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City & County of Denver

& Nextel Communications

Frequency Exchange Project
Statement of Work
(Revised 8/6/03)

Project Overview

The City of Denver's trunked radio system is comprised of M/A-COM EDACS equipment, located at four sites: two Tx/Rx sites (Mount Morrison & Josephine) and two Auxiliary Receive sites (Marriott & Qwest). The two Tx/Rx sites are Premium sites and have Site Controllers for control and interface to the existing EDACS Communications Service Director (CSD) and integrated Multisite Controller (IMC).

Nextel and the City of Denver are entering into a frequency exchange agreement that will require the retuning of the City of Denver Public Safety EDACS Radio System. The following statement of work is provided to facilitate the proposed retune.

Four Phase Approach

We intend to accomplish this re-alignment in four phases.

1. Phase 1 – Move (6) six channels from the 859-861.0000 band to lower channels at the main and backup transmitter sites and retune the voting receivers accordingly. Reprogram all Public Safety users to utilize the new frequencies, approximately 4250 units are involved.
2. Phase 2 – After the new NPSAC channel plan has been approved and laid out in the Denver NPSAC region we will move the (4) four remaining NPSAC voice channels to the lower block. We will change frequencies on the main and backup transmitter sites according to this plan and reprogram the Public Safety mobile and portable radios again. Fire Mobile Repeaters will also have to be reprogrammed when changing NPSAC frequencies in this phase.
3. Phase 3 – Reprogram mobile and portable units for Public Utilities Radio systems throughout the City of Denver. There are approximately 2500 units to program.
4. Phase 4 - (9) Nine Channel Data System reprogramming. After all Public Safety voice channels have been retuned in Phase 1 & 2 the Data System infrastructure at Mt Morrison will need to be retuned. There are approximately (400) four-hundred users on this system that will need to be reprogrammed. DPD's own personnel may chose to complete this phase and will make that determination at a later date.

Phase One is the only Phase involved in this bid. Information on the next Phases is provided for your information only.

Timing - Phase One will begin as soon as possible and reduce the number of available voice channels on the system from (24) twenty four to (18) eighteen for the duration of the phase. Our desire is to limit this reduced capacity to only 25 days, so we require enough logistical support from the successful bidder to complete the work on our time table. This project may require up to (9) nine fully equipped radio programmers and (2) two site teams. Your proposal should outline how you will accomplish Phase 1 programming within the 25 day requirement.

With the exception noted below, all hardware for this project will be supplied by the City of Denver or Nextel. See Equipment List, Table #7.

Exception: The contractor bidding this project will need to evaluate and include costs to modify the site controller at the Josephine backup site to accommodate the upgrade to MIII repeaters as necessary.

Site Work Description

Mt Morrison – Primary TX site

Site equipment: (24) twenty four MIII EDACS stations.

(2) two Decibel Products (DB 8062-G10) Combiners

(2) two Decibel Products (DB 8062-F) Combiners

Phase 1 (Pre-work)

- Install (2) two New cavities in Combiner #5
- Install (3) three New cavities in Combiner #6
- Run New TX Coax between Combiners #5 & #6 and Channels 8-10 and 18-20. Install connectors and make ready for connection. See Table #4.

Phase 1

- Connect new Combiner cavities to Channels 8-10 and 18-20 with coax installed above.
- Terminate open cavities on Combiners #1 & #2
- Retune MIII stations Channels 8-10 and 18-20 for new frequencies.
- Complete entire system PM following station and combiner work to be sure all systems perform to manufactures specifications.

Phase 2 (info only)

- Retune (4) Cavities in combiner #5 for new NPSPAC channels – See Table #5
- Tune MIII stations for Channels 21-24 for new frequencies.

Phase 3 (info only) Reprogram 2500 Public Utilities Radio Users

- No Site work necessary on during this phase.

Phase 4 (info only) Reprogram 9 Channel Data System

- Retune (3) three Cavities in Combiner #5 for new channels. See Table #6
- Retune (6) six Cavities in Combiner #6 for new channels. See Table #6
- Tune Master II stations. Channels 1-9 for new frequencies. Entails Replacement Channel Elements.

Josephine Site – Backup Site

Site equipment: (20) twenty MII EDACS stations.

(1) One Decibel Products (DB 8062-G10) combiner. See Table #1.

(1) DB 8062-F10 Combiner

220' tower (N 39-43-52, W 104-57-25) Self Supporting

TX/RX Antennas DB810 located at 220' level

Phase 1 (pre-work)

- Replace 20 Master II Repeaters with Master III models modifying the site controller as necessary for interface changes
- Install 4 Additional MIII repeaters for new Channels 21-24 – includes control, TX & RX coax, TX & RX audio cables.
- Install new Ten Channel combiner (DB8062F10) Factory tuned to channels in Table #2.
- Run New TX Coax between Combiner #3 and Channels 8-10 and 18-20. Install connectors and make ready for connection. See Table #2.
- Install and Wire Analog & Digital Receiver cards to Voter Shelves Channels 21-24. Cards in stock.

Phase 1

- Reprogram Channels 8-10 and Channels 18-20 for new channel assignments
- Hook TX coax from retuned and new channels to new combiners.
- Terminate open cavities on the two original combiners. See Table #2
- Complete System PM setting levels.

Phase 2 (info only)

- Reprogram Channels 21-24 for new channel assignments.
- Retune combiner cavities for new channel assignments. See Table #2A.

Phase 3 (info only) – Reprogram Public Utilities Radio Users

- No site work necessary for this phase.

Phase 4 (info only) - Reprogram Data System – N/A at this site.

Auxiliary Receiver Sites – Marriott & Qwest

Site equipment: (24) twenty-four MIII EDACS Voting Receivers

Phase 1

- Reprogram Channels 8, 9, 10, 18, 19 & 20 for new channel assignments
- Complete PM to set system levels

Phase 2 (info only)

- Reprogram Channels 21, 22, 23 & 24 for new channel assignments.

Phase 3 (info only) Reprogram Public Utilities Radio Users

- No Site work necessary for this phase.

Phase 4 (info only) Reprogram Data System

- Reprogram Channels 1-9 (data system) for new channel assignments.
 - (9) Nine MIII voting receivers at the Marriott site
 - (9) Nine MII voting receivers at the Qwest site. Entails Replacement of Channel Elements
- May not require contractor assistance.

Denver Convention Center – BDA

Phase 1

- Replace Filters and retune BDA @ the Denver Convention Complex.

Phase 4

- Retune BDA

Table #1 Josephine – Backup site – Current combiner scheme

Combiner	#1	Combiner	#2
PS Ch 1 854.9875 Mhz	PS Ch 2 855.4875 Mhz	PS Ch 11 855.2375 Mhz	PS Ch 12 855.7375 Mhz
PS Ch 3 855.9875 Mhz	PS Ch 4 856.4875 Mhz	PS Ch 13 856.2375 Mhz	PS Ch 14 856.7375 Mhz
PS Ch 5 857.2375 Mhz	PS Ch 6 857.7375 Mhz	PS Ch 15 857.4875 Mhz	PS Ch 16 858.2375 Mhz
PS Ch 7 858.4875 Mhz	PS Ch 8 859.2375 Mhz	PS Ch 17 858.7375 Mhz	PS Ch 18 859.4875 Mhz
PS Ch 9 859.7375 Mhz	PS Ch 10 860.4875 Mhz	PS Ch 19 860.2375 Mhz	PS Ch 20 860.7375 Mhz

Table #2 Josephine – Backup site – Phase 1 retune

Combiner	#1	Combiner	#2	Combiner	#3
PS CH 1 854.9875 MHZ	PS CH 2 855.4785	PS CH 11 855.2375	PS CH 12 855.7375	PS CH 21 866.1875	PS CH 22 866.5875
PS CH 3 855.9875	PS CH 4 856.4875	PS CH 13 856.2375	PS CH 14 856.7375	PS CH 23 867.1250	PS CH 24 867.6500
PS CH 5 857.2375	PS CH 6 857.7375	PS CH 15 857.4875	PS CH 16 858.2375	PS CH 8 854.0625	PS CH 9 854.5625
PS CH 7 858.4875	Terminate	PS CH 17 858.7375	Terminate	PS CH 10 856.1375	PS CH 18 856.6375
Terminate	Terminate	Terminate	Terminate	PS CH 19 857.1375	PS CH 20 857.6375

Table #2A – Josephine – Backup Site – Phase 2

Combiner	#1	Combiner	#2	Combiner	#3
PS CH 1 854.9875 MHZ	PS CH 2 855.4785	PS CH 11 855.2375	PS CH 12 855.7375	PS CH 21 851.1875	PS CH 22 851.5875
PS CH 3 855.9875	PS CH 4 856.4875	PS CH 13 856.2375	PS CH 14 856.7375	PS CH 23 852.1250	PS CH 24 852.6500
PS CH 5 857.2375	PS CH 6 857.7375	PS CH 15 857.4875	PS CH 16 858.2375	PS CH 8 854.0625	PS CH 854.5625
PS CH 7 858.4875	Terminate	PS CH 17 858.7375	Terminate	PS CH 10 856.1375	PS CH 18 856.6375
Terminate	Terminate	Terminate	Terminate	PS CH 19 857.1375	PS CH 20 857.6375

Mt Morrison Combiner Model Numbers

Combiners 1-4 = DB8062G10

Combiner #5 = DB8062F8

Combiner #6 = DB8062F6

Table # 3 – Mt Morrison Combiners - Current

Combiner	#1	Combiner	#2	Combiner	#3
PS CH 1 854.9875	PS CH 2 855.4875	PS CH 11 855.2375	PS CH 12 855.7375	PU CH 1 858.4625	PU CH 2 859.2125
PS CH 3 855.9875	PS CH 4 856.4875	PS CH 13 856.2375	PS CH 14 856.7375	PU CH 3 859.4625	PU CH 4 860.2125
PS CH 5 857.2375	PS CH 6 857.7375	PS CH 15 857.4875	PS CH 16 858.2375	PU CH 5 860.4625	
PS CH 7 858.4875	PS CH 8 859.2375	PS CH 17 858.7375	PS CH 18 859.4875		
PS CH 9 859.7375	PS CH 10 860.4875	PS CH 19 860.2375	PS CH 20 860.7375		
Combiner	#4	Combiner	#5	Combiner	# 6
PU CH 6 855.4625	PU CH 7 856.2125	PS CH 21 866.1875	PS CH 22 866.5875	Nine Ch 1 866.8875	Nine Ch 2 867.3750
PU CH 8 856.7125	PU CH 9 857.4625	PS CH 23 867.1250	PS CH 24 867.6500	Nine Ch 3 867.7750	Nine Ch 4 868.2750
PU CH 10 858.2125	PU CH 11 858.7125	Nine Ch 7 868.1500	Nine Ch 8 868.4250	Nine Ch 5 868.7250	Nine Ch 6 866.5625
PU CH 12 859.2625	PU CH 13 859.7125	Nine Ch 9 868.8625	Open		
PU CH 14 860.2625	PU CH 15 860.7125				

Table # 4 – Mt Morrison Combiners – Phase 1

Combiner	#1	Combiner	#2	Combiner	#3
PS CH 1 854.9875	PS CH 2 855.4875	PS CH 11 855.2375	PS CH 12 855.7375	PU CH 1 858.4625	PU CH 2 859.2125
PS CH 3 855.9875	PS CH 4 856.4875	PS CH 13 856.2375	PS CH 14 856.7375	PU CH 3 859.4625	PU CH 4 860.2125
PS CH 5 857.2375	PS CH 6 857.7375	PS CH 15 857.4875	PS CH 16 858.2375	PU CH 5 860.4625	
PS CH 7 858.4875	TERMINATE	PS CH 17 858.7375	TERMINATE		
TERMINATE	TERMINATE	TERMINATE	TERMINATE		
Combiner	#4	Combiner	#5	Combiner	# 6
PU CH 6 855.4625	PU CH 7 856.2125	PS CH 21 866.1875	PS CH 22 866.5875	Nine Ch 1 866.8875	Nine Ch 2 867.3750
PU CH 8 856.7125	PU CH 9 857.4625	PS CH 23 867.1250	PS CH 24 867.6500	Nine Ch 3 867.7750	Nine Ch 4 868.2750
PU CH 10 858.2125	PU CH 11 858.7125	Nine Ch 7 868.1500	Nine Ch 8 868.4250	Nine Ch 5 868.7250	Nine Ch 6 866.5625
PU CH 12 859.2625	PU CH 13 859.7125	Nine Ch 9 868.8625	PS CH 8 854.0625	PS CH 18 856.6375	PS CH 19 857.1375
PU CH 14 860.2625	PU CH 15 860.7125	PS CH 9 854.5625	PS CH 10 856.1375	PS CH 20 857.6375	

Table # 5 – Mt Morrison Combiners – Phase 2

Combiner	#1	Combiner	#2	Combiner	#3
PS CH 1 854.9875	PS CH 2 855.4875	PS CH 11 855.2375	PS CH 12 855.7375	PU CH 1 858.4625	PU CH 2 859.2125
PS CH 3 855.9875	PS CH 4 856.4875	PS CH 13 856.2375	PS CH 14 856.7375	PU CH 3 859.4625	PU CH 4 860.2125
PS CH 5 857.2375	PS CH 6 857.7375	PS CH 15 857.4875	PS CH 16 858.2375	PU CH 5 860.4625	
PS CH 7 858.4875	TERMINATE	PS CH 17 858.7375	TERMINATE		
TERMINATE	TERMINATE	TERMINATE	TERMINATE		
Combiner	#4	Combiner	#5	Combiner	# 6
PU CH 6 855.4625	PU CH 7 856.2125	PS CH 21 851.1875	PS CH 22 851.5875	Nine Ch 1 866.8875	Nine Ch 2 867.3750
PU CH 8 856.7125	PU CH 9 857.4625	PS CH 23 852.1250	PS CH 24 852.6500	Nine Ch 3 867.7750	Nine Ch 4 868.2750
PU CH 10 858.2125	PU CH 11 858.7125	Nine Ch 7 868.1500	Nine Ch 8 868.4250	Nine Ch 5 868.7250	Nine Ch 6 866.5625
PU CH 12 859.2625	PU CH 13 859.7125	Nine Ch 9 868.8625	PS CH 8 854.0625	PS CH 18 856.6375	PS CH 19 857.1375
PU CH 14 860.2625	PU CH 15 860.7125	PS CH 9 854.5625	PS CH 10 856.1375	PS CH 20 857.6375	

Table # 6 – Mt Morrison Combiners – Phase 3

Combiner	#1	Combiner	#2	Combiner	#3
PS CH 1 854.9875	PS CH 2 855.4875	PS CH 11 855.2375	PS CH 12 855.7375	PU CH 1 858.4625	PU CH 2 859.2125
PS CH 3 855.9875	PS CH 4 856.4875	PS CH 13 856.2375	PS CH 14 856.7375	PU CH 3 859.4625	PU CH 4 860.2125
PS CH 5 857.2375	PS CH 6 857.7375	PS CH 15 857.4875	PS CH 16 858.2375	PU CH 5 860.4625	
PS CH 7 858.4875	TERMINATE	PS CH 17 858.7375	TERMINATE		
TERMINATE	TERMINATE	TERMINATE	TERMINATE		
Combiner	#4	Combiner	#5	Combiner	# 6
PU CH 6 855.4625	PU CH 7 856.2125	PS CH 21 851.1875	PS CH 22 851.5875	Nine Ch 1 851.8875	Nine Ch 2 852.3750
PU CH 8 856.7125	PU CH 9 857.4625	PS CH 23 852.1250	PS CH 24 852.6500	Nine Ch 3 852.7750	Nine Ch 4 853.2750
PU CH 10 858.2125	PU CH 11 858.7125	Nine Ch 7 853.1500	Nine Ch 8 853.4250	Nine Ch 5 853.7250	Nine Ch 6 851.5625
PU CH 12 859.2625	PU CH 13 859.7125	Nine Ch 9 853.8625	PS CH 8 854.0625	PS CH 18 856.6375	PS CH 19 857.1375
PU CH 14 860.2625	PU CH 15 860.7125	PS CH 9 854.5625	PS CH 10 856.1375	PS CH 20 857.6375	

Table #7. Equipment list (reference only) – To be provided by City of Denver or Nextel

ItemDescription	Part Number	Manufacturer	Quantity
1 5/8" Coax	LDF7-50A	Andrew	275'
1 5/8" Connector Male	L7PNM-RPC	Andrew	2
1 5/8" Hangers	31768A	Andrew	4
1 5/8" Cable Clamps	42396A-2	Andrew	4
Antenna	DB 810K-XT	Decibel Products	1
Antenna Jumper 8'	L4A-PNMNF-8	Andrew	1
Polyphaser	IS-CT50HN	Polyphaser	1
1 5/8" Grounding Kits	204989-4	Andrew	2
Ant Mount Kit	DB 5004	Decibel Products	1
Weather Proof	221213	Andrew	2
Hoisting Grip	24312A	Andrew	1
Combiner / 10 Channel for Josephine	DB8082F-10	Decibel Products	1
Combiner / 6 channel for Mt Morrison	DB8062F-6	Decibel Products	1
M/A Com 69" Cabinet		M/A Com	1

Equipment that will stay with the City and County of Denver after the retune project is completed.

Item Description	Part Number	Manufacturer	Quantity
Antenna	DB 810K-XT	Decibel Products	1
Combiner	DB8062F-10	Decibel Products	1
Combiner	(950)	Decibel Products	1
	DB8062F-6 (MM)	Decibel Products	1
M III Base Stations (Note 1)	Master III	M/A Com (used) See note 1 below for minimum requirements.	24
69" Equipment Cabinet		M/A Com	1
All Tower Cable & Supplies		Misc.	
All Tx/Rx Cable & Supplies		Misc.	

Note 1 - Getc harness 19B802401P3
 Current MIII Interface board
 System Module 19D902590G6 minimum
 Getc Board 188D6500G4 Rev B
 PA EA101292V1
 T/R Shelf Backplane 19D902947G1 Rev C minimum

Subscriber Unit Reprogramming

Phase 1 & 2 Reprogram approximately 4250 mobile/portable EDACS radios

- Programming will be a combined effort between contractor and EEB Personnel.
- Contractor Programmers, (9) nine, to be assigned to units at locations in Schedule A and others as necessary. Flexibility is key. Some locations have a large number of subscriber units present and it would be wise to have several programmers in one location to perform the work quickly. Scheduling of subscriber unit availability will be the responsibility of the EEB working with the vendor Project Manager.
- Each Programmer to be equipped per Table 1 below. Laptop computers, cables, software, tools and service monitors to be provided by the contractor.
- Programming data tables on CD-ROM to be provided by EEB. This includes Templates, Global Group and Trunking Frequency sets, Flash codes and Feature Codes.
- Programming will be completed in 25 days or less with Programmers adhering to hours that will accomplish the task during the 25 day window. The EEB will be open between 6:00 AM and 10:00 PM Monday to Sunday, but can be adjusted to meet the needs of the project. The vendor can schedule their personnel appropriately – by adjusting/staggering work hours to meet the workload demand. Programming of units not completed by the 25th day, due to no fault of the vendor, will be completed by EEB Personnel.
- Denver PD Radios will be provided to contractors for communications and contractor ID's will be issued for access to DPD facilities.
- See Schedule B for details on programming work flow. EEB Data Entry Clerk will update Access database on EEB server.
- Before Phase 1 begins, training will be provided to contractors on policy and procedures for programming.

Phase 3 (info only) Reprogram approximately 2500 Public Utilities Radio Users.

Phase 4 (info only) Reprogram 400 Mobile Data Units.

Table 8

Items required to equip (9) Nine contractor Programmers.

Item	Description	Qty	Notes
Laptop Computer	w/mobile power	9	
Programmer Software	EDACS – Windows	9	
EDACS 1 Software	EDACS Dos Version	4	Used for older models
EDACS 1	EDACS Maintenance	4	Used for older models
M/A-COM EDACS 4	Programming	9	
MICROSOFT EXCEL	Software	9	
Microsoft Access	Office 98 Version	9	
Lakewood LID'S	Unique list	9	Provided by EEB
CD Rom of Templates	Global Group Sets, Trunk Sets, Feature Data and Flash codes	9	Provided by EEB
Programming Box	Serial Interface	9	
Serial cable	For M/A-Com Interface Box		
Programming Cables	Interface to Radios		
	Ranger	4	
	FMD	9	
	MPA/MP	9	
	MDX	9	
	MRK/LPE/700P	9	
	500M	9	
	Orion	2	Fire Dept
	PCS	9	
	700P	9	
	725M	9	

Schedule A – Programming Assignments

Location	Address	Assignment	Notes
Police Admin Building	1331 Cherokee Street	Contractor	
District 1 (NW)	2195 Decatur Street	Contractor	
District 2 (NE)	3555 Colorado Blvd	Contractor	
District 3 (SE)	1625 S University Blvd	Contractor	
District 4 (SW)	2100 S Clay Street	Contractor	
District 5 (Montebello)	4685 Peoria Street	Contractor	
District 6 (Central)	1566 Washington Street	Contractor	
Gang Bureau	2205 Colorado Blvd	Contractor	
Traffic Operations Bureau	200 West 14 th Ave	Contractor	
Electronic Engineering B.	1930 35 th Street	EEB / Contractor	Radio Shop
County Jail	10500 E. Smith Road	EEB	
Fire Department Stations		Contractor	See list of Fire Stations
Comm Center	950 Josephine	EEB	Technology & Support

Units to be Programmed

Location/Assignment	Mobiles	Portables	Total
Police Administration Building			
Admin Support Bureau/Patrol	0	5	5
Cadet Program	0	30	30
Computer Help Bureau (CHIP)	0	5	5
Civil Liability	0	8	8
Crimes Against Persons	1	70	71
Criminal Invest. Division Support	0	1	1
Chief of Police	0	2	2
Human Resource Bureau	0	3	3
Information Desk	0	8	8
Intelligence Bureau	1	20	21
Intelligence Bureau Data Radio	0	1	1
Internal Affairs Bureau	1	17	18
Identification/Records Bureau	0	15	15
Juvenile Intake	0	16	16
Manager of Safety	0	3	3
Nuisance Abatement	0	4	4
Property Bureau	0	10	10
Property Crimes Bureau/Auto Theft	0	37	37
Property Crimes Bureau/Other			
Public Information Office	0	2	2
Recruitment	0	1	1
Research and Development	0	1	1
Support Staff Admin	1	2	3
Support Staff CID	0	3	3
Support Staff Ops	1	0	1
Support Staff Patrol	1	6	7
Support Staff Special Ops	0	2	2
Support Staff Tech & Support	1	8	9
Traffic Investigation Bureau	2	20	22
Vice/Drug Control Bureau	5	76	81
Victims Assistance	0	27	27
District One Police Station			
Patrol	77	131	208
Burglary Detectives	0	6	6
Base Station	1	0	1
Data Radio	1	0	1
District Two Police Station			
Patrol	87	130	217
Burglary Detectives	0	7	7
Base Station	1	0	1
Data Radio	1	0	1

District Three Police Station			
Patrol	83	151	234
Burglary Detectives	0	9	9
Base Station	1	0	1
Data Radio	1	0	1
District Four Police Station			
Patrol	84	141	225
Investigators	7	12	19
Base Station	1	0	1
Data Radio	1	0	1
Mobile Command Post	3	1	4
District Five Police Station			
Patrol	53	68	121
Burglary Detectives	0	2	2
Base Station	1	0	1
Data Radio	1	0	1
District Six Police Station			
Patrol	119	161	280
Burglary Detectives (at PAB)			
Base Station	1	0	1
Data Radio	1	0	1
Gang Bureau			
Gang	34	42	76
Base Station	1	0	1
Data Radio	1	0	1
Metro/Swat			
Data Radio	1	0	1
Traffic Operations Bureau			
Traffic Ops	130	95	225
Firearms Section	0	7	7
Fire Department Stations (31)			
Fleet	187	373	560
Mobile Repeaters	10	0	10
Fire Data Radio	0	1	1
Electronic Engineering Bureau			
Police not done at remote locations			
Academy	0	10	10
Air Support Unit	0	5	5
Arapahoe Co. SO	0	26	26
Arvada PD	0	1	1
Auraria Campus	0	2	2
Aurora PD	0	1	1
Animal Control	1	21	22
CBI	0	6	6
Cherry Creek Shopping Center	0	1	1

Colorado Dept. of Corrections/Fugitive	0	78	78
Colorado Dept. of Transportation	1	19	20
Council Member	0	1	1
Coroner's Office	0	10	10
County Courts Marshall	0	4	4
Crime Lab	5	26	31
Criminal Investigations Support	0	1	1
Denver District Attorney	27	35	62
Denver Human Services	0	2	2
Denver Health Invest. Unit	0	1	1
Denver Public Library	0	31	31
DEA	0	5	5
DIA Data	7	0	7
EEB Assigned Radios	8	23	31
EEB ACU-1000	6	0	6
EEB Repair Loaners	31	47	38
EEB Storeroom DPD Owned	99	56	155
EMS	45	165	210
Environmental Protection	0	1	1
ESP (Detox Vans)	0	8	8
Executive Security Unit	0	7	7
FBI	1	76	77
Front Range Task Force	2	50	52
FRTF Mobile Repeater	1	0	1
Glendale PD	1	6	7
Greenwood Village PD	1	0	1
HUD	0	19	19
Jefferson Co. SO	0	2	2
Lakeside PD	1	1	2
Mayors' Office	1	4	5
Mayors' Office of Art, Culture and Film	1	3	4
Media (TX only units)	0	4	4
Metro Gang Task Force	3	4	7
Metro/Swat	64	49	113
Metro/Swat Mobile Repeaters	2	0	2
Mounted Patrol	1	9	10
Neighborhood Inspection	4	18	22
North Metro Task Force	0	2	2
Parking Management	0	12	12
Parks Rangers	0	8	8
Police Athletic league	0	3	3
Police Garage	18	0	18
Private Officer	5	66	71
Public Works Managers	2	22	24
Service Center	2	0	2
Sheriff	0	181	181
Traffic Ops PW	6	38	44
Transportation Engineering	0	7	7
USPS	?	?	?
USINS	0	1	1

UPRR PD	0	2	2
University Health Sciences PD	1	1	2
US Mint	0	3	3
USMS	0	6	6
Vice Mobile Repeater	2	0	0
Combined Communications			
Radio Room	5	27	32
Base Stations			
Academy			
Data Radios	10	0	10
Air Support Unit			
Helicopter/Base Stations	3	0	3
Helicopter/Base Stations	1	0	1
Mounted Patrol			
Base Station	1	0	1
City & County Building			
Office of Emergency management	18	4	22
Sheriff Base Stations	2	0	2
County Jail			
Base Stations	1	0	1
NCIC Room			
Sheriff NCIC Room Base Station	1	0	1
Parking Management			
Base Stations	2	0	2
Traffic Ops PW			
Base Stations	2	0	2
Denver District Attorney			
Base Station	1	0	1
Denver Public Library			
Base Station	1	0	1

	1300	2961	4219
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**Radios Programmed After 25 days
Not programmed by Contractor.**

Media (Rx Only)	85	57	142
Private Business	5	11	16

Private Citizen	1	94	95
Towing Firm	22	239	261
Totals	113	401	514
Radios Not Programmed by City or Contractor			
Lakewood PD	0	83	83
West Metro Drug Task Force	0	37	37
DIA	47	139	186
Denver Water Board	0	5	5
Totals	47	264	311

Fire Station Locations

Station #	Address	Zip Code	Phone
1	745 W. Colfax Ave.	80204	720-913-3410
3	2500 Washington St.	80205	303-839-2109
4	1890 Lawrence St.	80202	303-295-4409
6	1300 Blake St.	80204	303-572-4638
7	2195 W. 38th Ave.	80211	303-458-4864
8	1616 Park Ave.	80218	303-839-2110
9	4400 Brighton Blvd.	80216	303-295-4458
10	3200 Steele St.	80205	303-331-6111
11	40 W. 2nd Ave.	80233	303-698-4925
12	2575 Federal Blvd.	80211	303-458-4866
13	3683 S. Yosemite St.	80237	303-850-7613
14	1426 Oneida St.	80220	303-370-8106
15	1375 Harrison St.	80206	303-370-8107
16	1601 S. Ogden St.	80210	303-698-4926
17	4500 Tennyson St.	80212	303-458-4867
19	300 S. Ivy St.	80224	303-370-8104
20	501 Knox Court	80204	303-937-4609
21	1500 E. Virginia Ave.	80209	303-698-4927
22	3530 S. Monaco Pkwy.	80237	303-692-5613
23	850 S. Federal Blvd.	80219	303-937-4451
24	2695 S. Colorado Blvd.	80222	303-692-5616
25	2504 S. Raleigh St.	80219	303-937-4455
26	7045 E. 38th Ave.	80207	303-370-8105
27	12927 E. Albrook Dr.	80239	303-373-8715
28	4306 S. Wolff St.	80236	303-730-3290
29	4800 Himalaya St.	80249	303-373-8714
30	4898 S. Dudley St.	80123	303-932-2697
DIA Station 1	8525 Newcastle Street	80249	303-342-4241
DIA Station 2	8525 Newcastle Street	80249	303-342-4265
DIA Station 3	8525 Newcastle Street	80249	303-342-4271
DIA Station 4	8525 Newcastle Street	80249	303-342-4340

Mobile Repeaters/Rigs

Fire Rig	TX Freq.	RX Freq.
Truck 1	822.8625Mhz	867.8625Mhz
Truck 4	822.8625Mhz	867.8625Mhz
Truck 8	823.3250Mhz	868.3250Mhz
Truck 11	822.8625Mhz	867.8625Mhz
Truck 12	823.3250Mhz	868.3250Mhz
Truck 15	823.3250Mhz	868.3250Mhz
Truck 16	822.8625Mhz	867.8625Mhz
Truck 22	822.8625Mhz	867.8625Mhz
Truck 26	823.3250Mhz	868.3250Mhz
Truck 27	823.3250Mhz	868.3250Mhz

Site Manager

The vendor will provide a Project Manager, who will work in cooperation with the Denver Project Manager and the Nextel Project Manager. The Vendor Project Manager will be responsible for planning and coordinating the installation, programming, testing and cutover of the radio system in conjunction with each of the other Project Managers. The Project Manager's will be the single point of contact for each entity that they represent. They will provide on-site project overview of the installation and programming teams, and coordinate the work among the Denver and the vendor personnel. The vendor Project Manager will initiate appropriate action, as required to ensure the installation and programming tasks are performed according to the schedule and plans. Any change orders must be in writing and approved by both the Nextel and Denver Project Managers. Once the work is complete, the system will be prepared for the functional verification test.

System Design

The Vendor Project Manager will participate in all design review meetings and will be responsible for:

- Conducting a final design review with the City of Denver.
- Providing input and assisting in generating and participating in the verification tests, ensuring that all system parameters are correct and fully meet the specifications, as agreed to under the contract.
- Sign-off of the Acceptance Test Plan. (ATP) See Exhibit #1.

Acceptance Test Procedure

The project will include tests that will be performed before and after the frequency exchange to characterize functional and coverage performance. Coverage tests will be performed with Wireless Measurement Systems (WMS) equipment to characterize the existing coverage for information. The vendor will be responsible for supplying the Wireless Measurement System. A channel or channels that will be involved in the frequency exchange will be taken temporarily off line for characterization of the talk-out coverage provided by the main and backup systems and data for both can be collected at the same time.

After frequency modifications have been completed on the main and backup systems, functional tests will be performed on both. Once the functional tests are accepted, coverage tests will again be performed for information, collecting data for characterization of main and backup system coverage performance at the same time.

Once these tests are completed and accepted and subscriber equipment has been reprogrammed, the modified channels will be put back into service. The system and subscriber units will be monitored carefully during this time for proper functioning. All vendor personnel will remain on site until it is determined that no catastrophic issues are present. After such time, key vendor personnel will remain on site during the burn-in period and until system acceptance by the City of Denver. The Burn-In period will last 2 weeks. Vendor personnel shall be available to be on-site within one hour, if a system failure is detected or when a high level system problem has presented itself.

Vendor Qualifications

The vendor will be competent and qualified to facilitate the reprogramming, retuning, engineering and installation necessary to properly effectuate the integration of the Nextel Channels with the City System. The vendor shall possess that degree of skill, care and diligence normally shown by a

contractor performing services of a scope, purpose and magnitude comparable with the nature of the services necessitated by this Statement of Work. The vendor shall be an M/A-COM dealer in good standing. The vendor will provide a Certification of Qualifications. Other qualifications such as years in business, number of employees and number of previous projects successfully completed on EDACS systems that are comparable in size with the City of Denver will be considered as the City and Nextel makes the final decision as to which vendor is most qualified.

Schedule B

SUBSCRIBER EQUIPMENT PROGRAMMING

AQUIRE RADIO

RECORD SERIAL NUMBER AND CALL SIGN ON SPREADSHEET

READ RADIO AND RECORD LID (DENVER, LAKEWOOD, ETC.) ON SPREADSHEET

IF LAKEWOOD SYSTEM NOT PRESENT PULL LID FROM LAKEWOOD LID LIST

OPEN PROPER TEMPLATE BASED ON CALL SIGN

"OVER-RIDE LID" (USE LID READ FROM RADIO) "AND SAVE AS" UNDER SN

OPEN SAVED FILE AND CHANGE LAKEWOOD SYSTEM LID

DOWNLOAD FILE TO RADIO

PERFORM AUDIT IF NECESSARY

PERFORM OVER AIR TEST

PAINT RED PAINT DOT ON RADIO

TURN SPREADSHEET INFORMATION OVER TO EEB DATA ENTRY CLERK THE FOLLOWING MORNING.

PROCEDURES

1) DAY ONE

- a) All programming teams will meet at the Electronic Engineering Bureau for an orientation/briefing. At this time, a list of programming locations and the approximate number of radios will be discussed. Teams will need to be formed based on the scope of the assignment and will report to the location.
- b) Teams will be divided so that an appropriate number of technicians will work on reprogramming fixed mobile units in the parking areas, and an appropriate number of technicians will work on portable equipment inside the facility.
- c) Technicians will re-program the subscriber equipment and assign a Lakewood LID (if the unit does not already have one). At this point, the technician must enter the serial number, Denver LID, and Lakewood LID into a Microsoft Excel Spreadsheet.

2) SUBSEQUENT DAYS

- a) All programming teams will meet at the Electronic Engineering Bureau and will print copies of their spreadsheets from the previous programming day.
- b) A data entry clerk (provided by Denver) will enter all necessary changes into the Electronic Engineering Bureau's Access database.
- c) The programming teams will again be briefed on the list of programming locations and the approximate number of radios. Teams will be formed based on the scope of the assignment and will report to the location.