporting requirements surrounding project schedules documented in this exhibit as agreed to by the City Contract Officer Technical Representative (COTR) assigned to this contract and Consultant.

2. Work Proposals

Not later than 7 days after receiving a request for work proposal, the Consultant shall submit Work Proposals to the designated City COTR. The Work Proposal shall include the following:

2.1 Scope. The Consultant shall prepare a narrative that describes the tasks to be performed and complete the work in compliance with the Agreement. The scope shall call out specific deliverables that the consultant is responsible for delivering in the performance of duties related to the project. The scope shall also highlight work by others and items considered to be out of scope for this project.

2.2 Fee Estimate. The Consultant shall prepare a matrix indicating the proposed fees for each task within the project scope, deliverables, and identification or reimbursable sub-consultant fees and expenses. The fee estimate matrix shall call out Consultant resources by job title, name, hourly rate, and hours by task. Total cost for each task and resource shall be indicated and rolled up to a total fee estimate, including total fee for each sub consultant participant, contingency, and percentage of the entire proposal.

2.3 Project Schedule. The Consultant shall prepare and submit an initial project schedule, in time-scaled bar chart format, to include all of the tasks that the Consultant must perform to complete the Consultant's Scope of Work as defined in each Task Order authorization. It shall also identify activities or actions that must be performed by the City and third parties which would affect the Consultant's work. The schedule shall identify estimated completion dates or durations for tasks and submittals and all applicable milestones shown in the Scope of each project, including anticipated duration of procurement, bidding, construction, and record documents. The project schedule for each project shall be updated at minimum on a weekly basis and submitted with the Monthly Progress Report. If a project schedule cannot be submitted at time of work proposal due to interdependencies with other agencies, the COTR and Consultant will clarify this reporting requirement on a per-project basis. Estimation of duration of each task by the Consultant may suffice as enough detail at the time of initial proposal submittal as determined by the COTR.

2.4 Authorization. The City will provide comments to the Consultant within 7 days after the Work Proposal is submitted. The Consultant shall revise the Work Proposal as directed by the COTR and shall resubmit the proposal within seven days for Authorization. The Consultant may not begin work prior to written authorization of the Work Proposal or prior to receiving any official specific Task Order. Work done prior to receipt of an approved Task Order is at risk of no payment.

3. Project Schedules

3.1 Consultants in a program or project management role shall prepare a summary schedule (Project Schedule) in time-scaled bar chart format indicating the status of each task for all projects under project management control by the Consultant. The bar chart shall indicate the schedule of each task and shall identify the actual progress versus the planned progress by task. Internal and external resources shall be managed and reported upon as part of the project delivery methodology.

3.2 The Consultant will be required to track actual hours by Consultant employees on all tasks in a cumulative fashion. For the purpose of aiding the City in its evaluation of the Consultant's progress, the Consultant shall also show its estimate of the Consultant man-hours that will be required to complete a task shown on the schedule.

3.3 Two-Week Schedule. Immediately following the Notice to Proceed on a Task Order or project and throughout the project, the Consultant shall submit to the COTR a rolling two-week, look-ahead schedule by every other Friday for the upcoming two-weeks' work. The schedule shall be time-scaled in bar chart format, and shall include all tasks identified in the Final Work Schedule for each project.

3.4 Participation in the Project Management Office resource allocation processes, project status reporting, and project delivery methodology may substitute for reporting requirements regarding project status reporting for on-site staff as negotiated between parties.

4. Progress Payment Measurement Alternatives

The Consultant may propose for approval one of the following measurement alternatives for each Task Order or project for the purpose of calculating progress payments and reporting schedule status to the COTR. Level of Effort shall be considered the default method unless the Consultant submits to the COTR for review and approval a worksheet describing the proposed measurement alternative for each Task Order or project. The Consultant shall use the alternative as approved by the COTR.

4.1 Submittal Status. Progress payments will be made after the submittals described in each authorized scope of work have been delivered and approved by the COTR or City Project Manager. A portion of the fee will be allocated to each submittal.

4.2 In-Progress Status. Progress payments will be based on the percentage of drawings, specifications, reports or other documents that have been prepared, submitted, and reviewed or completed. This alternative is acceptable for tasks that have a long duration and several months may elapse between submittal dates. The Consultant shall prepare a detailed Worksheet for each task showing a schedule of proposed billing points and the number of drawings, specifications, reports and reviews that establish each point.

4.3 Completion. Payments will be made for completed tasks whose total duration is less than one month. A finish credit of 95% of the portion of the fee allocated to a task will be given when a task has been completed and approved by the COTR.

4.4 Level of Effort. Progress payments will be based on the actual number of man-hours utilized to perform the task. The Consultant shall use the above alternatives to the maximum extent possible to measure activities such as progress for management, administration, and quality control, but in situations where such tasks do not fit within the first three alternatives, the "Level of Effort" alternative will be used. This alternative may also be used for construction phase services.

Note: Approval by the City of submittals does not waive any obligation by the Consultant to provide complete work that has been authorized. Authorized payments on previous invoicing may be reduced on subsequent invoicing in the event work submitted is found to be in non-compliance with scope requirements.

5. Invoices and Progress Payments

5.1 The Consultant shall provide the City COTR a sample invoice format for COTR review and approval no later than 14 days after the Notice to Proceed. This format will identify the measurement alternatives that will be used to measure progress for each Task Order/project and each task within each project. Each project shall be measured per discipline (including reimbursable costs) and per design phase. Three printed copies of each invoice shall be submitted.

5.2 The Consultant shall invoice the City by the 10th of each month for its achieved progress on each Task Order/project during the previous month based on the method of measurement alternative selected for each Task Order/project. The worksheets that the Consultant uses to calculate progress for each task must be included with each copy of the invoice. (The COTR must provide written

approval of the format for these worksheets before they may be used.) One original and two copies shall be submitted each month. One copy shall be submitted directly to the COTR. The original and one copy shall be submitted to DIA Technical Services.

5.3 The Consultant shall submit with each invoice signed Partial Lien Release forms from each sub consultant which states the amount of payment received for services performed during the prior billing period.

5.4 Payment for invoices received after the 10th of each month may be delayed. Accordingly, timely submission of invoices is encouraged.

5.5 Five percent of the total amount of each invoice shall be withheld from each progress payment. The amount withheld shall be paid to the Consultant after the Consultant completion of all submittals required by each project, submittals and deliverables per scope have been approved, and the Consultant has provided all lien releases for that project.

5.6 The COTR will review all invoices and in the event the COTR disagrees with the invoiced progress, he/she will notify the Consultant. The Consultant and COTR will meet by the 25th of the month to discuss the reason for the disagreement if one exists and whether a portion of the payment for the task should be deferred. The Deputy Manager shall have the authority in his/her sole and absolute discretion to withhold portions of any progress payment request if he/she determines that the progress claimed for any task in the invoice has not been achieved.

5.7 In accordance with requirements set forth in this Agreement, the Consultant must have provided the City with the following documentation before any payments will be made to the Consultant:

- Certificate of Insurance
- Sub-consultant agreement(s)
- Final organizational chart
- Authorization forms and resumes for any key professional personnel assignments that are not already approved in this Agreement
- Certifications of SBE and DBE sub-consultants with date of expiration noted
- Name and title for authorized signatures

One copy shall be submitted directly to the COTR. The original and one copy shall be submitted to DIA Business Management Services (formerly Technical Services).

6. Monthly Progress Report Development

6.1 The Consultant shall submit a copy of the Monthly Progress Report with its invoice to the COTR. The report shall be in letter size format. This report shall contain the following sections:

Summary

- Executive Summary
- Work Schedule
- Cost Status
- Cash Flow Requirements
  - ❖ Manpower and Task Completion Variance Analysis, Achieved vs. Planned, and any planned or proposed schedule or budget revisions or other remedial actions
- Subcontract and Affirmative Action Goals Status

Status of Each Project

- Drawing/Documents Schedule and Status
- Project Schedule and task Status
- Task Activities Planned for Next Month
- Monthly Task Activity and Accomplishments
  - ❖ Identification and Analysis of any scheduling, budget, scope, or other problem areas

6.2 The exact format and detail level required for the Monthly Progress Report will be established jointly by the COTR and the Consultant within 14 days after Notice to Proceed based on a proposed format prepared by the Consultant. The report shall describe task completion status in terms of original plan, actual, forecast of time to complete tasks, and any expected task budget or schedule completion variances.

6.3 The Consultant shall be available, when requested, to meet with City representatives to discuss the current Monthly Progress Report.

6.4 The Consultant may be required by the City to participate in Project Management Office project delivery methodology and reporting procedures which may be in addition to Monthly Progress Reporting of project status or may substitute as agreed to by the COTR and Consultant. Monthly invoice documents are required to have supporting documentation that show how the invoice amount was calculated in conjunction with the progress payment alternatives documented in this exhibit.

7. Schedule Changes and Increases in Project Amount

Any requests for schedule changes or increases in a Task Order or project amount shall be submitted to the City in writing and shall include an explanation and justification for the proposed schedule change or increases in a

project amount. All schedule changes or increases in the project shall be approved in advance and in writing by the City.

8. Correspondence Control

The Consultant may not correspond with construction contractors or subcontractors or suppliers without prior approval by the COTR for each correspondence. The Consultant shall provide, at the request of the COTR, copies of all correspondence related to its work under the Agreement. At times, the Consultant may participate in project meetings and represent Technologies Division interests at the meeting via explanation of current standards and procedures used. The Consultant shall defer any requests for process exemption or standards exception to the appropriate City subject matter expert and ruling authority.

Within 7 days of Notice to Proceed, the Consultant shall submit to the COTR its proposed method of correspondence control, which it shall immediately institute upon receipt of written approval from the COTR.

9. Concept of Overhead

Overhead costs are the general and continuing costs involved in operating a business. Indirect costs are any costs not directly identified with a single, final cost objective of the contract. Commonly, overhead costs include overhead on direct labor costs and general and administrative expenses. Department of Aviation policy is to allow overhead costs in the following manner:

- OFFICE PROVISIONS: Utilities, communications systems, rent, depreciation allowances, furniture, fixed equipment, etc.
- SUPPLIES, EQUIPMIENT AND VEHICLES: For office, drafting, engineering copying, postage, freight, surveying vehicles, computer drafting and graphics, computers, software, etc.
- MAINTENANCE AND REPAIR: On office equipment, survey and testing equipment, buildings, vehicles, etc.
- INSURANCE: Professional liability, errors and omissions liability, vehicles, facilities, etc.
- TAXES: Personal property, local, state, federal real estate, etc.
- MARKETING FEES AND PUBLICATIONS: Proposal preparation and printing, licenses, dues, subscriptions, advertising, trade shows, IT support, etc.

- ADMINISTRATIVE AND CLERICAL OFFICE STAFF: All administrative, clerical and management support staff not normally billable.

- OTHER INDIRECT COSTS: Training, technical seminars, library, financial and legal costs, employment fees, advertising, etc.

Overhead costs shall not be authorized unless specifically called out on fee schedules that accompany work order proposals. In addition, travel, lodging costs, per-diem costs related to specific employees, and task order efforts will not be authorized without prior approval.

NON-ALLOWABLE OVERHEAD: Bonuses, social functions, contributions and donations, bad debts, distribution of profits, etc.

10. Summary of Contract Project Control Requirements

PRIOR TO FIRST INVOICE - SUBMITTALS REQUIRED:

a.) Certificate of insurance, sub consultant agreement(s), final organizational chart, resumes and authorization forms for key personnel assignments. SBE/DBE certification with date of expiration noted. Audited Overhead rate calculation.
b.) Name and title of authorized signatures.

WITHIN 7 DAYS AFTER NOTICE TO PROCEED – SUBMITTALS REQUIRED:

a.) Correspondence control methods and progress report format
b.) Invoice and progress payment format
c.) Work schedule and task list formatting

WITHIN 10 DAYS AFTER NOTICE TO PROCEED – SUBMITTALS REQUIRED:

a.) The Consultant shall meet with the COTR for a pre work meeting.
b.) The Consultant shall submit its proposed Monthly Progress Report format.

WEEKLY SUBMITTAL:

a.) The Consultant shall submit a weekly report indicating a two-week look-ahead schedule of activities for each authorized project.

MONTHLY SUBMITTALS:

a.) The Consultant shall submit the Monthly Progress Report.
b.) The Consultant shall submit invoicing by the 10th of each month.

WITHIN 7 DAYS AFTER SCOPE PROPOSAL REQUEST – SUBMITTALS REQUIRED:

a.) Summary Fee proposal
b.) Scope document and deliverables (list of submittals or deliverables, drawings and specification release schedules)
c.) Fee Estimate: detailed cost estimate per task and per sub-consultant
d.) Work schedule per task and resource and overall project schedule estimate

End of Exhibit B

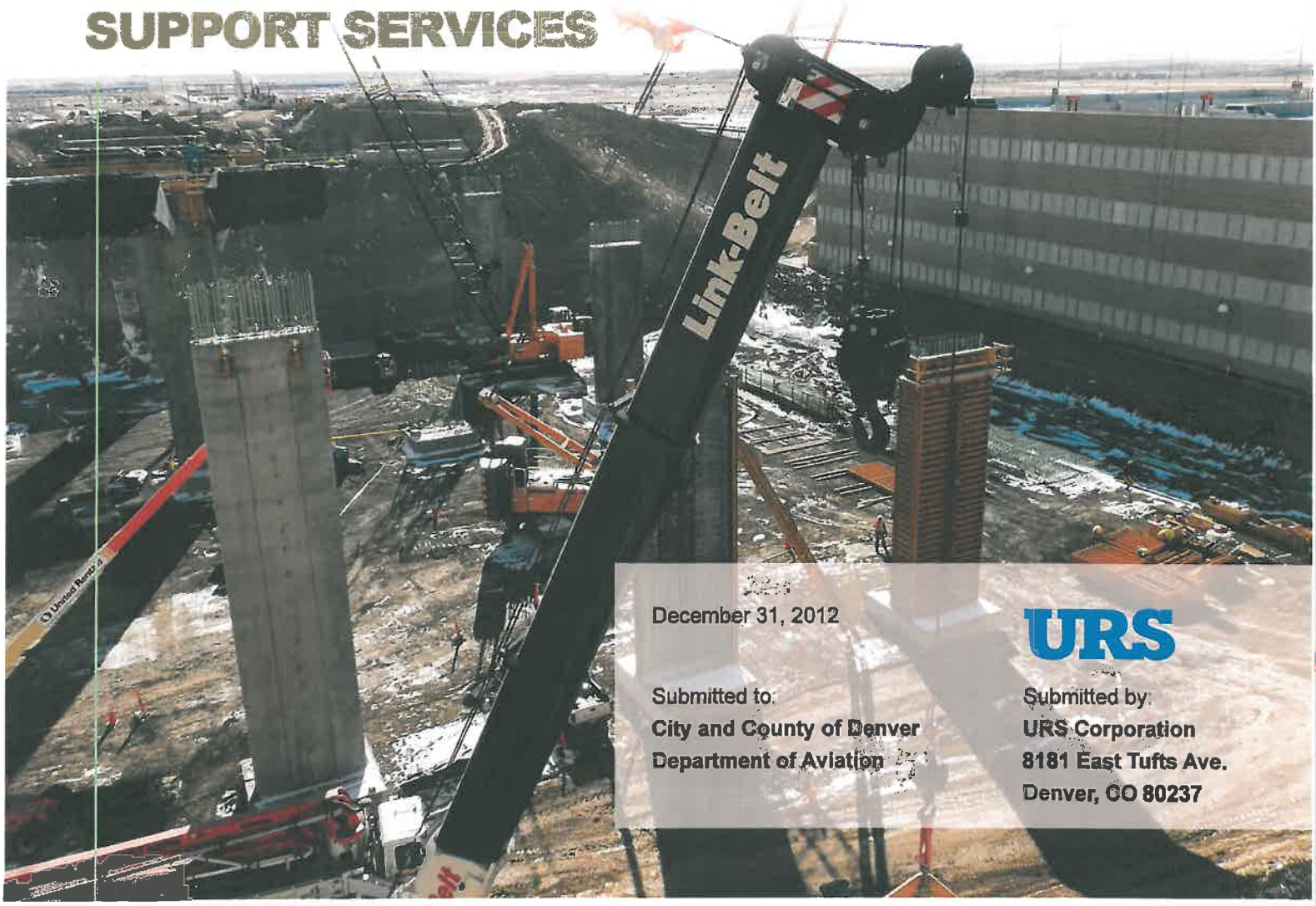
EXHIBIT C

DENVER
THE MILE HIGH CITY

NO. 201208363

ON CALL

ELECTRONIC AND COMMUNICATION SYSTEMS SUPPORT SERVICES



December 31, 2012

Submitted to:
City and County of Denver
Department of Aviation

URS

Submitted by:
URS Corporation
8181 East Tufts Ave.
Denver, CO 80237

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Cover Letter

URS

December 31, 2012

Hyde Archuleta
Business Management Services
Airport Office Building, Room 8810
Denver International Airport
8500 Pena Blvd.
Denver, CO 80249-6340

Subject: Proposal for No. 201208363 On Call Electronic and Communication Systems Support Services

After thorough review of Request for Proposal (RFP) 201208363, the URS Team which consists of URS Corporation (URS), and WBE/DBE teammates Servitech Inc. (Servitech) and Triunity Engineering & Management, Inc. (Triunity), and team member Long View Systems (Long View), is pleased to submit the following RFP response to the City and County of Denver (CCD) for the On Call Electronics and Communication Systems Support Services (On Call RFP) for Denver International Airport (DIA). In the execution of the work, Servitech, Triunity and Long View will be subconsultants to URS.

The URS Team commits to the CCD and DIA that proposed key on-site and on-demand personnel will be committed to perform the required services for the duration of the contract. URS commits that MBE/DBE participation levels of 27.5 percent will be maintained through the services period. This percentage exceeds the RFP requirement of 20 percent.

As witnessed in our continued involvement and our recent history of delivering quality and cost effective services to the CCD and DIA, URS and the URS Team members bring unmatched familiarity with DIA and its technical systems environment for the continued success of DIA. DIA is our "Home Town Airport". We are confident that you will find the information contained in this proposal response to be complete, comprehensive and formatted as requested.

On-Site Services: DIA will realize several benefits in selecting the URS Team for this important assignment. The more important benefits include:

- An unmatched understanding of DIA, its technical systems, facilities, staff and processes.
- A proven and successful track record in fulfilling the current On-Call Electronics and Communication Systems Support Services project requirements.
- No learning curve or down time with the URS Team. Key staff members are in place today at DIA efficiently performing the duties required of the current On-Call Electronics and Communication Systems Support Services project.
- Broad service offering competencies include core IT, infrastructure and electronic systems technology, multidisciplinary engineering, architectural and network capabilities.
- We are ready to start; badged, insured and mobile with natural gas vehicles on site.

On-Demand Services: URS is a large company with substantial resources with a highly skilled Aviation Systems Group (ASG) and multidisciplinary facilities capabilities in Denver. There is no job or discipline that we can not support quickly and efficiently.

DIA Processes and Procedures: The entire URS Team is fully integrated with DIA processes and procedures from the Capital Improvement Program (CIP) Planning process through to the Project Management Office (PMO) and the Project Lifecycle delivery process. Our team requires no learning curve ramp up time. URS is fluent in the IT Information Library (ITIL) environment and fully understands the systems delivery and IT Service Management (ITSM) objectives of DIA Technologies. Between our personnel, our comprehensive understanding of DIA and its processes and procedures, the URS Team is

URS Corporation
8181 E. Tufts Ave.
Denver, CO 80237
Phone: 303.740.2770
Fax: 303.694.3946

truly the best turn-key solution provider for the On Call Electronic and Communications Support Services contract.

Continuity: One of the most exciting and innovative projects to come along since the original opening of DIA, the South Terminal Redevelopment Program (STRP), is well underway. The URS Team is excited to be a part of this important program. By selecting the URS Team, DIA will be the benefactor of technological continuity for all of its systems at this critical time when schedules must be maintained. The URS Team's history at DIA is unparalleled and this continued relationship translates into a winning scenario for the future DIA.

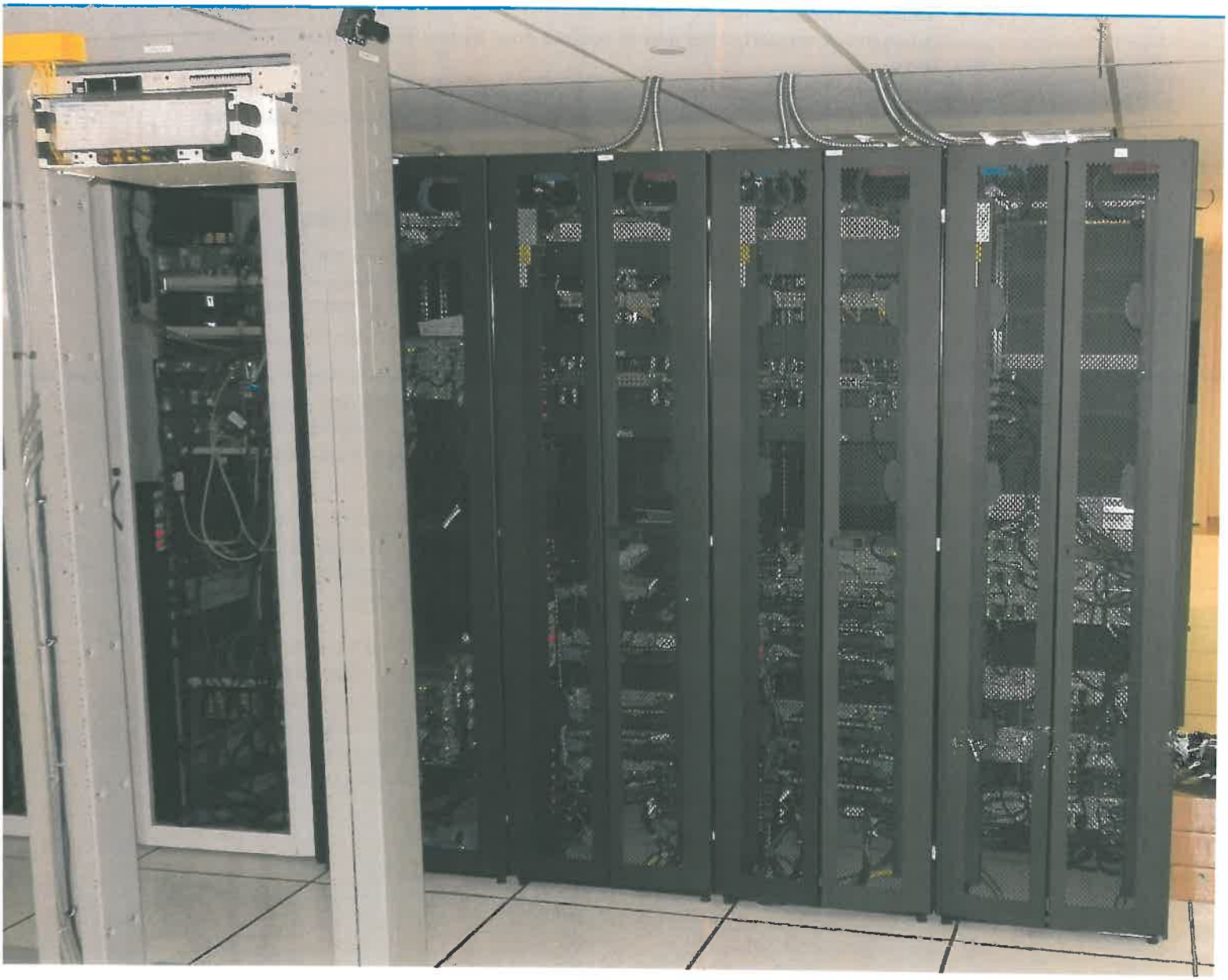
We look forward to continuing our successful relationship with DIA and our work as the current On-Call Electronic and Communications Systems Support Services Contract consultant.

Sincerely,

URS Corporation

Steve Eldridge
Vice President

Section 1 -
Introduction and Project Team



Section 1 – Introduction and Project Team

1.1. Project Team

The URS Team which consists of URS Corporation (URS) as the prime, and Women Business Enterprise/Minority Business Enterprise (WBE/MBE) team members Servitech Inc. (Servitech) and Triunity Engineering & Management, Inc. (Triunity) and team member Long View Systems (Long View), is pleased to submit the following response to RFP 201208363 – On Call Electronic and Communications Systems Support Services at Denver International Airport. Our response is organized into seven sections to meet the requirements identified in the On Call RFP:

- Cover letter
- Section 1 – Introduction and Project Team
- Section 2 – General Questions. This section contains responses to the general questions 1 through 7 in Attachment 1, Instructions to Proposers.
- Section 3 – Project Understanding and Approach. This section addresses in detail the URS Team's understanding of the Scope of Work contained in Exhibit A.
- Section 4 – Project Profiles. The profiles demonstrate the URS Team's current related experience in support of the work to be performed as part of the Exhibit A - Scope of Work.
- Section 5 – Resumes of Proposed On-Site and On-Demand Staff
- Section 6 – Required Forms. These include disclosure of legal and administrative proceedings, financial information, and City required forms.
- Section 7 – Cost Proposal

1.2. Minority Business Enterprise and Women Business Enterprises MBE/WBE

The URS Team acknowledges Addendum 1 and fully supports 20% MBE and WBE requirements of the On Call RFP. To meet those requirements, URS has entered into agreements with two outstanding firms. These Denver-based, certified firms include long term WBE partner Servitech who is part of the current On-Call Electronic and Communications Systems Support Services Contract and MBE partner Triunity Engineering.

Servitech is a full-service electrical contractor with a long history at DIA. With the increasing prevalence of Power over Ethernet (PoE) devices and larger network switches, many of the jobs require power. We regularly use Servitech to meter panels, track down circuits and perform other electrical investigative work.

Electrical drawings at DIA are generally produced by electrical designers on a project-by-project basis. It is often difficult or impossible to determine existing electrical conditions as areas of the terminal and concourses have been modified by numerous different projects. It is also often impossible to determine what each project added and what they took out.

Servitech serves as a valuable resource in determining as-built existing conditions as a precursor to a new design. They have the staff, tools, lifts and other equipment necessary to give us a clear picture of what existing conditions are. A good example of this was survey work performed in conjunction with the recent ASDE-X project. In their capacity as a URS Team member, Servitech will continue to work closely with the DIA IT Department providing specialized network services and supporting the team's administrative project management requirements.

They are part of the URS Team as on–site staff for the following reasons:

- Extensive knowledge of DIA specialty and communications systems including DIA's local area networks, IT environment, CCTV and access control systems and electrical systems.
- Comprehensive understanding of DIA's administrative requirements.
- Ability to recruit top candidates in support of DIA project needs.
- Positive feedback from DIA regarding their past performance.
- Successful track record working with URS staff on the current DIA on-call contract.
- Certification as WBE and ongoing relationship with DIA and the CCD.

Contact Information
Servitech, Inc.
Monika Stenger, President
9158 East Tufts Place
Greenwood Village, CO 80111
303.342.2745
<Hyperlink to Servitech Certificates>

Triunity is new to the URS Team and brings exceptional capabilities, documented successes and a significant knowledge of the South Terminal Redevelopment Program (STRP) and specifically the RTD/DTP Specialty Electronic Systems environment. Their role on the URS Team is to provide detailed design and construction inspection and administration support in the execution and delivery of on-demand design assignments specifically in the areas of closed circuit television, premise wiring and communications and IT systems. In addition to design capabilities, Triunity also provides the URS Team with another avenue to recruit specialized technical staff as they are identified by DIA for specific task orders over the term of the contract.

Contact Information
Triunity Engineering & Management, Inc.
Jonnie L. Thomas, P.E., Chief Executive Officer
2444 Washington Street, Suite 300
Denver, CO 80205
303.953.0320
<Hyperlink to Truinity Certificates>

MBE/WBE Participation Goals. URS commits to the following participation levels for MBE/WBE partners:

Servitech **15%**

Triunity **12.5%**

Total Participation **27.5%**

1.3. Subconsultant

Long View: The URS Team is looking to Long View to provide expertise and detailed support to the network discipline. Long View will assist with some of the more esoteric network configuration issues including data center virtualization, implementation of dense wavelength division multiplexing, network quality of service (QOS) and other network issues. As on-call

consultants, URS is tasked with various network and non-network related projects which are largely undefined at the outset of our contract

Contact Information
Long View Systems
Kris Spindler
555 17th Street, Suite 1600
Denver, CO. 80202
303.729.2200

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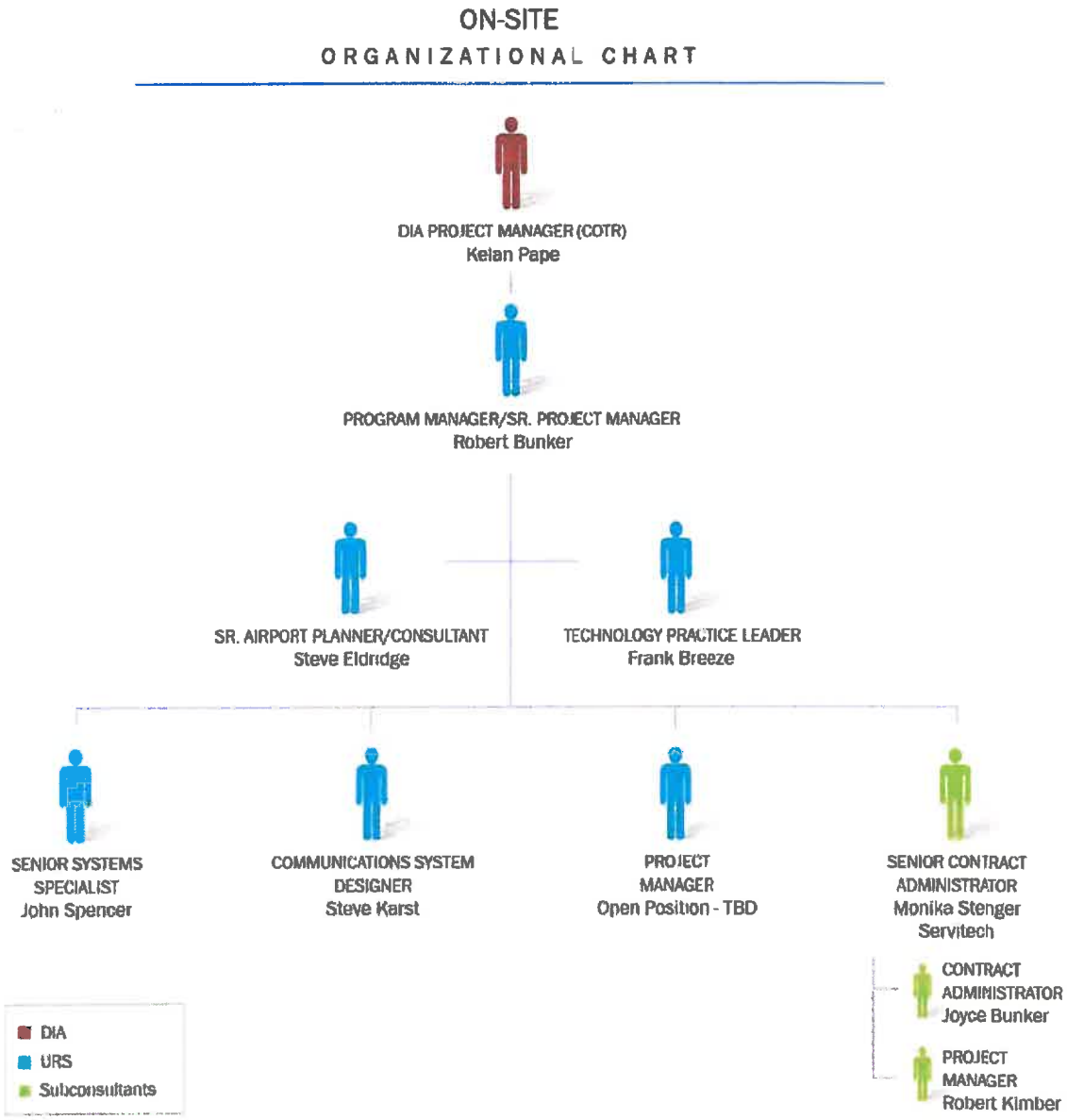
1.4. The URS Team – On-Site Organizational Chart



Robert Bunker: Mr. Bunker will serve as the URS Team's Program Manager for both the on-site (staff augmentation) and on-demand (task order) based work. He will be responsible for day-to-day staff management and performance of the URS Team. Mr. Bunker will also serve as a design, construction and implementation Senior Project Manager for projects in direct support of DIA Telecommunications and IT initiatives. He will be based at DIA with 100% availability on this contract.

Frank Breeze: Mr. Breeze will serve as the Technology Practice Leader, working closely with the Telecommunications, IT, Maintenance, and Engineering groups. He will to be based at DIA with 50% of his time committed to the project.

John Spencer: Mr. Spencer will continue as Senior Systems Specialist. He will be responsible for the development of detailed systems designs and specifications and all aspects of project management in support of his design activities. Mr. Spencer will be 100% available for the project.

Steve Karst: Mr. Karst will continue as Communications System Designer, focusing on infrastructure design packages including ongoing maintenance of the DIA telecommunications as-built drawings. He will be based at DIA with 100% availability.

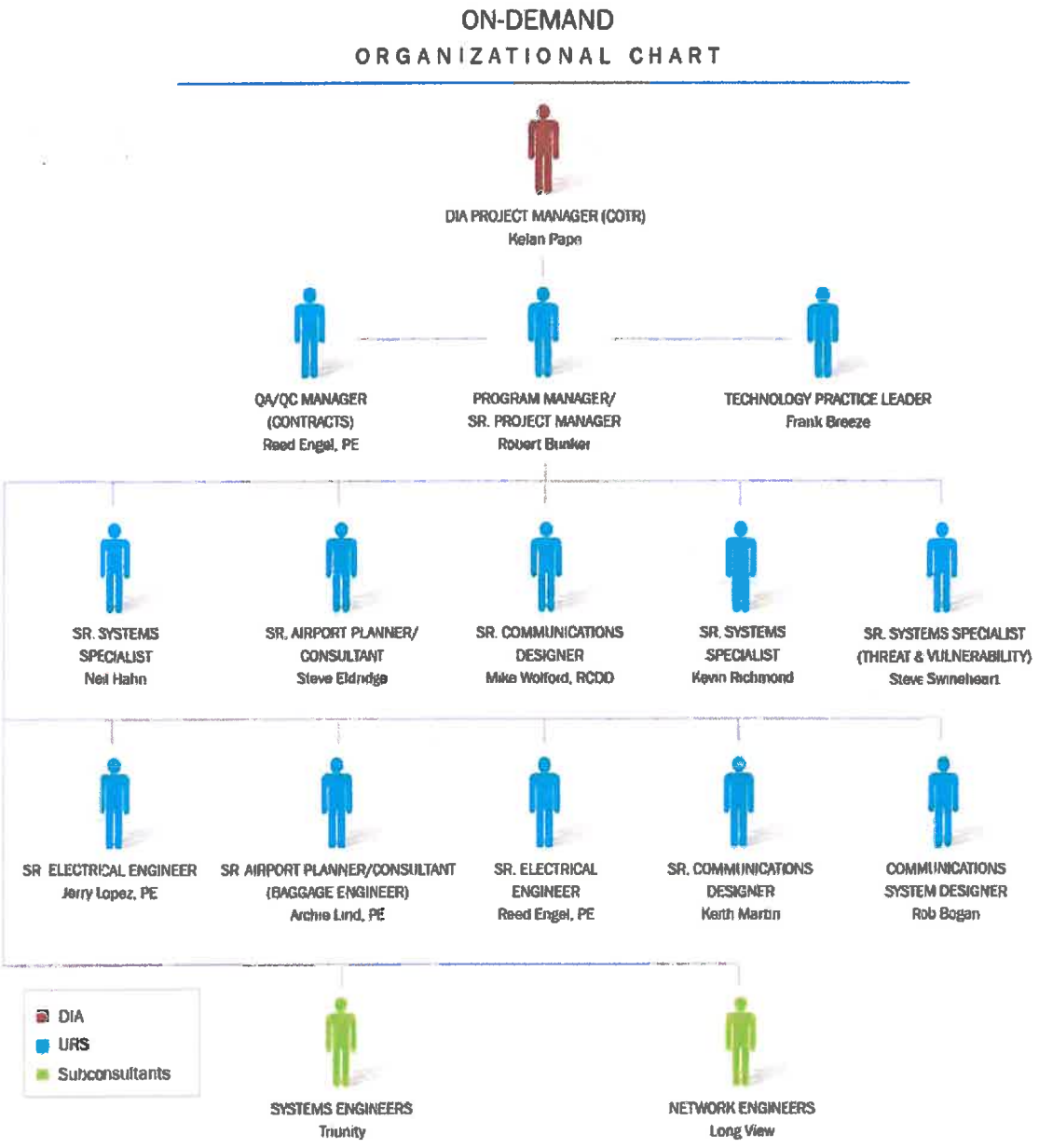
Steve Eldridge: Mr. Eldridge will serve as a Senior Airport Planner/Consultant and his focus will be directed in the areas of high level project management and program definition requirements. He will work out of the URS Denver Tech Center office and be available 20% of the time.

Monika Stenger: Ms. Stenger will continue as Senior Contract Administrator and be available approximately 10% of the time to perform project setup and various administrative activities.

Joyce Bunker: Ms. Bunker will serve as Senior Contract Administrator and continue assisting URS Team project managers and designers with administrative support in accordance with City and County of Denver Document Control Program. She will be based at DIA and 100% available.

Robert Kimber: Mr. Kimber will continue as Project Manager and will coordinate electrical, wireless, telecomm, CCTV and access control projects for DIA. He will also provide design support and field research for designers and supervise electrical contractors. Mr. Kimber will be available 20% of the time.

1.5. The URS Team – On-Demand



Steve Eldridge: Mr. Eldridge will serve as Senior Airport Planner/Consultant on task order based services. He brings more than 26 years of experience in the areas of specialty electronic systems design and project management expertise to the program. Mr. Eldridge has extensive experience with the electronic and telecommunications systems and facilities at DIA.

Reed Engel, PE: Mr. Engel will serve as the QA/QC Manager URS and provide support as Senior Electrical Engineer for incidental electrical and special systems design tasks.

Mike Wolford, RCDD; As a registered RCDD, Mr. Wolford's primary contribution will be in the areas of Premise Wiring and Communications Systems Design (PWCS) specifically pertaining to the BISCI Standards which define accepted fiber optic and copper, infrastructure, communications room and grounding practices and requirements. As a Senior Communications Designer, He will also be tasked with participating in incidental design and QA/QC of large PWCS designs.

Neil Hahn: Mr. Hahn will serve as Senior Systems Specialist. He has extensive experience with the audio and video systems at DIA and will provide designs as required to expand and upgrade the audio and video systems to accommodate facility renovations and additions.

Kevin Richmond: Mr. Richmond will provide project management and design skills in support of the security systems as Senior Systems Specialist.

Jerry Lopez, PE: Mr. Lopez's role as Senior Electrical Engineer will be to provide detailed electrical and control systems designs and conduct Independent Technical Reviews (ITR) utilizing his extensive knowledge of DIA standards and requirements.

Archie Lind, PE: Mr. Lind brings substantial airport planning and design capabilities to the project team as Senior Airport Planner/Consultant/Baggage Engineer. His expertise encompasses aircraft support systems including loading bridges, 400 Hz power, and PC air; baggage conveyance; and fueling systems.

Steve Swinehart: In the role of Senior Systems Specialist, Mr. Swinehart is the URS Team's expert in the development of threat and vulnerability evaluations and security systems design.

Keith Martin: Mr. Martin will support the team's scheduling requirements with his expertise in the use of multiple project scheduling packages and perform electronic system designs as Senior Communications Designer.

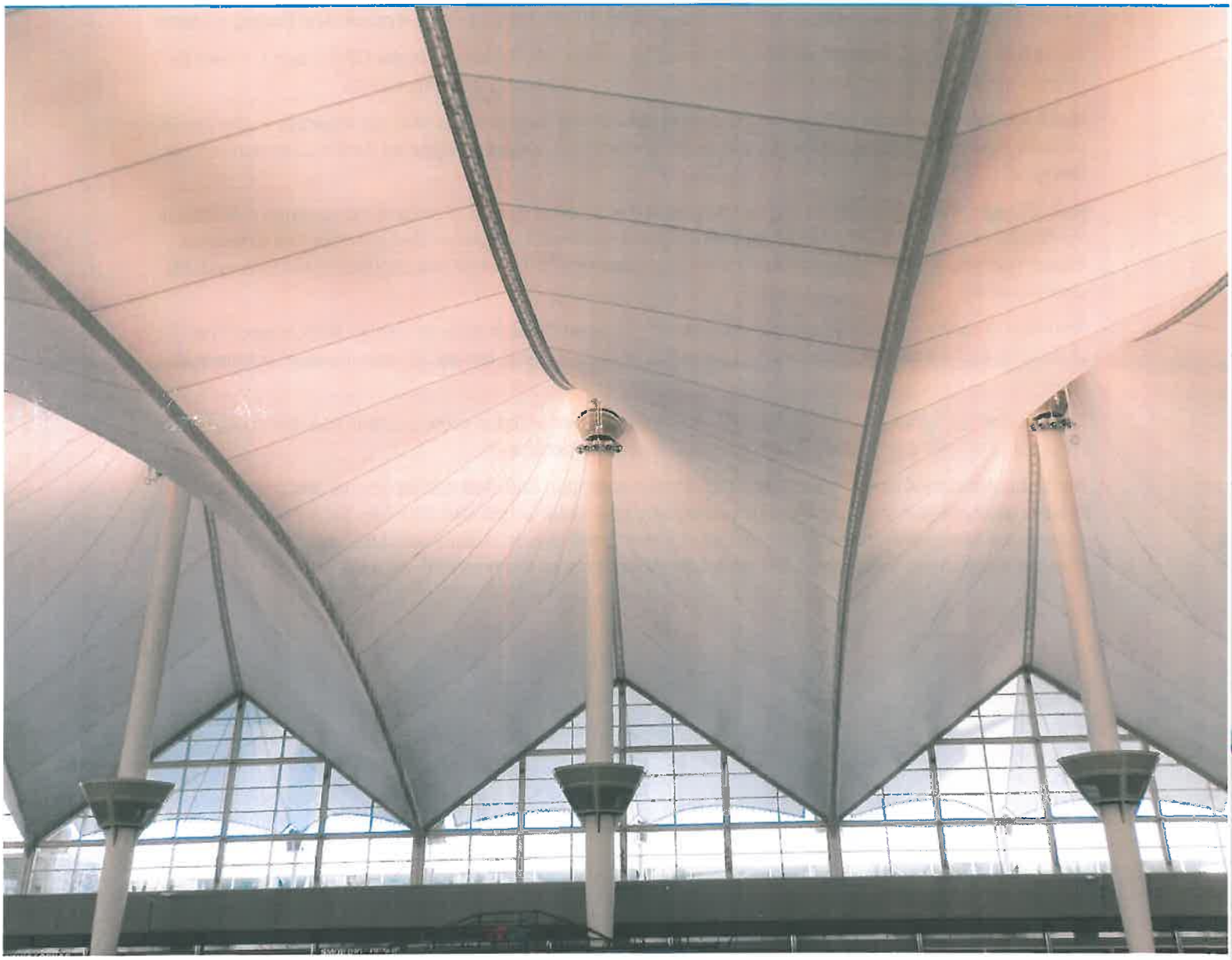
Rob Bogan: Mr. Bogan has strong capabilities in the detailed design of most of the systems identified in the Scope of Work and will provide support as a Communications System Designer. He has extensive experience in the STRP program and is intimately familiar with DIA facilities and their electronic systems environment.

Triunity: Triunity will provide systems engineering support through detailed design and construction inspection and administrative support in the areas of closed circuit television, and communications and IT systems.

Long View: Long View brings to the URS Team capabilities with the more esoteric network configuration issues and will provide CCNP, CCNA and CCDA certified personnel.

Multi-disciplinary Capabilities: The URS Denver operation has over 400 personnel and the multi-disciplinary expertise to accommodate virtually any task order scope DIA may require. URS has the capabilities to complete tasks from civil and environmental to architectural and MEP disciplines. All of these disciplines are available to DIA on a task order basis as required and are local.

Section 2 -
General Questions



Section 2 – General Questions

It is the intent of this section to provide direct responses to Attachment 1, Instructions to Proposers – Part 1: General Questions and specifically questions 1 – 7 in response to the the On Call RFP. In responding to the questions, the URS Team provides detailed responses immediately following the requirement. However, additional substantive and collaborating information will be found in other areas of the On Call RFP response. In addition to our responses to the Part 1 General Questions, we also respond directly to Exhibit A – Scope of Work (SOW) in Section 3 Project Understanding and Approach of this response.

Question 1 - Define your company's core business.

URS' core business is **multidisciplinary engineering**. As part of the company's significant engineering resources, the Denver-based Aviation Systems Group (ASG) provides extensive expertise in the programming, planning, detailed design, project management and construction phase administrative management, inspection, and testing and commissioning services for the suite of typical Airport technical systems. These in-house capabilities include expertise with all of the technical systems listed in Exhibit A, Scope of Work, Section 3.1.4 DIA Electronic Systems, in addition to the deployed hardware and software configurations of those systems as currently implemented and operational at DIA.

We refer reviewers to Section 4 - Project Profiles where further documentation in support of these capabilities in the aviation environment is demonstrated. Specific airports highlighted include Denver, Anchorage, Raleigh Durham, Tampa and Los Angeles International Airports.
<Hyperlink to DIA Project Profile>

Question 2 – What is your experience in the marketplace? Specifically call out other Aviation Engagements.

The ASG's experience in the aviation marketplace spans 24 years. They have worked at and provided specialty electronic, IT, communications, network and infrastructure design and support services at many of the largest domestic and international airports. This includes DIA where they currently provide on-site and on-demand staff supporting a variety of planning, managerial and technical design assignments and services in support of the current On-Call Electronic and Communications Support Services assignment. The current core staff we propose to service this assignment have over 110 years of collective experience. We are intimately familiar with the DIA electronic and communications systems in place; their operational requirements and needs; and fully understand DIA planning, budget and processes and procedures.

Over the last five to 10 years, the URS ASG has successfully completed Aviation Engagements of similar size, scope and complexity at several Airports including:

Major Projects – Past Five Years:

- Denver International Airport – On-Call Electronic and Communications Support Services, Design, Contract Administration (CA) and Project Management (PM) (see Section 4 – Project Profiles)
- Baltimore Washington International Airport – Communications, IT and Infrastructure Systems Design
- Anchorage International Airport – Technology Systems Planning and Design/Security Systems Replacement Designs (see Section 4 – Project Profiles)

- Reagan National (Washington, DC) International Airport – Communications, IT and Infrastructure Systems Design
- Tampa International Airport – Multiple Command and Control Facilities and Airport Infrastructure and Network Systems Design (see Section 4 – Project Profiles)
- Raleigh Durham International Airport – Detailed Design, IT, Infrastructure and Electronic Systems Designs for the new Terminal C and CBP Facilities (see Section 4 – Project Profiles)
- Los Angeles International Airport – New Bradley International Terminal, Detailed Design for Electronic, IT and Infrastructure, FAA, TSA and CBP Systems (see Section 4 – Project Profiles)
- Orlando International Airport – Electronic Systems Design
- Tucson International Airport – New Command and Control Facilities Design
- Phnom Penh International Airport, Cambodia – Technology Systems Planning and Programming

Major Projects – Past Five to 10 Years

- Seattle Tacoma International Airport – Design and Program Management for all CIP Technology and Security Systems Designs and Command and Control Facilities
- Indianapolis International Airport (Original Airport) – Technology, Infrastructure and Security Systems Master Planning and Design, Command and Control and Threat and Vulnerability Assessment
- Reno-Tahoe International Airport – Design of Command and Control Facilities, IP Closed Circuit Television and Incident Command Vehicle
- San Jose International Airport (New Terminal Building) – Design of IT, Infrastructure, all Security Systems and Voice Paging and Life Safety Systems
- Detroit Metropolitan Wayne County Airport - Northwest Airlines New Midfield Terminal (New Terminal Building) – Design Project Management, IT, Infrastructure, Electronic and Network Technical Systems
- Oakland International Airport (Terminal Renovation) – Communications and Electronic Systems detailed design

Due to the 40 page constraint to this response, we are not able to provide detailed information for all of the projects identified above. However, please refer to Section 4 – Project Profiles for detailed information pertaining to ASG work at Denver, Anchorage, Tampa, Raleigh Durham and Los Angeles International Airports. <Hyperlink to Section 4 - Project Profiles>

Question 3 – Explain if and why your company may have general technological superiority versus other companies in this industry.

Taking into consideration our recent and relevant experience in the aviation systems marketplace, our successes are due in part to staying up to date and abreast of the dynamic changes in systems technology and architecture. URS's comprehensive experience at Category X airports around the world gives us the unique ability to coordinate and monitor large and complex projects at DIA drawing on our experience from similar projects around the globe. This is true at DIA, as well as other airports, where the migration of disparate systems into an integrated environment utilizing enterprise networks as the communications medium is becoming the norm. To be successful, a firm must stay current with technology. However, you must also stay current with the evolving and changing regulatory environment and understand the resulting impacts to the technical systems functionality as

well as the airport operations as a result of regulatory changes. The URS Team understands systems integration, resulting benefits and pitfalls. An added value brought by the URS Team is our solid technical capabilities coupled with legacy knowledge of DIA systems and processes. This translates directly to technological superiority and makes URS superior to our competitors in the following areas:

- Members of the URS Team are airport systems experts. Our focus, core expertise and passion are aviation and aviation systems design. This is not just a job but our practice and vocation.
- The URS Team understands airport operations and understands DIA operations and the multitude of factors that drive systems configurations and integration requirements.
- The URS Team understands the airport business model and the necessity for revenue generation, pay back and systems life cycle efficiency.
- The URS Team understands the regulatory requirements such as the FAA, TSA, and local requirements including the Denver Fire and Building Departments. We are involved with and understand local requirements and their impact to systems planning and existing systems including enhancements to existing systems and the deployment of new systems and technologies. We work closely with CCD agencies developing acceptable systems configurations and functionality requirements
- The URS Team is acutely familiar with the STRP and its nuances. We have been part of strategic requirements development and systems definition to properly and cost effectively interface to legacy DIA systems, deploy new systems and to support the functionality and regulatory program requirements.
- The URS Team has extensive experience at DIA. We understand the new and legacy systems and the plans for both moving forward. We also have an inventory of lessons learned which means that there is no learning curve.

All of these key points add up to what we believe to be technical superiority compared to the competition.

Question 4 – Explain if and why your company may have product and/or support quality superiority versus other companies in this industry. Please provide data to corroborate quality superiority including the source of the data. How many years has your company been in the same core business as identified above?

Based on the technical and managerial qualifications of our staff, our experience in performing and successfully delivering the scope of work of the current On-Call Electronic and Communications Systems Support Services program, and our national and international breadth of services and capabilities, we believe the URS Team provides DIA with superior support quality. This is reinforced by our extensive institutional knowledge of DIA's systems suite and its operating environment. In addition, the URS Team is fully integrated into the DIA Technologies Department team. Team members have also been integrated with the various other DIA departments over the years to provide a seamless interface between all DIA departments in support of the definition, deployment and management of the systems environment at DIA. DIA's best interests are our number one concern. Being able to work hand-in-hand with DIA and other DIA consultants saves both time and money, leading to higher quality finished products at an optimum price.

The URS Team is also fully integrated in the Technologies Project Management Office (PMO) process and conducts our activities in accordance with all of the established technologies and PMO processes and procedures. In selecting the URS Team, DIA will realize the benefit of not having a

knowledge transition period to learn Technologies' program and project practices; we hit the ground running. Other key areas where the URS Team can deliver value for dollar and superior quality support include:

- **Support with the CIP Planning Process** – Historically, the URS Team has assisted DIA through the annual CIP budgeting and planning process. In recent years this effort has provided such services as project scoping and estimating for budgeting purposes. The knowledge base that the URS Team and ASG staff has to draw from is based not only on previous planning cycles at DIA but from a global resume of airport systems experience.
- **South Terminal Redevelopment Project (STRP)** – Our personnel are extensively involved in the systems programming, systems planning and systems design oversight for the STRP. As such, our personnel are not only familiar with the program, but also the collateral impacts of such a complex, exciting program.
- **Project Controls** – The URS Team helped develop the DIA Primavera P6 evolution, MS Project and Expedition/Contract Manager (CM) as they are used at DIA. URS has been part of the evolution of project controls in the technology environment at DIA.
- **Secure Information** – The URS Team has years of experience dealing hands on with secure airport information such as SSI and PCI related data including PCI compliance and PII data. Our experience also includes developing processes and procedures associated with handling and disseminating this data to the appropriate parties while ensuring its security from unauthorized parties.
- **BIM/GIS** – The URS Team assisted DIA in maturing their BIM/GIS goals as they relate to airport systems to develop the policies associated with handling SSI information within a BIM environment.
- **Training** – URS has an extensive in-house training program to ensure Quality, Safety and Project Management. This training comes at no cost to the CCD. URS also has training programs to maintain recurring training required for certifications.
- **PMIC/PRB, (CIP)** – The URS Team is instrumental in the development of program technology and electronic systems scopes and budgeting associated with the Portfolio Management Investment Council/Project Review Board (PRB).
- **Enterprise Architecture Authority (EAA)** – We have provided guidance to the EAA board in the refinement of programmatic goals such as MUFIDS integration with systems such as the Emergency Notification System among others.
- **ITSM/ITILv3** – URS Team personnel are involved in assisting the successful implementation of Information Technology Service Management (ITSM) initiatives with projects such as AVI and others. In addition, all URS management staff are ITILv3 certified.
- **SharePoint** – URS Team personnel have been key in the implementation of SharePoint site wide. DIA's SharePoint administrator is a URS employee working on-site for the current DIA On-Call contract.

Another key value-added advantage is that URS and on-site WBE subconsultant Servitech already have DIA on-site transportation. URS provides an airfield certified vehicle complete with all the necessary insurance as well as a golf cart for transportation in the DIA tunnel and basement areas. All badged URS and subconsultant personnel are fully certified for airfield driving at DIA. This allows URS Team personnel to travel to any jobsite location on the DIA campus to perform field investigation and other tasks, thus eliminating the need for the CCD to provide a vehicle to transport personnel or equipment on the airfield.

Years in Business

URS has been performing its core engineering business for over 100 years. The Denver-based ASG has been performing its core business (as a URS entity) since 1988 (24 years). Most of the core URS staff that currently support DIA have been in the Aviation systems business since 1980, (32 years) and have worked together almost continuously since 1990/91 (21 years).

Question 5 – Describe the products you represent and service offerings.

The ASG product is primarily engineering planning, design and implementation management of aviation electronics and communications systems projects at airports. Our service capabilities include but are not limited to:

- Project Management (in accordance with all PMO established processes)
- Systems Master Planning
- Technical Systems Design inclusive of all of the systems contained in SOW and the systems identified in 3.1.4 DIA Electronic Systems and the systems referenced in SOW item 6 – Specific Consultant Requirements.
- Development of technical specifications
- Application of Quality Assurance and Quality Control processes
- Bidding processes and bid review
- Cost estimating, budgeting and CIP programmatic support
- Integrated Project Scheduling
- Construction Management and Administration
- Technical implementation oversight
- Systems testing and commissioning including break/fix troubleshooting for the entire range of airport and aviation systems

The URS Team has successfully performed in several project design and delivery methods including:

- Conventional Design, Bid, Build (D-B-B)
- Design Build (DB)
- Construction Manager/General Contractor (CM/GC) at Risk
- Integrated Project Delivery (IPD)

The URS Team provides comprehensive design review services and in context to our current DIA assignment, review and oversight for DIA facility technical designs prepared by others to ensure compliance with existing DIA electronic systems and standards.

The URS Team has all of these capabilities in both on-site and on-demand staffing models and can tailor our service offering to meet DIA project demands.

Question 6 – Identify any certifications and/or accreditations held for your products and services, including your workforce.

The URS Team has a vast range of professional engineering, technology and project management certifications to support the scope of work to be executed as part of the DIA On-Call Electronic and Communications Systems Support Services. URS and many of the URS Team subconsultants are required to be certified in their respective engineering and professional disciplines. Specifically, URS employs professional engineers and registered architects for all major building disciplines such as architectural, electrical, mechanical, structural and civil.

All URS DIA on-site staff are ITIL v3 certified.

The URS Team has a full time Registered Communications Distribution Designer (RCDD)

URS Team has full range of Cisco certifications including:

- Cisco Certified Network Administrator (CCNA)
- Cisco Certified Design Professional (CCDP)
- Cisco Certified Internetworking Expert (CCIE)

The URS Team has active professional licenses in the State of Colorado for the following disciplines:

- Electrical Engineering
- Mechanical Engineering
- Architecture
- Structural Engineering
- Civil/Environmental Engineering

All URS Project Managers are certified. While the in-house URS Project Management certification is independent to external certifications, the URS certification mirrors the Project Management Institute (PMI) certification and applies to the accounting systems, processes and business practices that are necessary to properly interface internal processes e.g. QA/QC, safety and accounting requirements to DIA and the contract.

The URS Team is fully compliant with all of the certification requirements required in the On Call RFP.

Question 7 – Provide any independent reviews, case studies, or references of your Systems, products, and services.

ASG has been called upon many times to produce case studies, reports and independent reviews for DIA as well as other airport clients, governmental and non-governmental agencies. A recent example includes numerous studies and whitepapers that were researched and documented for the new DIA Data Center by on-site URS staff. The URS on-site staff also crafted the Program Requirements Document for the new DIA Data Center Procurement.

Another major report/case study that was developed by URS for DIA was a high-level study addressing the functionality, adequacy and location of the 10th floor Airport Communications Center (ACC), the Maintenance Control Center (MCC) and the Incident Command Center (ICC). The goal of the study was to identify whether or not these Command and Control Facilities adequately serve their intended mission and if not, identify solutions to improve their functionality. The study was directed into two areas. The first evaluated the existing command and control facilities and examined a number of potential alternate locations on the DIA campus. The second area involved evaluation of the systems, technology and tools deployed in the existing centers. As the report matured and coordination with the Denver Building/Fire Department evolved, the report direction morphed to include the requirements of and impacts to facilities considering the Life Safety and code requirements of NFPA 1221. This study and report served as the catalyst for the planning, design and construction of the new Back-up Command and Control Center currently under construction in the Apron Level of Concourse A.

Other significant planning documents and case studies and references to systems designs, products and services are indicated below.

- **Indianapolis International Airport, Indianapolis, IN – Threat and Vulnerability Assessment/Review**
  Complete assessment of the entire Airport including all buildings, fuel farm, and airfield for potential risks and threats to the Airport. The report included recommendations for changes to physical security, electronic security, security operations, and phased improvements that could be implemented over a five year period to increase security.

- **IRS National Headquarters, Washington DC, - Threat and Vulnerability Assessment/Review**
  URS produced a study for the IRS on the potential threats and vulnerabilities of the National Headquarters building located in Washington DC. The report detailed potential threats to the building, employees, and the Director of the IRS. The report included recommendations for risk mitigation and improvements to the site and building physical and electronic security systems.

- **Indianapolis International Airport, Indianapolis, IN - Overview of Biometric Technologies**
  A study of biometric technologies was produced for the Indianapolis International Airport as a review of biometric verification technology for use with an access control system. The study included review of Unclassified Controlled Nuclear Information (UCNI) biometric equipment testing from Sandia National Laboratory. The study examined the effectiveness of each type of biometric device in terms of equal error rate (EER) or the probability of equal false rejects and false acceptance of biometric identifiers. The study also evaluated the ease of integration of biometric verification devices into an existing access control system and changes required to the system and its database.

- **Los Alamos National Laboratory, Los Alamos, NM – Nuclear Materials Safeguards and Security Upgrade Project (NMSSUP) Alternatives Analysis**
  In response to the existing and new facilities to be constructed at TA-55, the NMSSUP II Project included evaluating a series of alternatives to meet the Design Basis Threat (DBT) Policy to comply with DOE O/M 413.3 Physical Security Manual. The report provided a summary of six alternatives including analysis projected 10-year life cycle costs for equipment and operations.

- URS Team on-site staff member John Spencer was on the RTCA/DO 230A/B Standards committee as was on-demand staff member Archie Lind.

The following hyperlink directs the reviewer to Section 4 – Project Profiles where further relevant and representative information is provided regarding the URS Team's systems, products, and services are provided. <Hyperlink to Section 4 – Project Profiles>

Section 3 -
Project Understanding and Approach

Section 3 - Project Understanding and Approach

It is the intent of this section to address all items in the **Exhibit A - Scope of Work (SOW)** in a detailed fashion so that reviewers of this On Call RFP response are able to determine the level of understanding the URS Team has at it pertains to the Scope of Work, and provide our approach to deliver the services.

Following this section is documentation in the form of recent and related project profiles (Section 4 – Project Profiles) and capabilities statements that speak directly to the URS Team's suitability for this assignment.

3. SCOPE OF WORK

3.1 GENERAL

3.1.1 Requirement: On-Site and On-Demand Staff

The URS Team fully understands the requirements to provide both on-site staff (staff augmentation) and on-demand staff as indicated in the On Call RFP. We understand that full time on-site staff will be provided with facilities and equipment including office/work space, telephony and office computers, access to standard MS office and DIA applications, file shares and printing facilities. This mirrors the requirements of the current On-Call Electronic and Communications Support Services contract.

3.1.2 Requirement: Staff Utilized for Task Order Work Located Off Site

The URS Team further understands and acknowledges that on-demand staff will be utilized to address various elements of the work as required to support the projects and workload. On-demand staff will have no support services at DIA and are expected to work out of the local office and make field trips as necessary to conduct site investigations, conduct requirements capture, meet with project stakeholders, conduct design and any other activities required to develop complete and coordinated designs and task outcomes.

As the needs of a project vary, the URS Team understands the requirement to have crossover of responsibilities between on-site and on-demand staff working on and off site in the execution of some on-demand tasks. In this role the key is to conduct comprehensive project management practices to maintain clear scope and responsibilities and maintain accurate time keeping records and the application of well documented and proper rates.

3.1.3 Requirement: Design, Modify and Coordinate Inside Plant, Outside Plant and Facilities Improvements

The URS Team has successfully designed and implemented inside plant, outside plant and other infrastructure for all of the systems listed in the On Call RFP Scope of Work, 3.1.4 DIA Electronic Systems. In addition to an intimate knowledge of the system infrastructure and cabling requirements, we are also very familiar with the systems themselves and the communications protocols they utilize.

A number of the systems listed present special design requirements. For example, the radio frequency distribution systems at DIA require fusion splicing of single mode fiber and high return loss connections. The broadcast television distribution system requires these considerations as well. There are also specific code and reliability requirements for systems like Fire Alarm and the Emergency Communications System (ECS). URS is well versed in all of these requirements.

URS acknowledges that all work product produced under this contract becomes intellectual property of the CCD. Drawings and specifications that we produce are regularly uploaded to the City GIS

servers as record documents for each project. URS also maintains a running set of PWCS as-built drawings that document the current configuration of the PWCS inside and outside plant duct bank, cabling and splicing. We have perpetually maintained these drawings since the airport opened.

3.2 SPECIFIC ELEMENTS OF THE WORK

3.2.1 Budget and Planning

URS will be an instrumental strategic team partner with DIA Technologies for the DIA budget and CIP planning process. The ASG has extensive experience assisting DIA in the Capital Improvement Planning process. Our group has and will continue to assist DIA Technologies with scoping and budgetary planning elements contributing to the preparation of the Project Information Request Forms (PIRF) process which initiates CIP related projects. In addition URS will also assist DIA Technologies in the preparation of budget estimates as requested, contributing to the establishment of the new enhanced O&M budgeting process at DIA. Our prior DIA experience provides tremendous depth of understanding into the operational requirements of DIA as well as the complexities of conducting projects while keeping the airport operational. This background is key to accurately determining project cost and resource requirements.

In addition to the CIP budgeting process, the ASG has been heavily involved in the long range planning process for systems at DIA. The ASG understands not only DIA's short term needs, but more importantly the long range planning required to ensure DIA Technologies long and short term goals are achieved.

Complementing our on-site staff, the ASG also brings a team of engineering estimators who can assist DIA in the development of detailed cost estimates for not only systems projects, but also general construction and engineering projects.

One of the challenges any airport faces is funding. Our URS Team understands these challenges and recognizes that during difficult financial times the need to effectively prioritize projects is key to the overall success of the Airport. At the same time, because of URS Team's depth of experience at DIA, we are able to assist DIA Technologies in establishing the optimum order of project priorities so that operations are maintained while systems are improved.

Documentation is integral to the budget and planning process. URS understands that good planning documentation facilitates better communications and ultimately project/program expectations being met or exceeded. Our URS Team excels in the preparation of planning documentation to facilitate not only more accurate budget targets, but also a better finished product.

The entire budget and planning process comes together as a collaborative effort involving numerous meetings, discussions and formalized document exchanges. The URS team is always fully prepared to participate in these efforts to help ensure successful outcomes. Equally important, our Team's participation and agility can assist DIA with proactive solutions to the evolving nature of the budget and planning cycle.

3.2.2 Definition of Project Requirements

3.2.2.1 Requirement: Assist in Definition of Requirements

The URS Team works with DIA Technologies, planning and development, airport operations, security, maintenance and other entities to understand specific requirements for each project. These projects range in size from incidental requirements for network connectivity to large scale multi-discipline

projects such as the STRP. Each project is unique and the methodology for implementing the project differs depending on the scope and complexity of the work.

Small scale projects are normally handled with a simple scope of work and drawings. These are issued to the PWCS group, network group or other entities for execution. Progress on the projects are tracked using the DIA SDE system and with routine follow up. Small projects are often tracked with an action item worksheet that describes each element of the work, the sequence in which it must be accomplished, who is responsible for each work element and when each item is completed. This has proven to be a simple but effective tool for getting things done. A good example of this type of project is the Fuel Force system which involved contractor work, PWCS work, radio shop work, electricians, plumbers and work by the system supplier.

Larger internal projects are managed with the PMO process. This process is executed utilizing the Project Lifecycle process. A business case is developed by the Portfolio Management team, project funding is secured, a project charter is developed and necessary project documents such as project management plans, specifications and drawings are produced. Project progress is monitored through observation and regular meetings. Once completed, inspection and testing of the work is done and project closeout documents are compiled. This is a more formal process which engages the full resources of the DIA Technologies group and PMO.

The third type of project that the ASG manages involves major construction work designed by third party designers. ASG collaborates with the designers of the project to ensure that the design is consistent with DIA requirements and that the work interfaces properly with existing systems at the airport. URS reviews the design work at each phase of the design to ensure that the systems are consistent with DIA standards and interface properly to existing portions of the airport. This has proven to be very successful and ASG has developed an excellent rapport with the design community that regularly supports DIA.

3.2.2.2 Requirement: Monitor Requirements through Completion

Due to the competitive nature of contracts at DIA, many projects which include elements of systems may be designed by outside firms. The URS Team is able to assist DIA in monitoring the design as it develops to ensure compliance with DIA standards. As these projects move into construction, the URS Team is also able to provide monitoring and reporting to DIA Technologies using all the tools developed within the DIA Technologies PMO SharePoint sites, as well as provide other reports and monitoring as requested.

The ASG is keenly aware of the established processes within the Technologies PMO. These processes provide for consistent and repeatable successful project delivery. Our team is well versed in utilizing these processes throughout not only the requirements capture phases of projects, but all phases of Technologies projects from initiation to close.

3.2.3 Incidental Design

3.2.3.1 Requirement: Perform Incidental Design Work

The URS Team fully understands the requirements and responsibilities associated with incidental design activities. Incidental designs, which are generally developed by on-site staff, may include highly coordinated designs for any of the systems identified in 3.1.4 of the SOW and/or require multi-disciplinary design skills. Task dependent designs may require multiple design activities including project management, design, construction management, inspection and in some cases the signing and sealing of documents for permitting purposes. Incidental designs are generally developed for

implementation by DIA resources or other DIA on-call construction resources. In some instances they will be used for a competitive procurement process between on-call resources.

The URS Team performs incidental designs regularly and is knowledgeable in developing coordinated designs at a level of detail that cost effectively suits the intended procurement method or required construction scheme. The URS Team also supports the incidental design process by having readily available, qualified and experienced multi-disciplinary staff that bring the same level of project management skills, cost estimating, scheduling capabilities and tools required to deliver successful incidental designs.

3.2.3.2 Requirement: Incidental Design Stamped by Registered Professional Engineer

The URS Team has registered professional engineers in virtually all disciplines who are part of the off-site personnel for this On Call RFP. They will be available for signing and sealing design drawings when required for permitting purposes.

3.2.4 Task Order Work

3.2.4.1 Requirement: Design Projects Assigned on Task Order Basis

Task order designs are generally larger and better defined than incidental designs and generally include all of the elements of incidental design but at a much more detailed level to support a competitive procurement process. Task order designs normally include the full range of design activities in addition to bidding, negotiation and construction administration. The execution of task order designs is well defined with respect to scope, schedule and not to exceed fees.

The URS Team has recently and successfully completed several high profile task order projects including the multi-disciplinary (architectural, mechanical, electrical, structural and technology systems) designs for the new back-up AOC EOC in an existing apron area in Concourse A. This detailed design program which was subject to the stringent requirements of NFPA 1221 was coordinated with DIA and the CCD Building and Fire Departments to achieve and apply practical solutions and scope to meet program and budget requirements. The URS Team also worked through the extensive demolition documents, developed cost estimates for all construction elements and a project schedule. Another notable project included the architectural, electrical, lighting and technology renovations to the 9th floor AOB Airport Managers conference room. The URS Team has successfully completed dozens of multidisciplinary task order projects utilizing on-site and on-demand staff over the last several years.

3.2.5 Project Management

The URS Team is intimately familiar with the DIA Technologies PMO project delivery process. We are also extremely familiar with the Project Management Body of Knowledge (PMBOK) framework from which the Project Lifecycle process was developed. The URS Team was a key partner with DIA participating in its development and its ongoing improvement. Because the URS team is also ITILv3 certified, we also have the background understanding of the underpinning goals of DIA Technologies moving forward.

The URS Team is able to provide unparalleled prmject Management to DIA within the technologies process framework while at the same time being able to adapt to an ever changing landscape outside of DIA Technologies. Regardless of the specific process used outside of yechnologies, the basic elements of virtually any project fall within the IPEC (Implement, Plan, Execute and Close) model.

URS understands this critical nuance and is therefore ideally suited to support DIA and the Technologies Division in carrying out their mission.

3.2.5.1 Requirement: Large Scale Project Monitoring/Coordination

The URS Team brings significant added value to DIA through its ability to manage and coordinate large multidisciplinary projects within the culture of DIA. URS understands that many times designers, professional service providers and contractors may not be familiar with DIA policies and procedures. The URS Team is able to assist DIA in getting consistent and uniform results because we not only understand complex airport systems, but we also fully understand the unique culture of DIA's processes and procedures. Conversely, URS's comprehensive experience at Category X airports around the world gives us the unique ability to coordinate/monitor large and complex projects at DIA drawing on our experience from similar projects around the globe.

3.2.5.2 Requirement: Coordinate with Third Party Designers

The ASG, who serve as DIA's systems design staff augmentation contingent, are accustomed to coordinating and facilitating third party designs. This relationship is not uncommon at airports the size of DIA. Not only is our staff capable of coordinating these various design efforts, but URS is also able to provide the added value of being able to provide recommendations to enhance these designs to precisely fit DIA's needs.

1 **Requirement: DIA Departmental and End User Requirements Met**
The entire ASG is intimately familiar with DIA design guidelines and standards. There is no learning curve for our team to assimilate DIA standards, we already know them and in many cases assisted in their initial development. Our team can assist DIA in ensuring that DIA requirements are met.

2 **Requirement: Compliance with Guidelines**
Continuity of implementation standards across different types of systems is critical in any complex facility such as DIA. Failure to assure compliance with design guidelines can result in increased operational and maintenance costs among many other undesirable outcomes. URS in many cases assisted DIA in developing the original design guidelines, many of which are still in use today. For this reason, the URS Team is able to provide unparalleled oversight of third party designs to ensure they fall within the DIA design guideline boundaries.

3 **Requirement - Ensure Interface to Existing Systems**
Interfacing new systems to existing legacy systems can be a very painful and expensive undertaking if not done correctly. Another considerable added value the URS Team brings is our extensive understanding of how the entire suite of DIA systems currently functions in their existing states. We are therefore uniquely qualified to assist DIA in developing recommendations and procedures for successfully interfacing/integrating multiple airport systems (new and existing) into enterprise wide operational systems.

3.2.5.3 Requirement: Review Third Party Designs for Compliance

Every airport has specific and unique regulations, requirements and processes. Understanding the full breadth of these requirements and being able to include these nuances into a design can be a challenge. Because of the URS Team's comprehensive understanding of DIA standards, guidelines, and practices, our reviews are more thorough and applicable to the live DIA environment.

3.2.5.4 Requirement - Value Engineering (VE) while Maintaining Effective Operation

The past decade has been filled with global financial challenges. The URS Team understands these challenges and is able to meet them with unequaled creativity. Value engineering (VE) exercises are nothing new to the team; we have been partners with DIA in finding unique solutions to challenging budgetary situations hundreds of times over the years. We look forward to continuing to work hand in glove with DIA.

3.2.5.5 Requirement - Manage Implementation as Directed

The diverse nature of projects within DIA means there will be many different delivery methods. Projects that affect Technologies can potentially be run by other departments, airlines, government agencies or tenants. URS understands this level of project diversity and is able to quickly adapt to whatever chosen project implementation is selected by Technologies. Regardless of the implementation method chosen, URS will still endeavor to work within the DIA Technologies PMO Project Lifecycle process unless directed otherwise due to special circumstances. The URS team is here to serve DIA's needs.

3.2.5.6 Requirement - Participate in Project Meetings and Coordination Efforts

An integral part of any project is project coordination and meetings. The URS team believes that communication through active participation in project meetings and project coordination helps ensure a successful outcome. The URS Team will often initiate project and coordination meetings themselves focused on specific technologies topics which sometimes go beyond the scope of regularly scheduled project progress meetings.

3.2.5.7 Requirement - Act as DIA's Agent for Testing/Commissioning

As an extension of DIA Technologies staff, our current on-site URS team has the responsibility of ensuring that not only are project requirements met, but also DIA standards are met. Consequently, our on-site staff is always fully prepared to participate as requested in any and all testing and commissioning activities on airport systems related projects. In addition to overseeing testing efforts, the URS Team also works with contractors and professional service providers to develop the appropriate testing documentation and records of result. Once systems have been commissioned, the URS Team then works with the various parties to ensure the appropriate system documentation in the form of as-built documents is archived.

3.2.6 Staff Augmentation

3.2.6.1 Requirement: Perform as a Functional Extension of DIA staff

We refer reviewers to 3.3.1 Provision of Staff. The URS Team would like to stress that it is very experienced in the on-site/staff augmentation role and have and will continue facilitate the requirement by providing the current mix of expertise with capable back-up support to ensure on-site continuity and capabilities. As required, resumes and percentages of involvement have been provided for all proposed on-site staff. <Hyperlink to Section 1 – On-Site Organizational Chart>

3.2.6.2 Requirement: Provide Specialty Assigned Staff for Specific Purposes

The URS Team, comprised of URS and its subconsultant partners WBE Servitech, DBE Triunity and Long View is specifically tailored to provide staff as required to support a broad range of technical areas including all of those identified in the On Call RFP. During the current On-Call contract, the team has provided highly qualified network security engineers, administrative and support staff,

software specialists and project managers among others, in essentially any capacity necessary inclusive of 24/7 on-call or off hours to support the requirement. Our Team has tremendous depth of proven staff and unmatched recruiting capabilities.

3.2.6.3 Requirement: Broad Staff Augmentation Requirement

The requirement identified speaks directly to the operational characteristics of the current On-Call contract. The URS Team is quick to respond to staffing demands requested by DIA to support the changing needs of the Airport. This is demonstrated in the level of support and commitment put forward as part of the current contract which we will continue to provide. We have successfully executed numerous large scale and quick turnaround task orders (reference 3.2.4.1) such as the Back-up AOC/EOC and will continue to provide the multidisciplinary staff in support of the requirement to provide qualified and flexible staff to execute a broad range of services. We understand the demands on on-site employees and the requirement to fulfill and augment the resource as required to exceed DIA's expectations.

3.2.6.4 Requirement - Specific Workflow Practices – Delivery Processes

As noted previously, the ASG has a comprehensive understanding of the DIA Technologies PMO Project Lifecycle process. In addition, URS has a broad foundation of project management skills. We understand the evolution of projects through the Portfolio Management process from intake to approval. Our team is ready and able to assist in the development of business cases, participate as requested in the analysis/evaluation stages as well as develop budgetary scoping backup. The URS Team has a clear understanding of the various stage gates involved in the Project Lifecycle process and the critical nuances of the project handoff stage from Portfolio Management to PMO at stage 4 and through to project close out at the end of this process. The entire URS Team is fluent in MS Project for scheduling as well as Primavera P6 (and Primavera Contract Manager) for project controls and contract administration tasks. In addition, our team is also heavily versed in the use of not only MS SharePoint, but also DIA Technologies Portfolio and PMO's implementation of SharePoint specifically at DIA. We also have Technologies SharePoint administrator capability on staff.

3.2.6.5 Requirement: Staffing Tables

The URS Team understands that the structure, purpose and requirements of the on-site and off-site staff position tables is to provide DIA with a flexible mix of staff required to execute a variety of assignments. The URS Team has qualified personnel in place to cost effectively staff each position indicated in the table. While we understand the typical segregation of business between on-site (staff augmentation) personnel responsibilities in the execution of day to day work tasks, and those of off-site (on-demand staff augmentation) personnel working on task order work, we also understand that occasionally the two mix. In those instances where on-site and off-site staff are utilized in the execution of a task order, it is incumbent on URS to properly manage and maintain records that ensure accountability and value for dollar to DIA.

3.2.6.6 Requirement: Provide Resumes Prior to Work Start

The URS Team will provide DIA Management resumes of all prospective employees prior to work start for both on-site and off-site personnel. We understand DIA reserves the right to conduct interviews of all prospective employees prior to bringing them on a project.

4. AVAILABLE DOCUMENTS

As the primary maintainers and developers of the DIA campus infrastructure documentation, the URS Team is intimately familiar with the documents and materials that are available to them. We also have an in-depth understanding of the DIA CAD/REVIT standards and the requirements for updating and producing compliant drawings as well as specifications and reports. URS recently completed the systems designs for the STRP utilizing DIA REVIT conventions. We fully understand the contents of the Design Standards Manuals and deliverables regiments. URS has worked side by side with DIA in the development of drawings and deliverables and have also worked with other consultants providing guidance in the support of project document requirements. The URS Team is fully up to speed regarding the DIA documentation and the requirements for developing new and updating existing documentation.

5. PROGRESS REPORTS/TREND ANALYSIS

With the sheer number of diverse systems projects going on within DIA Technologies at any given time URS understand the critical need to provide accurate reporting throughout the organization. Over the past two years DIA Technologies has implemented a comprehensive SharePoint implementation to standardize both reporting and the capture of project and system related metrics. We are proud to have been a part of this processes development. Our URS staff will continue to provide progress reporting and trend analysis utilizing these tools as requested by DIA Technologies.

6. SPECIFIC CONSULTANT QUALIFICATIONS REQUIRED

ASG has extensive experience at DIA and at numerous other airports with all of the systems listed in the On Call RFP SOW under 3.1.4. Demonstrated Experience With Systems. In addition to those systems listed, we also have relevant experience with DSL network design, ASDE-X implementation, WSDDM weather, VoIP telephony and dispatch console systems which are relevant to DIA. This experience includes both design and management of project implementation.

- **Local Area Network**

  ASG has successfully master planned local area networks and implemented networks here at DIA and at airports in Tampa, Los Angeles, and Indianapolis among others. ASG developed a comprehensive IP addressing master plan that covered not only DIA but the six regions in the downtown DIANE network. We are experienced in layer two architectures and layer three routing architectures as well as quality of service (QOS) architecture. Our design methodology results in networks that are highly reliable, efficient and easily expandable.

- **Planning & Design for Inside/Outside Plant**

  URS was the original designer for the inside and outside plant PWCS network at DIA. Since the original $44 million PWCS implementation, ASG has continued to expand and enhance the inside/outside plant infrastructure at DIA. Our latest large project was a 2100 strand mile fiber build that diversified pathways to critical facilities at DIA. We implemented an innovative ring architecture in the terminal, concourses, north and south campus that provides path diversity to switches in all facilities with a minimum of fiber splicing cost.

  ASG has recently completed a comprehensive inside/outside plant project for the airport in Tampa. This project completely overhauled the existing airport fiber infrastructure and re-architected the airport's Local Area Network. The project involved establishment of new communications rooms as well as a new data center. All of this work was accomplished while keeping the airport network operational.

- **CCDP Certification or Equivalent**
  The URS Team meets or exceeds the requirements for Cisco Certified Design Professional (CCDP) certification. Coursework has been successfully completed for the CCNA, CCDA, Network Plus and CCDP curriculums. The result of this work is successful deployment of extensive networks at DIA, Raleigh Durham, Tampa, Los Angeles and many other airports. These designs address the physical infrastructure, addressing architecture, QOS architecture, routing protocol design and network security. We do not maintain manufacturer specific certifications as we routinely work with networks by Cisco, Extreme, Alcatel and Hewlett Packard. Long View is on the URS Team to provide Cisco certified support up through the CCIE level.

- **FAR 107 Security Design**
  ASG has successfully designed FAR 107 (49CFR 1542) compliant security systems or system expansions at airports in Denver, Anchorage and many other locations. ASG also served as program managers for an FAR 107 (49 FR 5142) / ICAO Annex 17 compliant access control system in Kuala Lumpur, Malaysia.

- **Broadband Television Design**
  ASG was the designer of the original 80-channel DIA PATV system. This was a traditional coaxial and fiber based CATV design that worked well for many years. The Denver ASG recently re-designed this system into a high capacity optical system that supports over 110 channels of standard definition and high definition television distribution. The new system is bi-directional capable to allow future deployment of premium pay per view and sports packages. URS has also done major broadband television networks at airports in Tampa, Raleigh and Los Angeles.

  URS is knowledgeable in the design of decryption/re-encryption schemes to support distribution of high definition copyrighted content as required for compliance with the Digital Millennium Copyright Act (DMCA). We have successfully designed systems that meet these requirements for major cable providers and satellite providers.

- **Large Scale Access Control and CCTV Networks**
  The ASG works extensively with large scale CCTV and access control networks. ASG airport security specialist, Kevin Richmond, managed the installation of the access control system and CCTV system at DIA. We have also designed and installed both access control and CCTV systems at airports including Tampa, Spokane, Raleigh, Anchorage and numerous other airports.

  The ASG is just completing an extensive IP closed circuit television system for Tampa International Airport. This system uses approximately 600 standard and mega-pixel cameras with several petabytes of storage. Storage at Tampa was distributed to each network region so that traffic between the cameras and associated storage did not need to cross into the core of the network unless a camera was actively being viewed in another region of the network.

- **49CFR 1542, RTCA/DO-230A Access Control, Biometric & Vehicle Gate Inspection**
  The ASG is intimately familiar with all of the regulations governing airport security, biometric and vehicle gate inspection. We are actively engaged in a detailed design exercise to convert all of the first entry portals at DIA to biometric readers. This is an ongoing program that involves production of drawings and wiring diagrams for all reader locations. This program also converts controllers from serial communications to Ethernet on a hardened access control network as each location is converted.

  The ASG has also worked closely with airport security at DIA to deploy security workstations at key vehicular gates as well as readers to check both drivers and passenger badges for those

entering the restricted area. Our extensive experience with AVI systems will also support a future program to tag vehicles entering the restricted area allowing the vehicles to be validated on each entry. In addition, on-site Sr. Systems Specialist John Spencer, sat on the RTCA-DO-230A Standards Development Committee.

- **Large Scale Public Address/IED**
  The URS Team has extensive experience in large scale public address systems at DIA and at other airports. We have recently engineered a new backbone system for the IED system at DIA and managed the migration and re-addressing of the system to the new backbone. We completely understand the behavior of these systems including the finer points of handling the latency and jitter sensitive CobraNet protocol.

  Our team are experts in the design of these systems to meet objectives in speech quality in spaces which are sometimes architecturally challenging. We work with architects on space design to achieve required levels of reverberation and control of acoustic reflections. We also utilize techniques that improve public address system reliability.

- **Highly Reflective Environments / STI Ratings**
  The ASG is familiar with the equipment and software used in measurement of Speech Transmission Index (STI) and what the results mean. Several years ago when the fountain was installed in at the DIA Great Hall, STI measurements were made to gauge existing conditions based on ambient noise of the fountain. A second set of STI measurements were made using a temporary mounting of line arrays and other specialized loudspeakers to validate the design before installation. URS also has extensive experience in room acoustics, noise and vibration control.

- **Integrating Systems with Life Safety NFPA / NEC**
  The ASG is actively involved with DIA planning and development in design and management of the new Emergency Communications System (ECS). The first phase of the program deployed a hardened local area network and moved the existing public address system to the new network. This was completed in November 2012.

  The second phase of the ECS network is currently in progress. This phase of the work involves installation of touch screen fire alarm panels at the fire command centers and interfaces between the fire alarm system, IED public address system and the ComNet MUFIDS system. There is also a secondary interface in this phase between ComNet MUFIDS and the Clear Channel dynamic advertising displays that will be going in throughout the terminal and concourses. The objective behind ECS is to allow fire personnel to use pre-recorded or live audio announcements with visual messages during an emergency rather than the traditional fire horns.

  The ASG is very familiar with the life safety requirements of NFPA and the NEC. We are also well versed with the design and inner-workings of the public address and MUFIDS systems which are becoming an integral part of ECS.

- **Airport Master Planning, Budgeting, Cost Estimating & Construction Management**
  The ASG has a great deal of experience in master planning, budgeting, cost estimating and construction management for airports. We have successfully done this for DIA, Raleigh, Tampa and other airports. Budgeting and cost estimating are second nature to our team as most of our team members were once contractors. Construction management is also well covered by our team on all of the airports we serve. One of the largest construction management projects we completed involved managing construction of all of the electronic and special systems at DIA.

- **Value Added Features**
  In addition the specific consultant qualifications required, the ASG also brings a number of additional value added features to bear which, though not specifically required, further enhance our offering to DIA Technologies.
  - URS is a multi-disciplinary engineering firm and is therefore able to offer mechanical, electrical, plumbing (MEP) design and coordination services.
  - In addition to MEP, URS also brings structural and environmental (air quality and full service environmental) design services.
  - The URS Team participated in the master specifications development for DIA.
  - ASG also provides DC Plant, SONET and power analysis design capability.

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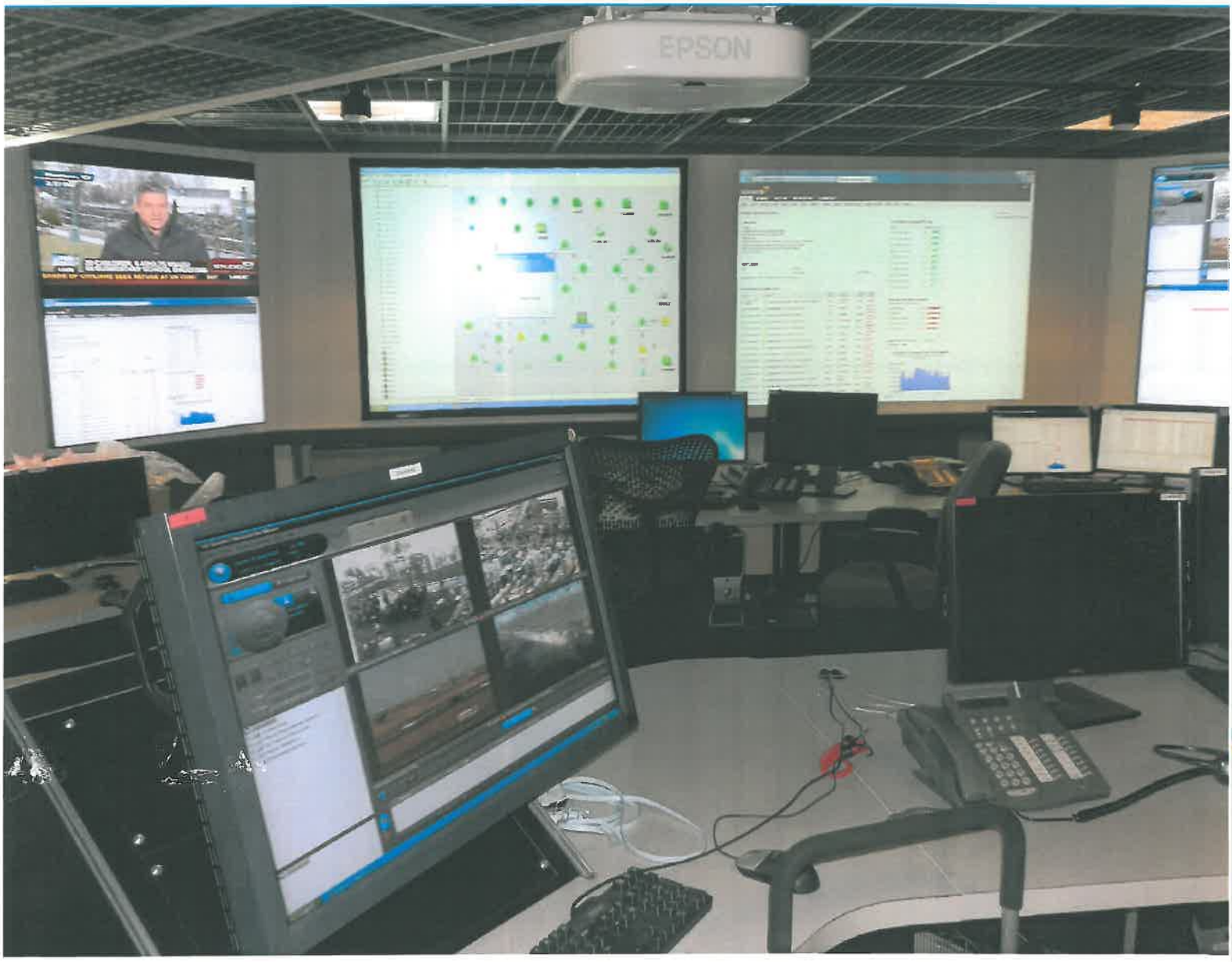
Section 4 - Project Profiles



URS

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Denver International Airport

New Airport Design/Construction and Ongoing On-Call Telecommunication Consulting

Firm

URS Corporation

Project Location

Denver, CO

Project Value

Original Construction of Communication/Special Systems - $320M

Ongoing On-Call Services - $1.4M/yr

Date Completed

Original Construction - 1995
Ongoing Services 1996
Ongoing as of 12/12/12

Services

49 CFR 1520 Compliant Access Control Systems, Analog and IP Closed Circuit Television Systems, Video Recording & Storage Systems, IT Systems, Common Use and MUFIDS, Voice Paging and Emergency Communications Systems, New Backup Airport Operations Center, Electronic Systems, Voice, LAN & Broadband Networks, Parking & AVI Systems

Client Reference

Kelan Pape
Director of Portfolio Management
Denver International Airport
8500 Pena Blvd.
Denver, CO
303.342.2014
kelan.pape@flydenver.com

Project Description

URS Corporation provided design and design management services for the City and County of Denver and Denver international Airport. The systems involved in this work included a comprehensive campus wide communications infrastructure system, airport fire alarm systems, public address system, access control system, closed circuit television system, broadband television system, radio frequency distribution system, parking system, AVI system and employee parking system. URS was also heavily involved in a variety of other systems ranging from clocks to broadcast origination.

URS has remained committed to the ongoing evolution of technology at DIA through our work as on-call electronic systems consultants. We currently have a staff of five on-site design and program management experts providing design services for specific projects and oversight of design work on larger multi-discipline projects such as the South Terminal Redevelopment Program. This work has been extremely successful ensuring quality of design and uniformity of infrastructure.

When DIA was first constructed budget constraints prevented diverse routing of fiber services to many areas of the campus. URS subsequently engineered a comprehensive 2100 strand-mile fiber build that provided true physical fiber diversity to major areas of the campus. Designs were also provided using innovative ring cable architectures to further harden the infrastructure. A secondary service was also designed to bring in regulated service from the Brighton central office to provide survivability in the event the primary DIA central office becomes unavailable.

URS was also tasked with developing a master plan for the airport Local Area Network. A comprehensive addressing master plan was developed which included not only DIA but the entire City and County of Denver. This plan broke the RFC 1918 class A addressing space into eight segments, one of which was assigned to DIA. All DIA addressing summarizes down to a single address in the downtown routing tables. Within DIA further summarization allows all addressing

for the terminal, each concourse and network region to summarize down to a single address.

URS also designed a high capacity and high availability Gigabit Ethernet network which has served the airport well. This network supports City, tenant and subsystem network needs. The network consists of a three tiered architecture with high capacity switches in the network core and distribution layers and stackable switches in the access layer. Load balancing is used throughout the network rather than idle redundant network components. Failure of a link or switch in the core and distribution layers causes traffic to automatically reroute to the surviving switches and links.

As original designers, URS has an extensive knowledge of the subsystems and their supporting infrastructure. One example of how this pays off is the ongoing conversion of the airport closed circuit television system. This conversion required essentially no infrastructure to convert the cameras over from analog to IP.

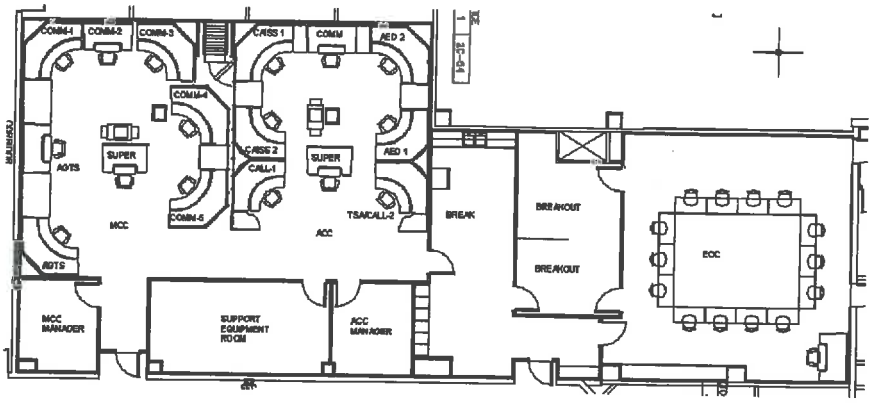
The original CCTV system utilized two strands of multi-mode fiber between each camera and an analog switcher located in the north terminal. URS engineered an intercept patching facility for the concourses and terminal, intercepting the CCTV fiber with patch panels. Each location was then provided with network switches to support new IP cameras. As a camera is converted the existing analog video / control transmitter at the camera is replaced with an Ethernet transceiver. The fiber for the camera is then unpatched from the analog CCTV switch and plugged into the network switch.

Technology continues to evolve at DIA. Since the airport opened URS has been involved in design and management of the AVI system replacement, several generations of parking systems, replacement of the MUFIDS system, upgrading of the employee parking system and many others. All of these systems required extensive coordination as the functions they provide had to remain operational throughout the upgrade transition.

URS has been heavily involved in the design and deployment of a new Emergency Communications System (ECS) for the terminal and concourses. ECS is a new concept for emergency communications with the public. ECS will utilize the public address system, flight information system and dynamic advertising displays to instruct staff and travelers on what to do in a fire or other emergency in lieu of the more traditional fire horns. This required creation of a first of it's kind local area network to provide the reliability required for ECS and to transport a mix of very unique and sensitive audio protocols.

Another recent accomplishment was expansion of the FAA Aircraft Surface Detection Equipment Version X (ASDE-X) system to include aircraft non-movement areas. This project involved deployment of nine remote receiving sites with central equipment. The ASDE-X deployment also involved integration with a data feed from the FAA and fusion of data from both aircraft movement and non-movement areas into a single system showing all aircraft movement at the airport. ASDE-X utilizes aircraft ADS-B transponder signals and plots aircraft position based on time of arrival from these signals. It allows monitoring of real-time information such as deice queue wait times, aircraft on-

chocks and off-chocks times. It will ultimately be expanded to include non-aircraft vehicles for the purpose of monitoring runway incursions.



DIA Backup Airport Operations Center

URS is currently engaged in design and project management for a comprehensive backup Airport Operations Center (AOC) on concourse A. The backup AOC will provide a complete replication of the console positions in the current 10th floor airport communications center, maintenance control center and emergency operations center.

URS has developed a very unique mix of technologies to support the new center. PC over IP will be used to deliver video, USB and audio services to the consoles from a combination of physical workstations in a support equipment space and virtualized workstations located in the concourse A data center. This eliminates the need to have computer CPU equipment in the centers, keeping the noise and heat from computers in a support equipment space. Simple desktop appliances which are about the size of a paperback book will be used on the consoles which communicate with their workstations over an Ethernet connection.

Consoles will utilize a cursor driven keyboard and mouse switch to allow up to four systems at each console to be managed from a single keyboard and mouse. As the operator cursors away from monitors on one system the cursor disappears on monitors for the current system and reappears on the monitors for the next system. The keyboard and mouse are switched automatically from system to system.

Large format displays in the centers will be driven by a software based display system. This system ingests CCTV images and utilizes display agents on various workstations throughout the center and on machines located in the support space for weather, map display, display of aerial photos and other purposes. Scenarios are constructed for each different operating mode for the centers. Any window on any workstation can be easily displayed on the display system monitors at any size. Scenarios will be created for snow and various other event types allowing the display system to be re-mapped with the click of a mouse.

URS Project Staff

Frank Breeze, John Spencer, Robert Bunker, Steve Karst, Steve Eldridge, Kevin Richmond, Jerry Lopez, Neil Hahn

URS

Anchorage International Airport, Anchorage, Alaska

Design of Replacement Access Control System

Firm

URS Corporation

Project Location

Anchorage, AK

Design Cost

$106,000

Date Completed

December 2010

Services

Site-wide Access Control System Replacement, Fingerprint Biometrics, HSPD-12, FIPS 201 and 49 CFR Part 1542.207 Compliant System

Client Reference

Jesse Campbell
Project Manager
Alaska Department of Transportation
907.266.2723
jesse.campbell@alaska.gov

Project Description

URS was the technical consultant for the design of the replacement of the Airport's existing site-wide 49 CFR Part 1542.207 Access Control System (ACS). Design elements included replacement of the existing ACS headend with a FIPS 201 compliant enterprise system, replacement of all access controllers with new Internet Protocol (IP) based controllers, installation of contactless smart card readers, upgrade of the existing Ethernet network with the addition of two new core switches providing a new network reliability of 99.999%, new Gigabit Power over Ethernet (PoE) edge switches, redundant servers, visitor management system, graphical user interface (GUI) workstations and Biometric Fingerprint readers. System design included full integration with the existing Digital Video, Intercom and Closed-Circuit Television (CCTV) systems for automated intercom and CCTV call-up upon receipt of ACS alarms and the ability to view live and recorded digital video at the ACS GUI workstations. The new system architecture was designed to support the migration to future edge devices (card readers, intercoms, cameras, etc.) on a per portal basis. Design was a complete site-wide system replacement including all access controlled perimeter vehicle gates.

As part of the design an extensive industry survey was conducted to determine a short list of ACS manufacturers which met the Airport's operational and physical security requirements. Based on URS' previous project experience, knowledge of the industry and through stakeholder interviews a manufacturers questionnaire was developed detailing major system requirements, project experience and financial information. This questionnaire was sent to the leading ACS manufacturers for response. Once received and compiled a short list of five manufacturers was developed. Through URS, site visits were scheduled for the Airport to visit existing Airport installations to meet with Operations and Maintenance personnel to solicit feedback on system performance, support, functionality, etc. Once the site visits were completed a Basis of Design was established for the Contract Documents.

Over the past 15 years, the URS Denver Aviation Systems Group (ASG) has taken part in many successful projects at Anchorage International Airport. Other projects include development of the Airport's Special System Master Plan, Airport Operations Center (AOC) Master Plan, CCTV System replacement and design of a new AOC and ID Badge Office.

URS Project Staff

Steve Eldridge
Kevin Richmond
Frank Breeze
Steve Swinehart
Keith Martin

URS

Tampa International Airport

Communications Center & STS/CUPPS and Closed Circuit Television & Garage Emergency Telephone Systems

Firm

URS Corporation

Project Location

Tampa, FL

Project Value

Communications Center $4.1M

STS/CUPPS $2.1M

Network / VoIP Equip $1.8M

CCTV and Emergency Telephones $9.0M

Date Completed

September 2012

Services

Communications Design & Construction Administration

Client Reference

STS CUPPS
Richard C. Rogers
Manager – Projects & Strategy
Tampa Int'l Airport
813.740.7849

Communication Center
Brian Rumble
Deputy Director of Operations
Security Administration
Tampa International Airport
813.870.8755

Project Description

URS was commissioned approximately fifteen years ago by Tampa International Airport to modernize and expand their existing communications center. This project involved design and construction of a new communications center around the footprint of the existing center in a tightly constrained space. In addition to providing consoles and new front-end equipment for many existing systems, the project involved development of paging and emergency notification software, a system of integrated reporting and computer automation of shuttle, monorail and elevator systems. The renovated center has served the airport well over the past years and adapted to many changes in technology, new systems and changes in operational procedure.

About two years ago the airport began a program to relocate their rental car operation that would displace the existing communications center. URS was requested to provide detailed design and construction administration / inspection services as part of a design build team in the development of a new modernized center.

The operation of the Tampa center is unique as three to five operators manage virtually every aspect of airport operations and communications. These tasks range from paging and telephone, to security, shuttle and monorail systems. The large number of systems that come together defines the need to bring useful information to the center operators rather than equipment from individual systems. The systems in the new Tampa communications center are listed below:

- Security Access Control
- Closed Circuit Television Systems
- Fire Alarm Monitoring and DispatchElevator & Escalator Monitoring & Control
- Shuttle System Control Travelers Information Radio
- Voice Paging and Courtesy Phone Response Radio & Telephone Dispatch Console System
- Crash Network Response and Dispatch Digital Audio/Video Logging Recorders
- Lightning Warning System Administrative LAN
- Emergency Comm System Monorail System Control
- GPS Master Clock and Airport Time Reference Monorail Emergency Intercom and Paging

The new communications center migrates the center operators to a new and larger location in a clustered relationship with a new airport E911 and police dispatch center and an emergency operations center. Adjustable ergonomic workstations are utilized in combination with a video display wall to support all of the centers functions in an organized and comfortable manner. The communications center project also replaces and integrates many of the existing systems to bring information to the operators in a more coherent and organized manner.

The Tampa center project is a technically complex project involving extensive sequencing and cutover of infrastructure components. The existing center contained all of the airport access control, CCTV and other central equipment. The new center project relocated and modernized this central equipment to new server farm type spaces remote from the new center. This provides for continuing growth and change without impact on the new center. Extensive fiber-optic and copper cabling changes were required to facilitate the new architecture with little or no disruption to airport services.

This project also includes development of a Windows based graphical paging interface to operate with the airport's IED ACS 500 public address system.

STS/CUPPS (Shared Tenant Services/Common Use Passenger Processing)

URS recently completed design of a new system of infrastructure for the terminal and airside facilities at Tampa International Airport. This work involved an intensive survey of existing facilities and infrastructure, design of pathways and communications rooms, development of a new system of infrastructure and development of a comprehensive network master plan.

Tampa, like many older airports has a system of existing copper and fiber infrastructure that has evolved over time. The field survey portion of this project entailed documentation of the existing airport and regulated cabling infrastructure, pathways and approximately seventy communications rooms. The objective behind this verification was to insure that the new Shared Tenant Services infrastructure and associated Common Use Passenger Processing infrastructure could easily be extended to airport, airline and tenant endpoints.

This project included design of approximately twenty new communications rooms as well as refurbishment of approximately thirty other existing spaces. Each space was designed with new HVAC, fire protection, power, lightning and security equipment. Approximately twenty new IDF rooms as well as new core room and server farm spaces were also provided with a complete architectural design. A combination of new and existing pathways were designed to provide physical path diversity to compliment the logical network design.

The physical infrastructure for the STS/CUPPS project focused primarily on an extensive network of single mode optical fiber and, to a lesser extent, copper infrastructure. Path diversity was a primary concern in this design, allowing for any single cable pathway to be lost without affecting service on the network. Any single IDF could also be lost without affecting service in other areas of the network. Voice over IP, LAN and analog telephony services were easily transported over

the resulting Ethernet infrastructure. Legacy copper Centrex infrastructure will remain in place until end devices are migrated to Voice over IP.

The logical portion of the network included development of a comprehensive network master plan for the existing terminal and airsides. The architecture used in this design updated existing Cisco 6509 switches, tasking these switches as core switches. These switches in turn accept physically diverse uplinks from pairs of Cisco 6509 or 4507 distribution switches located at the terminal and airsides. These distribution switches served as aggregation points for physically diverse uplinks from Cisco 3560 switches are being deployed at the IDF room level. Backbone links in the core and distribution layers will be 10-gigabit bandwidth from the outset. Uplinks from the edge switches at the IDF level will initially be 1-gigabit per second with ultimate expansion to 10-gigabit through a simple change of optics.

The network design included a comprehensive architecture master plan, an IP and multicast addressing master plan and a Virtual Local Area Network master plan. Standard configurations were also specified for core, distribution and access layer switches. A four-tiered quality of service design was also included to mark traffic at the point of ingress on the network and prioritize this traffic as it crosses the network.

The network design included a complete Voice Over IP VoIP design including dual redundant call managers, dual redundant voice mail servers and physically diverse gateway routers to interface to the public telephone network. Each IDF was provided with one or more voice gateway devices to support telephone interfaces with fax machines, courtesy phones, elevator phones and similar analog devices. The initial VoIP deployment will include all Aviation Authority phones. VoIP telephony will also be used as part of a shared tenant service offering.

Telephones at gates and ticket counters will also be VoIP devices. The Cisco call managers support a feature called Extension Mobility Service. This service allows telephones at gates and ticket counters to be re-profiled with numbers, speed call lists and features that are specific to each airline. A simple API call is made to the call manager by the CUPPS workstation at user login to re-profile the phones. On logout the phones are again re-profiled into a default configuration that can only dial emergency numbers.

Primary and secondary server farm/core room facilities were also designed as part of this project. These facilities provide redundant cooling, UPS power and cabinetry to support mirrored or redundant pairs of applications servers as well as serving as the end points for much of the fiber infrastructure. Physical separation of these facilities allows either to be lost without affecting the network or availability of the systems riding on the network.

Through a simple connector change, a percentage of the single mode fibers in each of the cable routes can be terminated with high return loss angle faced connectors. This allows the same infrastructure that supports voice and LAN services to be used for standard and high definition television as well as other in-building wireless services such as cellular, PCS and public safety radio. Planning for these services in

the infrastructure design is far more cost effective than dealing with these systems with separate infrastructures.

Closed Circuit Television & Garage Emergency Telephone Systems

URS was commissioned to design and manage the implementation of a new IP based closed circuit television system by Tampa International Airport. This project was funded by a grant from the Transportation Security Administration to provide high resolution cameras throughout the terminal, at security checkpoints and at various other locations on site. The project was subsequently expanded with airport funding to include cameras at entry and exit points to the parking garages and at strategic locations throughout these facilities. The parking garage portion of the project included design of a comprehensive blue-light telephone system to support emergency calls to airport police and assistance calls to the parking operator..

The CCTV project included an expansion of the new network provided as part of the STS / CUPPS architecture to support Power over Ethernet requirements for approximately 350 new megapixel video cameras. This involved an Owner purchase of approximately $1.2 million of new network equipment. This equipment will be installed and configured by the airport IT staff in advance of needs by the contractor. A comprehensive bandwidth analysis was performed on the new network design to ensure that network performance for VoIP, video and other traffic would be transported properly. The network design also included several wireless bridge links to camera locations at otherwise inaccessible areas of the site.

The CCTV design includes a broad variety of fixed and pan-tilt-zoom megapixel IP video cameras located at security checkpoints, general circulation areas, curbsides, roof-tops and other locations throughout the airport. These cameras stream video to Storage Area Network servers located within each network region to keep video traffic local to each network region unless a camera or stored video is actively being looked at by a user in another network region. Camera video is stored for a period of thirty days in accordance with Florida state statutes.

Early in the design process the design team conducted a comprehensive field of view analysis. This analysis involved representatives from the airport, TSA as well as the design team. The purpose of the analysis was to test various camera and lens types to ensure that the images were suitable for the camera's intended purpose.

The new system also reuses a number of existing legacy cameras to save cost. These cameras are encoded within their respective facilities allowing them to be used by the operators of the new system as if they were new cameras. Over time, these legacy cameras will be replaced with newer IP cameras.

The new CCTV has been provided with control and monitoring positions at the airport communications center, the TSA control center, security checkpoints, the airport incident command center and at a variety of other locations throughout the airport. These locations are equipped with IP consoles that allow operators to view various camera images or recorded video images. The system is configured to grant

rights for each position describing the cameras and stored video images that each position can view.

The new CCTV system will integrate with the existing airport access control network. This integration will allow for automatic call-up of CCTV images in response to various access control system alarms. The CCTV project is upgrading the core access control system software to facilitate this integration.

The large number of CCTV images provided by the new system required us to take a hard look at the existing display technologies at the airport communications center and incident command center. The centers contained a variety of dedicated monitors with only limited switching to allow images to be mapped wherever they are needed. The solution was to implement an enterprise-wide video display technology.

The display system solution selected for the Tampa CCTV project is a software based IP solution. This solution uses stock servers and video cards to support displays of ultra-thjin bezel LCD monitors in single unit, 2x2 video wall, or 3x3 video wall configurations. Servers are provided with video ingest cards to accept video from sources such as high definition television tuners, blu-ray players and other legacy systems such as shuttle and monorail control computers.
Unix, Linux and Windows computers located within the centers are equipped with a display system client application. These client applications allow any window on any workstation to be contributed to the display system. These images can be mapped to the displays at any location at any size. Servers are also provided to ingest CCTV images directly from the cameras or stored images from the system servers.

The display system software allows for ad-hoc and scripted mapping of CCTV images and images from sources such as lighting warning, shuttle, monorail, vertical transportation management and other systems. Scripting allows re-mapping of the displays based on various scenarios such as weather, security events, traffic accidents, aircraft incidents and other situations.

The display system also integrates with 3G/4G devices such as the I-Phone and Droid or I-Pad. Displays on these devices are configured as system displays, allowing content such as CCTV images, still images, maps and other content to be pushed to specific devices as you would for any other display in the system. Images at the remote device can be zoomed, scrolled and manipulated by the remote user.

The display system also allows the camera in the remote 3G/4G devices to be designated as a video source for the system. These remote camera images can be displayed at any of the system displays. Images from phones with an integral GPS can also be displayed on a map at their actual position along with an identifier for the phone or PDA device.

URS Project Staff

Steve Eldridge, Frank Breeze, Rob Bogan, Mark Auville
Kevin Richmond

URS

Raleigh Durham International Airport

Firm

URS Corporation

Project Location

Raleigh, NC

Construction Amount

$750M

Date Completed

September 2008

Services

Local Area Network (LAN)

Airport Communications Center

Passive and Active Electronic Systems

Resource Management

Master Plan

Client Reference

Duane M. Legan
Information Services Division
RDU Airport Authority
919.840.7438

Project Description

URS has worked at the Raleigh Durham International Airport over the past eight years on the following projects:

Survey and Documentation - Communication Infrastructure
As part of the foundation for the Network Infrastructure Master Plan, Raleigh Durham Airport contracted with URS to provide detailed record documentation of the airport's building to building underground fiber optic and copper cabling communication infrastructure. The task scope included the survey of existing infrastructure between terminals so as to capture the bulk of infrastructure; this effort documented the airport's core below grade communication infrastructure.

URS utilized the resources of a subcontractor to manage and provide staff to oversee and execute confined space entry with URS staff performing the detailed documentation. Through the combined use of the subcontractor's tools and URS resources, detailed electronic drawing files were develop that pinpointed manholes to NAD-83 coordinates and ductbanks to either Utility Quality Level B or C paths. Further, in manhole and building entrance surveys permitted development of manhole butterfly diagrams, entrance details, along with current photographic documentation.

Network Infrastructure Master Plan
Raleigh Durham Airport had URS develop a Network Infrastructure Master Plan (NIMP) that provided planning for site wide communication infrastructure, developed a structure for a site wide network, standardized communication labeling procedures, and included the communication infrastructure survey described above.
URS was able to provide this comprehensive NIMP through understanding existing communication infrastructure, reviewing capitol improvement projects, discussions with authority stakeholders on airport long term expansion plans, consider the Information Systems use of Cisco equipment, and the roll out of VoIP telephony. The NIMP is the foundation for the deployment of communication at RDU, but is still understood by the Authority to be a living document to be adapted as conditions change.

Airport Control Center
URS provided design services for the design and construction phase services of the Airport Control Center (ACC) within their existing Airport Operation Center. The design services required URS to relocate, expand, and modernize RDU's existing operations center located within Terminal A. URS surveyed the existing facility in order to detail relocation or replacement of existing systems which include Motorola radio, access control and close circuit television systems, parking garage assistance phone monitoring system, and 911 recorder and workstation among others.
Final design utilized state of the art fully adjustable 911 command center furniture, along with access flooring to provide concealed power and communication distribution, PCoIP remoting technology to minimize operator position equipment, video combining at the positions, custom GUI interfaces, and large format flat panel displays.

Terminal C (Terminal 2) Replacement Project
URS, as a sub consultant to the Architect, provided passive and active electronic systems for the Terminal Building replacement project. The project replaces RDU's existing Terminal C with a modern passenger friendly facility outfitted with state of the art industry specific common use passenger processing technology.

Terminal Passive Infrastructure
The passive infrastructure outfitted the facility with copper and fiber optic backbone, copper station cabling, and owner and tenant communication rooms. As part of RDU's telecommunication plan, this facility was the foundation for the new coordinated communication infrastructure program for the Airport. The facility was designed with backbone single mode fiber optic and copper CAT3 cabling to each communication room. Additional FO through communication rooms was installed to create diverse paths for level 2 network data distribution. CAT6 communication cabling is used for horizontal station cabling to the workstations. RDU IT has focused on creating a managed infrastructure facility by supplying and supporting the passive infrastructure for each system utilized in the facility whether it is an RDU or vendor provided system.

Terminal Active Infrastructure
URS's design provided a Cisco-based, three level Local Area Network (LAN) for use by RDU, tenants, and other non-RDU systems. This redundant LAN is providing critical systems with required connectivity to all points within the Terminal Building. The LAN supports URS designed multi-user flight information display system, common use airline ticketing positions, master clocks, voice over internet protocol, stand-alone and common use self-service ticketing kiosks, and resource management system. In addition, the LAN is supporting other non-URS designed systems including access control, close-circuit television, building management, and customs and border protection. This managed approach provides RDU with a controlled environment to support tenant services.

URS developed performance based Request for Proposal (RFP) scopes for the various active Terminal Building systems. These two RFPs were released as Integrated Communications Systems (ICS) and Airport Operations and Information Systems AOIS. The ICS RFP provided requirements for the LAN, master clock, and master antenna television system. The AOIS RFP systems included the resource management system, common use system, common use self-service units, local departure control system, multi user flight information display system along with all the field devices utilized (dynamic displays, ticketing equipment, headends, etc.)
Information Technology Design Services

URS Project Staff

Frank Breeze
Steve Eldridge
Reed Engel
Randy Moseman

URS

Los Angeles World Airports

Tom Bradley International Terminal – New West Core and Concourses Project

Firm

URS Corporation

Project Location

Los Angeles CA

Construction Amount

$30M (systems only)

Date Completed

Design Completed Dec 2010

Services

IT, Telecommunications, Infrastructure, Specialty Electronic Systems Design, RF and Networks

Client Reference

Jorge Gutierrez
Airport Operations Systems Manager
Operation & Emergency Management Support
Los Angeles World Airport
Office: 424-646-5410
Cell: 310-428-0014

Project Description

URS Corporations Denver based Airport System Group provided detailed technology systems design documents suitable for competitive procurement for the Tom Bradley International Terminal (TBIT) New Bradley West Program. The program consists of new 15 gate international terminal and concourse facilities primarily for use of Group 5 and the New Large Group 6 (A380) Aircraft. As a primary international port of entrance to the United States, the facility includes extensive Customs and Border Protection (CBP) passenger processing and screening, claim and recheck facilities. The facility which supports 30 airlines including inbound international service for 2 domestic carriers is interfaced to the existing TBIT Core international passenger processing facility including airline ticket counters, office areas and circulation space. In addition a new 16 lane TSA Screening checkpoint is included in the design.

The URS Corporation ASG was responsible for the detailed designs for the following technology Systems:

- Premise Wiring Distribution Systems (horizontal and backbone communications cabling systems)
- Radio Frequency Distribution System
- Wireless Fidelity (WiFi) supporting airport, airline, tenant and public use
- Electronic Visual Information Display Systems
  - Flight Information
  - Baggage Information
  - Dynamic Signage for advertising and Wayfinding and support of the art program
- Common Use Systems (Terminal Area Support Systems)
  - Common Use Passenger Processing
  - Common Use Self Service
  - Centralized Databases (information broker)
- Broadband Television Distribution System

The design effort was broken down into two separate packages, Concourses and Core. Each package was then designed to interface to existing infrastructure and systems to support stand alone temporary operation with eventual migration to a fully integrated systems environment. The designs have recently been completed and the project is under construction using a Construction Manager at Risk (CMAR) implementation approach.

URS Project Staff

Steve Eldridge
Frank Breeze
Rob Bogan
Reed Engel

Section 5 -
Resumes of Proposed On-Site and On-Demand Staff

Robert Bunker
Senior Program Manager

Areas of Expertise

Construction Management

Design Management

Electronic System Integration

Voice/Data/Telecommunication Networks

Years of Experience

With URS: 17 Years
With Other Firms: 15 Years

Education

BS / Engineering Physics / Weber State, University of Utah / 1985

Overview

Mr. Bunker has an extensive background in construction management and design management of aviation electronic systems and is experienced in all aspects of design, implementation and integration of airport electronic systems. His extensive experience with electronic systems design and deployment, general heavy construction background, combined with an in-depth understanding of airport business and operational needs provides a proven successful approach to airport systems integration. He has extensive experience in airport voice and data and telecommunication networks, communications center design, and integration and ergonomics and has an ITILv3 Certification.

Project Specific Experience

On-Call Electronics & Communication System Support Services, Denver International Airport, Denver, CO:

As Program Manager for DIA Technologies PMO, Mr. Bunker's responsibilities include the oversight and management of large-scale Technologies PMO projects including Data Centers, Operations Centers and campus wide airport systems implementations. Specific areas of responsibility include program and project management of the full suite of airport electronic systems in support of the entire existing DIA campus as well as the new South Terminal Rehabilitation Program (STRP). Systems include Networks, Premise Wiring (fiber & copper), Access Control, Closed Circuit Television, Emergency Communications, FIDS/MUFIDS, CUTE, CUPPS, Radio Frequency systems, Wireless LAN, Paging, Parking, Automatic Vehicle Identification (AVI). In addition to systems specific disciplines, Mr. Bunker is also responsible for general engineering and construction disciplines such as architectural, electrical, mechanical and structural oriented projects.

New Airport Electronic Systems, Detroit Metropolitan Wayne County Airport, Detroit, MI:

As Senior Design Manager for all electronic systems at the new $1.2 billion Detroit Metropolitan Airport Midfield Terminal Project (Northwest WorldGateway), Mr. Bunker developed information technology designs for the complete suite of airport electronic systems with an emphasis on deploying leading edge technology that will serve future needs, as well as accommodate migration from existing technologies presently in use today. He developed master planning for airport electronic systems at Detroit and also performed detailed and long-range construction sequencing analysis for systems installation. Systems included all voice and data network infrastructure, network architecture, active network and voice electronics, wireless voice and data, radio frequency distribution, access control, CCTV, visual information display, fire alarm, voice paging, passenger check-in and departure control management, energy monitoring, and control systems. He served as senior electronics design and construction liaison to the airport authority, airlines, federal, municipal and local agencies, tenants, as well as design and construction firms. Mr. Bunker provided oversight of multiple design firms and coordinated designs individually and across contractual boundaries. Following design completion, he

served as Senior Construction Manager/Advisor throughout the construction process.

Airport Expansion Master Plans, Sydney International Airport, Sydney, Australia:

As Design/Construction Consultant, Mr. Bunker provided detailed recommendations regarding project design, sequencing, logistics, and modifications to airport master plans successfully supporting airport expansion deadlines for the 2000 Summer Olympic Games in Sydney. He provided in-depth constructability reviews for the Federal Airport Commission of Sydney relative to developing methodology for design and installation of new baggage handling systems in the existing International Terminal without impacting passenger or aircraft throughput. Mr. Bunker developed logistics and methods for dealing with large scale construction in numerous confined space, airport operational, occupied, and limited access areas of the terminal complex.

New Airport Electronics Installation, Kuala Lumpur International Airport, Malaysia:

As Senior Area Manager and advisor to the Malaysian Government for project planning, Mr. Bunker provided design, interface management and coordination of electronics installation at the new Airport. He advised senior management on physical and logical interface management and provided project construction sequencing, construction feasibility, design, and technical implementation. He developed an integrated project master schedule and created several software driven database solutions for ease in government reporting. Mr. Bunker provided critical project guidance in delay assessment, mitigation and recovery for electronics systems airport wide. Systems included WAN/LAN Networks (ATM technology), air traffic control systems, FIDS/BIDS, airport security card access, building management systems, gate allocation systems, passenger screening systems, central database, point of sale, meteorological, apron services, phones/data, operations centers, trunked radio and CCTV among others.

New Airport Electronic Systems, Denver International Airport, Denver, CO: Mr. Bunker served as a Resident Engineer responsible for the complete oversight, administration, and construction of electronic systems airport wide. He was responsible for fiber optic premise wiring systems, integrated voice paging, fire alarm, security card access, CCTV, distributed radio frequency (trunked radio), public affairs television, central facilities management systems, systems control and data acquisition systems, noise and operations monitoring system, flight information/baggage information display systems. Mr. Bunker successfully implemented $150 million in systems covering 53 square miles of airfield and facilities.

URS

Stephen Eldridge
Sr. Airport Consultant / Sr. Project Manager

Areas of Expertise

Electronic Systems
Telecommunications Systems
Command and Control Facilities
Communications Infrastructure
Life Safety Systems

Years of Experience

With URS: 20 Years
With Other Firms: 11 Years

Education

Champlain College – Business Management

Other Relevant Course Work:

AS - AC/DC Electronics, Valencia Community College
Digital Electronics, Valencia Community College
Syn-Aud-Con
Electro Acoustics
Fiber Optic Cable, Systems Design, Installation, Testing – BICSI
Data Transmission Systems – BICSI
Premise Wiring Systems – BICSI
SL1 Technical School, Northern Telecom
Six Years of Training, Electronics Field Technician

Overview

Mr. Eldridge has 31 years of experience in the preparation of detailed designs and project management in the field of specialty electronic and telecommunications, IT, and infrastructure systems with an emphasis on large airport projects, specifically the command and control environment. Expertise includes the security requirements of 49 CFR 1542, ICAO and Annex 17; control room design and ergonomics; background music, paging systems and video systems; fiber optic and copper premise distribution wiring systems (PWCS); voice switching and data network systems, including SONET/SDH, ATM, 100BaseT, Gigabit Ethernet and terrestrial networks. Project responsibilities have included comprehensive project management, engineering analysis, design and installation inspection services for all types of electronic systems applications throughout the US for airports, municipal facilities, and commercial/office complexes.

Project Specific Experience

Design Project Manager and Principal Communications Systems Designer, Los Angeles International Airport, Tom Bradley International Terminal - New West Gates and Core: – The new West Gates and Core Project includes the construction of over 1.5 million square feet of international passenger processing, aircraft gate, passenger facilities and airport and airline support space at LAX. The new West gate and core project replaces all of the existing Tom Bradley Terminal International Gates, and doubles the space available for passenger processing and provides world class passenger amenities. The new concourse includes 14 new gates 8 of which and will accommodate the A380 New Large Aircraft. Key systems designs included the complete upgrade of the integrated common use systems including passenger processing, FIDS and BIDS, resource management and centralized databases. Additional systems designs include wired (copper and fiber optic) and wireless (WiFi) infrastructure systems, radio frequency distribution systems, broadband distribution and Internet Protocol television (IPTV). URS also developed the infrastructure and video systems designs for the TSA and CBP supporting one of the busiest international points or entry into the United States.

Project Manager and Lead Communications System Designer, In-Line EDS Project, Ronald Reagan International Airport, Washington DC: URS served as the prime consultant to the Metropolitan Washington Airport Authority (MWAA) for the multidisciplinary design of a new in-line explosive detection system (EDS). The EDS systems valued at approximately $75M included 8 EDS machines associated conveyance systems, 3 trace suites, an on screen resolution facility and a baggage control room. A host of technology systems were required to support the facility functionality. Mr. Eldridge served as the internal Project Manager for URS' technology group whose design responsibilities included security

access control, closed circuit television, communications infrastructure / networks and specialty electronic systems. Work included comprehensive designs for the baggage system controls, Ethernet networks including the server architecture and the AV systems associated with the baggage control room. In addition to project management responsibilities, Steve served as the lead designer for all of the infrastructure and communications systems on the project.

Principal Designer – Denver International Airport, Back-up Communications, Maintenance and Emergency Operations Center: Mr. Eldridge served as the design Project Manager and provided technology systems design support for this $4,000,000 project which is currently in the Bid Phase of the overall program execution. URS provided multidisciplinary detailed design services inclusive of Architectural, Structural, MEP and technology and communications systems. The Back-up center suite provides the airport with fully redundant operations for three key facilities. These facilities include the Airport Operations Center (AOC), the Maintenance Communications Center (MCC), and the Emergency Operations Center (AOC). Designed with an operable glass partition, the AOC and MCC can be combined or isolated as operations mandate. Both the AOC and MCC contain (8) eight ergonomic operator positions, a supervisor position, a manager's office and a conference room dedicated to each specific center. The EOC supports 14 staff positions using configurable technical tables, a partitioned conference room and two breakout rooms for restricted discussions and planning and coordination activities. The facility utilizes common break and toilet facilities and is fully NFPA 1221 compliant, served by redundant M and E systems and infrastructure. Technically the centers mirror the technical capabilities of the Airports primary centers with advancements to scenario based software based video display systems, single keyboard operation accessing multiple computer systems and resources.

Other Notable Projects

Principal Designer, Communications and Electronic Systems, Airport Communications Center / Emergency Operations Center, Raleigh Durham International Airport, Raleigh NC

Principal Designer / Project Manager, Specialty Electronic Systems, new terminal wide Baggage Systems projects, Orlando International Airport, Orlando, FL

Project Manager / Lead al Communications systems Designer – Spokane International Airport, TSA CCTV System Project

URS

Frank Breeze
Technology Practice Leader

Areas of Expertise

- Program Definition
- Electronic Systems Design
- Voice, Data and Television Networks
- Lightning Protection
- Security Systems
- Control Room Design and Ergonomics
- Construction Management

Years of Experience

With URS: 20 Years
With Other Firms: 17 Years

Education

- Cisco Networking Academy CCNA / CCDA, Scalable Networks, Multilayer Switched Networks, Advanced Router Configuration, Remote Access Networks, Network Troubleshooting, ITIL V3,
- Comp/TIA Network Plus
- Cleveland Institute, Broadcast Engineering
- University of Wisconsin: Lightning Surge Suppression; Grounding for Telecommunications Systems; Fibre-Optic Network Design
- Bolt, Beranek & Newman, Noise and Vibration Control for Buildings
- Synergetic Audio Concepts, Electro-Acoustics
- PSMJ, Computer Network Design
- Chilton: Programmable Controllers; Computer Input-Output Systems
- Zilog, Z8000 Microprocessor Architecture
- Orange County Vocational, FCC First Class Radiotelephone License
- Heath/Zenith: Digital Techniques; Robotics and Industrial Electronics

Overview

With more than 36 years of experience, Mr. Breeze is extremely knowledgeable and experienced in all aspects of design, implementation and integration of airport electronic systems. He has successfully designed and integrated systems at eight major international airports. His extensive experience with network design, software development, combined with an in-depth understanding of airport business and operational needs provides a unique approach to airport systems integration in a way that makes sense. He has extensive experience in airport voice, data and television networks, communications center design and integration and ergonomics. Mr. Breeze has completed the Cisco Associate and Design Professional curriculums and is experienced in working with a suite of approximately forty airport specific electronic systems.

Project Specific Experience

Senior Electronic Systems Specialist, Electronic Systems, Denver International Airport (DIA), Denver, CO:
Architect for comprehensive Gigabit Ethernet campus-wide network which supports over forty airline, tenants and airport subsystems. Developed a highly scalable City and County-wide IP addressing master plan, which encompasses the airport and all City & County agencies. Designed and managed implementation of a new Network Operations Center. Developed and managed implementation of diverse routes for all mission critical facilities as well as establishing a physically separate point of presence for regulated and competitive carriers. In addition to individual project design, Mr. Breeze also supports the DIA Technologies Project Management Organization (PMO) and Portfolio Planning Team (PPT).

Electronic Systems Technology Specialist, Raleigh-Durham International Airport (RDU), Raleigh, NC:
Provided technical expertise for the development of the airport's telecommunication master plan. This design provided a structure for a campus area network that integrated existing airport infrastructure to provide a fully redundant network. The same reliability was incorporated into the local area network design for the Terminal C rebuild. The integrated redundant design provides RDU with a network capable of supporting tenants (primarily airlines and concessions) where their business success and client transactions ride on this network. Also provided design expertise on television distribution, common use system, flight information display system, and gate management. Throughout the RDU projects Mr. Breeze has been the lead technical electronic system specialist.

Principal Designer, Communications and Control Center, Tampa International Airport, Tampa, FL:
Principal Designer for an award winning replacement communications and control center approximately 17 years ago. Recently was Principal

Designer for a replacement center which modernizes and relocates the existing center to a larger footprint in combination with the airport E911/police dispatch facility and Emergency Operations Center. Developed a comprehensive infrastructure and network master plan which re-architected the airport infrastructure and local area network under a program entitled STS/CUPPS. Most recently served as network architect for a TSA and airport sponsored airport wide IP closed circuit television system involving approximately 800 cameras and several petabytes of video storage.

New Denver International Airport, Denver, CO:
Electronic systems project manager and client representative managing design, bidding, construction and integration of Parking & Ground Transportation System, 240 Channel Radio Frequency Distribution System, 80 Channel MATV System, four network Broadcast Origination System, Data Acquisition and Control System, Air-to-Ground Radio, and various other systems. Parking and Ground Transportation project involved full integration of entry / exit plaza equipment (Trindel), 21 AVI sites (Amtech), garage count system (Traffic Technologies) and a 20,000 card employee parking system with under a Windows NT and UNIX environment into a single user application. Interfaces were also provided to the Airport's financial computing system.

Kuala Lumpur International Airport, Malaysia:
Systems manager for the $300M Total Airport Management System. This involved oversight of design and construction for seventeen airport electronic systems. It also involved integration of these systems and others with an airport operational database. A total of forty-one systems were successfully integrated as part of this program using information broker technology.

Chronology
1992 - Present: URS Corporation, Denver, CO
1977-1992 – Tilden Lobnitz & Cooper, Orlando, FL
1976-1977 – Communitronics of Florida, Orlando (Operations Mgr.)
1972-1976 – American Television & Communications, Orlando, FL
1969-1972 – Communitronics of Florida, Orlando, FL (Technician)
1968-1969 – General Electric (Apollo Program), Cocoa Beach, FL
1967-1968 – General Elevator Corp, Orlando, FL

Contact Information

8181 East Tufts Avenue
Denver, CO 80237
Phone: 303.342.2613
Fax: 303.342.2827
Frank.Breeze@urs.com

URS

John E. Spencer II
Senior Systems Specialist

Areas of Expertise

- Specialty Electronic Systems
- Access Control
- CCTV
- Security Screening
- Fiber Optic Communication

Years of Experience

With URS: 13 Years
With Other Firms: 18 Years

Education

- Mechanical Engineering Doctorate Program/1980-1982) /Colorado State University
- MS Industrial Administrative Science/1980/Iowa State University
- BS Electrical Engineer/1972/ Iowa State University

Other

- Committee Member RTCA DO 230A / B – Standards for Airport Security Access Control Systems

Overview

Mr. Spencer has more than 31 years of experience in designing specialty electronic systems and as part of the URS Team supporting the current Electronics and Communications Systems Support Services on-call DIA. In his role John brings a wealth design skills and legacy of knowledge for many DIA security systems including: security access control, closed circuit television (CCTV), digital video recording and management systems (DVRMS) and the infrastructure and network carriage elements supporting those systems. John is also very knowledgeable in perimeter security systems technologies and several other key systems at DIA including the ComNet Multi User Flight and Baggage Information Display System (MUFIDS) and the equipment room environmental monitoring systems. John is also intimately familiar with all of the TSA systems and technologies deployed at DIA supporting the Security Screening Check Points (SSCP) and Checked Bag Inspection Statins (CBIS) at DIA

Project Specific Experience

Electronics and Communications Systems Support Services on-call DIA, Denver International Airport, Denver, Colorado: Provide detailed design and construction administration services for converting CCTV system from analog to digital and converting Access Control system to Ethernet based system. Regularly coordinates with on-call teammates pertaining to impacts and modifications to the DIA Premise Wiring Communications (PWCS) and network transport systems. Work closely with DIA security division and the TSA to coordinate and implement security requirements. Provide design and construction administration for modifications, changes and expansions to existing specialty electronic systems such as MUFIDS, environmental monitoring. Provide plan review of telecommunications and Electronic systems designs by others to ensure compliance with DIA standards and requirements.

Specialty Electronic Systems, New Denver International Airport, Denver Colorado: John served as the Lead Engineer in the development of the detailed designs for the original New Denver International Airport. John was specifically responsible for the detailed designs associated with the Closed Circuit Television System (CCTV), the Security Access Control System (ACS) and the security systems fiber optic infrastructure and network systems. John was also responsible for the development of the detailed design for the dedicated 50um Fiber Optic backbone that supported the security systems as well as the life safety (Fire Alarm Systems). Additional responsibilities included the development of Tenant interface and build-out guidelines for Security and technical systems in Tenant / leaseholder spaces.

Concourses A, B, and C, Denver International Airport, Denver Colorado: Designed security and CCTV systems for Airside Concourses A, B, and C core and shell construction, and Concourses A and B tenant finish projects. Developed security plans and designs to meet tenant requirements and fully coordinate with the airport-wide security system plan.

Concourses A, B, and C, Denver International Airport, Denver Colorado: Lead Engineer for the design of DDC system to monitor and control HVAC equipment throughout the facilities.

New Terminal Building, Yan Jia Gang Airport, Harbin, China: Developed Request for Proposals for card access, CCTV, building automation, voice paging and fire alarm systems. Provided design consultation and guidance in meetings with airport administration, architects, and engineers.

Terminal Expansion, Will Rogers World Airport Terminal Expansion, Oklahoma City, Oklahoma: Project manager/design engineer for design of access control, premise wiring, FIDS/BIDS, paging, and CCTV systems. Was the designer of record for the access control, FIDS/BIDS, and CCTV systems.

Doha International Airport, New Terminal Building, Doha, State of Qatar: Lead Engineer for the design of Closed Circuit Television (CCTV), Access Control, and Security Screening Systems.

Greater Pittsburgh International Airport, Pittsburgh, Pennsylvania: Designed process controls and instrumentation for two deicing pads, central plant, and fluids distribution systems. System precisely controls concentrations of Type I deicing mixture solutions and includes capability to apply Type II anti-icing fluids.

US WEST Communications Data Center, Omaha, Nebraska: Designed card access, CCTV and intercom system for 450,000 square foot data processing facility, and 15-story office building.

TCI Corporate Headquarters, Englewood, Colorado: Designed card access, CCTV, and intercom systems. Lead design engineer for DDC system to monitor and control HVAC equipment throughout the facility.

U.S. Air Force Academy, Colorado Springs, Colorado: Lead engineer for design of base-wide fiber optic backbone system of single mode and multi-mode fiber of approximately 27 miles as part of an open-end contract to develop a campus-wide Master Plan.

URS

Steve Karst
Telecommunications Designer

Areas of Expertise

- Electronic Systems Design
- Voice and Data Networks
- Wireless Networks
- Computer Aided Design (AutoCAD, Revit)
- BIM
- ITIL V.3
- Microsoft Access Database Administration

Years of Experience

With URS: 11 Years
With Other Firms: 2 Years

Education

- Currently working toward Construction Management Degree.
- Qwest Training Academy Certificate for Outside Plant, Synchronous Optical Network (SONET) and Remote Terminal (RT) equipment design
- Power Engineers company training for Outside Plant design and design engineering

Overview

Mr. Karst has thirteen years of experience with extensive training in communications systems design. He has designed outside plant networks for Qwest Communications and continues to expand his knowledge of campus type networks at Denver International Airport. He is also very knowledgeable with AutoCAD, Revit and similar types of CAD programs with four years of specialized education and 20 years of experience.

Project Specific Experience

On-Call Electronics & Communication Support Services and Project Management, Denver International Airport, Denver, Colorado: Provided communications and network systems designs to support the DIA Technologies division including complete inside and outside plant designs on a variety of projects throughout the 53-square mile airport site. Projects included parking facilities and systems, a southeast distribution wire center and numerous other capacity augmentation and planning projects. Recently designed new fiber-optic infrastructure throughout the Main Terminal and Concourses to provide for redundant paths for the gigabit ethernet network.

Designed a $4 million service diversity project involving ductbank, 2100 strand miles of outside plant fiber and terminal electronics. This project provides both route and equipment redundancy for mission critical services and adds a second point of regulated telephone company presence on site.

Work at Denver International also included design of a comprehensive single mode "analog" fiber network to support distributed cellular, PCS, public service and tenant radio needs. This network links thirty-two distribution systems and booster locations within the airport with the DIA antenna farm, cellular and PCS sites. Work currently in progress will provide additional add-drop multiplexers, redundant control and timing equipment on each of DIA's nine OC-3 SONET rings.

Provided Project Management support for the DIA Technologies Project Management Office. Projects included upgrading the aging DC Plant equipment serving DIA's main communications headend. Also assisted DIA Ramp Tower Operations with the installation of a DIA owned ASDE-X system.

SERVITECH INC

www.servitechinc.com

Monika Stenger – President / Programs Manager

Monika founded Servitech, Inc. in 1998. In addition to running the company, she has functioned as Program Manager on many major projects at DIA. She has tremendous familiarity and experience with DIA operations. She is directly responsible for Servitech's overall financial management, marketing, research, negotiating, manpower recruitment, resolution of business related issues and team building. Her dedication, understanding of DIA's structure and ability to solve complex issues makes her a valuable asset to our customers.

Education

Construction Management I
University of Denver / Turner Construction
Denver, Colorado
November 2007

CAD-1 (AutoCAD 2000 Level 1)
Denver, Colorado
Received Certificate: 7/13/01

UNIVERSITY OF COLORADO
College of Liberal Arts and Sciences
Denver, Colorado
B.A. Psychology
Relevant Coursework: Introduction to public administration, communication of cultural diversity, theory of personalities, abnormal behavior, and relevant psychology courses

Computer Skills

Microsoft Office, Networking, WordPerfect and Macintosh literate

Relevant Experience

Servitech, Inc. — Denver, Colorado
Owner and Program Manager for all DIA accounts — 1999 to present

- Sales, recruiting, research, administrative, negotiating, and other responsibilities
- Manpower assessment for companies at DIA
- AutoCAD as-builts
- Team building for specific accounts

Language Skills

Fluent in both English and Spanish including both reading and writing skills.

Office: 720.529.1661 Fax: 720.324.8620 | P.O. Box 371482 – Denver, CO 80237-5482

SERVITECH INC

www.servitechinc.com

JOYCE A. BUNKER

PROFESSIONAL HISTORY

4/04 – Present

Contract Administrator
Servitech, Inc., Denver, CO
Currently serving as Contract Administrator for Servitech, Inc., I provide administrative support to Technologies' Project Management & Portfolio Management Offices, URS Corporation, and the City & County of Denver, Department of Aviation. Key responsibilities include the following:

- Project Administration support for the Technologies' Project Management Office. Duties include: Site Administration for the PMO SharePoint Project Site; provide administrative support to the PMO and Portfolio Managers; working with Project Managers, Architects, Engineering Professionals, owners and others to ensure that goals are met; advising management on matters requiring attention and implementing their decisions; preparing and reviewing submissions and reports concerning the Project Management Office's activities; distributing project completion surveys on projects undertaken, and reporting on survey results; reviewing and arranging new office accommodation for Technologies.
- Primary contact for procurement for Technologies Division's Operations and Maintenance budget. Process and track all procurement requests including annual software support maintenance agreements; assist in tracking current year budget; prepare budget planning documents for upcoming year budget review; assist with budget for staff augmentation, training and travel requests.
- Assist in Request for Proposal and contract award for capital improvement projects. Duties include: review of design for bid-ability and constructability; coordinate the resolution of design issues; preparation of Request for Proposal and associated Technical Specifications; preparation of contract set up; funding; attorney assignment; SBE/DBE requirements; assist with coordinating pre-proposal meeting; coordinate review committee meetings including preparation and distribution of review committee minutes; contract preparation with attorney; execution of contract.
- Create and maintain, in accordance with the City & County of Denver's Document Control Program, a complete working file for capital improvement projects. Duties include: assisting Project Manager with enforcement of all requirements and provisions in contract; coordinate contractor quality control and quality assurance programs; assist Project Manager with Denver Building Inspection Department inspections and other regulatory agencies; receive log, track and distribute project submittals; coordinate project meetings to preparation and distribution of meeting minutes; review and distribute for signature contractor's payment application; perform monthly reviews of contractor's work schedule; coordinate the preparation of preliminary and final punch lists, equipment testing and startup, owner training, and contract closeout proceedings.
- Closeout of capital improvement projects. Duties include: preparation and distribution of substantial completion documentation; preparation and distribution of final completion documentation; process of final payment to contractor. Update working file with closeout documentation and provide entire contract file to the City & County of Denver's File Control Management Department for storage.
- Create and maintain all Task Orders issued under the Premises Wiring and Communications Systems (PWCS) contract. Tasks include funding requests, creation of task orders, distribution, tracking, and close out of task orders.
- Purchases for capital improvement projects on behalf of the City & County of Denver. Tasks include obtaining bids, sole source requests, funding, receiving inventory, asset tagging and final payment.

SERVITECH INC

www.servitechinc.com

3/94 – 5/02 **Sr. Network Analyst/Project Coordinator**
The Ryland Group, Inc., Scottsdale, AZ

Served as Sr. Network Analyst/Project Coordinator for The Ryland Group. Key responsibilities included the following:

- Ordered and coordinated installation/de-installation of frame-relay circuits: 56K, BRI, fractional T-1, T-1, and private virtual circuits to include customer premise equipment.
- Provided specifications for router configurations: SNA, IP/IPX protocols, routing protocols (IGRP, EIGRP), IOS, point-to-point frame-relay serial interfaces, and ethernet/fast ethernet interfaces.
- Coordinated integrating voice and data on T-1s: B8ZS framing and ESF frame format for voice.
- Continually reviewed frame-relay statistics and performance reports. Provided network design documentation and recommendations based on network performance and cost analysis.
- Assisted in relocation of Corporate IT Department from Columbia, Maryland to Scottsdale, Arizona. Project included frame-relay network redesign for a spoke & hub topology, coordinated installation of all frame-relay circuits to include third-party vendors, and Internet services.
- Coordinated network infrastructure upgrade for 40 nation-wide locations in 1999. Project included router upgrades; circuit port and PVC upgrades; installation of Cisco Catalyst switches, 2900, 3500, 5505 and 6509 series; Intuity Audix voice mail upgrade, Lucent Legend processor upgrades; cabling upgrade and installation of wire management.
- Coordinated installation of Virtual Private Network (VPN) for remote access. Project included installation of two combined T-1s, Nortel Contivity Extranet Switch 2500 using IPSec. Coordinated installation of remote users' access to include DSL, ISDN, and cable-modem.
- Supported Cisco AS5300 with two combined T-1s, Cisco Works utilizing TACACS and TRU RADIUS authentication. Supported over 400 user accounts.
- Supported all programming, voice recordings and diagnostic for CCS First Line Integrated Voice Response Systems (IVR) and monitored systems performances.
- Maintained The Ryland Group's NT domain name servers. Assigned and tracked static IP addresses and registered Class C's. Developed and implemented standardization of host-name conventions.
- Coordinated installation of Ryland Mortgage Company's wide-area network at 37 locations in 17 states. Project included network design, systems and hardware analysis, site surveys, local-area network and hardware upgrades, monitored implementation of circuits and hardware and post-implementation analysis.
- Reviewed monthly frame-relay invoicing and central dial-up services for accuracy and charge-backs to remote locations.
- Coordinated all remote offices' relocations, expansions and transitions for The Ryland Group. Provided analysis of user requirements, evaluation of vendor bids, requisition capture of all voice and data services, phone systems, network devices, cabling, and wire management.
- Assisted in the implementation of Ryland Mortgage Company's mobile work-project that deployed laptop connectivity nation wide.
- Supported RLA-NT for over 100 remote users.
- Provided technical support for Lucent PBX system 75/85, Definity G-1, Lucent Legend, Audix Voice Power and Intuity Audix.
- Created and supported Ryland Mortgage Company's technical support help desk.
- Extensive travel to field offices throughout the continental United States.

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1/90-3/94 **Executive Administrative Assistant**
Ryland Mortgage Company
Administrative Assistant to President of Ryland Mortgage Company/Co-founder of The Ryland Group/Member of the Board of Directors. Responsibilities included maintaining daily schedule, coordinated business travel, corporate correspondences, meeting minutes for senior executive committee meetings, coordinated the Board of Directors' meetings to include presentations. Additional responsibilities included coordinating Company's annual meetings and picnics, hiring administrative assistants, facilitate quality control meetings, trained employees on software applications, and assisted in pay-for-performance programs.

1/85–1/90 **Corporate Secretary/Office Manager**
Sounion Petroleum, Inc.
Corporate Secretary with signatory authority for accounts payable. Provided administrative support for the President, Vice President and Controller. Reviewed all prime and subcontractor invoices, generated monthly joint-interest billing statements to investors, extensive travel to Texas for on-site inspection of oil and gas wells. Additionally responsibilities included ordering office supplies and maintaining office equipment.

QUALIFICATIONS

PowerPoint	Microsoft Word
Microsoft Project	Microsoft Excel
Microsoft Access	SharePoint 2010

EDUCATION

Culinary Certificate from Baltimore International Culinary College, Baltimore, Maryland.
Attended Villa Julie College, Stevenson, Maryland.

SERVITECH INC

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Robert Kimber – Project Manager

Robert has been Servitech's General Manager since late 2003 and has been instrumental in organizing Servitech's operations to be competitive and extremely service oriented. His goal is to provide high quality service and accessibility to our customers. He has supervisors and a superintendent to assist him on this task. He always knows how the operation is performing. Rob works with our customers' SMEs (Subject Matter Experts) in making sure we are on track and on time on all work assigned to us.

Education

RTD On-Track Safety Training	Aug 2010
ARC Flash Training	Aug 2010
RTD West Corridor Safety Training	Aug 2010
CPR Training	July 2010
OSHA 10-Hour Training	June 2010
Master Electrician	Nov 2003 to Present
Riviera Apprenticeship Program – Englewood, Co.	1989 - 1993
Cloquet High School – Cloquet, Minn.	1987

Computer Skills

Microsoft Office Suite, Auto Cad, Volo View, Visio, Access, Microsoft Project, and others

Relevant Experience

Servitech, Inc. Electrical Contractor — Denver, Colorado
General Manager — Nov 2003 to Present
Coordinate projects for DIA to include: electrical, wireless/radio systems (AVL, CDAS, Verizon, AT&T, Cingular, etc.), telecomm, CCTV and access control; design support; field research; estimating; supervise electrical contractors; enforce DIA standards and National Electrical Code; manages support and administrative personnel.

Wright Electrical Services — Littleton, Colorado
Foreman/Project Manager — June 2001 to Nov 2003
Project management, supervising employees, order materials, managing inventory, cost estimating, and others

AALL Electric — Denver, Colorado
Foreman Electrician — Sep 1996 to June 2001
Project management, supervising employees, order materials, managing inventory, cost estimating, and others

Years of Experience

22 years of experience of which the last 10 years have been at DIA.

URS

Reed Engel, PE
Quality Assurance/Quality Control Manager

Areas of Expertise
Electronic Systems
Telecommunication Systems

Years of Experience
With URS: 15 Years
With Other Firms: 12 Years

Education
BS/Electrical Engineering / 1982/University of Colorado

Registration/Certification
1992/PE/CO/28029
2000/PE/WA/36746
2005/PE/NC/030621
2005/PE/FL/62671
2009/PE/MS/19082
2010/PE/CA/19205

Overview
Mr. Engel has more than 27 years experience in the fields of power, electronic and telecommunications systems, with emphasis on design and implementation of large airport, military, commercial, and industrial projects. His electronic systems expertise includes life safety systems, paging systems, access control, closed circuit television (CCTV), fiber optic and copper premise wiring distribution systems (PWDS), and data acquisition and control (SCADA) systems. He also has electrical experience in lighting, power distribution, uninterruptible power systems, lighting protection, grounding and bonding. Overall responsibilities have included comprehensive project management, engineering design, analysis, and installation coordination and inspection for all types of electronic systems on several large projects throughout the United States.

Project Specific Experience

Design Engineer and Communication Infrastructure and Systems Designer, Los Angeles International Airport, Tom Bradley International Terminal - New West Core: – The new West Core Project includes the construction of international passenger processing, aircraft gate, passenger facilities and airport and airline support space at LAX. The new West Core project expands the existing Tom Bradley Terminal International passenger processing and provides world class passenger amenities. Key systems designs included the complete upgrade of the integrated common use systems including passenger processing, FIDS and BIDS, resource management and centralized databases. Additional systems designs include wired (copper and fiber optic) and wireless (WiFi) infrastructure systems, and broadband distribution; along with design of the infrastructure and video systems designs for the TSA and CBP areas.

Design Engineer and Communication Infrastructure and Systems Designer, Los Angeles International Airport, Tom Bradley International Terminal – TBIT Renovation: – The TBIT Renovation includes the rework of a portion of the existing international passenger processing area to support transition areas from the new West Core Project. Designs included passive infrastructure primarily for the TSA and CBP areas, along with the common areas for tenants and LAWA.

Co Author – Network Master Plan Report – San Diego International Airport, San Deigo, CA: As part of the network master plan team, Mr. Engel was responsible for developing a synchronized approach to a coordinated uniform Local Area Network for the four terminals at San Diego International Airport. The report recommended redundant logical network architecture with dual core and distribution switches, and physically diverse switch architecture for survivability. It also recommended a logical configuration that readily supports the Terminal 2 West expansion and addressing plan that included T2W expansion as a region.

Raleigh-Durham International Airport, Raleigh, NC: Provided project management and/or design for site telecommunication infrastructure,

centralized event management command facility, and the Terminal C rebuild for telecommunication infrastructure and electronic systems. URS developed with RDU their telecommunication master plan for site infrastructure and network deployment. Along with the master plan were several smaller projects including the design of the Airport/Emergency Communication Center for daily and emergency event coordination, system designs for parking revenue offices relocation along with local CCTV system, and network infrastructure for the Terminal A facility. The Terminal C rebuild/renovation work included a complete premise wiring (copper and fiber optic cable) distribution system, Local Area Network, common use system, flight information display, gate management systems, local broadband system for television signal distribution.

Elevator/Escalator Monitoring System (EEMS) – San Diego International Airport, San Diego, CA: URS Corporation provided detailed engineering design services for an elevator and escalator monitoring system. The system was comprised of two specific functionalities including a PC-based monitoring and control system that monitored selected status points and run conditions of all elevators and escalators on airport and interfaced to operators through a graphical user interface (GUI), and an IP Closed Circuit Television Video Surveillance System (VSS) that provided unobstructed views of all escalators.

McCarran International Airport, Las Vegas, NV: Provided electrical and telecommunications systems designs and acted as the project manager for the new visual display system specifically designed for communicating to the traveling public the TSA's screening requirements. SGAVCS (Security Gate Audio/Visual Communication System) provides the TSA and the owner with the capability to address the public queued for security screening both visually and audibly through overhead monitors and directional speakers strategically located throughout the Terminal's non-secured area.

Continental Airlines, Newark International Airport, Newark, NJ: Provide ongoing special electronic systems engineering for the expansion of Continental Airlines into Terminal A from Terminal C. The project designed and constructed in multiple phases required in-depth coordination with the Port Authority of New York and New Jersey and four different airlines to minimize operational disruptions. Design included tenant telecommunication for all four airlines, a new fiber optic backbone for Continental Airlines between the terminals, fire alarm system expansion, Flight Information Display System interconnectivity, close circuit television expansion and the overnight relocation coordination of an airline ticketing offices and gates from Terminal C to Terminal A. Ongoing projects include the Continental office expansion in Terminal A and the relifing in all of Terminal A for the Port Authority.

FAA Air Traffic Control Tower, Seattle International Airport, Seatac, WA: Provided power and special electronic systems engineering and project management for the new 260-ft tall Air Traffic Control Tower at the Seattle International Airport. The power design included all lighting, general receptacle, and motor connections and controls. Overall Project Construction Cost: $22M.

Advanced Traffic Management/Emergency Operations Center – City Parish East Baton Rouge, LA. Provided communications and

infrastructure design for the parishes new ATM/EOC center. The 55,000-SF facility housed offices and emergency response coordinators for emergency medical services, parish fire department, local and state traffic management, coast guard, and police. The facility's 7,300-SF Control Center provided seating for 40 staff with ergonomically modular furniture on an access floor providing access to communication infrastructure. All traffic cameras and signal control was routed through the facility. URS also provided consulting on the parishes WAN in negotiation with the regulated telephone service provider.

Buckley Second Space Warning Squadron, Buckley Air Force Base, Denver, CO: Electrical/ telecommunications engineer who developed and managed the design engineering for Sensitive Compartmented Information facilities (SCIF) shielded buildings which were experiencing power and grounding anomalies that affected the surveillance computer equipment. After completion of field investigations and analyses, he reached a resolution to design problems and made recommendations for upgrading the entire grounding plane, installing computer centers, and updating the overall power distribution to improve reliability. As a result of the field survey, he was assigned to the management of the design for the remodel of the existing 16-building high-security military complex, which required the installation of a new security and fire alarm systems and equipment.

Denver International Airport, City and County of Denver, Denver, CO: Electrical/telecommunications engineer who managed and coordinated the design and implementation for circuit provisioning of the copper and fiber optic communications infrastructure. In a design oversight role Reed coordinated the data, voice and special services for the 1.5 million-SF terminal/concourse. This included closed circuit television (CCTV), card access, flight and baggage information systems (FIDS/BIDS), and data acquisition and control systems, which were supported on the copper and fiber optic infrastructure. Other systems for which he provided support and coordination include grounding and bonding, uninterruptible power systems and fire alarm systems.

URS

Neil R. Hahn
Communications Designer

Areas of Expertise

Detailed Design and Installation of Commercial Audio/Video Systems

Overall Project Management

Operation and Maintenance of A/V Systems

Years of Experience

With URS: 10 Years
With Other Firms: 11 Years

Education

BS / Telecommunications / 1989 / University of Idaho

Registration/Certification

1994-Crown Amplifier IQ Certified

1997-Rauland Borg Intercom School

2001-Synaudcon Audio Certification

2002- Innovative Electronic Designs School

2005- Extron Consultants Training

Overview

Mr. Hahn has more than 21 years of experience in the telecommunications field. His career is a combination of his technical background and applied business skills. His work history has key projects in Colorado, and additionally throughout the United States in various forms of technical media. Mr. Hahn is an expert in sound propagation and outdoor stadium systems.

Project Specific Experience

Principal Designer, Audio Video Systems, Denver International Airport, Denver, CO
Principal Designer for the audio, video, control and communications system for the new Press Room/Conference room located in the Jeppesen Terminal of Denver International Airport. Systems include multi window video systems with audio and video teleconferencing, network, access to CCTV sources as well as press room operation. The press room utilizes TV lighting systems and press panels for local and national TV remote feeds.

Principal Designer, Public Relations Conference Room, Denver International Airport, Denver, CO
Principal Designer for audio video conference room system and digital media recording system in the Public Relations area of the airport. Project includes secure audio conferencing microphones, computer and DVD playback as well as digital recording and storage of local news sources for use by the department. The system is controlled with a touch screen wireless interface.

Principal Designer, Communication and Control Systems, Orlando International Airport, Orlando, FL:
Principal Designer for video display, all communication systems and control systems in the In-line Baggage Systems and Control Center Project as well as public address systems in Airside 1 and 3 projects. Design included RGB and NTSC switching systems utilized in a joint use Airport Operations / TSA control room, network and premise wiring design for 4 separate networks, expansion of security systems, new speaker configurations including system upgrades and supporting equipment for PA systems.

Lead Audio/Video Designer, ACC/ECC Buildout, Reno Tahoe International Airport, Reno, NV:
Lead Designer of the audio/ video and control system for Airport Communications Center and Emergency Operations Center project.

Principal Designer, The Pentagon and Navy Annex Building, Arlington, VA:
Principal Designer for Audio Evacuation System that serves both buildings as one system. Includes outdoor speaker systems.

Design Assistant, Audio/Visual System, McCarran International Airport, Las Vegas, NV:
Design assistant for multimedia audio and visual information system for the traveling public at McCarran International Airport (LAS).

Principal Sound System Designer, Combined Communications and Control Center (C4), Seattle Tacoma International Airport, Seattle, WA:
Principal Designer for the Seattle Tacoma International Airport Sound System Replacement and audio/video/conference room systems in the Combined Communications and Control Center project.

Project Field Supervisor, Voice Paging System, Denver International Airport, Denver, CO:
Project field supervisor responsible for management and technical oversight of the field installation of the $16M voice paging system.

Principal Designer, Sound System, Stocker Stadium, Grand Junction, CO:
Principal designer of sound system for the football/baseball stadium complex.

Project Manager, Sound System, Coors Field, Denver, CO:
Project Manager for the installation of the stadium sound system. Work included all aspects of the installation and system as-built documentation. System requirements included low impact on downtown lofts.

Contact Information
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Neil.Hahn@urs.com

URS

Michael D. (Mick) Wolford, PE, RCDD
Project Electrical Engineer

Areas of Expertise

Electrical Engineer

Years of Experience

With URS: 5 Years

With Other Firms: 24 Years

Education

BS / 1990 / Electrical Engineering / Franklin University

AAS / 1981 / Electrical Engineering Technology / Kent State University

Registration/Certification

2000 / Registered Professional Engineer / OH / 64614

2006 / Registered Communications Distribution Designer / 09364

Chronology

2006-Current URS

2004-2006 Advanced Engineering Consultants

2002-2004 Nfinet Communications

2000-2002 Schooley-Caldwell Associates

1994-1999 Wolf Electrical Contractors, Inc.

1981-2000 American Electric Power

Overview

Mr. Wolford is an experienced electrical engineer with more than 29 years of professional experience. Mr. Wolford is experienced in the design of electrical distribution systems for a variety of projects, including: corporate, healthcare and government facilities. This experience includes the design of high, medium and low voltage outdoor and indoor substations, outdoor and indoor power distribution systems, emergency power generator systems, grounding systems, lighting systems, life safety systems and technology systems.

Project Specific Experience

Cincinnati International Airport - Terminal 2 Jet bridge, 400Hz and PC Air replacement. 2009

Lead Electrical Engineer for replacement and refurbishment of 5 jet bridges and addition of 400Hz / 28VDC power systems and pre-conditioned air (PCA) units. Project involved modifications to electrical service equipment within the concourse to provide new and upgraded circuits for the new power units. New exterior disconnect switches, pantographs and flexible cable to the power and PCA units were provided. Also, a new network-accessible metering system was installed to monitor all connected loads to each jet bridge.

Cincinnati International Airport - DHL South Apron Deicing Project. 2010

Lead Electrical Engineer for installation of new glycol pumping station, valve station, pumping station and valve monitoring and de-icing pad lighting. Project involved modification to service within Building 3, addition of new distribution panel, new outdoor feeder and associated duct bank, new outdoor service panel, new outdoor feeders to pumping station. Also control wiring and monitoring circuits were designed along with new Honeywell control panels and deicing pad-in-use lighting.

Cincinnati International Airport - Concourse A Upgrade Study. 2010

Prepared a study with several alternates to upgrade the concourse electrical system, lighting, jet bridge power, aircraft power and aircraft

PCA systems. Schematic design was prepared for replacement and improvement of the entire electrical system.

Cincinnati International Airport - Concourse A Jetbridge Upgrade. 2008
Prepared design to replace 13 jet bridges at concourse A. Design included: upgrades to the concourse electrical system, replacement of central 400Hz system and central PCA system, new aircraft power units and aircraft PCA systems.

Cincinnati International Airport - Terminal 1 Upgrade Study. 2009
Prepared a study with several alternates to upgrade the concourse electrical system, lighting, TSA passenger screening area, jet bridge power, aircraft power and aircraft PCA systems. Schematic design was prepared for replacement and improvement of the majority of the existing electrical system.

Armed Forces Experimental Training Activity DPW Master Plan, Camp Peary, VA
Mr. Wolford provided electrical engineering and communication design services for the development of an area master plan for the AFETA Public Works Compound at Camp Peary, Virginia. Twelve primary facilities and the adjacent equipment laydown area were involved in the study. The intent of this planning effort was to develop basic site plans, facility space programs, and cost parameters to a 10-15 percent level of design in order to provide a basis for determining funding requirements and the ongoing design process. The ultimate goal of this project was to improve the effective usage, energy efficiency, and quality of the space utilized by AFETA Public Works Branch to support the mission at Camp Peary while ensuring uninterrupted operations. In addition to these goals, the final project will be certified by the US Green Building Council as LEED Silver.

Ironton Russell Bridge Replacement, Lawrence, OH
Senior Electrical Engineer who provide lighting design concepts for the new bridge replacement. This project included preparation of contract plans for the replacement of the Ironton Russell Bridge over the Ohio River, and more specifically a redesign of the structure replacement that was previously designed but ODOT was unable to award due to the bids received significantly exceeding the available project budget.

URS

Ohio University Bush Hall Renovations, Athens, Ohio
Electrical Engineer for the complete building renovation for this four story, 31,752 gsf residence hall which currently houses 130 coed students. Updating of all building systems including window replacement, interiors and finishes. This will be the sixth complete building renovation on the East Green and the first LEED Silver residence hall. Within the buidling there will be student gathering space, study space, student rooms, shared bathrooms and offices. The building infrastructure renovation will include: plumbing, HVAC-4 pipe system, fire alarm, fire suppression system, secondary electrical distribution adn access control at exterior entrances. These new spaces will be designed to meet the ever changing needs of our students while maintaining our rich history.

Miami University North Campus Feeder Project, Oxford, Ohio
Lead Electrical Engineer. Install new 15kV loop to re-supply Yager stadium from the University Electrical System rather than the local utility. Also, re-supplied several dormitories and dining hall along the 15kV loop from the powerhouse to Yager stadium.

Archer House, The Ohio State University, Columbus, Ohio
Design team member. Responsible for telecommunications, data, wireless, security, intercom and cable TV system design in multi-story dormitory.

The Ohio State University Medical Center, Columbus, Ohio
Lead Electrical Engineer. Renovation of Rhodes, Doan and James Cancer Center electrical systems for installation of automatic guided vehicle system. Responsible for electrical, lighting, access control and technology systems renovation and improvements.

Hocking Tech Culinary School, Nelsonville, Ohio
Lead Electrical Engineer. Existing Culinary School improvement and addition. Renovate three classroom commercial kitchens and add three classroom commercial kitchens. New service required for facility. Responsible for total Electrical System, Lighting System and Technology Systems Engineering and Design.

Bradford Culinary School - Columbus, Ohio

Lead Electrical Engineer. New Culinary School with five classroom commercial kitchens, standard classrooms and administrative areas. Responsible for total Electrical System, Lighting System and Technology Systems Engineering and Design.

SBC Vandalia Central Office, Vandalia, Ohio
Lead Electrical Engineer. SBC telecommunications central office site electrical renovation. Replaced generator transfer switch, added new chiller, various electrical switchboard and panelboard upgrades.

SBC Worthington Central Office, Worthington, Ohio
Lead Electrical Engineer. SBC telecommunications central office site. Chiller, air handling unit, pump replacement and associated electrical modifications and upgrade.

Arlington Crossing Condos, Upper Arlington, Ohio
Lead Electrical Engineer. Large, multi-story, high end residential condo complex. Responsible for Electrical system including emergency generator and fire pump service, lighting, technology, fire alarm, security, access control systems.

Lebanon Correctional Facility, Lebanon, Ohio
Design Team Member. Complete High Voltage infrastructure upgrade and reconfiguration. Replaced 4kV radial system with a new 15kV loop system. Replaced all transformers on site and brought system into compliance with present NEC.

Northeast Pre-Release Center, Cleveland, Ohio
Lead Electrical Engineer. Designed new main electrical service and emergency / standby system. Installed two 500kVA generators with paralleling capability. Corrected NEC violations on fire pump system service.

Woodcrest Elementary School, Columbus, Ohio
Lead Electrical Engineer. Columbus Public Schools total renovation. Responsible for total Electrical System, Lighting System, Data Systems, Video Distribution, Surveillance, Access Control and Technology Systems Engineering and Design.

Wedgewood Middle School, Columbus, Ohio

Lead Electrical Engineer. Columbus Public Schools new school. Responsible for total Electrical System, Lighting System, Data Systems, Video Distribution, Surveillance, Access Control and Technology Systems Engineering and Design.

Champion Middle School, Columbus, Ohio
Lead Electrical Engineer. Columbus Public Schools new school. Responsible for total Electrical System, Lighting System, Data Systems, Video Distribution, Surveillance, Access Control and Technology Systems Engineering and Design.

Watkins Elementary School - Columbus, OH
Lead Electrical Engineer. Columbus Public Schools new school. Responsible for total Electrical System, Lighting System, Data Systems, Video Distribution, Surveillance, Access Control and Technology Systems Engineering and Design.

Lincoln Elementary School, Columbus, Ohio
Lead Electrical Engineer. Columbus Public Schools new school. Responsible for total Electrical System, Lighting System, Data Systems, Video Distribution, Surveillance, Access Control and Technology Systems Engineering and Design.

Armed Forces Experimental Training Activity DPW Master Plan, Camp Peary, VA
Mr. Wolford provided electrical engineering and communication design services for the development of an area master plan for the AFETA Public Works Compound at Camp Peary, Virginia. Twelve primary facilities and the adjacent equipment laydown area were involved in the study. The intent of this planning effort was to develop basic site plans, facility space programs, and cost parameters to a 10-15 percent level of design in order to provide a basis for determining funding requirements and the ongoing design process. The ultimate goal of this project was to improve the effective usage, energy efficiency, and quality of the space utilized by AFETA Public Works Branch to support the mission at Camp Peary while ensuring uninterrupted operations. In addition to these goals, the final project will be certified by the US Green Building Council as LEED Silver.

United States Postal Service Main Office FSSP Replacement Lighting Study, Columbus, Ohio

Electrical Engineer for the development of 30% documents, cost estimates and energy savings estimates / forms for the upgrade / modifications to replace lighting with highly efficient 8-lamp T8 lighting fixtures throughout the workroom and dock areas. The design is in compliance with USPS 2007 design standards, design criteria AS-503 and AE project requirements AS 506. In addition, the design complies with all applicable government, state and local rules and regulations.

911th Airlift Wing A/E IDIQ Contract, Repair 4160V Primary Underground Utilities Task, Pittsburgh Air Reserve Base, Pennsylvania

Task manager for the demolition of the northeast section of the overhead utility distribution system at the Pittsburgh Air Reserve Base. This included utility poles, crossarms and accessories, primary / secondary conductors, transformers and brackets, street light arms and luminaires, switches and fuse cut-outs. New construction involved excavating and installing concrete encased 4" ductbank; installation of manholes and hand holes; installation of new underground primary using 15 KV cable; installation of six (6) pad mounted transformers to feed power to Buildings 109, 127, 125, 120, 213 and roadway lights. Transformers are equipped with taps to change the input voltage from 4160V to 12470V. Project also called for the installation of eight (8) aluminum street light poles with high pressure sodium lamps mounted on an arm bracket and controlled by a photoelectric cell. These lights replace existing street lighting mounted on the wood poles which were removed.

Kansas Statehouse, Topeka, Kansas

Electrical Design Team member. Complete electrical system replacement and upgrade in historical building. Designed new dual feed, high voltage service entrance switchgear. Designed new emergency, critical and equipment electrical system. Designed ASHRE compliant lighting controls.

Delaware County Services Building, Delaware, Ohio

Lead Electrical Engineer for this 100,000 sq ft Delaware County office building. Electrical, Lighting, Fire Alarm, Security, Technology systems engineering and design.

Program of Requirements for a Metropolitan Area Network, Upper Arlington, Ohio

Lead electrical engineer to provide professional engineeirng services for the establishment of a Program of Requirements for a Metropolitan Area Network (MAN). The MAN was constructed of optical fiber that meets all current IEEE standards and takes into consideration all draft IEEE standards as well. The Upper Arlington MAN incorporated multiple paths to ensure redundancy in the links. The goal of the MAN was to position all parties to converge data, voice and video networks into one high-speed resilient network preparing for future initiatives.

Waste Control Specialists LLW Disposal Facility Licensing, *Austin, TX*

Electrical engineer for the engineering design and assessment work to meet the requirements of an NQA-1 based quality assurance program for the development of two new separate disposal facilities. WCS submitted a license application (LA) to the Texas Commission for Environmental Quality (TCEQ) for the development, operation, and closure of a low-level radioactive disposal facility in Andrews County, Texas. As submitted there will be two separate disposal facilities located at this site: 1) a disposal facility for LLRW from commercial generators in Texas and Vermont and 2) a disposal facility for LLRW or Mixed LLRW from the US Department of Energy. WCS received a draft license from TCEQ on August 8, 2008.

New Medical Center of Louisiana at New Orleans

Electrical Engineer. The new Louisiana State University (LSU) Academic Medical Center (AMC) of Louisiana in downtown New Orleans will replace the existing LSU Hospital and the existing Charity Hospital. The new Medical Center will be located on a 37-acre campus. The Construction Cost of the entire project is estimated at approximately $768 million. The State however has divided the project up into ten (10) separate projects of which seven (7) will form the basis of URS's scope of work. The facility is being designed for LEED Silver equivalent. Design responsibilities include a structured cabling system including inside and outside plant, communication and server room layouts, pathways including cable trays and risers, network electronics design, clinical CCTV system, intercom systems, public address systems, patient entertainment TV systems, A/V system for a large conference center, teleconferencing A/V system for conference rooms, A/V system for a press room / TV studio, chapel audio system, emergency radio system for the Emergency Department, and the distribution system for a vendor supplied OR A/V system.

The Ohio State University Medical Center, Columbus, Ohio
Lead Electrical Engineer. Renovation of Rhodes Hall, Doan Hall and The James Cancer Center electrical systems for installation of automatic guided vehicle system. Responsible for electrical power, lighting, access control, fire alarm and technology systems renovation and improvements. Technology systems expansion and renovation included nurse call systems, patient tracking systems, telecommunications systems and data systems.

East 55th Street Marina State Park - Cleveland, OH
Lead Electrical Engineer. Ohio Department of Natural Resources State Park. Replace electrical system in existing concession, restaurant and retail buildings. Replace and upgrade electrical service to these facilities. Provide new power source to boat refueling docks.

Antrim Park - Columbus, OH
Lead Electrical Engineer. City of Columbus, OH Department of recreation and parks. Installed new roadway and site lighting. Modified electrical system to several structures. Replaced existing lighting.

Livingston Park - Columbus, OH
Lead Electrical Engineer. City of Columbus, OH Department of recreation and parks. Installation of new lighting and replacement of existing site lighting. Provided new electrical service, metering and controls for all site lighting.

Big Walnut Dog Park - Columbus, OH
Lead Electrical Engineer. City of Columbus, OH Department of recreation and parks. Install new site electrical, site lighting and pond lighting for new dog park.

Sawyer Park - Columbus, OH
Lead Electrical Engineer. City of Columbus, OH Department of recreation and parks. Upgraded electrical service in Sawyer Towers & Manor and replaced interior lighting. Installed exterior lighting to illuminate walking path and parking lot at Sawyer Park.

Dillon State Park - Zanesville, OH
Lead Electrical Engineer. Ohio Department of Natural Resources State Park. Replaced flood damaged electrical services in two concessions buildings. Installed new electrical service for portable concession trailer

electrical connections for use during festivals. Installed new underground electrical distribution system and pedestals for concession trailer and mobile home electrical connections.

Dodge Park - Columbus, OH
Electrical Engineer. City of Columbus, OH Department of recreation and parks. Design of entire electrical system for Dodge Recreation Center. Design included electrical service, lighting design, power distribution design, structured cabling for telecommunications and security, site lighting.

Dillon Lake State Park, Zanesville, Ohio
Lead Electrical Engineer. Ohio Department of Natural Resources. Designed electrical system to power portable vending and concession trailers.

55th Street Marina, Cleveland, Ohio
Lead Electrical Engineer. Ohio Department of Natural Resources State Park. Renovate electrical system in existing concession, restaurant and retail building.

Delaware Streetscape Lighting - Delaware, OH
Electrical Engineer for Streetscape Lighting project on N. Sandusky Street. Designed new conduit, wiring duct and pole bases to serve new Delaware-approved poles and Holophane luminaires. Performed lighting illumination level analysis.

Ironton - Russell Bridge Lighting - Ironton, OH
Lead Electrical Engineer for ODOT highway lighting project for the Ironton-Russell bridge project including all power services, conduit, wiring, circuit calculations, illumination calculations and associated lighting design. Also responsible for streetscape lighting in Ironton for the approach to the bridge.

Antrim Park - Columbus, OH
Lead Electrical Engineer. City of Columbus, OH Department of recreation and parks. Installed new roadway and site lighting. Modified electrical system to several buildings. Replaced existing lighting.

Livingston Park - Columbus, OH
Lead Electrical Engineer. City of Columbus, OH Department of recreation and parks. Installation of new roadway lighting and

replacement of existing site lighting. Provided new electrical service, metering and controls for all roadway and site lighting.

Delaware County Services Building, Delaware, Ohio
Lead Electrical Engineer for this 100,000 sq ft Delaware County office building. Electrical, Lighting, Fire Alarm, Security, Technology systems engineering and design.

United States Postal Service Main Office FSSP Replacement Lighting Study, Columbus, Ohio
Electrical Engineer for the development of 30% documents, cost estimates and energy savings estimates / forms for the upgrade / modifications to replace lighting with highly efficient 8-lamp T8 lighting fixtures throughout the workroom and dock areas. The design is in compliance with USPS 2007 design standards, design criteria AS-503 and AE project requirements AS 506. In addition, the design complies with all applicable government, state and local rules and regulations.

New Medical Center of Louisiana at New Orleans
Electrical Engineer. The new Louisiana State University (LSU) Academic Medical Center (AMC) of Louisiana in downtown New Orleans will replace the existing LSU Hospital and the existing Charity Hospital. The new Medical Center will be located on a 37-acre campus. The Construction Cost of the entire project is estimated at approximately $768 million. The State however has divided the project up into ten (10) separate projects of which seven (7) will form the basis of URS's scope of work. The facility is being designed for LEED Silver equivalent. Design responsibilities include a structured cabling system including inside and outside plant, communication and server room layouts, pathways including cable trays and risers, network electronics design, clinical CCTV system, intercom systems, public address systems, patient entertainment TV systems, A/V system for a large conference center, teleconferencing A/V system for conference rooms, A/V system for a press room / TV studio, chapel audio system, emergency radio system for the Emergency Department, and the distribution system for a vendor supplied OR A/V system.

Archer House, The Ohio State University, Columbus, Ohio
Technology Systems Engineer. Responsible for engineering and design of telecommunications system, data system, wireless data system, security system, intercom system and cable TV system in multi-story dormitory.

The Motorists Insurance Group, Columbus, Ohio
Senior Electrical Engineer. Engineering and design to provide redundant power source, new electrical room and additional UPS to serve Motorists Insurance main data center.

Qwest Communications, Inc., Denver, Colorado
Senior Electrical Engineer. Responsible for engineering and design of prototype central office facility for telecommunications and internet service provider Qwest Communications. This prototype was designed for use in all new Qwest central office sites throughout the U.S. since 2001. Tasks included design of all power systems, standby and emergency generation and power systems, lighting and customer co-location data center. The base design was for N+1 generation and dual utility sources for a Tier III design topology.

Nfinet Communications, Inc., Phoenix, Arizona
Vice President - Engineering, managing partner of Nfinet Communications. Responsible for engineering and design of telecommunications and internet service provider central office facility power system, standby and emergency generation and power system, DC power plant, carrier class SONET single-mode fiber optic transport system, Lucent 5ESS carrier class telephone switch, multiplexed data and telecommunications fiber backbone, customer co-location data center. The facility included N+1 generation in addition to minimum 24 hour battery backup for all existing and proposed equipment. An additional 24 hour battery backup was included for the co-location data center.

360 Networks, Inc., Seattle, Washington
Senior Electrical Engineer. Responsible for engineering and design of 360 Networks prototype central office facility for telecommunications and internet service provider. Tasks included design of all power systems, standby and emergency generation and power systems, lighting and customer co-location data center. The base design was for N+1 generation and dual utility sources for a Tier III design topology.

Specialized Training
BS / 1990 / Electrical Engineering / Franklin University
AAS / 1981 / Electrical Engineering Technology / Kent State University

URS

Kevin Richmond
Senior Security Systems Designer

Areas of Expertise

Large and Medium Scale Airport Security Systems Design and Installations

Design, Implementation, and Integration of Large Scale Electronics and Communications Systems

Years of Experience

With URS: 15 Years
With Other Firms: 10 Years

Education

Electronic Engineering Degree / 1986 / RETS Technical College, Broomall, PA

Other Relevant Course Work:

ISO 9000 and ISO 9001 Quality Awareness Program, 1992

EST Fire Alarm System Engineering Design Course, 1989

LAN Cabling Design Course, 1991

Fiber Optic Cabling Design Course, 1991

Overview

Mr. Richmond has over 20 years of experience in the design, implementation and integration of large scale security and telecommunications systems specializing in systems which include perimeter intrusion detection, access control, internet protocol television, closed-circuit television, biometrics, locking control, video analytics, master antenna television, life safety, command and control centers, duress, passenger/staff screening, intercom, fiber optics and premise wiring distribution systems. With an emphasis on airport facilities special systems installations, his expertise includes design and installation of both 49 CFR Part 1542 and ICAO Annex 17 compliant airport security systems. Project responsibilities have included comprehensive program definition, master plan development, design development, project management, cost estimation, scheduling and construction. Mr. Richmond has served as both a contractor and consultant on airport projects. In addition to his design and management responsibilities Mr. Richmond played a key role as co-author in the development and approval of an Airport Security Plan and Procedures for a 25 mppa international airport.

Project Specific Experience

Senior Designer/Project Manager, Lafayette Regional Airport, Security System Upgrade Project, LA:
Project Manager and Senior Designer responsible for the management and design of the security upgrade to the existing 49CFR 1542 site-wide airport security system. Responsibilities included design development, project scheduling, cost estimation, and program management as the prime consultant for the implementation of the Airport's site-wide security system upgrade including the Main Terminal and outlying buildings and vehicle gates. System design consisted of the replacement of the existing access control system with a new Ethernet Internet Protocol (IP) based access control, closed-circuit television and intercom systems. Upgrade to the Airport's existing Dispatch Center with new ergonomic dispatch console and LED monitors. Design included FIPS 201 compliant smart card biometric fingerprint readers, megapixel IP cameras, emergency intercoms, fiber optic infrastructure and emergency call boxes.

Senior Designer/Project Manager, Concourse C 10 Gate Expansion Project, Denver International Airport, CO:
Project Manager and Senior Designer responsible for the overall project management of the special systems designs and design of the expansion of the existing 49CFR 1542 security system. Responsibilities included design development and project management.

Senior Designer/Project Manager, Concourse A 6 Gate Expansion Project, Denver International Airport, CO:
Project Manager and Senior Designer responsible for the overall project management of the special systems designs and design of the expansion of the existing 49CFR 1542 security system.

URS

Responsibilities included design development and project management.

Senior Security Designer/Project Manager, Internet Protocol Television System Project, Tampa International Airport, FL:
Senior Security Designer responsible for the bid document design of the upgrade of the Airport's closed-circuit television system to an Internet Protocol based video surveillance system. Design included installation of 364 new megapixel video cameras, encoding of 300 existing video cameras, storage area network and upgrade of the Airport's existing access control system headend. Responsibilities included design, cost estimation and technical construction management.

Senior Security Designer, Internet Protocol Television System Project, Spokane International Airport, WA:
Senior Security Designer responsible for the bid document design of the upgrade of the Airport's closed-circuit television system to an Internet Protocol based video surveillance system. Design included installation of new megapixel video cameras, encoding of existing video cameras, storage area network and upgrade of the Airport's existing access control system headend. Responsibilities included design, cost estimation and technical construction management.

Senior Designer, Access Control System Replacement, Anchorage International Airport, AK:
Senior Designer for the replacement of the existing site-wide access control system. Design elements included replacement of the existing ACS headend with a FIPS 201 and 49 CFR Part 1542 compliant enterprise system based on a Single Sign On solution, replacement of all access controllers with new Internet Protocol based controllers, and biometric fingerprint contactless smart card readers, redundant servers, visitor management system, graphical user interface workstations and Biometrics Fingerprint readers. Design also included the upgrade of the existing Ethernet network with the addition of two new core switches providing a new network reliability of 99.999%, new Gigabit Power over Ethernet edge switches. System design included full integration with the existing Digital Video, Intercom and Closed-Circuit Television systems for automated intercom and video call-up upon receipt of access control alarms and the ability to view live and recorded digital video at the alarm workstations. The new system architecture was designed to support the migration to future Ethernet edge devices (card readers, intercoms, cameras, etc.) on a per portal basis. Responsibilities included design of bid documents, cost estimation, project coordination and technical construction management.

Senior Designer, CCTV System, Anchorage International Airport, AK:

Senior Designer for the design of a new 600+ camera closed-circuit television, intercom and digital video recording security system for the audio and video assessment of the existing 49 CFR 1542 access control system portals including perimeter vehicle gates. System design consisted of a new cross-point matrix video switcher, high-speed integrated dome and fixed cameras, digital video recorders,

intercoms and systems integration. Responsibilities included design of bid documents, cost estimation and related project coordination.

Senior Designer/Construction Manager, Airport Safety and Security Master Plan, Indianapolis International Airport, IN:
Development of the Airport Safety and Security Enhancement Project Master Plan, design for the access control, closed-circuit television, digital video recording systems, and fiber optic infrastructure upgrades for the existing terminal and facilities. Responsibilities included design of bid documents, cost estimation, related project coordination and overall construction administration and management.

Senior Designer/Project Manager, SeaTac International Airport Security Master Plan, Seattle, WA:
Project Manager and Senior Designer responsible for the management and design of the security upgrade to the existing 49CFR 1542 (FAR 107.207) site-wide airport security system. Responsibilities included design development, project scheduling, cost estimation, value engineering and program management as the prime A/E for the implementation of the Airport's Security Master Plan, from schematic design through to construction level design documents. System design consisted of the replacement of the existing access control system with a new Ethernet based access control system, design of a peer-to-peer cross-point matrix closed-circuit television system, digital video recording system and new distributed based architecture intercom system. Design included the first site-wide deployment of Fingerprint Biometrics Smart Card readers in the United States and interface to the existing Airport Identification Badge System.

Senior Designer/Construction Manager, Security Systems Upgrade, Reno Tahoe International Airport, NV:
Senior Designer for the design of a new closed-circuit television security system upgrade for the video assessment of the existing 49 CFR Part 1542 access control system including perimeter vehicle gates. Design also included a new guardhouse, entry and exit lane vehicle controls, and digital video recording. Responsibilities included design through to bid documents, cost estimation, related project coordination and overall construction administration and management of the security upgrade project and construction of a new Airport Communications Center.

Senior Designer, Internet Protocol Television System, Merrill Field Airport, Anchorage, AK:
Senior Designer for the design of a new Internet Protocol Television System for the video assessment of the airport site and facilities. Responsibilities included design through to bid documents, cost estimation, technical construction management and related project coordination. System design consisted of a new Internet Protocol Television System, high-speed auto tracking dome cameras, and a digital video recording system. Design included the installation of an 802.11b wireless local area network for transmission of video signals and data and the use of video analytics for determination of runway incursions. In addition to the security design, authored a Design Study Report on the available perimeter intrusion detection system

technologies and their respective associated procurement and installation costs.

Project Manager/Designer, Security System, Denver International Airport, CO:
Project Manager and Designer for the installation of the $20 million 49 CFR 1542 (FAR 107.207) compliant Security System. The security system was comprised of 1500 portals, 700 intelligent door controllers, 16 area control computers, 1000 CCTV cameras and 500 hundred intercoms making it one of the largest airport security systems in the United States. Responsibilities included detailed systems design, network circuit design for communications over an FDDI network, installation, systems integration, project management, contract negotiations, and day to day co-ordination with owner's representatives, airlines, tenants, design consultants and contractors. Additional responsibilities included the management and design of the installation of the Central Facilities Management System (CFMS) for the monitoring of the escalators, elevators and moving walkways.

Security Program Manager, Total Airport Management System (TAMS), Kuala Lumpur International Airport, Malaysia:
Security Program Manager responsible for the management and technical design approval and construction management of the $120 million(US) ICAO Annex 17 compliant security and passenger/staff screening systems. The systems formed part of the Total Airport Management System integration project. The Total Airport Management System Project provided integration of 32 separate airport subsystems. Responsibilities included user requirement's capture, systems definition, program development and implementation, systems design, day to day project management. Additional responsibilities included representation of the Kuala Lumpur International Airport management team at the Malaysian Government's Airport Security Committee comprised of members of the government agencies including the Department of Civil Aviation, major airlines and relevant tenants. In addition participated in the development of the Airport Security Program and Procedures documents. The security system and passenger/staff screening systems were comprised of 1700+ portals, 1300+ cameras, 112 x-ray machines, 68 metal detectors and 10 vapor particle explosive/drug detectors. Additional duties included development of the airport security badge design and management of the badging of 25,000+ airport personnel, related works co-ordination, and conflict/crisis resolution.

Senior Security Designer, South and Central Terminal Expansion Projects, SeaTac, Seattle, WA:
Senior Security Designer responsible for the bid document design of the Airport's South Terminal Expansion Project. Responsibilities included design and cost estimation of the 49 CFR Part 1542 (FAR 107.207) Airport Security System expansion.

Senior Security Designer, FAA Air Traffic Control Tower and Base Building, Seattle, WA
Senior System Designer for the design of the new site security system. Design included access control, closed-circuit television, intercom, and a gate control systems. Design included graphical user based operator workstations and subsystem integration. Responsibilities included

complete design through bid documents, project cost estimates, and technical construction management.

Senior Security Specialist, Taut Wire Perimeter Security System, O'Hare International Airport, Chicago, IL:
Senior Security Specialist for the installation and technical supervision of the installation of a Taut Wire Perimeter Security System. System design included the installation of a stainless steel perimeter taut wire fence with sensor posts, perimeter access gates, fiber optic transmission system, Radio Frequency mobile perimeter vehicle maps, graphical user interface alarm response and monitoring workstations, redundant system servers, and remote perimeter transponders. Responsibilities included the technical design review and approval, site inspections, Request for Information response, change order review and approval, Owner coordination, and test and acceptance for the Owner.

Senior System Designer, Security System Upgrades, Cyril E. King Airport, US Virgin Islands:
Senior System Designer responsible for the design of the Y2K upgrade of the existing 49CFR Part 1542 (FAR 107.14) security system. Systems included the access control, CCTV and buried line sensor systems. Duties included complete design through bid documents, project cost estimates, and construction administration support.

Additional Projects:
Ronald Reagan International Airport, W. DC. Designer for expansion of the Airport's security systems in support of the installation of a new in-line baggage handling system.

Key West International Airport, FL. Project Manager and Designer for the security system for remodel of existing and construction of a new terminal.

Specialized Training
1992 / ISO 9000 and ISO 9001 Quality Awareness Program

EST Fire Alarm System Engineering Design Course, 1989

LAN Cabling Design Course, 1991

Fiber Optic Cabling Design Course, 1991

Publications
Co-author, "A Backbone for Security", Consulting Specifying Engineer, February 2005.

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Kevin_Richmond@urscorp.com

URS

Steven Swinehart
Threat & Vulnerability

Areas of Expertise

- Access Control Systems
- Intrusion Detection Systems
- CCTV Systems
- Communication Systems
- Modernization Analysis
- Special Systems Design
- Physical Security/ Countermeasures Design

Years of Experience

- With URS: 15 Years
- With Other Firms: 14 Years

Education

- BS/Design/1971/University of Michigan
- AAS/Photographic Science/1969/ Rochester Institute of Technology
- Risk Assessment Methodology (RAM) for Critical Infrastructure/ Sandia National Laboratories/2009

Overview

Mr. Swinehart has 29 years of security design experience and is a highly accomplished and technically knowledgeable individual. He possesses five US and three foreign patents for video technology, is the author of a three-part series on access control for *Access Control Magazine*. He has developed security systems guide specifications for the US Army Corps of Engineers; and Sandia National Laboratory for electronic systems.

Project Specific Experience

Dallas Love Field Airport, Development of Standard Operating Procedures, Dallas, TX: Mr. Swinehart is assisting the Airport with standardizing Airport Operations and Maintenance through the development of standard operating procedures (SOPs). The SOPs are being created to ensure the Airport's operation and maintenance of its systems follow formal plans and that actions that affect operations or systems can be tracked.

Nuclear Materials Safeguards and Security Upgrade Project (NMSSUP), Los Alamos National Laboratories, Los Alamos, NM: This $253 million dollar project provides both access control and perimeter security for Technical Area 55 (TA-55). For this project, Mr. Swinehart is provided closed-circuit television system design for both visible light and infrared assessment systems and perimeter intrusion detection systems. The perimeter intrusion detection systems include: Perifeld-M electric field sensor, ported coaxial cable, fiber optic intrusion detection sensors, razor coil sensors, and active infrared tower sensors. As part of the project, he provided specifications for all of the security equipment and Ethernet network equipment. He is also involved in providing assessment lighting requirements, intrusion sensor selection, perimeter barrier requirements, fiber optic system requirements, and value engineering. During the project he provided Title II (design) and is providing Title III (construction support) services.

Indianapolis International Airport, Threat and Vulnerability Study Indianapolis, IN: As part of the Security Master Plan for the Indianapolis International Airport, Mr. Swinehart co-authored the Threat and Vulnerability Study. The study included analysis of all areas of the Airport and recommended security upgrades for vulnerabilities found during the survey process. The study also included improving security for the 2-million-SF Indianapolis Maintenance Center (IMC) building that is a dedicated aircraft maintenance facility.

Internal Revenue Service, National Headquarters Threat and Vulnerability Assessment, Washington DC. For this project, Mr. Swinehart conducted a physical security assessment of the IRS Headquarters Building. The assessment used the IRS Physical Security Standards as a basis, and defined the risks, threats, vulnerabilities, and countermeasures required to comply with IRS security standards. The project resulted in a wide range of recommendations for security improvements ranging from building physical security, security for the Director of the IRS, guard force

operations, to architectural improvements for remodeling of the Security Operations Center.

Knolls Atomic Laboratory, Department of Energy, Vulnerability Assessment and Preliminary Perimeter Security Design: Site survey, vulnerability assessment, and preliminary design of an integrated intrusion detection and access control system for the DOE Knolls Atomic Power Laboratory, Windsor Locks, Connecticut. This project included a written description of site conditions, recommended solutions for problems at the site, and an investigation and report on commercially available computerized systems that would meet the site and DOE requirements. Sensor systems surveyed included: electret fence sensor system, capacitive fence sensor system, ultrasonic interior intrusion detection sensors, and passive infrared intrusion detection sensors.

U.S. Bureau of Reclamation, Threat and Vulnerability Analyses Dams and Water Storage Facilities, Various Sites: Mr. Swinehart has been assisting engineers in the URS Denver office with the application of security countermeasures to counter threats as determined by the RAM-D (risk assessment methodology for dams) process. This has involved analyzing RAM-D results and recommending security enhancements including: physical security, intrusion sensors, access control, CCTV equipment, lighting, site operations, and guard force operations.

U.S. Department of the Interior U.S. Fish and Wildlife Service (USFWS), Threat and Vulnerability Analyses for Dams, Refuges, and Water Storage Facilities, Denver, CO: As part of URS' contract with the USFWS, Mr. Swinehart provided security countermeasures development to support engineers in the URS Denver office to counter threats at 25 USFWS sites located throughout the Midwest and Western U.S. Security countermeasures recommended as part of the analyses include sensors and devices, physical barriers, gates, hard wire, wireless communications infrastructure, SCADA and area warning systems, improvements to physical infrastructure and buildings, as well as recommendations for enhanced training and coordination with local agencies and communities.

United States Navy, Marine Corps Air Station, Site Survey and Layout of a Perimeter Intrusion Detection System, Kaneohe Bay, HI: The system provides protection of runways at the Air Station and uses Sentrax® buried, ported coaxial cable sensor. The sensor is monitored by the Senstar monitoring system. The monitoring system also has a redundant monitoring station connected to the main monitoring console.

Orlando Sanford Airport, Intrusion Detection System, Sanford, FL: As a follow on task to the original security system design, Mr. Swinehart provided the design of a ported coaxial cable intrusion detection sensor design that included using one sensor zone as a "virtual gate" to detect unauthorized entry into the air operations area near the terminal. The design also included extension of the fiber optic data system to the guard booth at the virtual gate, and design of two CCTV cameras located on a custom camera mounting pole.

Dallas Love Field, Access Control System Upgrade, Dallas, TX: Mr. Swinehart is the technical lead for this project providing design direction for the entire design team. He is also responsible for the design and specification of the access control and CCTV systems. As part of this project, he designed the vehicle crash barrier system using hydraulically operated vehicle barriers meeting K-12 crash specifications.

Dallas-Fort Worth International Airport, Airport Access Control System Design, Dallas - Fort Worth, TX: A continuation of Access Control System Modernization Study, this portion of the project implemented the recommendations found previously. Mr. Swinehart provided design and specification of the access control system. This system included a complete fiber optic network design using 100BaseT communications between the field processors and the host computer. The host was a dual/redundant configuration with RAID drives for the operating system and a 100 Gb RAID for archiving. A third mirrored server provides off-site system backup for disaster recovery. The host supports six badging workstations and six system management workstations.

Salt Lake City International Airport, CFR-1542 Security Upgrade, Salt Lake City, UT: For the Salt Lake City International Airport, Mr. Swinehart provided engineering, supervision of the specifications, contractor pre-qualification, bid review, and testing observation. The constructed value of the project is $4.7M. He designed the access control system, CCTV system, and fiber optic system. The access control system uses magnetic card readers for access verification that are monitored by distributed local processors. The host computer is a dual/redundant system with digital tape drives for system software backup and write-once-read-many (WORM) drives for system transaction and alarm data archiving.

Tampa International Airport, CFR-1542 Security Upgrade, Tampa, FL: The Tampa International Airport project consisted of an access control system, CCTV system, intercom system, and fiber optic data transmission system. Mr. Swinehart was the project engineer for all systems for this $4.1M project. The project was an extremely fast-track project and was completed in less than 10 weeks from site survey to project advertisement for bid. The access control system uses distributed local processors monitored by a dual/redundant host computer. The host computer is interfaced to the CCTV switcher to provide alarm actuated camera switching. Mr. Swinehart provided unique designs for this project, such as interfacing the intercom system field stations via fiber optics to the Airport PBX so that the Communications Center intercom control is through the phone system.

Tucson International Airport, CFR-1542 Security Upgrade, Tucson, AZ: Mr. Swinehart was the project engineer for the FAR 107.14 security upgrade at the Tucson International Airport. The total project cost with additive/alternates was $2.3M in constructed value. The project scope included an access control system, intrusion detection system, fiber optic data transmission system, and design of a new Communications Center. Mr. Swinehart's duties on this project involved the design of the access control system, fiber optic system, supervision of intrusion detection system design, creation of specifications for all

systems and equipment, and coordination of the complete bid package among all engineering disciplines.

Reno-Tahoe International Airport, CFR-1542 Security Upgrade, Reno, NV: Mr. Swinehart was the project engineer for the Phase II, FAR 107.14 security upgrade at the Reno-Tahoe International Airport. His responsibilities included design of additions to the access control system, redesign of the CCTV system, Dispatch Center console layout, requirements development for movement of equipment and services.

URS

Jerry M Lopez, PE
Senior Electrical Engineer

Areas of Expertise

- Electric Power Distribution
- High Reliability, High Tech Electric Service, Grounding
- Backup Power, Local Generation
- Lighting Systems
- Wireless/Radio Communications
- Wireless and Conventional Control Systems
- Project Management
- Electronic Instrumentation

Years of Experience

With URS: 9 Years
With Other Firms: 27 Years

Education

- MSEE (all but thesis)/1995/Power Systems/University of Colorado at Denver
- BSEE/1973/Electronics/Case Western

Registration/Certification

1995/Professional Engineer/CO/ #30265
2005/PE/WY/10476
2005/PE/UT/5867506-2202
2005/PE/NM/17194
2005/PE/AZ/43746

Overview

Mr. Lopez has 35 years of design and engineering management split in two parts: most recently 15 years of electric power design, lighting and project management experience for consulting engineering firms, and 20 years electronics and hi-tech design and management at Hewlett-Packard. Currently serving as the Sr. Electrical Engineer/PE and MEP Teamleader for URS Denver for a variety of power distribution, lighting, surge protection and grounding and control projects including a dual UPS high-tech power distribution system for SeaTac, large water transport power systems, PLC control systems including remote wireless telemetry, water and wastewater treatment plant design and highway lighting projects. He also incorporates URS specialists in CCTV, Access Control, telephone and data networks, fire alarm and SCADA systems on electrical projects requiring strong integration with advanced systems.

Project Specific Experience

Hill AFB, UT: Overall Design Manager and lead Sr. EE for design-build remodel of 50K sq ft avionics calibration facility with very specialized HVAC, power and lighting requirements; specialty -120dB shield room. All new mechanical systems with +/- 2 degree control over labs of 10K sq ft space. Static and humidity control. Start: 2004; Construction Concluded 2007

Norman Y. Mineta San Jose International Airport at San Jose, CA: Project Manager for URS IT-Communications, Security and Special Systems. Site Master Planner for all pathways, interior and exterior, MPOE's for telephone primary and secondary services, Airport LANS and special systems. Telephone and Fiber Service Relocation design. Start: 2002; Relocation Construction Concluded 2005

Reno/Tahoe International Airport at Reno, NV: Designed NFPA 1221 compliant Airport Communications Center power systems and lighting inside an existing facility. Featured elements include primary service tap, generator-set installation, UPS and STS for weekly load transfer requirements. Designing pathway and power plans for security systems. Start 2003; Construction Concluding 2006

Port of Seattle, SeaTac Airport at Seattle, WA: For the new airport Combined Communications and Control Center project I designed the 480V and 120V distribution, including an N+1 redundant dual 100KW UPS system, advanced load-shedding controls and specialized lighting. Power engineering was appropriate for a data-center like communications hub requiring high power reliability, highly reconfigurable and serviceable distribution and a load shed system to allocate UPS battery capacity to satisfy a three level, degraded-mode operational plan for catastrophic event management. Outside Plant engineering included power distribution and communications pathways for access control, CCTV and guard station support at several new field

and facility access gates, manned and unmanned. Start 2000; Construction Concluded 2005

U.S. Army Pueblo Chemical Depot outside of Pueblo, CO: This remote site has 21 pumping and treatment skids powered by three micro-turbine generators. All engineering of the turbine, fuel and power distribution, in addition to skid power, control and grounding/lightning protection was my design. Besides the turbines, a wireless notification system for system attention was a special feature. The project was a fast track design-build for this work with design, construction and turn-on accomplished in less than 4 months.
Start 2000; Construction Concluded 2001

F.E. Warren AFB, WY/Buckley AFB, CO/Others: Groundwater treatment or chemical remediation sites, some with processing sheds for process equipment. Power requirements typically in the 20 – 50 Hp range. Some sites are remote and required stand alone generation, but most have site utility service. Typical equipment includes well pumps, process pumps, compressors, analytical monitor and control systems, radio telemetry.

City of Denver, Director of Technical Maintenance and Electrical Engineering at DIA, Denver, CO: DIA is the nation's newest, most technically advanced airport. Managed 5 engineers, 70 electricians and technicians and many contracts to prepare for Y2K, to achieve Certificates of Occupancy, to expand facilities for customers' needs and to maintain operational readiness on a 24x7 basis. Before that, was the sole Electrical P.E. for the airport, responsible for the electrical power systems (45MW maximum demand - 8.5 million sq. ft. campus), spending $3-$5M on electrical construction each year. Special projects during this period included airfield lighting improvements and controls expansion.
Hired 12/1998 – Left to URS 2/2000

Schriever AFB (Space Command Center) UPS Distribution Maintenance and PQ Analysis, Colorado Springs, CO: Established the database, specified measurement technology and trained operators/engineers in analysis for extremely large, extremely redundant UPS system on base. Evaluated technical feasibility for revised TEMPEST power isolation filtering.

Archie J. Lind, PE
Vice President

AREAS OF EXPERTISE

- Airport Systems
- Aircraft Fueling
- Ground Power
- Passenger Loading Bridges
- Aircraft Docking
- Baggage Handling Systems
- Cargo Handling
- ASRS
- Pneumatic Tube Delivery

EDUCATION

MBA, 1975, Business Administration, Loyola University of Chicago, Chicago, IL

BCE, 1964, Civil Engineering, Colorado State University, Fort Collins, Colorado

PROFESSIONAL HISTORY

Date joined URS: 01/03

Years with other firms: 38

REGISTRATION(S)/ CERTIFICATION(S)

Professional Engineer, Colorado, Florida, Illinois, Nevada and Utah

AFFILIATIONS

AAAE
ACC

PROFESSIONAL SUMMARY

Mr. Lind has 48 years of experience in engineering application for aviation projects including terminals, hangars and outlying support facilities. He has an extensive Project Management background in Airport Systems Development specifically in Aircraft Fueling, Ground Power, Passenger Loading Bridges, Preconditioned Air, Deicing Systems, Pneumatic Tube Systems, Automated Storage/Retrieval Systems, Cargo Systems and Baggage Systems. .Mr. Lind was an active participant on the team that authored the Airport Security Design Guidelines now being implemented by the Transportation Security Administration and the Baggage System Investment Study working group.

RELEVANT EXPERIENCE

Project Director, Airport Security Improvement Program In-line Baggage Screening System, Greater Orlando Airport Authority, Orlando, FL. Project Director for the engineering design for the outbound baggage system for the complete terminal renovations to provide 100% baggage screening. This in-line screening system project will utilize up to 30 EDS in-line machines for five systems to provide for a 40 MAP passenger volume.

San Diego International Airport – Lindbergh Field, San Diego, CA: Project Director for the design of the terminal operations for compliance with the implementation of 100% baggage screening for the San Diego International Airport for the long-range solutions. Project includes modeling of demand to determine required EDS equipment and manpower.

Concourse A West Expansion, Denver International Airport, Denver, CO: Project Director for the schematic design and preliminary budget cost estimate for Hydrant Fueling, Gate Systems, Pre-Conditioned Air, and 400 Hz Ground Power. The work included evaluating seven alternative gate and hold room configurations and developing preliminary phasing plans.

Fuel System Study, Denver International Airport, Denver, CO: Project Director for analysis of the aircraft fueling system at DIA and made recommendations for modifications necessary to achieve pipeline velocities required for proper system flushing.

Transportation Security Administration, Various Locations: Project Director for projects providing 100% outbound baggage design to ensure these airport facilities meet TSA protocols for the new federal security mandates. Project locations include:

San Francisco, California
Las Vegas, Nevada
Sacramento, California
Denver, Colorado
Omaha, Nebraska
Juneau, Alaska
Anchorage, Alaska
San Diego, California
Fairbanks, Alaska
Boise, Idaho
Seattle, Washington
Ketchikan, Alaska
Oakland, California
Colorado Springs, Colorado
El Paso, Texas

McCarran International Airport, International Terminal, Las

Vegas, NV: Project Director for the Outbound Baggage System design for the Terminal 2 Renovations to provide 100% baggage screening. This project required intensive coordination because of the tight space requirements and the impact to all airlines located at Terminal 2.

American Airlines, McCarran International Airport, Las Vegas, NV: Project Director for the outbound baggage design to facilitate the relocation to a new ticket counter location. The project utilized the experience of our airport systems engineers and simulation software to design baggage sortation. This project was completed in 2002.

Southwest Airlines, McCarran International Airport, Las Vegas, NV: Project Director for the design for the first stage of 100% in-line baggage screening where Southwest incorporated space from another airline to double their existing ticketing area. This project is currently under construction.

McCarran International Airport, Terminal I, Las Vegas, NV: Project Director for the engineering design for the Outbound Baggage System for the Terminal I Renovations to provide 100% baggage screening. This 2nd level screening operation will provide total in-line screening for the entire facility.

Burbank Glendale Pasadena Airport, Burbank, CA: Project Director for the analysis of the terminal operations for compliance with the implementation of 100% baggage screening and has designed an in-line screening system for the Burbank Glendale Pasadena Airport. The design encompassed screening for five airlines.

San Diego International Airport – Lindbergh Field, San Diego, CA: Project Director for the analysis of the terminal operations for compliance with the implementation of 100% baggage screening for the San Diego International Airport for both interim and long-range solutions. The interim solution design mandates lobby screening and the long-range solution will implement in-line applications. The design is currently under going review by all stakeholders.

Southwest Airlines, Multiple Locations: Project Director for the review of Southwest Airlines baggage operations and their passenger volumes at 59 airports. Mr. Lind provided simulations in order to support proposed design approaches to achieve the new security requirements with minimal impact to customer processing. The airports were divided into four division based on passenger volumes and schedule of operations. He also provided a unique solution for each location based on their specific needs.

Dallas Love Field, Dallas, TX: Project Director for the passenger and baggage screening design for the pre-ticketing and post-ticketing protocol solutions. Mr. Lind worked with the airline's design team to provide simulations to predict the outcome of the designs in several different scenarios. The simulations narrowed the selection down to two designs which were then tested over two days cross checking and validating the simulations. This project was used as a test bed for Southwest and the Transportation Security Administration to evaluate TSA protocols.

Doha International Airport, Doha, Qatar: Project Director for the design of 100% baggage screening design for Doha's fully automated

inbound and outbound baggage system.

Denver International Airport, Denver, CO: Project Director for the design assistance to DIA for various schemes for implementation of the Mod 3 East baggage system. Mod 3 East was not activities during the initial build out and the schemes were developed for anticipated airline expansion.

Denver International Airport, Concourse B, Denver, CO: Project Manager for all Ground Support Systems including Passenger Loading Bridges, Potable Water, Preconditioned Air, 400 Hz Ground Power, Baggage Handling Systems, Fuel Systems, Aircraft Parking, Ground Equipment Parking, Deicing storage, distribution and recovery, Aircraft Parts Automated Storage/Retrieval System and Aircraft Parts Pneumatic Tube Delivery System.

Denver International Airport, Denver, CO: Project Manager for Hangar Ground Support Systems which included 400 Hz Ground Power, Preconditioned Air, Aircraft Fueling System, Ground Equipment Fueling System, Fire Protection Water Storage, and Aircraft Parts Pneumatic Tube Delivery System.

Doha International Airport, New Terminal Building, Doha, Qatar: Design Manager in charge of Communications and Special Systems design which includes Telecommunications, Digital Data Communications, Public Announcement, FIDS/BIDS, Common Use Terminal Equipment, CCTV, and Access Control. Also provided Project Management for design of aircraft support systems including Passenger Loading Bridges, Pre-Conditioned Air, 400 Hz Ground Power and Baggage Handling Systems.

Inchon International Airport, New 5.7 Million Sq Ft Terminal Facility, Seoul, Korea: Design Manager of Mechanical, Electrical and Fire Protection contracts for new terminal facility.

Yan Jia Gang Airport, Peer Review Design of New Terminal Facility, Harbin, China: Project Manager responsible for the oversight of the project team which designed Fire Alarm, Building Automation, CCTV, Fuel Hydrant Pits, Fuel Hydrant Servicers, Aircraft Deicing Vehicles, Chillers, Air Handling Units, Fan Coil Units, Elevators, Escalators, and Power Walks.

O'Hare International Airport, New DC10 Hangar, Chicago, IL: Project Manager for 400 Hz Ground Power, Preconditioned Air and Pneumatic Air.

O'Hare International Airport, New International Terminal T5, Chicago, IL: Project Manager for Passenger Loading Bridges, 400 Hz Ground Power, Preconditioned Air and Baggage Handling Systems.

United Airlines, SeaTac International Airport, Seattle, WA: Project Manager for Electrical design of the 400 Hz ground power system serving the gates in the North Satellite. The project involved replacement of the existing 400 Hz ground power generation and distribution system with an new system designed to handle additional gates increased aircraft loads.

URS

Keith M. Martin
Sr. Electronic Systems Designer

Areas of Expertise

- Project Management
- Integrated Electronic Systems
- Distributed Antenna Systems / WiFi
- Fiber Optic Infrastructure / Airport Production Network
- Threat and Vulnerability Analysis
- Intrusion Detection Systems
- Airport Access Control
- CCTV
- Public Address and Area Warning
- Telecommunications and Security Communications

Years of Experience

With URS: 22 Years

With Other Firms: 6 Years

Education

- BS/Technical Careers/1984/ Southern Illinois University
- AS/Electronics Technology/1981/ Richland Community College

Overview

Mr. Martin is a proven project manager and security/ communications professional experienced in the design, construction, and testing of small and large integrated security and electronics systems for U.S. airports, government facilities, foreign military users, and commercial customers. Mr. Martin has worked closely with personnel from the Department of Defense and Lawrence Livermore, Los Alamos and Sandia National Laboratories in several National Security applications for Los Alamos, the Nevada Test Site (NTS), and the Tonopah Test Range.

Project Specific Experience

Dallas Love Field, Access Control System Upgrade, Dallas, TX: Originally, Project Manager for a $5.8M ACS Replacement Project providing design direction, cost estimation, and management services for the Project's 6-firm design Team. The design addressed the complete design and retrofit of approximately 100 ACS doors, 10 vehicle gates, 60 CCTV cameras, a security intercom system, upgrade of command center operator consoles, and implementation of an exterior vehicle crash barrier system using hydraulically operated vehicle barriers meeting K-12 crash specifications.

Now supporting Dallas Love Field and the City of Dallas in a follow-up contract for program / construction management services in support of the Love Field Modernization Program's electronic systems suite design through 2015, Mr. Martin facilitates the Airport's effort to stand up a new systems maintenance support group, field new technologies, act as the Owner's Technical Representative for 47 Airport Electronic Systems, and coordinate release of a Request for Proposal for a Distributed Antennae System (DAS) / WiFi Services Design / Build / Manage Contract on behalf of Love Field.

Nuclear Materials Site Security Upgrade Project (NMSSUP), Los Alamos National Laboratories, Los Alamos, NM: This $295 million dollar project provides intrusion detection, access control, and perimeter and physical security for Technical Area 55 (TA-55). For this project, Mr. Martin is supporting design of the closed-circuit television and perimeter security sensor systems. He is also involved in the requirements for the airborne mitigation system (AMS), design of the aerial threat sensor system, supporting definition and integration of physical barrier and AMS fiber optic and signal data network system requirements. He is also supporting the Owner's value engineering and quality assurance programs. During the project, he will provide both Title II (design) and Title III (construction support) services.

Savannah Hilton Head Airport, Fiber Optic Cable Plant Infrastructure Master Plan, Savannah, GA: Designing new Airport production network and fiber optic building infrastructure to support the Airport's future acquisition of a new DAS / WiFi Concessionaire, new digital services distribution, and a new digital voice over Internet (VoIP) protocol telephone system. The design will provide for multimode and single-mode fiber distribution and Cisco 3750 edge switches to support

the later phases of the project and extend services throughout the Terminal building. As part of the future DAS / WiFi Concession competition, the design will support connection of a new secondary point of presence to the new cable plant and extension of new Airport-provided services to tenants and passengers.

Orlando International Airport, BPX-015, Perimeter Security Infrastructure Upgrade, Orlando, FL: Mr. Martin supported URS Orlando office's project team in designing new fiber optic infrastructure to support replacement of the existing access control system at its perimeter gates. Funded by the FAA with end-of-fiscal year surplus grant funding, the design was required to be completed in approximately two weeks and was executed as a base design package plus multiple additive alternates to accommodate the Owner's changing grant ceiling.

Indianapolis International Airport, Threat and Vulnerability Study, Indianapolis, IN: Project Engineer for the development of the Security Master Plan for the Indianapolis International Airport. Mr. Martin co-authored the Threat and Vulnerability Study. The study included analysis of all areas of the Airport and recommended security upgrades for vulnerabilities found during the survey process. The study also included improving security for the two million sq. ft. Indianapolis Maintenance Center (IMC) building that is a dedicated aircraft maintenance facility. Mr. Martin prepared detailed cost estimates to support the study's final recommendations.

Security Communications Projects – Various Airports: Directed the activities of the design team; provided technical and managerial support to Airport staff; and coordinated design effort with other subcontractors and engineering organizations on the project team. Past designs included special systems including access control, closed-circuit television (CCTV), intrusion detection, security communications, public address (audible and visual paging), baggage handling and explosive detection systems, cable television, common use terminal equipment, and telephone distribution system. Mr. Martin participated in or directed the following airport security / communications projects:

- Automated Access Control System (AACS) Modernization Analysis, Dallas Fort Worth International Airport (DFW). DFW, TX.
- Terminal 3W/D Construction, DFW. DFW, TX.
- Los Angeles International Airport Master Plan, Los Angeles International Airport (LAX). Los Angeles, CA.
- Orlando International Airport Security Improvements Program, Orlando International Airport. Orlando, FL.
- Salt Lake City International Airport Computerized Access Security System (CASS) Project, Salt Lake City International Airport. Salt Lake City, UT.
- San Francisco International Airport International Terminal Building Special Systems, San Francisco International Airport. San Francisco, CA.
- Terminal Improvements Project, San Jose International Airport. San Jose, CA.
- Capital Improvements Program, Seattle-Tacoma International Airport. Sea Tac, WA.

URS

Robert Bogan
Electronic Systems Designer

Areas of Expertise

Design, Implementation and Integration of Specialty Electronic Systems.
Project Management
Construction Management
Strategic Planning
Cost Estimating

Years of Experience

With URS: 5 Years
With Other Firms: 20 Years

Education

AS/Business Administration/ 1986/ Platt College
AS/Electronics Engineering/ 1997/ Aurora Comm. College

Relevant Course Work

Fire Alarm NICET Training Course / 2009
Fire Alarm Requirements of IBC Course / 2008
Axis Academy / CCTV Design Review Course / 2008
Fire Alarm Plan Engineering Course / 2007
BICSI / Designing Telecommunications Distributions Systems/ 1998

Overview

Mr. Bogan has more than 20 years experience in planning, designing and implementing information technology infrastructure, electronic, life-safety, fire alarm, security and A/V systems. His specialty is low-voltage systems consulting focusing on voice, data, audio/visual, security and life-safety projects. He has also created corporate and educational design standards and guidelines for Special Electronic Systems and provided peer reviews for corporate, educational and aviation technology systems. Mr. Bogan is also experienced in video distribution systems for aviation, corporate and educational facilities. His systems experience includes fire alarm, life-safety systems, local area networks (LAN), wide area networks (WAN), voice networks, physical security systems including 49 CFR Part 1542 compliant access control systems and CCTV and digital video recording systems, audio-visual systems, voice/data integration and indoor/outdoor cable plant.

Project Specific Experience

Aviation Projects

Design Engineer/ Communications Infrastructure and CCTV/ Los Angeles World Airport, CA:
Design Engineer for new international terminal and concourse expansion including new fiber optic redundant ring and complete communications infrastructure. Design also included a FAA Virtual Tower CCTV system consisting of EMCCD night vision cameras and PTZ cameras with thermal software to provide a complete display of concourse for FAA's use in the ATCT.

Design Engineer/ CCTV and Access Control/ Melbourne International Airport, FL:
Design Engineer for upgrade of CCTV and Access Control Systems airport wide including site access gates. Responsibilities included extensive site survey work of existing systems and infrastructure, upgrading video switchers and archive servers. Additional duties included contractor bid analysis and construction management.

Design Engineer/ Fiber Optic Infrastructure/ Tampa International Airport, FL:
Staff designer for the design of an airport wide upgrade of primary and redundant fiber optic cable infrastructure for airport and tenant use. Communications rooms environmental monitoring and access control and CCTV systems.

Design Engineer/ Communications Infrastructure/ Denver International Airport, CO:
Design Engineer for design of new and upgrade of existing voice/data systems for multiple expansion projects including Concourse A, the Main Terminal and Alaska and United Airlines gates and kiosks.

URS

Lead designer for the wholesale replacement of pay telephone and internet kiosks throughout DIA designing and specifying new infrastructure and network systems to support wired and wireless internet connectivity.

Design Engineer / Communications Infrastructure / Security Systems/ Doha International Airport, Qatar:
Rob served as a staff designer for the infrastructure and security systems for the new Doha International Airport (NDIA). In this role Rob provided access control designs that included the requirements of Annex 17 and in part 40CFR Part 1542 as well as CCTV systems designs. Rob also was responsible in part for the of support infrastructure designs for voice and data, security and baggage systems.

Federal

Design Engineer/ Fire Alarm/Life-Safety/Communications/ Infrastructure/Security/ Cannon AFB, NM:
Design Engineer for new Consolidated Communications Facility for Cannon Air Force Base. Design included Communications Infrastructure, Fire Alarm, Mass Notification System and Security Systems for a 43,000 square foot secure SCIF Communications Facility.

Education Facilities

Design Engineer / Project Manager / Renovation and New Constructions Projects
Jefferson County School District, CO
Boulder Valley School District, CO
Laramie County School District, WY
Design Engineer and Project Manager for design and construction administration of fire alarm, life-safety, voice/data infrastructure, AV systems and security systems for eleven new construction, renovation and addition projects.

Design Engineer/Project Manager, New Construction and Renovation Projects, Cherry Creek School District, CO:
Design Engineer and Project Manager for design of voice/data infrastructure, AV systems and security systems for twenty nine new construction and renovation projects for Cherry Creek School District in Colorado.

Design Engineer/Project Manager, CCTV/Infrastructure/Electrical, Widefield School District #3, CO:
Design Engineer and Project Manager for design of new CCTV IP video surveillance system for two high schools along with new fiber network infrastructures. Responsibilities included the coordination of CCTV, electrical and network requirements for integration into a district wide Security System. Design included wireless applications of site installed IP CCTV cameras. Additional responsibilities included contractor bid analysis and construction management.

Commercial

Design Engineer/Project Manager, Communications Infrastructure Project, First Data Corporation, Denver, CO:
Design Engineer for design specifications for communication systems infrastructure and design of structured cabling and outside plant communications infrastructure to support LAN/WAN systems.

Design Engineer, Communications Infrastructure, REMAX International, CO:
Design Engineer for new corporate headquarters building. The design included the main Data Center along with broadcast studio and all communications rooms. A DAS (Distributed Antenna System) was designed and installed to accommodate WLAN, Life/Safety and Cellular systems.

Municipal

Design Engineer/Project Manager, Building Renovation, Spanish Peaks Library, Walsenburg, CO:
Design Engineer for voice/data, audio/visual and security systems for the renovation of a 1925, three-story building to accommodate a new library and future city municipal facility. Responsibilities included the creation of a migration plan for the Voice over IP (VoIP) system and the design of a community center room/distance learning center.

Design Engineer, City wide fiber optic network, Aurora, CO:
Design Engineer for providing proposed plan of a fiber optic network for the connection of all exiting and future city facilities including EOC. Responsibilities included the research of right of ways and the negotiation of lease terms from privately owned local highways.

Professional Societies/Affiliates
Building Industry Consulting Services (BICSI)
Council of Educational Facilities Planner International (CEFPI)

Publications
Interview: "Education Unplugged", Edutopia/Architectural Record, Feb. 2007

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Rob.Bogan@urs.com

URS

Karen Hohn
Aviation Systems Designer

Areas of Expertise

- 3D Baggage System Design and Modeling
- Baggage Claim Design
- Baggage Security Screening Design
- Baggage Systems Construction Observation and Administration
- Project Planning, Scope Development and Scheduling
- Problem Analysis and Resolution
- CBIS Acceptance Testing
- TSA Regulatory Guidelines
- OSHA Compliance
- Baggage Systems Testing
- Logistics and Operational Analysis
- Mechanical/Plumbing 3D Layout
- Baggage Handling Systems Peer Reviews
- Cost Estimating

Years of Experience

- With URS: 9 Years
- With Other Firms: 24 Years

Specialized Training

- Associate Project Management Certification (PMP)
- Carrier Technical Development Certification
- PLC Programming for Non-Programmers Certificate
- Trane Trace 700 Certification

Affiliations

- ASHRAE

Overview

Ms. Hohn has eleven (11) years of aviation systems design history with experience in designing baggage systems, testing, peer reviews and construction administration of in-line baggage screening systems at a variety of airports. She is skilled in baggage system design and utilizes baggage system requirements derived from load rates and baggage screening protocols into a fully coordinated baggage system design using 3D drawings which identifies spatial problems before they occur. She also has spent six (7) years in the mechanical field with emphasis on systems coordination, 3D layout and design and multiple years in other related fields including architectural, structural, piping, and electrical, security and telecomm.

Project Specific Experience

Senior Lead Designer, Orlando International Airport, Inline Baggage Screening Systems, Orlando, FL: Senior Lead Designer for multiple new inline baggage screening systems for the entire airport utilizing baggage system requirements from load rates and baggage screening protocols to produce a fully coordinated 3D inline baggage system package. This entailed installing 29 EDS inline in 5 different pods for the final design. Duties also included interdisciplinary coordination, BHS systems testing and construction administration.

Confidential Client, Project Design Reviewer: Provided Checked Baggage Inspection System (CBIS) review services on behalf of governmental agencies to specific airports. Duties included reviewing CBIS design packages at various stages of development and submitting comments. Specific review tasks including drawing and document review for compliance with government regulations and requirements, and cost estimating.
Some Project Sites include:
Colorado Springs (COS)
Detroit (DET)
Los Angeles (LAX)
Nashville (BNA)
Phoenix (PHX)
Portland (PWM)
Reno (RNO)
Tulsa (TUL)

Senior Designer, In-Line EDS Project, Ronald Reagan International Airport, Washington DC:
URS served as the prime consultant to the Metropolitan Washington Airport Authority (MWAA) for the multidisciplinary design of a new in-line explosive detection system (EDS). The EDS systems valued at approximately $75,000,000 included 8 EDS machines associated conveyance systems, 3 trace suites, an on screen resolution facility and a baggage control room.

Lead Designer, Orlando International Airport, Multiple Design/Build Projects, Orlando, FL: Lead Designer for projects including FIS baggage system and make-up unit replacement, Inbound baggage system and baggage claim replacement. Duties include coordination with owner, interdisciplinary coordination, preliminary design, document preparation, submittal review, construction oversight.

Lead Designer, Gulfport-Biloxi Airport, Check-in In-line Screening Unit Upgrade, Biloxi, Mississippi: Lead Designer for the expansion of In-line screening unit upgrade

Las Vegas McCarran International Airport, Inline Baggage Screening System, Las Vegas, NV: Site surveys, package management and complete design of all the baggage systems. The complete conceptual and schematic layout for entire airport system including new bag rooms for many airline stakeholders. Lead designer for interdisciplinary coordination with the architects, local and federal level TSA, airport managers, and airlines.

Lead Designer: Las Vegas McCarran International Airport, New Terminal 3 Inline Baggage Screening System, Las Vegas, NV: Team coordination, package management and complete design of all the baggage systems. This included the complete conceptual and schematic layout for new terminal including inbound system, outbound systems for both domestic and international. This project required extensive interdisciplinary coordination with the project team.

Las Vegas McCarran International Airport, International Terminal, Las Vegas, NV: Layout and Design for the Outbound Baggage System design for the Terminal 2 Renovations to provide 100% baggage screening. This project required a high level of coordination because of tight space requirements and the impact on all the airlines using Terminal 2.

Southwest Airlines, Las Vegas McCarran International Airport, Las Vegas, NV: Layout and Design for 100% in-line baggage screening Southwest ticket counter expansion.

Salt Lake City International Airport, Inline Baggage Screening System, Salt Lake City, UT: Drawing setup and conveyor layout of various airline-grouping scenarios in order to determine the most efficient airline pod arrangements. Developed alternate baggage screening protocols for presentation to TSA, airport, and the airlines stakeholders.

Burbank Glendale Pasadena Airport, Inline Baggage Screening System, Burbank, CA: Package management and design of the 100% inline baggage systems.

New Doha International Airport, Baggage Screening System, Doha, Qatar: Assisted in the development of the baggage system and the support systems package.

San Diego International Airport-Lindbergh Field, Interim Baggage Screening System, San Diego, CA: Design and layout of interim lobby baggage screening system, as well as passenger flow drawings from ticket counters to post-ticketing baggage screening system.

Beijing Capitol International Airport, Passenger Flow and Needs Study: Drawing, concept setup for a passenger flow study analyzing the quantity of passenger services including ticket counters, passport control, and customs stations needed for a proposal for the new airport in Beijing.

San Diego International Airport-Lindbergh Field, Inline Baggage Screening System, San Diego, CA: Design and layout for the baggage screening solution including multiple conceptual design submittals both the interim lobby screening and the long range, 100% in-line screening solutions for multiple terminals.

Interim Baggage Screening System, San Diego International Airport-Lindbergh Field, San Diego, CA: Design and layout of initial interim lobby baggage screening system.
San Diego International Airport, Baggage Handling System Reconfiguration, San Diego, CA: Design and layout to the baggage screening system including system enhancements, and EDS additions to existing system.

Anchorage Intermodal Facility, Baggage System Design, Anchorage, AK: Baggage system design layout for the new intermodal baggage screening system for the facility. This project required intensive coordination because of the historic building and seasonal operations.

Oakland International Airport, Security Screening Checkpoints, Oakland, CA: Design and layout for the Inbound baggage system for the new build-out, including cart/aircraft path coordination.

San Francisco International Airport, Inline Baggage Screening System, San Francisco, CA: Conceptual design layout for the new inline baggage screening systems for the airport.

El Paso International Airport, Inline Baggage Screening System, El Paso, TX:
Lead conceptual design layout for the new inline baggage screening systems for this airport.

Juneau International Airport, Inline Baggage Screening System, Juneau, AK: Conceptual design layout for the new inline baggage screening systems for the airport.

Anchorage International Airport, Baggage Screening System, Anchorage, AK: Conceptual design layout for the new interim baggage screening systems for the airport.

Fairbanks International Airport, Baggage Screening System, Fairbanks, AK: Conceptual design layout for the new interim inline baggage screening systems for the airport.

Baggage Screening Design, Transportation Security Administration, Various Locations: Design layout for projects providing for 100% outbound baggage screening design to ensure these airport facilities meet TSA protocols for the new federal security mandates. Project locations include:
Las Vegas, Nevada, Ketchikan, Alaska, Oakland, California, and Colorado Springs, Colorado

Concourse A West Expansion, Denver International Airport, Denver, CO: Schematic design layout for the proposed Gate System layout.

Denver International Airport, Denver, CO: Prepared layout drawings for Aircraft fueling system, Ground Equipment Fueling System, Fire Protection Water Storage and Aircraft Parts Pneumatic Tube Delivery System.

Denver International Airport, Concourse B, Denver, CO: Prepared layout drawings for Passenger Loading Bridges, Aircraft Parking, and other Ground Support Systems.

Conceptual Plan for the proposed Ivanpah International Airport, Las Vegas, NV: Work involved use of passenger forecast to develop Airport Layout Plans.

URS

Mark Brown
Senior Electrical/Communications Engineer

Areas of Expertise

Access Control
CCTV
Electronic Sensor Systems
Security Screening
Fiber Optic Communication

Years of Experience

With URS: 2 Years
With Other Firms: 18 Years

Education

BS Electrical Engineering/1979/
University of New Mexico

Overview

Mr. Brown has more than 20 years of experience in designing and building specialty electronic systems, such as access control, CCTV, physical security screening, fiber optic communication backbones, remote facility environmental monitoring, and industrial controls for public and commercial facilities.

Project Specific Experience

Project Manager for Electronics & Communication Support Services, URS Corporation, Denver International Airport, Denver, Colorado: Provided engineering management and construction support for CCTV, card access, and other specialty electronic systems. Provided engineering and design guidance construction teams involved in large multi-year projects. Member of Technologies Project Management Office staff and Operations Security Technologies Support staff. Managed budgets totaling over $6 million. Drafted project plans and test documents meeting ITSM standards.

Principal Systems Engineer for US Coast Guard Command and Control (C2) Systems, General Dynamics Information Technology, Portsmouth, Virginia: Developed C2 system for new and in-service Coast Guard cutters using commercial-off-the-shelf (COTS) equipment. Planned and calculated power supplies for all ships under construction. Specified COTS network storage for scalable solutions for each ship type. Designed and built two system laboratories. Deliver the product to prime contractor under budget and ahead of schedule.

Senior Engineering Technologist for Access Control and CCTV Projects, Dataline, LLC, Norfolk, Virginia: Led comprehensive engineering efforts for physical security at federal and commercial facilities throughout the Mid-Atlantic region. Project leader for integrated security installation at APM Terminals Virginia, a newly-constructed container ship facility. Managed federal government electronic security maintenance programs at east coast military locations, encompassing 1500+ access control points, an enterprise server and seven regional servers.

Project Engineer for Hartsfield-Jackson Atlanta International Airport, M. C. Dean, Inc., Atlanta, Georgia: Programmed and configured the Lenel integrated Security System replacement.

Engineering Technologist for Federal and Commercial Electronic Security Systems, Dataline, Inc.: Planned, designed and built enterprise integrated security and CCTV systems worldwide. Engineered environmental monitoring systems for warehouses containing ozone-depleting substances.

ELECTRICAL CONSULTANT
JOHN CLEM

Relevant Project Experience

Denver RTD Denver Union Station Project , Denver, CO

TEM team member John Clem performs the integral role of communications system technical lead for Denver's new multi-modal transportation hub servicing light rail, commuter rail, bus, and Amtrak transportation services. John performed the initial requirements definition and generated an integrated communications system design including contract drawings, specifications, and a cost estimate. The communications system includes a backbone gigabit IP network that integrates into an existing WAN to transport disparate traffic to different locations; an IP-based telephone system consisting of central equipment along with standard and emergency telephones; a programmable information display system consisting of IP-addressable 'smart' display panels that feed live data for patrons; an IP-based clock system that synchronizes to display network time; an IP-based closed circuit television system including cameras, network recording servers, and off-site video monitoring; an enterprise-level IP-based Lenel access control system, an alarm annunciation system based on local network PLCs and HMI panels for aggregating and presenting local facility alarms to on-site personnel, coordination for an IP-based radio link for RTD's data and voice radio system and a public service radio system for the underground bus facility, all power & grounding from data center to the end devices, and structured cable requirements including the CAT6A system for data and voice circuits. John represents the client through cost negotiation exercises and ongoing coordination with the selected contractor.

Denver RTD Central Control System Retrofit Project , Denver, CO

John performed an integral role in assisting RTD with the replacement of their existing Central Control System (CCS) that includes gigabit IP connectivity along their light rail transit right of way. The CCS monitors and controls a variety of points throughout RTD's existing system including power substations, the vital rail signal system, emergency telephones, CCTV equipment, public address (PA), variable message bus and light rail signs, Intelligent Transportation System (ITS) dynamic signs along public thoroughfares, and a parking lot management system. The retrofit primarily consisted of the replacement of the existing software systems performing the monitoring and control functions of all communication system elements. John's expertise in SCADA systems and software development was key to a successful project.

Denver RTD West Corridor Communications Design ,Denver, CO

Performed communications design for this project in the Denver area. The communications system includes telephone PBX modifications, the high speed IP wide area network, Ethernet LAN, public address system, security CCTV and PA/VMS system. John is presently on the oversight team responsible for the implementation and integration of the West Corridor project into RTD's existing communications infrastructure.

Experience/ Expertise / Knowledge Applicable to Role for this Project
Project Management
Electrical Engineering
Control Systems
SCADA Systems
Systems Integration
Testing
Communications Systems

Years of Professional Experience
8

Years With Triunity Engineering
5

Licenses/Certifications
PMP in progress, Summer 2012

Education
Bachelor of Science, Management Information Systems; Oral Roberts University.

Denver RTD Substation Upgrade Project, Denver, CO

John is a key member of the group implementing a change out of the agency's existing Siemens S5 PLCs. The change out includes both existing substations and new substations. A key element in the design and oversight is coordinating the retrofit work with RTD's live revenue operations. The retrofit replaces an older generation of PLCs with unavailable parts and proprietary logic with commercial off the shelf units using open protocols and the freedom for RTD to make additions and changes to the retrofitted logic moving forward. John provides control system expertise for the design and oversight teams.#

SENIOR COMMUNICATIONS CONSULTANT
DAVE MARLIN

Relevant Project Experience

Green Line Extension Communications, Passenger Information and Security Systems: MBTA, Boston, MA

Triunity team member Dave was the Communications and Passenger Information Systems Design Specialist for outside plant fiber and copper cable, PA, VMB, security, VOIP telephone and fare collection systems for over 5 miles of right-of-way, 7 stations and a vehicle maintenance facility. Dave interviewed agency stakeholders to determine current requirements, restrictions and future initiatives with which the extension stations would need to comply. Station security design included access control, intrusion detection and CCTV systems. Communications scope included SONET and switched Ethernet WANs with separate station LANs for security, fare collection and passenger information systems. Dave is working with other members of the design/CM team and station architects to coordinate and integrate design elements.

Outside Plant Fiber Optic Communication: Santa Clara Valley Transportation Authority, San Jose, CA

As project manager and communications specialist, Dave site surveyed an existing fiber optic plant with 65 light rail stations and two data centers. This survey established the need for a switched Ethernet network, which he designed and implemented to parallel an older existing SONET network. The fiber survey and re-design of the fiber paths separated the signal system on the existing SONET network and the Ethernet network supporting all other station communications and systems. Dave worked with CAD personnel to design cable and wiring diagrams for station LANs and agency metro area networks (MAN).

Land Mobile Radio: JPB/Caltrains, San Carlos, CA; RTD Denver, CO

As Project Manager for the Radio Narrow Banding and Wireless Voice and Data Master Plan serving JPB/Caltrains, Dave collected current voice radio systems information from stakeholder interviews. He also did site surveys and had extensive communications with tenant Railroads and the Association of American Railroads. From both the interviews and the site surveys, he was able to evaluate the current LMR radio system and back haul circuits for upgrade to meet FCC Narrow Banding regulations.

Dave served as Radio Project Manager for RTD Denver. He was responsible for survey of existing radio facilities, propagation study of existing and future radio systems in the 450MHz and 800/700MHz frequencies to support bus and light rail voice and data communications. Point to point 2Ghz Microwave backhaul circuits were also surveyed and found to have been part of an FCC auction which required their replacement.

Station Fiber Optic & Copper Cable Plant: Santa Clara VTA, San Jose, CA; JPB/Caltrain, San Carlos, CA

Experience/ Expertise / Knowledge Applicable to Role for this Project
Project Management
Control Systems
SCADA Systems
Systems Integration
Testing
Communications Systems

Years of Professional Experience
30

Years With Triunity Engineering
2

Education
Bachelor of Science, Mathematics, Southern Utah University

Triunity team member Dave has utilized industry best practices in structured copper cabling to specify and install networked devices such as PA, VMS, fare collection, telephone, CCTV and SCADA systems for transit agencies in data centers and station facilities. Reliability has been achieved through design standards, best testing procedures and as-built documentation.

Wide Area and Metro Area Networks: Dynegy Connect, Aurora, CO; Qwest/LCI International, Columbus, OH

Triunity team member Dave designed implemented and operated internal DS-3 ATM IP network to support business connectivity between Denver, Colorado; Chicago, Illinois; and Columbus, Ohio. Dave was responsible for VOIP system selection and implementation in Denver and Chicago. Dave also worked with local network vendors to configure a high capacity switched and routed ATM metro area network providing redundant connectivity between the Denver business office and data center.

Dave was responsible for design, installation and operation of corporate local area networks (LAN) and wide area networks (WAN). He was also responsible for establishing connectivity with channel partners and remote district sales offices, as well as remote operations offices.

Wireless Networks: Regional Transportation District, Denver, CO; JPB/Caltrain, San Carlos, CA

Dave site surveyed the wireless propagation in the 2.4 GHz and 5.9 GHz bands at seven bus maintenance facilities, the parts warehouse, and the intermodal union terminal to provide the basis for his design of an 802.11n data exchange network for buses in their maintenance and parking areas.
He also trouble shot a 5.9 GHz wireless network installation supporting a CCTV system at the SF King St.Terminal for JPB/Caltrain and provided guidance to increase the networks performance and reliability.

Telephone Systems: Santa Clara VTA, San Jose, CA; Dynegy Connect/Extant, Aurora, CO

Dave served as Communications Consultant on a Station Communications project. He specified the replacement of an existing wide area telephone system. By working with vendors, he designed the implementation of a VOIP Gateway to connect to the existing central PBX with VOIP to Analog adapters over the wide area Ethernet network at the project stations for those telephones required to remain analog. The project replaced channel banks at stations and the central SCADA data center.

SCADA Systems: Santa Clara VTA, San Jose, CA; Qwest/LCI, Columbus, OH; Sound Transit, Seattle, WA; OneWest.Net, Jackson, WY American Electric Power, Columbus, OH; ARMCO Steel, Middletown, OH

Triunity team member Dave provided design and specification for the VTA Downtown East Valley Project. He was responsible for design of SONET

backbone, Gigabit Ethernet backbone and specification of serial servers, traction power/fire/security SCADA system, train management SCADA, PLCs/RTUs, traffic and train detection loops, railway intrusion detection system, with interfaces to train onboard VETAG equipment, wayside signaling interfaces, traction power substations, stations environments, intermodal stations/transit center maintenance facilities, including integration with current VTA systems.

Portland to Milwaukie Light Rail Extension Communications, Passenger Information & Security Systems: TriMet, Portland, Or.

Triunity team member Dave was the Communications and Passenger Information Systems Design Subject Matter Expert for outside plant fiber and copper cable, VMB, security, VOIP telephone and fare collection systems for over 5 miles of right-of-way and 5 stations. Dave determined current requirements, restrictions and future initiatives with which the extension stations would need to comply. Station security design included access control, intrusion detection and CCTV systems. Communications scope included switched Ethernet WANs and station LANs for security, fare collection and passenger information systems. Dave worked with other members of the design/CM team and station architects to coordinate and integrate design elements and brought specifications to 100% level. Dave also was responsible for the design and specification of two Land Mobile Radio sites for coordination with local Freight Railroad operations.

ELECTRICAL DESIGN CONSULTANT
AMJAD PERVAIZ, P.E.

Relevant Project Experience

Seattle Sound Transit, University and North Link Extensions

Triunity team member Amjad is discipline Lead for the design and specifications of a SCADA system to monitor and control various building management components and its integration to train control, emergency ventilation, electrical, mechanical, vertical transportation and communications sub-systems for Sound Transit's North Link Extension. Coordinating integration issues and their resolution with client, discipline leads, other consultants and third party stakeholders. Defining system elements for data and communications system design, including cabling, network architecture, hardware and cost estimates.

Amjad is providing design review and bid support services for University Link communication systems design. Providing recommendations on the design, specifications and integration of EMI, vibration and wheel flats monitoring and detection system for University Link Extension.

TriMet PMLR Communications System Design

Triunity team member Amjad was the Communications Systems Lead Designer for TriMet's Portland to Milwaukie Light Rail (PMLR) project. The project included an extension of 7.3 miles of light rail and 10 passenger stations. Amjad produced design and specifications for fiber optic and copper cabling, SCADA, access control, passenger Information and public address system, analog and digital telephone system, train to wayside communications (TWC), and intrusion detection.

He was responsible for the production of detailed schematics for fiber optic cable configuration, digital security cameras and its integration to an existing CCTV system, and the design for gigabit Ethernet local and wide area networks.

Amjad also performed requirements analysis, defining systems interfaces and systems integration features for the detailed communications system design.

Edmonton Transit System - South LRT Communications Systems - Construction Management

In his role as a construction manager, Triunity team member Amjad developed notices of proposed changes, provided independent cost estimates, detailed engineering designs depicting changes, and technical specifications to accompany the change orders. He assisted the client with requirement analysis, change negotiations, and managed contractors and sub-contractors on behalf of the customer. He performed review of submittals, test procedures and test records to ensure the system's compliance with contract specifications.

Experience/ Expertise / Knowledge Applicable to Role for this Project
Communication Systems
System planning, design, testing and commissioning
Project Management,
Design and Construction Management

Years of Professional Experience
16

Years With Triunity Engineering
1

Licenses/Certifications
Professional Engineer, WA State
Network Engineering
Project Management
Wireless Communications

Education
Master of Science, Electrical Engineering
Bachelor of Science, Electrical Engineering.

Amjad was responsible for the commissioning of the centralized train control for indications, controls, and its interface to the signal system at the dispatch center. He also commissioned and oversaw the integration of the building management, portal intrusion system, and CCTV security system. He oversaw the installation and testing of fiber optic and copper cabling, analog telephones and PABX.

In addition, he produced the design and specifications for the public address and passenger information system (PA/VMS) and changes to fiber optic and copper cabling, and CCTV systems. Amjad also produced use cases for the PA/VMS contract to ensure the system's functionality in various operating conditions.

Edmonton Transit System (ETS) South LRT Communications Systems - Preliminary Engineering

Triunity team member Amjad Pervaiz was the Project Manager for the Preliminary Engineering Design for the Communications Systems for ETS SLRT extension. The extension included 4.5 Km of right of way, one surface station, a transit center, and park and ride area.

He led the effort to develop preliminary engineering drawings the report for PA/VMS, CCTV, telephone, fiber optic and copper cabling, SONET, building management system, access control, and local and wide area networks. In addition, he was responsible for the preparation of detailed design and technical specifications for CCTV camera and analog telephone system for park and ride facilities.

Edmonton Transit System North LRT Communications Systems – Final Design

Triunity team member Amjad was responsible for the design of PA/VMS and SONET sub-systems. He also performed QC on the specifications and design for CCTV, local and wide area network, SCADA, fiber and copper cabling sub-systems.

Alberta Health Services – Radio Assessment Project

Triunity team member Amjad served as the Radio Systems Engineer for Alberta Health Services (AHS) radio assessment project. The project was a study of AHS's existing voice and data radio networks. The project provided radio propagation analysis and recommended a uniform, integrated voice and data digital radio network ensuring coverage of the entire Province of Alberta. Amjad developed two design alternatives both operating on narrowband VHF technologies.

Sound Transit WiMAX Feasibility Study

Triunity team member Amjad provided recommendations on state of the art approaches for the implementation of wireless internet data communication systems for patrons as well as the Sound Transit staff. He delivered studies of existing communications infrastructure, network requirements for the upgrade,

network design and implementation alternatives, engineer's preferred design, network maintenance and operation's considerations.

Flood Warning Telecommunications System

Triunity team member Amjad was a Project Manager for the turnkey project for extension and upgrade of a flood warning telemetry system in Pakistan. He was responsible for design, planning, coordination and supervision of various project levels for its performance and timely completion. He designed and integrated various components of the telemetry system.

He performed site surveys and prepared detailed system design reports. He also managed the civil works, system installation, and system configuration. He developed system acceptance test (SAT) procedures to ensure conformance to contract specifications, executed the SAT and produced system test reports after successful completion of testing.

SENIOR COMMUNICATION ENGINEER
JONNIE THOMAS, P.E.

Relevant Project Experience

RTD FasTracks System Engineering, Regional Transportation District, Denver, Colorado

Triunity team member Jonnie was a Communications Manager on RTD's $4.7 billion FasTracks program. He was responsible for the design, specification and implementation of the central control system, SCADA system, public address system, variable message sign systems, radio system modifications, telephone system modifications, and communication transmission system.

RTD TREX Design/Build Project, Regional Transportation District, Denver, Colorado

Triunity team member Jonnie was a Communications Manager on the Southeast Corridor LRT Extension. He was responsible for the design, specification and implementation of the central control system, SCADA system, public address system, variable message sign system, radio system modifications, telephone system modifications, and communication transmission system.

RTD Substation Upgrade Project, Regional Transportation District, Denver, Colorado

Triunity team member Jonnie was a consultant reviewing the design, testing and installation submittals for the additional breakers at existing traction power substations, including the modification of the transfer trip scheme.

Metropolitan Transit Authority of Harris County, METRO, Houston, Texas
Triunity team member Jonnie provided conceptual design and specifications for the public address, variable message sign and telephone systems for the Houston Metro Light Rail Project.

Airport Light Rail Transit, Tri-County Metropolitan Transportation, Portland, Oregon

Triunity team member Jonnie was a Lead Communications Engineer for the Airport LRT extension. He was responsible for the addition of communication transmission system, SCADA system, central control system modifications and control room modifications.

Interstate MAX Light Rail Transit, Tri-County Metropolitan Transportation, Portland, Oregon

Triunity team member Jonnie was a Communications Project Engineer for the Interstate MAX LRT extension preliminary engineering. He performed conceptual design for the communication transmission system, SCADA system, and central control system. He also provided cost estimates for the project.

Experience/ Expertise / Knowledge Applicable to Role for this Project
Design Specification
Procurement
Inspection
Installation
Cut-over of electrical
Communications Systems
PLC Systems
Control Systems
SCADA Systems
Systems Integration
Testing
Troubleshooting

Years of Professional Experience
35

Years With Triunity Engineering
8

Licenses/Certifications
Professional Engineer, Colorado
Professional Engineer, Washington
Professional Engineer, Virginia
NCEES Certified

Education
Bachelor of Science, Electrical Engineering, Kansas State University.

Radio System Upgrade Tri-County Metropolitan Transportation, Portland, Oregon

Triunity team member Jonnie was a Project Manager for the upgrade of the agency's aging 450 MHZ radio system. The project included the replacement of mobile radios on the agency's approximately 800 buses as well as base station replacement.

Microwave System Upgrade Tri-County Metropolitan Transportation, Portland, Oregon

Triunity team member Jonnie was a Project Manager for the replacement of several hops of the agency's analog microwave system with digital microwave hops.

Westside Light Rail Transit, Tri-County Metropolitan Transportation, Portland, Oregon

Triunity team member Jonnie was the Agencies Lead Engineer for the design and implementation of the Siemens-Rolm PBX modifications, the Synchronous Network Fiber Optic System (SONET), channel bank system, digital cross-connect system, Ethernet LAN, PSTN leased line circuits, public address system, audio recording system and Motorola Centracom radio system.

Long View

Consultant Profile: *Wade H.*

Summary of Experience

Wade has been in the IT field for over 15 years, with a focus on network technologies and architectural design. He has designed and deployed network infrastructure ranging from small offices and campus networks to global infrastructures. He has experience with security and wireless deployments including 100% ubiquitous wireless coverage of a 12 hospital chain. He has experience in both Unix and Windows administration which allows him to view network design from a holistic business perspective with a focus and improving the way network supports the various user communities.

Education & Certifications

- ITIL Foundations v2, 3
- B.S. Information Systems Security
- Currently sitting CCIE Lab in R&S
- CCNP
- CCNA
- CCDA

Skills

- Cisco Networking
- STP, VTP, 802.1q, ARP
- EIGRP, OSPF, BGP
- VPN, MPLS, GRE
- Network Monitoring Platforms (CA, NetQos, Solarwinds)
- Wireless (802.1), LWAPP, Mesh
- WAN technologies, T1, DS-3, OC-3, DWDM, CWDM
- Security (Cisco ASA, Checkpoint FW-1)
- Windows Server Active Directory
- Basic Unix Administration

Work Experience

Long View Systems **11/2007-Current**

Systems Consultant/Solutions Architect

- Network Architecture consulting on SCADA separation initiative. Provided consulting on separation of SCADA environments from corporate infrastructure including network design, application investigation and remediation, user community interviews and SCADA traffic assessments
- Primary network architect for new data center build in Texas. Deployment focused on providng high-bandwidth connectivity to server and storage infrastructures with a focus on future growth and scalability. Utilized Cisco Nexus platforms (N7101, N5596, N2232) for connectivity within the data center and high speed dark fiber (10Gb) links to local sites, with 1Gb WAN connections to core remote locations.
- Performed network refresh and design change for data center in Colorado focused on updating the infrastructure and moving design to best practice models.
- Implemented wireless infrastructure (guest and corporate) within two office tower locations (20 and 12 floors). Included certificate based 802.1x authentication for corporate use, and guest traffic tunneling to DMZ environment

- Provided 3rd level support and architectural design guidance for energy industry client. Including WAN migration from Frame Relay to MPLS, deployment and maintenance of QoS model, long-term planning support, design support to server and storage teams
- Designed and deployed 12 story office tower network infrastructure including WAN, wireless and user access environments and support for voice and AV infrastructure.

ISC Inc. **4/2005-5/2007**
Network Engineer

- Performed project installation work for multiple state & local government agencies, as well as commercial and education customers with a focus on LAN/WAN, security, & wireless deployments.
- Significant experience with the Cisco ASA/Pix product line, Cisco ACS technology, LWAPP wireless design and deployment, along with providing post-installation support for other projects.
- Supervised NOC personnel and monitored performance statistics related to customer support
- Provided support for Microsoft infrastructures with a focus on Active Directory, Exchange, and IIS on both 2000 and 2003 versions of the MS Server OS
- Network engineer on LWAPP wireless deployment for 12 hospital chain, including guest, data, and voice coverage of entire facilities footprint.

Independent Computer Applications/Network Consultant **2000-4/2005**

- Designed 20+ site dual-homed secure monitoring network, including fully redundant NOC sites, for nationwide fiber infrastructure carrying voice/data traffic.
- Lead technical engineer for network upgrade (including core/distribution and access layers) in a 14 state region
- Lead technical engineer for deployment of nationwide surveillance network.
- Coordinated nationwide deployment and troubleshooting of 200+ Cisco router and switch upgrades/installs. Responsibilities include scheduling, travel arrangements, support for on-site engineers, and developing and loading configurations for equipment
- Managed rapid deployment project for 21 extranet sites nationwide, in support of Ciena optical gear. Deployment was completed in 5 weeks from original order of equipment and circuits to production status.

Long View

Consultant Profile: *Ken M.*

Summary of Experience

Ken is an IT professional with over twenty years in the IT industry. He currently holds his CCNP, CCVP, and CCDA certifications from Cisco. His passion is being able to work on projects doing VOIP and network implementations. Ultimately, Ken would like to achieve the new Cisco CCDE certification and focus his attention on Network Architecture and Enterprise Solution Design.

Education & Certifications

- Cisco Certified Network Professional Voice (CCNP Voice / CCVP) - 2011
- Cisco Certified Network Professional (CCNP) – 2008
- Cisco Certified Design Associate (CCDA) - 2009
- Cisco Certified Network Associate (CCNA) - 2005
- Microsoft Certified Systems Engineer Windows 2000 (MCSE) - 2000
- Microsoft Certified Systems Engineer Windows NT - 1998
- HP/Compaq Accredited Systems Engineer (ASE) - 1998
- Novell Master Certified Netware Engineer (MCNE) - 1995
- BAS in Electronics Engineering Technology, ITT Technical Institute - 1991

Skills

- TCP/IP
- QoS
- VLANs
- 802.1Q
- HSRP
- EIGRP
- OSPF
- BGPv4
- IPSEC and SSL VPN
- GRE, L2TPv3
- NAT
- T1/T3
- ISDN PRI and CAS
- 802.11
- WEP/WPA
- 802.1X
- Cisco Routers (2600, 2800, 3700, 3800, 2900, 3900, 7200)
- Cisco IOS and CatOS Switches (2900XL, 2950, 2960, 3500XL, 3560, 3750, 4x00, 6500)
- Cisco Nexus Switches (7000, 5000, 2000)
- Cisco Call Manager 4.x – 8.x
- Cisco Unity 5.x – 7.x
- Cisco Unity Connection 7.x – 8.x
- Cisco H323, SIP, SCCP and MGCP Voice Gateways
- Cisco VG224 Analog Gateways
- Cisco 3000 Series VPN Concentrators
- Cisco PIX/ASA
- Packeteer Packetshaper and SkyX
- Netscreen Firewalls
- Microsoft Windows 2003/2000 Server
- Windows XP / Windows 7
- Checkpoint Firewall-1 NGX
- Ciscoworks LMS
- Cisco TACACS and RADIUS
- Microsoft Visio
- Microsoft Office Suite

Long View

Work Experience

Citywide Banks

- Installation of Call Manager, Unity Connection, and Contact Center Express for 250 user on Cisco BE6000
- Design and implementation of H323 and SCCP gateways at all branches
- Assisted Citywide staff with integration and future transition from Avaya IP Office
- Troubleshoot existing network and redesign for VOIP

University of Colorado, Colorado Springs Campus

- Project team lead for campus network and PBX replacement supporting 9000+ students and staff
- Replaced 6500 based core network with Cisco Nexus 7000
- Installed Nexus 5000 and 2000 fabric extenders for high-availability data center network using Virtual Port Channel (VPC) technology
- Replaced existing wiring closet access switches with 60+ Cisco 3750X switches
- Implementation and support of Call Manager, Unity Connection, Contact Center Express, Presence, and Emergency Responder for 1100+ phones and 800+ analog ports
- Integration with existing legacy PBX for transition to Cisco VOIP
- Configuration and troubleshooting of advanced analog device support, including fax comaptability, emergency auto-dial phones, and automatic ringdown
- Troubleshooting of all voice and network issues

El Paso County

- Project team lead for network and voice implementation
- Implementation and support of Call Manager, Unity Connection, and Contact Center for 650 users migrating from existing Nortel PBX
- Implementation of Cisco UCS C-Series servers for all voice applications in VMware
- Network implementation of 6509 switches, VG224 analog gateways, and 2900 series voice gateways
- Implementation of QoS for all network devices to support VOIP
- Troubleshooting of voice and network issues

City and County of Denver

- Voice / Data network design and implementation for new buildings, including functionality requirements and product selection
- Blueprint and jobsite review of cabling infrastructure for usability and compliance with city standards

Markwest Hydrocarbon

- Network operations and engineering for 20+ sites
- Support and implementation of voice network and H323 gateways
- QoS policy troubleshooting and reconfiguration for MPLS WAN

City of Sunny Isles Beach, FL

- Upgrade and migration of Call Manager 4.2 to 7.1
- Migration of Unity 4.1 to Unity Connection 7.0
- Redesign of voice network to dual-core dual-uplink design based on Cisco best practices
- Troubleshooting of complex voice signalling protocol delay

First Western Trust Bank

- Installation and configuration of new Call Manager 7.1 and Unity 7.x servers
- Configuration and implementation of H323 gateways and MPLS edge routers in new offices
- Troubleshooting of voice quality and QoS issues

Westerra Credit Union

- Assisted with migration to new AD domain and Exchange servers for 7 locations.
- Migration and testing of 250+ users and computers to new domain, including application compatibility testing.
- Troubleshooting of integration and permissions issues.

Laramie Pediatrics

- Troubleshooting, configuration and support of Call Manager 6.0, Unity 5.0, and H323 voice gateway.
- Troubleshooting of Exchange and Unity integration issues

Compassion International

- Lead engineer for implementation and test of 802.1x network security to over 800 users with per-department VLAN segmentation across 200+ switches.
- Implementation of gateway application for controlled wireless Internet guest access.
- Advanced troubleshooting of Windows Group Policy on Windows XP clients.
- Packet analysis of LAN infrastructure for VoIP Quality of Service

Section 6 -
Required Forms

ATTACHMENT 2, PART 1
PROPOSAL ACKNOWLEDGEMENT LETTER

City and County of Denver
DENVER INTERNATIONAL AIRPORT

Proposer: URS Corporation Date: December 31, 2012

Robert W. Kastelitz
Deputy Manager of Aviation for Technologies/CIO
Airport Office Building (AOB), 6th Floor
Denver International Airport
8500 Pena Boulevard
Denver, Colorado 80249-6340

In response to the Request for Proposal (RFP) dated November 29, 2012, for RFP NO.201208363 On Call Electronic and Communication Systems Support Services, the undersigned hereby declares that I have carefully read and examined the proposal documents and hereby propose to perform and complete the work as required in the Scope of Work. Attached hereto are the completed responses to Attachment 1 (1-7C, Parts 1 and 2), Attachment 2 (Parts 1-4), and Attachment 5, Cost Proposal) of the Proposal Forms.

I agree that this proposal constitutes a valid offer to negotiate an Agreement with the City to perform the work described in the proposal documents.

After final agreement on the terms of the Agreement have been reached, I agree to execute the Agreement, which will be prepared by the City in a timely manner.

I acknowledge receipt and consideration of the following addenda to the proposal documents:
Addenda Numbers: 1

I, the undersigned, certify that I have examined and am fully familiar with the proposal documents and that I have satisfied myself with respect to any questions I have regarding the RFP which could in any way affect my understanding of the Scope of Work or my estimate of the cost thereof.

Proposer: URS Corporation

By: Steve Eldridge
(signature)

Proposer's Business Address:
8181 E Tufts Ave
Denver, CO 80237

Steve Eldridge
(type or print name)

Vice President-Sr. Airport Consultant
(title)

steve.eldridge@urs.com
(e-mail address)

ATTACHMENT 2, PART 2

PROPOSAL DATA FORM
(please use this form)

City and County of Denver
DENVER INTERNATIONAL AIRPORT

NAME OF PROPOSER: URS Corporation

ADDRESS: 8181 E Tufts Ave
Denver, CO 80237

PHONE: 303.694.2770 FAX: 303.694.3946

SOCIAL SECURITY/FEDERAL IDENTIFICATION NUMBER: 94-1716908

PRINCIPAL IN CHARGE (Name & Title): Steve Eldridge, Vice President-Sr. Airport Consultant

EQUAL EMPLOYMENT OPPORTUNITY OFFICER: Barbara Noel

NAME(S) OF PROFESSIONAL AND PUBLIC LIABILITY INSURANCE CARRIER(S):
Professional Liability: Lexington Insurance Company; Beazley Group plc; Aspen Insurance Company; ACE Europe Limited

Public Liability: National Union Fire Insurance Company of Pittsburgh, PA

PARENT COMPANY INFORMATION
(if applicable)

NAME OF COMPANY: URS Corporation

ADDRESS: 600 Montgomery St, 6th Floor
San Francisco, CA 94111-2728

PHONE: 415.774.2700 FAX: 415.398.1905

CONTACT PERSON: Martin Koffel

Submittal is for (check one):

_____ Sole Proprietorship _____ Partnership __X__ Corporation

If this is a corporation, then you are the (check one):

__X__ Subsidiary _____ Parent Company

Is this a joint venture?

_____ YES __X__ NO

If this is a joint venture, a certified copy of the Joint Venture Agreement must accompany this proposal.

Licenses to perform work (issuing authority, date and validity—please provide copies of all listed):

Certificate of Good Standing, State of Colorado, December 2012

CERTIFICATION

The undersigned certifies that to the best of his/her knowledge, the information presented in this Proposal Data form is a statement of fact and that the Proposer has the financial capability to perform the work described in the Proposer's documents.

Signature

Steve Eldridge
Print Name

Vice President-Sr. Airport Consultant
Title

December 31, 2012
Date

p. 1 of 1 submitted

BIDDER/CONSULTANT/CONSULTANT/PROPOSER DISCLOSURE

URS Corporation Bidding Entity's/Proposer's Name	December 31,2012 Date this form was completed
8181 E Tufts Ave Address	303.694.2770 Telephone Number
Denver, CO 80237 City, State, Zip Code	Steve Eldridge Signature of Officer/Owner

Section 20-69, D.R.M.C. requires the disclosure of the name of each officer, director, shareholder who owns or controls 5% or more of the business entity, principal, and owner of each bidding or proposing entity, and either the names of the spouses of those individuals and the names of their children under the age of eighteen (18), or a statement in lieu of the disclosure of the names of such spouses and children as set forth below in the "Certified Statement in Lieu of Disclosure". **The names of officers, directors, 5% shareholders, principals and owners must be disclosed in either event.** Required disclosures also include the names of any subconsultant/supplier receiving more than $100,000.00 of work and the names of any unions with which the bidder/proposer has a collective bargaining agreement.

This page may be photocopied if additional space is required.

The individuals listed below are disclosed as having the noted relationship with the business entity/proposer listed above. Show appropriate letter in the box to the left. Use center box for relationship to another line number: A=Officer, B=Director, C=Principal, D=Owner, E=Controller of 5% or more of the stock, F=Spouse, G=Child under age 18, H=Subconsultant, I=Supplier, J=Union. Identify with an asterisk (*) all listed persons who have made a contribution or contribution in-kind, as defined by Section 15-32 D.R.M.C., within the last five years.

1. [A] [B]	Martin Koffel	9. [ ] [ ]	
2. [A] [ ]	H. Thomas Hicks	10. [ ] [ ]	
3. [A] [ ]	Thomas W. Bishop	11. [ ] [ ]	
4. [A] [ ]	Gary V. Jandegian	12. [ ] [ ]	
5. [A] [ ]	Susan B. Kilgannon	13. [ ] [ ]	
6. [ ] [ ]		14. [ ] [ ]	
7. [ ] [ ]		15. [ ] [ ]	
8. [ ] [ ]		16. [ ] [ ]	

BIDDER/CONSULTANT/CONSULTANT/PROPOSER CERTIFIED STATEMENT IN LIEU OF DISCLOSURE OF NAMES OF SPOUSES AND CHILDREN

I hereby certify that, except as identified by an asterisk above, no officer, director, shareholder who owns or controls 5% or more of the business entity, principal, or owner or his or her spouse or child under eighteen years of age has made a contribution, as defined at Section 15-32 D.R.M.C., or a contribution in kind, as defined at Section 15-32 D.R.M.C., to a candidate, as defined at Section 15-32 D.R.M.C., during the last five years.

Steve Eldridge, Vice President-Sr. Airport Consultant
Signature of Officer/Owner of Bidding/Proposing entity

OFFICE OF THE SECRETARY OF STATE
OF THE STATE OF COLORADO

CERTIFICATE

I, Scott Gessler, as the Secretary of State of the State of Colorado, hereby certify that, according to the records of this office,

URS CORPORATION

is an entity formed or registered under the law of **Nevada** has complied with all applicable requirements of this office, and is in good standing with this office. This entity has been assigned entity identification number 19871057497.

This certificate reflects facts established or disclosed by documents delivered to this office on paper through 12/10/2012 that have been posted, and by documents delivered to this office electronically through 12/12/2012 @ 10:32:11.

I have affixed hereto the Great Seal of the State of Colorado and duly generated, executed, authenticated, issued, delivered and communicated this official certificate at Denver, Colorado on 12/12/2012 @ 10:32:11 pursuant to and in accordance with applicable law. This certificate is assigned Confirmation Number 8407449.

Secretary of State of the State of Colorado

**********End of Certificate**********

Notice: A certificate issued electronically from the Colorado Secretary of State's Web site is fully and immediately valid and effective. However, as an option, the issuance and validity of a certificate obtained electronically may be established by visiting the Certificate Confirmation Page of the Secretary of State's Web site, http://www.sos.state.co.us/biz/CertificateSearchCriteria.do entering the certificate's confirmation number displayed on the certificate, and following the instructions displayed. Confirming the issuance of a certificate is merely optional and is not necessary to the valid and effective issuance of a certificate. For more information, visit our Web site, http://www.sos.state.co.us/ click Business Center and select "Frequently Asked Questions."

MARSH

Lynne M. Harrington
Senior Vice President
Marsh Risk & Insurance Services
345 California Street, Suite 1300
San Francisco, CA 94104-2679
California Insurance License #0437153
+1 415 743 8204
lynne.harrington@marsh.com
www.marsh.com

December 21, 2012

Mr. Robert W. Kastelitz
Deputy Manager of Aviation for Technologies/CIO
Airport Office Building (AOB), 6th Floor
Denver International Airport
8500 Pena Boulevard
Denver, CO 80249-6340

RE: URS CORPORATION
REQUEST FOR PROPOSAL NO. 201208363
ON CALL ELECTRONIC AND COMMUNICATION SYSTEMS SUPPORT SERVICES

Dear Mr. Kastelitz:

Marsh Risk & Insurance Services is the insurance broker for URS Corporation and all of its subsidiaries.

I have reviewed the insurance requirements in the above-referenced RFP, and I can confirm that if URS is awarded the project, they will be able to provide the insurance coverages and limits to comply with the requirements in Attachment.

I would like to point out a few clarifications with regard to URS' insurance program:

- URS' Commercial General Liability policy contains ISO Endorsement CG 25 03, which designates that the policy's General Aggregate applies on a per project basis. This endorsement does not change how the other aggregate limit contained in the policy, i.e., the Products & Completed Operations Aggregate, applies. The Products & Completed Operations Aggregate limit will apply on an annual basis.
- URS' Professional Liability program includes Cyber Liability. However, this coverage is written with a Cyber Attack Exclusion.
- URS has Primary policies with high limits. I assume that URS can meet the insurance requirements in Attachment 3 by any combination of primary and excess policies.
- URS has $10M in General Liability, Auto Liability and Employers' Liability limits. Any limits required above these primary policies are written on a claims-made, and not occurrence, basis.
- URS can name the City, its elected officials, officers and employees as additional insureds on URS' Commercial General Liability, Automobile Liability and Excess Liability policies. This coverage will apply as primary and non-contributory coverage to any insurance maintained by the City, its elected officials, officers and employees.

MARSH

- It is not possible to name the City, its elected officials, officers and employees as additional insureds on URS' Professional Liability policy.

Please do not hesitate to contact me at (415) 743-8204 if you have questions or need additional information.

Sincerely,

Lynne M. Harrington

LMH/

Click here to return to previous location in proposal

DENVER
THE MILE HIGH CITY

Office of Economic Development
Division of Small Business Opportunity
Compliance Unit – DIA
EMAIL: small.business@flydenver.com
8500 Pena Blvd, AOB, Suite 7810
Denver, CO 80249
Phone: 303-342-2189
Fax: 303-342-2190

LETTER OF INTENT (LOI)

All lines must be completed or marked N/A for Not Applicable
Submit the attached completed checklist with this letter

Project No.: 201208363	**Project Name:** On Call Electronic & Communication Systems Support Services

A. The Following Section is To Be Completed by the Bidder/Consultant
This Letter of Intent Must be Signed by the Bidder/Consultant and M/WBE, SBE or DBE

Name of Bidder/Consultant: URS Corporation			Phone: 303.694.2770
Contact Person: Steve Eldridge	Email: steve.eldridge@urs.com		Fax: 303.694.3946
Address: 8181 E Tufts Ave	City: Denver	State: CO	Zip: 80237

B. The Following Section is To Be Completed by the M/WBE, SBE or DBE, at any Tier
This Letter of Intent Must be Signed by the M/WBE, SBE or DBE and Bidder/Consultant

Name of Certified Firm: Servitech, Inc.			Phone: 7205291661
Contact Person: Monika Stenger	Email: Monika.Stenger@servitechinc.com		Fax: 7205290253
Address: PO Box 371482	City: Denver	State: CO	Zip: 80237

Please check the designation which applies to the certified firm.	☒	MBE/WBE	☐	SBE	☒ DBE

Indirect Utilization: If this M/WBE, SBE or DBE is not a direct first tier subcontractor/subconsultant, supplier or broker to the Bidder/ Consultant, please indicate the name of the subcontractor/subconsultant, supplier or broker which is utilizing the participation of this firm:

A Copy of the M/WBE, SBE or DBE Letter of Certification must be Attached

Identify the scope of the work to be performed or supply item that will be provided by the M/WBE/SBE/DBE. **On unit price bids only, identify which bid line items the M/WBE/SBE/DBEs scope of work or supply corresponds to.**

☒	Subcontractor/Subconsult.	☐	Supplier	☐	Broker

Bidder intends to utilize the aforementioned M/WBE, SBE or DBE for the Work/Supply described above. The cost of the work and percentage of the total subcontractor M/WBE, SBE or DBE bid amount is:

$	%
Consultant intends to utilize the aforementioned M/WBE, SBE or DBE for the Work/Supply described above. The percentage of the work of the total subconsultant M/WBE, SBE or DBE will perform is:	15.0 %
If the fee amount of the work to be performed is requested, the fee amount, is:	$

Bidder/Consultant's Signature:	Date: 12/31/12
Title: Vice President-Sr. Airport Consultant	
M/WBE, SBE or DBE Firm's Signature:	Date: 12-12-12
Title: President	

If the above named Bidder/Consultant is not determined to be the successful Bidder/Consultant, this Letter of Intent shall be null and void.

Letter of Intent (LOI) Checklist

All lines must be completed or marked N/A for Not Applicable

Submit the attached completed checklist with this letter

Completed	
☑	Project Number & Project Name
☑	Section A: Name of Bidder/Consultant, Contact Person, Address, City, State, Zip, Phone, Email
☑	Section B: Name of Certified Firm, Contact Person, Address, City, State, Zip, Phone, Email
☑	Designation checked for MBE/WBE, SBE or DBE
☑	Indirect Utilization: Name of subcontractor/subconsultant, supplier or broker is indicated if using the participation of a 2nd tier subcontractor/subconsultant, supplier or broker.
☑	Scope of work performed or item supplied by M/WBE, SBE or DBE
☑ NA	Line items performed, if line-item bid.
☑	Copy of M/WBE, SBE or DBE Letter of Certification Attached
☑	Designation checked for Subcontractor/Subconsultant, Supplier or Broker
	If project is a hard bid...
☐ NA	Bidder has indicated dollar amount for value of work going to Subcontractor/ Subconsultant, Supplier or Broker
☐ NA	Bidder has indicated percentage for value of work going to Subcontractor/ Subconsultant, Supplier or Broker
	If project is an RFP/RFQ...
☑	Consultant has indicated percentage for value of work going to Subcontractor/ Subconsultant, Supplier or Broker Name & contact name for MWBE.
☐ NA	Fee amount if fee amount of work to be performed is requested.
☑	Bidder/Consultant's Signature, Title & Date
☑	M/WBE, SBE or DBE Firm's Signature, Title and Date

The complete and accurate information that is required for the Letter of Intent is based on the following sections of the Ordinance: Section 28-63 and Section 28-68. Failure to complete this information on the Letter of Intent (LOI) may automatically deem a bid or proposal non-responsive.

OFFICE OF THE SECRETARY OF STATE
OF THE STATE OF COLORADO

CERTIFICATE

I, Scott Gessler, as the Secretary of State of the State of Colorado, hereby certify that, according to the records of this office,

SERVITECH, INC.

is a **Corporation** formed or registered on 07/16/1998 under the law of Colorado, has complied with all applicable requirements of this office, and is in good standing with this office. This entity has been assigned entity identification number 19981130522.

This certificate reflects facts established or disclosed by documents delivered to this office on paper through 08/29/2012 that have been posted, and by documents delivered to this office electronically through 08/30/2012 @ 11:35:39.

I have affixed hereto the Great Seal of the State of Colorado and duly generated, executed, authenticated, issued, delivered and communicated this official certificate at Denver, Colorado on 08/30/2012 @ 11:35:39 pursuant to and in accordance with applicable law. This certificate is assigned Confirmation Number 8328876.

Secretary of State of the State of Colorado

**********End of Certificate**********

Notice: A certificate issued electronically from the Colorado Secretary of State's Web site is fully and immediately valid and effective. However, as an option, the issuance and validity of a certificate obtained electronically may be established by visiting the Certificate Confirmation Page of the Secretary of State's Web site, http://www.sos.state.co.us/biz/CertificateSearchCriteria.do entering the certificate's confirmation number displayed on the certificate, and following the instructions displayed. Confirming the issuance of a certificate is merely optional and is not necessary to the valid and effective issuance of a certificate. For more information, visit our Web site, http://www.sos.state.co.us/ click Business Center and select "Frequently Asked Questions."

DENVER
THE MILE HIGH CITY

Office of Economic Development
Division of Small Business Opportunity

201 W. Colfax Ave., Dept 907
Denver, CO 80202
p: 720.913.1999
f: 720.913.1809
www.milehigh.com

Denver International Airport
Airport Office Building, Suite 7810
8500 Peña Boulevard
Denver, CO 80249-6340
p: 303.342.2180
f: 303.342.2190
www.flydenver.com

January 7, 2011

Monika Stenger
Servitech, Inc.
PO Box 371482
Denver, CO 80237

Dear Monika Stenger:

SUBJECT: SBE PROGRAM CERTIFICATION, Pursuant to Article VII, Div. 1, Chapter 28 of the D.R.M.C. Construction, Reconstruction, Remodeling and Professional Design, Construction Services and Concessions

The City and County of Denver's Division of Small Business Opportunity (DSBO), has approved Servitech, Inc. for certification as a Small Business Enterprise (SBE). Servitech, Inc. will be listed in the City and County of Denver's Small Business Enterprise (SBE) Certification Directory with the certification dates of:

January 6, 2011 to January 5, 2012

The following is each Category, Subcategory and Work Specialty for which Servitech, Inc. is certified:

CATEGORY/SUB CATEGORY:
DENVER-105: ELECTRICAL
DENVER-40102: INSTITUTIONAL BUILDINGS
DENVER-402: DRAFTING/CAD SERVICES
DENVER-50110: RECORDS MANAGEMENT
DENVER-522: FACILITY MANAGEMENT

WORK SPECIALTY:
Electrical Contractor/Construction Management/CAD Drafting Services/Records Management

This Certification is intended to be used only for participation in city funded projects, and/or certain privately funded projects on city-owned property for contracts with construction, reconstruction, remodeling and professional design and construction services.

Certified companies are required to maintain accurate mailing address and telephone number information with DSBO and to notify this office immediately of any changes in ownership or control of the company. Failure to report any of these changes may result in removal from the Certification Directory and possible revocation of Certification.

Please be aware that **SBE Certifications are for a period of one (1) year, and must be renewed annually.** It is your responsibility to request and submit a SBE Eligibility Affidavit and the additional information requested within the affidavit to our office at least thirty (30) days prior to the annual expiration date of the SBE Certification of your business enterprise.

Sincerely,

Tamela Lee
Director

311 Denver
for City Services
Denver gets it done!

DENVER
THE MILE HIGH CITY

Office of Economic Development
Division of Small Business Opportunity

201 W. Colfax Ave, Dept 907
Denver, CO 80202
p: 720.913.1999
f: 720.913.1809
www.milehigh.com

Denver International Airport
Airport Office Building, Suite 7810
8500 Peña Boulevard
Denver, CO 80249-6340
p: 303.342.2180
f: 303.342.2190
www.flydenver.com

January 7, 2011

Monika Stenger
Servitech, Inc.
PO Box 371482
Denver, CO 80237

Dear Monika Stenger:

SUBJECT: Minority/Women Business Enterprise Program Certification, Pursuant to Division 3 of Article III, Chapter 28 of the DRMC – Construction, Reconstruction, Remodeling and Professional Design and Construction Services.

The City and County of Denver's Division of Small Business Opportunity (DSBO) has approved Servitech, Inc. for certification as a **Minority/Women Business Enterprise (M/WBE)**. In addition, your business enterprise will be listed in the monthly-published Certification Directory with the Certification Dates of:

January 6, 2011 to January 5, 2012

The following is each Category, Subcategory and Work Specialty for which you are listed:

CATEGORY:
DENVER-105: ELECTRICAL
DENVER-40102: INSTITUTIONAL BUILDINGS
DENVER-402: DRAFTING/CAD SERVICES
DENVER-50110: RECORDS MANAGEMENT
DENVER-522: FACILITY MANAGEMENT

WORK SPECIALTY:
Electrical Contractor, Construction Management/CAD Drafting Services, Records Management

This Certification is intended to be used only for participation on projects subject to the provisions of Division 3 of Article III, Chapter 28, DRMC (the "MBE/WBE Ordinance") and advertised as such in the solicitation for bids or proposals.

Your business enterprise is required to maintain accurate mailing address and telephone number information with the DSBO, and to notify this office immediately of any changes in ownership or control of your business enterprise. Failure to report any of these changes may result in removal of your business enterprise from the Certification Directory and possible revocation of certification of your business enterprise as an MBE/WBE.

Please be aware that **MBE/WBE Certifications are for a period of one (1) year, and must be renewed annually**. It is your responsibility to request and submit a MBE/WBE Eligibility Affidavit and the additional information requested within the affidavit to our office at least thirty (30) days prior to the annual expiration date of the MBE/WBE Certification of your business enterprise.

Sincerely,

Tamela Lee
Director

311 Try for City Services
Denver gets it done!

DENVER
THE MILE HIGH CITY

Office of Economic Development
Division of Small Business Opportunity

201 W. Colfax Ave. Dept 907
Denver, CO 80202
p: 720.913.1999
f: 720.913.1809
www.milehigh.com

Denver International Airport
Airport Office Building, Suite 7810
8500 Peña Boulevard
Denver, CO 80249-6340
p: 303.342.2180
f: 303.342.2190
www.flydenver.com

January 7, 2011

Monika Stenger
Servitech, Inc.
PO Box 371482
Denver, CO 80237

Dear Monika Stenger:

The Division of Small Business Opportunity is pleased to inform you that Servitech, Inc. is certified as a Disadvantaged Business Enterprise (DBE) pursuant to the US Department of Transportation's Regulation 49 CFR Part 26. Servitech, Inc. is eligible to participate as a DBE on US Department of Transportation financially-assisted projects in Colorado in the work categories listed on the enclosed attachment. Your firm will be included on the Colorado Unified Certification Program's (UCP) on-line directory of eligible DBE's. You can access the directory at www.dot.state.co.us/app_ucp/.

Certification Number: 7234

Annual Update Due: January 5, 2012

This certification is valid through January 5, 2012 but must be updated annually prior to the anniversary of the certification date. A reminder with instructions will be sent the month prior to your annual due date. If you do not receive the reminder, it is your responsibility to request a Change Affidavit from this office. The annual updates are necessary to ensure no interruption in your firm's DBE eligibility. If any change occurs in the firm's legal structure, ownership, management, control, or work performed, you must notify the Division of Small Business Opportunity immediately.

The State of Colorado's UCP partners wish you great success in all your business endeavors.

Sincerely,

Tamela Lee
Director

TL/vy

Enclosure: Certificate

Office of Economic Development
Division of Small Business Opportunity

201 W. Colfax Ave, Dept 907
Denver, CO 80202
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1/6/2012

Monika Stenger
Servitech, Inc.
PO Box 371482
Denver, CO 80237-5482

Dear Monika Stenger:

The City and County of Denver, Division of Small Business Opportunity (DSBO) is in receipt of your renewal application for Servitech, Inc..

We are extending your certification while your application is in process. Therefore, Servitech, Inc. will have the following certifications until further notice:

- ☐ Airport Concessionaire Disadvantaged Business Enterprise (ACDBE)
- ☒ Disadvantaged Business Enterprise (DBE)
- ☒ Small Business Enterprise (SBE)
- ☐ Small Business Enterprise-Concessions (SBEC)
- ☒ Minority/Women Business Enterprise (MWBE)

Review of your documentation will begin in the near future. Please note that at any time during this review, a Certification Analyst may request additional information to complete the review.

Please notify our office immediately, if there are any changes in legal status, management, control, or ownership of your business, contact information, etc, from that provided on the documentation submitted to our office.

If you have any questions, please contact us at (720) 913-1999 or via email at certificationinfo@denvergov.org. Thank you.

Sincerely,

Claire Spahr

Claire Spahr
Certification Team, Division of Small Business Opportunity

Regional Transportation District

1600 Blake Street
Denver, Colorado 80202-1399
303.628.9000
RTD-Denver.com

October 10, 2011

Ms. Monika Stenger
President
Servitech, Inc.
Post Office Box 371482
Denver, CO 80237

SUBJECT: SMALL BUSINESS CERTIFICATION APPROVAL

Dear Ms. Stenger:

Your application for certification as a Small Business Enterprise (SBE) with Regional Transportation District (RTD) has been approved pursuant to RTD's SBE program policies and procedures. RTD accepts your application and Personal Financial Statement as proof that you meet the criteria for certification as a Category 2 SBE.

Firms approved as Small Business Enterprises are certified to participate in non-federally funded contracting opportunities with SBE participation requirements. Certification does not guarantee contracts with RTD, and certified firms are still required to market RTD and prime contractors for prime and subcontracting opportunities.

Your company will appear in the next update of RTD's SBE Directory. RTD personnel will use this directory as an outreach source for suppliers and contractors as required. Based on the information you have provided, your company will be listed under the following classification code(s):

RTD Bid Code Master List #:

	Specialty
1102	Fire Alarm Systems
1105	Security Systems
1107	Video Security Systems
A209	Electrical Work
A210	Electronic Controls
A248	Electrical Contracting
B403	Electrical Maintenance
C317M	CAD [Computer-Aided Design]
C334	Management Services
C803	Project Management

This certification is valid until October 10, 2014. However, on an annual basis, you must submit a Change/No Change Affidavit, an updated Personal Financial Statement(s), gross receipts for the business, number of employees, and any information on recent contracts/projects completed. It is your responsibility to notify RTD when any changes in your business structure occur that affect your qualifications as a Category 2 SBE.

If there are any changes in the ownership, control, mailing address, telephone number of your firm, business size, affiliations with other firms, or your personal net worth exceeds $750,000 (excluding your interest in your residence or the applicant firm) you must notify this office immediately.

RTD reserves the right to withdraw this certification if it is determined that this certification was knowingly obtained by false, misleading, or incorrect information. RTD also reserves the right to request additional information and/or to conduct an on-site visit or a more thorough investigation anytime during the tenure of this certification period.

Please visit the Business Center at www.rtd-denver.com for information on doing business with RTD and to find resources available to small businesses.

We welcome your participation in our SBE program and wish you every success. If you have questions, please contact me at (303) 299-2126.

Sincerely,

Christina S. Tubb
Civil Rights Manager
303-299-2126
christina.tubb@rtd-denver.com

c: certification file

Click here to return to previous location in proposal

Office of Economic Development
Division of Small Business Opportunity
Compliance Unit – DIA
EMAIL: small.business@flydenver.com
8500 Pena Blvd, AOB, Suite 7810
Denver, CO 80249
Phone: 303-342-2169
Fax: 303-342-2190

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LETTER OF INTENT (LOI)

All lines must be completed or marked N/A for Not Applicable
Submit the attached completed checklist with this letter

Project No.: 201208363	Project Name: On Call Electronic and Communication Systems Support Services

A. The Following Section is To Be Completed by the Bidder/Consultant
This Letter of Intent Must be Signed by the Bidder/Consultant and M/WBE, SBE or DBE

Name of Bidder/Consultant: URS Corporation			Phone: 303.694.2770
Contact Person: Steve Eldridge	Email: steve.eldridge@urs.com		Fax: 303.694.3946
Address: 8181 E Tufts Ave	City: Denver	State: CO	Zip: 80237

B. The Following Section is To Be Completed by the M/WBE, SBE or DBE, at any Tier
This Letter of Intent Must be Signed by the M/WBE, SBE or DBE and Bidder/Consultant

Name of Certified Firm: Trinity Engineering			Phone: 303.243.1817
Contact Person: Tanya Thomas	Email: [illegible]		Fax: 720.367.5234
Address: 2401 Washington St.	City: Denver	State: Co	Zip: 80205

Please check the designation which applies to the certified firm.	☒	MBE/WBE	☐	SBE	☒	DBE

Indirect Utilization: If this M/WBE, SBE or DBE is not a direct first tier subcontractor/subconsultant, supplier or broker to the Bidder/ Consultant, please indicate the name of the subcontractor/subconsultant, supplier or broker which is utilizing the participation of this firm:

A Copy of the M/WBE, SBE or DBE Letter of Certification must be Attached

Identify the scope of the work to be performed or supply item that will be provided by the M/WBE/SBE/DBE. On unit price bids only, identify which bid line items the M/WBE/SBE/DBEs scope of work or supply corresponds to.

☒	Subcontractor/Subconsult.	☐	Supplier	☐	Broker

Bidder intends to utilize the aforementioned M/WBE, SBE or DBE for the Work/Supply described above. The cost of the work and percentage of the total subcontractor M/WBE, SBE or DBE bid amount is:

$	%
Consultant intends to utilize the aforementioned M/WBE, SBE or DBE for the Work/Supply described above. The percentage of the work of the total subconsultant M/WBE, SBE or DBE will perform is:	12.5 %
If the fee amount of the work to be performed is requested, the fee amount, is:	$

Bidder/Consultant's Signature: [signature]	Date: 12/27/12
Title: Vice President-Sr. Airport Consultant	
M/WBE, SBE or DBE Firm's Signature: [signature]	Date: 12/28/12
Title: CEO	

If the above named Bidder/Consultant is not determined to be the successful Bidder/Consultant, this Letter of Intent shall be null and void.

Letter of Intent (LOI) Checklist

All lines must be completed or marked N/A for Not Applicable

Submit the attached completed checklist with this letter

Completed	
☑	Project Number & Project Name
☑	**Section A:** Name of Bidder/Consultant, Contact Person, Address, City, State, Zip, Phone, Email
☑	**Section B:** Name of Certified Firm, Contact Person, Address, City, State, Zip, Phone, Email
☑	Designation checked for MBE/WBE, SBE or DBE
☑	**Indirect Utilization:** Name of subcontractor/subconsultant, supplier or broker is indicated if using the participation of a 2nd tier subcontractor/subconsultant, supplier or broker.
☑	Scope of work performed or item supplied by M/WBE, SBE or DBE
☐ NA	Line items performed, if line-item bid.
☑	Copy of M/WBE, SBE or DBE Letter of Certification Attached
☑	Designation checked for Subcontractor/Subconsultant, Supplier or Broker
	If project is a hard bid...
☐ NA	Bidder has indicated dollar amount for value of work going to Subcontractor/ Subconsultant, Supplier or Broker
☐ NA	Bidder has indicated percentage for value of work going to Subcontractor/ Subconsultant, Supplier or Broker
	If project is an RFP/RFQ...
☑	Consultant has indicated percentage for value of work going to Subcontractor/ Subconsultant, Supplier or Broker Name & contact name for MWBE.
☐ NA	Fee amount if fee amount of work to be performed is requested.
☑	Bidder/Consultant's Signature, Title & Date
☑	M/WBE, SBE or DBE Firm's Signature, Title and Date

The complete and accurate information that is required for the Letter of Intent is based on the following sections of the Ordinance: Section 28-63 and Section 28-68. Failure to complete this information on the Letter of Intent (LOI) may automatically deem a bid or proposal non-responsive.

OFFICE OF THE SECRETARY OF STATE
OF THE STATE OF COLORADO

CERTIFICATE

I, Scott Gessler, as the Secretary of State of the State of Colorado, hereby certify that, according to the records of this office,

TRIUNITY ENGINEERING & MANAGEMENT, INC.

is a Corporation formed or registered on 12/09/2003 under the law of Colorado, has complied with all applicable requirements of this office, and is in good standing with this office. This entity has been assigned entity identification number 20031388991.

This certificate reflects facts established or disclosed by documents delivered to this office on paper through 12/24/2012 that have been posted, and by documents delivered to this office electronically through 12/26/2012 @ 10:26:47.

I have affixed hereto the Great Seal of the State of Colorado and duly generated, executed, authenticated, issued, delivered and communicated this official certificate at Denver, Colorado on 12/26/2012 @ 10:26:47 pursuant to and in accordance with applicable law. This certificate is assigned Confirmation Number 8417592.

Secretary of State of the State of Colorado

**********End of Certificate**********

Notice: A certificate issued electronically from the Colorado Secretary of State's Web site is fully and immediately valid and effective. However, as an option, the issuance and validity of a certificate obtained electronically may be established by visiting the Certificate Confirmation Page of the Secretary of State's Web site, http://www.sos.state.co.us/biz/CertificateSearchCriteria.do entering the certificate's confirmation number displayed on the certificate, and following the instructions displayed. Confirming the issuance of a certificate is merely optional and is not necessary to the valid and effective issuance of a certificate. For more information, visit our Web site, http://www.sos.state.co.us/ click Business Center and select "Frequently Asked Questions."

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Division of Small Business Opportunity
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f: 720.913 1809

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Denver, CO Zip 80249-6340
p: 303.342.2180
f: 303.342.2190
www.denvergov.org/business

November 6, 2012

Johnnie Thomas
Triunity Engineering and Management Inc
2444 Washington Street, Suite 300
Denver, CO 80205

Dear Johnnie Thomas,

The Division of Small Business Opportunity is pleased to inform you that Triunity Engineering and Management, Inc. is certified as a Disadvantaged Business Enterprise (DBE) pursuant to the US Department of Transportation's Regulation 49 CFR Part 26. Your firm will be listed on the Colorado Unified Certification Program's (UCP) on-line directory of eligible DBEs at www.coloradodbe.org.

Triunity Engineering and Management, Inc. is eligible to participate as a DBE on US Department of Transportation financially-assisted projects in Colorado in the work codes appearing as part of your firm's listing on the directory as eligible to be counted toward DBE participation. It is your responsibility to manage your firms' work codes to ensure they are correct.

CO UCP NAICS 488	**Support Activities for Transportation**
CO UCP NAICS 541330	**Electrical engineering services**
CO UCP NAICS 541330	**Traffic engineering consulting services**
CO UCP NAICS 541350	**Building inspection services**
CO UCP NAICS 541511	**Computer programming services, custom**
CO UCP NAICS 541512	**Computer systems integration analysis and design services**
CO UCP NAICS 541618	**Telecommunications management consulting services**

The anniversary date of your firm's DBE certification is September 16, 2013. You will be notified prior to the anniversary date that eligibility must be re-evaluated. However, if you do not receive notification from this office, it is your responsibility to contact us. Pursuant to 49 CFR 26.83(i), submittal of this information is required to ensure that there is no interruption of your firm's status as a certified DBE. If any changes occur in the firm's legal structure, ownership, management, control, or work performed, you must notify the division immediately.

Sincerely,

Chris Martinez
Director

CM/jr

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Denver, CO 80249-6340
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f: 303.342.2190
www.flydenver.com

12/10/2012

Jonnie Lee Thomas
Triunity Engineering & Management, Inc.
2444 Washington St
Suite 300
Denver, CO 80205

Dear Jonnie Lee Thomas:

The City and County of Denver, Division of Small Business Opportunity (DSBO) is in receipt of your renewal application for Triunity Engineering & Management, Inc..

We are extending your certification while your application is in process. Therefore, Triunity Engineering & Management, Inc. will have the following certifications until further notice:

- ☐ Airport Concessionaire Disadvantaged Business Enterprise (ACDBE)
- ☒ Disadvantaged Business Enterprise (DBE)
- ☒ Small Business Enterprise (SBE)
- ☐ Small Business Enterprise-Concessions (SBEC)
- ☒ Minority/Women Business Enterprise (MWBE)

Review of your documentation will begin in the near future. Please note that at any time during this review, a Certification Analyst may request additional information to complete the review.

Please notify our office immediately, if there are any changes in legal status, management, control, or ownership of your business, contact information, etc. from that provided on the documentation submitted to our office.

If you have any questions, please contact us at (720) 913-1999 or via email at certificationinfo@denvergov.org. Thank you.

Sincerely,

Bridget Tetteh
Certification Team
certificationinfo@denvergov.org
(720) 913-1714

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Section 7 -
Cost Proposal

On-Site

Job Title:	Hourly Rate:
Program Manager / Sr. Project Manager	$130.00
Technology Practice Leader	$140.00
Sr. Airport Planner/Consultant	$140.00
Sr. Systems Specialist	$115.00
Project Manager	$113.00
Communications System Designer	$95.00
Network Security Engineer	$175.00
Network Engineer	$175.00
Telecommunications Administrator	$85.00
Senior Contract Administrator	$72.00
Contract Administrator	$62.00
CADD Technician	$70.00
Administrative Assistant	$46.00

Off-Site

Job Title:	Hourly Rate:
Program Manager / Sr. Project Manager	$155.00
Sr. Airport Planner/Consultant	$155.00
QA / QC Manager	$130.00
Project Manager	$125.00
Sr. Electrical Engineer	$145.00
Sr. Communications Designer	$135.00
Sr. Systems Specialist	$135.00
Communications System Designer	$115.00
Systems Specialist	$115.00
Sr. Architect	$140.00
Architect *	$115.00
Architectural Designer	$85.00
Sr. Mechanical Engineer	$145.00
Mechanical Engineer *	$110.00
Mechanical Designer	$90.00
Electrical Engineer	$110.00
Electrical Designer *	$90.00
Cost Estimator	$110.00
Scheduler	$110.00
CAD/FTP Manager	$85.00
CAD Technician	$78.00
CAD Drafter	$65.00
Project Assistant	$77.00
Word Processing	$62.00

* Added Job Title

CITY AND COUNTY OF DENVER
CERTIFICATE OF INSURANCE FOR DEPARTMENT OF AVIATION

☒Original COI ☐ Advice of Renewal ☐ Change

Party to Whom this Certificate is Issued:

CITY AND COUNTY OF DENVER
Attn: Risk Management, Suite 8810
Manager of Aviation
Denver International Airport
8500 Peña Boulevard, Room 8810
Denver CO 80249

Name and Address of Insured:

CONTRACT NAME & NUMBER TO WHICH THIS INSURANCE APPLIES: 201208363 - On Call Electronic and Communication System Support Services

I. MANDATORY COVERAGE

Colorado Workers' Compensation and Employer Liability Coverage

Coverage: COLORADO Workers' Compensation

Minimum Limits of Liability (In Thousands)

WC Limits: $100, $500, $100

And Employer's Liability Limits:

Any Policy issued under this section must contain, include or provide for the following:

1. All States Coverage or Colorado listed as a covered state for the Workers' Compensation
2. Waiver of Subrogation and Rights of Recovery against the City and County of Denver (the "City"), its officers, officials and employees.

Commercial General Liability Coverage

Coverage: Commercial General Liability (coverage at least as broad as that provided by ISO form CG0001 or equivalent)

Minimum Limits of Liability (In Thousands):

Each Occurrence:	$1,000
General Aggregate Limit:	$2,000
Products-Completed Operations Aggregate Limit:	$2,000
Personal & Advertising Injury:	$1,000
Fire Damage Legal - Any one fire:	$1,000

Any Policy issued under this section must contain, include or provide for the following:

1. City, its officers, officials and employees as additional insureds, per ISO form CG2010 and CG 2037 or equivalents.
2. Coverage for defense costs of additional insureds outside the limits of insurance, per CG0001.
3. Liability assumed under an Insured Contract (Contractual Liability).
4. The full limits of coverage must be dedicated to apply to this project/location, per ISO form CG2503 or equivalent.
5. Waiver of Subrogation and Rights of Recovery, per ISO form CG2404 or equivalent.
6. Separation of Insureds Provision required
7. General Aggregate Limit Applies Per: Policy ___Project ____Location_____, if applicable

Business Automobile Liability Coverage

Coverage: Business Automobile Liability (coverage at least as broad as ISO form CA0001)

Minimum Limits of Liability (In Thousands): Combined Single Limit $1,000

Any Policy issued under this section must contain, include or provide for the following:

1. Symbol 1, coverage for any auto. If no autos are owned, Symbols 8 & 9, (Hired and Non-owned) auto liability.
2. If this contract involves the transport of hazardous cargo such as fuel, solvents or other hazardous materials may occur, then Broadened Pollution Endorsement, per ISO form CA 9948 or equivalent and MCS 90 are required.

II. ADDITIONAL COVERAGE

Umbrella Liability

Coverage:

Umbrella Liability, Non Restricted Area **Minimum Limits of Liability (In Thousands)**	Umbrella Liability Restricted Area Each Occurrence and aggregate	$9,000

Any Policy issued under this section must contain, include or provide for the following:

1. City, its officers, officials and employees as additional insureds.
2. Coverage in excess of, and at least as broad as, the primary policies in sections WC-1, CGL-1, and BAL-1.
3. **If operations include unescorted airside access at DIA, then a $9 million Umbrella Limit is required.**

Professional Liability only as applicable Information Technology Contracts

Coverage: Professional Liability including Cyber Liability for Errors and Omissions
(If contract involves software development, computer consulting, website design/programming, multi-media designers, integrated computer system design, data management, and other computer service providers.)

Minimum Limits of Liability (In Thousands)	Per Claim	$1,000

Any Policy issued under this section must contain, include or provide for the following:

1. The insurance shall provide coverage for the following risks:

   a. Liability arising from theft, dissemination and / or use of confidential information (a defined term including but not limited to bank account, credit card account, personal information such as name, address, social security numbers, etc. information) stored or transmitted in electronic form

   b. Network Security Liability arising from the unauthorized access to, use of or tampering with computer systems including hacker attacks, inability of an authorized third party, to gain access to your services including denial of service, unless caused by a mechanical or electrical failure

   c. Liability arising from the 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.

2. Policies written on a claims-made basis must remain in full force and effect in accordance with CRS 13-80-104. The Insured warrants that any retroactive date under the policy shall precede the effective date of this Contract; and that either continuous coverage will be maintained or an extended discovery period will be exercised for a period of two (2) years beginning at the time work under the Contract is completed.

3 Any cancellation notice required herein may be provided by either certified or regular mail.

4. The policy shall be endorsed to include the City, its elected officials, officers and employees as additional insureds with respect to liability arising out of the activities performed by, or on behalf of the Insured

5. Coverage must include advertising injury, personal injury (including invasion of privacy) and intellectual property

offenses related to internet.

III. ADDITIONAL CONDITIONS

It is understood and agreed, for the benefit of the City, that the following additional conditions shall apply to all coverage specified herein

- All coverage provided herein shall be primary and any insurance maintained by the City shall be considered excess.
- With the exception of professional liability and auto liability, a Waiver of Subrogation and Rights of Recovery against the City, its officers, officials and employees is required for each coverage period.
- The City shall have the right to verify or confirm, at any time, all coverage, information or representations contained herein, and the insured and its undersigned agent shall promptly and fully cooperate in any such audit the City may elect to undertake.
- Advice of renewal is required.
- All insurance companies issuing policies hereunder must carry at least an A -VI rating from A.M. Best Company or obtain a written waiver of this requirement from the City's Risk Administrator.
- Compliance with coverage requirement by equivalent herein must be approved in writing by the City's Risk Administrator prior to contract execution.
- No changes, modifications or interlineations on this Certificate of Insurance shall be allowed without the review and approval of the Risk Administrator prior to contract execution.

NOTICE OF CANCELLATION

It is understood and agreed that should any Policy issued hereunder be cancelled or non-renewed before the expiration date thereof, or sustain a material change in coverage adverse to the City, the issuing company or its authorized Agent shall give notice to the Department of Aviation in accordance with policy provisions.