



DETAIL-LEVEL FUNCTIONAL REQUIREMENTS DOCUMENT

*HUD Integrated Financial Management Improvement
Project*

U. S. Department of Housing and Urban Development

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The MIL Corporation

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FUNCTIONAL REQUIREMENTS DOCUMENT

TABLE OF CONTENTS

Page #

6.0	ENVIRONMENT.....	6-1
6.1	Equipment Environment.....	6-1
6.2	Software Environment.....	6-3
6.3	Communications Requirements.....	6-4
6.4	Interfaces	6-4
6.5	Summary of Impacts.....	6-17
6.5.1	IS Organizational Impacts.....	6-17
6.5.2	IS Operational Impacts.....	6-18
6.5.3	IS Developmental Impacts	6-18
6.6	Failure Contingencies	6-18
6.6.1	Restart/Recovery	6-18
6.6.2	Other Contingencies.....	6-19
6.7	Assumptions and Constraints	6-19

LIST OF TABLES

Page #

Table 6-1 HUD Target Recommendations – Workstations and Servers	6-2
Table 6-2 HUD Target Recommendations – Storage Devices	6-2
Table 6-3 HUD Target Recommendations – Access Channels	6-2
Table 6-4 HUD’s Operating System Standard.....	6-3
Table 6-5 HUD’s Database Management System Standard	6-3
Table 6-6 HIFMIP ICFS Initial Stage System and Interface Status	6-4
Table 6-7 OCFO Interface Disposition for ICFS Initial Stage	6-11

6.0 ENVIRONMENT

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This chapter presents the technical environment requirements to be used in the evaluation of a COTS federal financial system for the HUD implementation of the Integrated Core Financial System (ICFS). The environment requirements identified here are based on the products and specifications identified in the HUD Target Enterprise Architecture v1.0 dated January 24, 2005 and the HUD CIO standards approved by the Configuration Change Management Board. Selection of a COTS federal financial system is in accordance with the provisions of the Clinger-Cohen Act which stipulates that business and information requirements should be met using commercial off-the-shelf (COTS) or government off-the-shelf (GOTS) technologies rather than customized or in-house solutions whenever practical.

HUD is currently preparing to select and implement the ICFS using a Center of Excellence (COE) approach as described in its *HIFMIP Plan* (revised April 6, 2005). HUD will adopt the government-wide common solution which includes the use of Centers of Excellence (COE) to provide information technology (IT) hosting and operational support, i.e., processing services, for core financial management activities. The solution is a market-driven approach based on a shared services model that will maximize economies of scale, scope, and skill while benefiting from the use of both government and public/private jointly managed financial management centers that service multiple agencies' financial management IT systems. In addition to these hosting functions, the COEs will be able to process core financial management business activities as defined in the Financial Management Line of Business Target Business Architecture. The COE, depending on the level of service provided to each federal agency, will provide flexibility and economies of scale, be cost efficient and effective, and will support all HUD business processes.

6.1 Equipment Environment

The equipment required for the ICFS will be dependent upon the specific COTS package selected. The technical architecture of COTS federal financial systems is designed as an open systems architecture, allowing its use in a variety of technical environments. This architecture also allows agencies to comply with a variety of enterprise architecture standards. The equipment environment standards presented below are drawn from HUD's Target Enterprise Architecture v1.0.

On-line access to a COTS federal financial system is supported by a workstation able to run a web browser and with access to the HUD standard network. The minimum hardware required to install and run the server components of a JFMIP certified COTS federal financial systems product could be as small as a single hardware server. However, the preferred configuration used in typical production configurations has a dedicated database server to handle input and output to the backend relational database and one or more application servers dedicated to servicing on-line users and real-time transaction processing from other integrated financial applications. The HUD Target Enterprise Architecture recommends target workstation and server specifications as shown below.

Table 6-1 HUD Target Recommendations – Workstations and Servers

	Target Recommendations	
Service Standard	Products	Specifications
Servers/Computers	N/A	Open Standards (UNIX) Enterprise Server Intel based server Commodity Intel-based workstation

The capacity of the storage media is dependant on several factors: the size of the operating system and other systems software (for example, middleware and relational data base management systems); the size of the application software and the number of subsystems installed; the amount of historical data to be converted; and, the anticipated years of financial history to be retained. Data storage requirements cannot be determined until the COTS federal financial system has been selected and the design related decisions have been made. HUD's specification for storage devices is presented in the table below.

Table 6-2 HUD Target Recommendations – Storage Devices

	Target Recommendations	
Service Standard	Products	Specifications
Storage Devices	N/A	Storage-area Network (SAN) Network-attached Storage (NAS)

Access Channels are the interface between the COTS federal financial system and its users. Access Channels can be a web browser, a personal digital assistant or other communication devices. The recommended target products identified in the HUD Target Enterprise Architecture v1.0 is presented in the table below.

Table 6-3 HUD Target Recommendations – Access Channels

	Target Recommendations

Service Standard	Products	Specifications
Web Browser	Internet Explorer 6.01 Netscape Communicator 7.0	N/A
Wireless/PDA	Blackberry PocketPC	N/A
Communication/ Collaboration	Lotus Notes/Domino Mail 6.5 Lotus SMTP Gateway	

6.2 Software Environment

JFMIP certified COTS federal financial systems are supported by a variety of operating systems and relational data base management systems (RDBMS). HUD's standards for operating systems and RDBMS are presented below. If other third party reporting or middleware products are required in the operation of the COTS federal financial system they are usually bundled with the application and will be licensed to HUD on a limited use basis. The Configuration Change Management Board (CCMB) defines HUD's operating system standard.

Table 6-4 HUD's Operating System Standard

	CCMB Approved Operating Systems	
Service Standard	Products	Specifications
Operating System	Windows 2000 Advanced Servers MS Windows NT 4.0 UNIX Solaris 2.6 ESRI ArcSDE	N/A

The database management systems recommended for HUD's Target Enterprise Architecture are presented in the table below.

Table 6-5 HUD's Database Management System Standard

	Target Recommendations	
Service Standard	Products	Specifications

Database	Oracle 9i or later MS Access MS SQL Server 2000 or later ESRI ArcSDE	N/A
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If any of the COTS federal financial system software components fails to meet an approved HUD standard, the appropriate documentation must be submitted to the Configuration Change Management Board (CCMB) for approval.

6.3 Communications Requirements

The HUD standard network will support the communication requirements for ICFS. The user presentation standard for JFMIP-certified COTS federal financial systems is a web browser. Therefore, on-line access to the financial application will be through a web browser and reports and other types of data download will be either routed to a network printer or saved to the local personal computer.

6.4 Interfaces

This section describes the ICFS interface requirements with internal HUD financial applications and other HUD organizations including the Federal Housing Administration (FHA) and the Government National Mortgage Association (Ginnie Mae). Data elements for the various interfaces will be presented in the Detail-level Data Requirements Document.

Table 6-6 HIFMIP ICFS Initial Stage System and Interface Status Table details the financial systems that will be replaced, interfaced or remain unchanged for the ICFS Initial Stage. Table 6-6 is a combination of systems listed on the A-127 review list and a few additional systems that were identified during MIL's High-level FRD analysis. Table 6-7 OCFO Interface Disposition for ICFS Initial Stage lists the current OCFO interfaces and indicates whether the interfaces will be changed under the Initial ICFS Stage.

Table 6-6 HIFMIP ICFS Initial Stage System and Interface Status

Program Office/System	HIFMIP Initial Stage Disposition	Comments/Status
Not Included on A-127 Inventory		
A751 Personal Service Cost Report Subsystem (PSCRS)	- Replace –will include requirements for interfacing from National Finance Center to ICFS.	Process will have to incorporate integration/interface with DOCS information now housed at Treasury
D51 Departmental	- Interface – to be used in NFC to ICFS	

Program Office/System	HIFMIP Initial Stage Disposition	Comments/Status
Organization Code System (DOCS)	interface. DOCS functionality now exists in HIHRTS.	
A75R Financial Data Mart (Financial-DM)	- Interface - FRD scope will include requirements for financial information from ICFS for business processes that are changed by ICFS (HUDCAPS and PAS) and other ICFS changes.	- Program feeds will remain the same under the Initial ICFS Stage.
A51 Federal Assistance Award Data System (FAADS)	- Interface	
[Unk] Furniture and Equipment Management Information System (FEMIS)	- This is a manual process done once a year. FRD will include continuing annual manual process.	
[Unk] Financial Information and Management System (FIMS) [OFHEO]	- Replace – FRD will include OFHEO business processes in FRD requirements	
C48 Home Ownership for People Everywhere 3 (HOPE 3)	- This system has been closed – no action needed	
Office of Administration (4)		
A35 HUD Procurement System (HPS)	- Interface	
D67A Facilities Integrated Resources Management System (FIRMS)	- No current interface or integration with financial system – no action required	
P035 Small Purchase System (SPS)	- Interface	
P-162 HUD Integrated Human Resources Training System (HIHRTS)	- Will interface NFC payroll to ICFS and use DOCS component for organization code conversion - Will interface to ICFS for tracking of security	

Program Office/System	HIFMIP Initial Stage Disposition	Comments/Status
	management based on personnel status	
Chief Financial Officer (17)		
A21 Loan Accounting System (LAS/LASHE)	- Interface financial information to ICFS - Maintain LOCCS interface for payment	
A39 HUD Consolidated Financial Statement System (HCFSS) (Hyperion)	- Replace	
44D Low Rent Housing Security Ledger (SECLEDDGER) Retired 12/10/2004	- No Action	To be closed 1 st Qtr FY 2005 per Keith Zahner e-mail dtd 9/29/04, Subj: FY04 A-127 Self-Assessment Review for CFO systems (PBC item 59).
A65A Section 235 Automated Validation and Editing (SAVE)	- No Action	Interfaces to LOCCS
A67 Line of Credit Control System (LOCCS)	- Interface to/from ICFS	
A75 HUDCAPS/FFS (HUDCAPS)	- Replace	
A91 Consolidated Cost and FTE Files (CCFF)	- Will include functionality in NFC to ICFS interface	
A96 Program Accounting System (PAS)	- Replace	
D08 Bond Payment (BONDMAPPER)	- No Action	Migration to LOCCS by mid-FY2005 per Keith Zahner e-mail dtd 9/29/04
D21 Departmental Accounts Receivable / Collection (DARTS)	- Interface	Manual interface to HUDCAPS

Program Office/System	HIFMIP Initial Stage Disposition	Comments/Status
D61 EZBudget Formulation System (EZB)	- No Action - Has no core financial function	No interface to HUDCAPS
D65A Section 8 Budget Outlay Support System (BOSS)	- Interface – Receives information from PAS, LOCCS, and HUDCAPS	Uses budget formulation for projecting outlays for Section 8. This is where the actual data for the 1 st year of a 3 yr budget is forecasted.
D91A Total Estimation and Allocation Mechanism – Resource Estimation and Allocation Process (TEAM-REAP)	- No Action	
H18 Integrated Automated Travel System (IATS)	- Interface – currently is manual interface	
P001 HUD Travel Management System (HTMS)	- Will interface to new FedTraveler eTravel system	Scheduled to be retired/replaced during the Summer of 2005
Community Planning and Development (3)		
C04 Integrated Disbursement and Information System (IDIS)	- No Action - Has direct interface to LOCCS, then to ICFS	
C38 Special Needs Assistance Program System (SNAPS)	- No Action	
C39 Empowerment Zones/Enterprise Communities Performance Measurement System (EZ/EC)	- No Action	
Office of Housing (20)		
A43 Single Family	- No Action	FHA System – not currently linked

Program Office/System	HIFMIP Initial Stage Disposition	Comments/Status
Insurance System (SFIS)		to HUDCAPS/PAS/LOCCS
A43C Single Family Insurance Claims Subsystem (CLAIMS)	- No Action	FHA System – not currently linked to HUDCAPS/PAS/LOCCS
A80B Single Family Premium Collection Sys-Periodic (SFPCS-P)	- No Action	FHA System – not currently linked to HUDCAPS/PAS/LOCCS
A80N Single Family Mortgage Notes Servicing (SFMN)	- No Action	FHA System – not currently linked to HUDCAPS/PAS/LOCCS
A80R Single Family Premium Collection Sys-Upfront (SFPCS)	- No Action	FHA System – not currently linked to HUDCAPS/PAS/LOCCS
A80S Single Family Acquired Asset Management (SAMS)	- No Action	FHA System – not currently linked to HUDCAPS/PAS/LOCCS
D64A SF Housing Enterprise Data Warehouse (SFHEDW)	- No Action	FHA System – not currently linked to HUDCAPS/PAS/LOCCS
F12 Home Equity Conversion Mortgages (HECM)	- No Action	FHA System – not currently linked to HUDCAPS/PAS/LOCCS
F17 Computerized Home Underwriting Mgmt System (CHUMS)	- No Action	FHA System – not currently linked to HUDCAPS/PAS/LOCCS
F31 Cash Control, Accounting and Reporting System (CCARS)	- No Action	Since April 2004 absorbed into PeopleSoft FHA Subsidiary Ledger; the system will remain active until approximately Feb 2005 when the issue of whether or not to keep it active will be addressed. Source: HUD Web CIO Inventory of Automated Systems (IAS)
F42D SF Default Monitoring	- No Action	FHA System – not currently linked

Program Office/System	HIFMIP Initial Stage Disposition	Comments/Status
System (SFDMS)		to HUDCAPS/PAS/LOCCS
F47 Multifamily Insurance (MFIS)	- No Action	FHA System – not currently linked to HUDCAPS/PAS/LOCCS
F51 Institution Master File (IMF)	- No Action	FHA System – not currently linked to HUDCAPS/PAS/LOCCS
F71 Title I Notes Servicing (Debt Collection and Asset Management System (DCAMS))	- No Action	FHA System – not currently linked to HUDCAPS/PAS/LOCCS
F72 Title I Insurance and Claims (TIIS)	- No Action	FHA System – not currently linked to HUDCAPS/PAS/LOCCS
F75 Multifamily Insurance and Claims (MFIC)	- No Action	FHA System – not currently linked to HUDCAPS/PAS/LOCCS
F87 Tenant Rental Assistance Certification System (TRACS)	- Interface financial information to ICFS - Maintain LOCCS interface for payment	
P013 FHA Subsidiary Ledger (FHA-SL)	- Interface	
P057 Multifamily Delinquency and Default Reporting (MDDR)	- No Action	FHA System – not currently linked to HUDCAPS/PAS/LOCCS
Government National Mortgage Association (2)		
B09 Default Management System (DMS)	- No Action	
B16 MACOLA Accounting Software System (MASS)	- Interface	
Public and Indian Housing (3)		

Program Office/System	HIFMIP Initial Stage Disposition	Comments/Status
P106 Tenant Eligibility Assessment Subsystem (TASS)	- No Action	
P113 PIH Information Center (PIC)	- No Action	
P181 Enterprise Income Verification (EIV)	- No Action	

Table 6-7 OCFO Interface Disposition for ICFS Initial Stage

#	From			To		
	System ID	System Name	System Owner	System ID	System Name	System Owner
1.	A35	HUD Procurement System (HPS)	OCFO	A75	HUD Central Accounting and Program System (HUDCAPS)	OCFO
2.	A39	HUD Financial Central Reporting System (HFCRS) (Hyperion)	OCFO	Treasury	Goals	Dept Treasury
3.	A67	Line of Credit Control System (LOCCS)	OCFO	A96	Program Accounting System (PAS)	OCFO
4.	A67	Line of Credit Control System (LOCCS)	OCFO	C04	CPD Integrated Disbursement & Information System (IDIS)	CPD
5.	A67	Line of Credit Control System (LOCCS)	OCFO	Treasury	Treasury Payment System	Treasury
6.	A75	HUD Central Accounting and Program System (HUDCAPS)	OCFO	A75R	Financial Data Mart (FDM)	OCFO

#	From			To		
	System ID	System Name	System Owner	System ID	System Name	System Owner
7.	A75	HUD Central Accounting and Program System (HUDCAPS)	OCFO	Treasury	Treasury Payment System	Treasury
8.	A75I	Personnel Services Cost Subsystem (PSCS)	OCFO	A67	Line of Credit Control System (LOCCS)	OCFO
9.	A75I	Personnel Services Cost Subsystem (PSCS)	OCFO	A75	HUD Central Accounting and Program System (HUDCAPS)	OCFO
10.	A75R	Financial Data Mart (FDM)	OCFO	A39	HUD Financial Central Reporting System (HFCRS) (Hyperion)	OCFO
11.	A91	Consolidated Cost and FTE Files (CCFF)	OCFO	P162C D091	Correction Action Plan System (CAPS) (Faxed request for clarification to OCFO on 6/23/05. Awaiting response.)	OCFO
12.	A75I	Personnel Services Cost Subsystem (PSCS)	OCFO	A91	Consolidated Cost and FTE Files (CCFF)	OCFO
13.	A96	Program Accounting System (PAS)	OCFO	A75	HUD Central Accounting and Program System (HUDCAPS)	OCFO

#	From			To		
	System ID	System Name	System Owner	System ID	System Name	System Owner
14.	A96	Program Accounting System (PAS)	OCFO	A67	Line of Credit Control System (LOCCS)	OCFO
15.	A96	Program Accounting System (PAS)	OCFO	A75R	Financial Data Mart (FDM)	OCFO
16.	A96	Program Accounting System (PAS)	OCFO	D65A	Section 8 Budget Outlay Support System (BOSS)	OCFO
17.	A96	Program Accounting System (PAS)	OCFO	F24D	Real Estate Management System (REMS)	Housing
18.	A96	Program Accounting System (PAS)	OCFO	F87	Tenant Rental Assistance Certification System (TRACS)	Housing
19.	C04	CPD Integrated Disbursement & Information System (IDIS)	CPD	A67	Line of Credit Control System (LOCCS)	OCFO
20.	CCR	E-Gov Central Contracting Registry (CCR)	Defense	A75R	Financial Data Mart (FDM)	OCFO
21.	Credit Card	Bank One Credit Card	Bank One	A75	HUD Central Accounting and Program System (HUDCAPS)	OCFO

#	From			To		
	System ID	System Name	System Owner	System ID	System Name	System Owner
22.	D51	Departmental Organization Code System (DOCS) (DOCS functionality now exists in HIHRTS)	Admn	A75	HUD Central Accounting and Program System (HUDCAPS)	OCFO
23.	D65A	Section 8 Budget Outlay Support System (BOSS)	OCFO	N/A	Interface - Receives data from HUDCAPS, LOCCS, PAS and TRACS but doesn't send any data.	OCFO
24.	D91A	Resource Estimation and Allocation Process / Total Estimation and Allocation Mechanism (REAP/TEAM)	OCFO	N/A	No action; not in scope. Executive information resource-reporting tool. (cuff system)	OCFO
25.	F87	Automated Renewal and Amendment Management Subsystem (ARAMS/TRACS)	Hsng	A96	Program Accounting System (PAS)	OCFO
26.	Ginnie Mae	Macola Accounting Software System (MASS)	Ginnie Mae	A39	HUD Financial Central Reporting System (HFCRS) (Hyperion)	OCFO

#	From			To		
	System ID	System Name	System Owner	System ID	System Name	System Owner
27.	H18	Integrated Automated Travel System (IATS)	OCFO	manual	HUDCAPS	OCFO
28.	NFC	NFC Payroll System	Agriculture	A75I	Personnel Services Cost Subsystem (PSCS)	OCFO
29.	OFHEO	Financial Information and Management System (FIMS)	OFHEO	A39	HUD Financial Central Reporting System (HFCRS) (Hyperion)	OCFO
30.	P013	FHA Subsidiary Ledger	FHA	A39	HUD Financial Central Reporting System (HFCRS) (Hyperion)	OCFO
31.	P035	Small Purchases System (SPS)	OCPO	A75	HUD Central Accounting and Program System (HUDCAPS)	OCFO
32.	P190	Government Financial Information Tracking System (GFITS) WCF Tool	OCFO	N/A	Not currently interfaced to HUDCAPS but this has been proposed.	OCFO

#	From			To		
	System ID	System Name	System Owner	System ID	System Name	System Owner
33.	SATO	Scheduled Airline Transportation Office (SATO)	SATO	A75	HUD Central Accounting and Program System (HUDCAPS)	OCFO
34.	FedTraveler	Fedtraveler.com (replaces HTMS)	GSA / EDS	A75	HUD Central Accounting and Program System (HUDCAPS)	OCFO

6.5 Summary of Impacts

It is important to note that recent government-wide financial systems initiatives have some impact on the support environment for the ICFS implementation. The government-wide common solution includes the use of Centers of Excellence (COE) to provide information technology (IT) hosting and operational support, i.e., processing services, for core financial management activities. The solution is a market-driven approach based on a shared services model that will maximize economies of scale, scope, and skill while benefiting from the use of both government and public/private jointly managed financial management centers that service multiple agencies' financial management IT systems. In addition to these hosting functions, the COEs will be able to process core financial management business activities as defined in the Financial Management Line of Business (FM LoB) Target Business Architecture. The COE, depending on the level of service provided to each federal agency, will provide flexibility and economies of scale, be cost efficient and effective, and will support all HUD business processes.

The Department and the HIFMIP Program Management Team will work to transition OCFO core financial systems application hosting support to an outside service provider. The specific schedule will be based on HUD's IT systems lifecycle development process and schedule and will ensure that current independent financial system modernization initiatives at OCFO, FHA, Ginnie Mae and OFHEO support the eventual transition to a single core financial system and external service provider. The technical environment will then be dependent on the host Center of Excellence configuration. At a minimum, the Center of Excellence must be able to accommodate the interfaces detailed in Section 6.4.

This section describes the anticipated organizational, operational, and developmental impacts of the proposed ICFS on the information systems (IS) organization.

6.5.1 IS Organizational Impacts

If hosted internally by HUD, the COTS federal financial system may require additional information systems support staff and specific training in several disciplines.

- Configuration Management – Support staff must be trained in the software architecture of the selected COTS federal financial system to install the application and apply periodic software patches and version upgrades.
- Capacity Management and Planning – IS staff will need to be trained in the operational characteristics of the COTS federal financial system to perform performance tuning and to monitor and plan for future server capacity upgrades.
- Middleware product(s) – Depending on the COTS federal financial system selected, IS support staff may need to be trained on maintaining one or more middleware products, for example BEA System's Tuxedo and JOLT products.
- Reporting/OLAP Products – Depending on the COTS federal financial system selected, IS support staff may need to be trained on new reporting and On-line Analytical Processing (OLAP) tools.
- System Administration – Additional IS support staff may be required to perform system and database administration on the COTS federal financial system.

- Continuity of Operations Planning (COOP) – Additional IS staff may be required to modify current COOP standards or to establish new failover or recovery scenarios.

6.5.2 IS Operational Impacts

This section discusses impacts on the operational procedures of the information processing centers to implement and maintain the system.

- Additional IS staff may be required to perform the installation of the COTS federal financial system and to perform periodic unscheduled backups or recoveries.

6.5.3 IS Developmental Impacts

This section assesses the need for personnel and resources for software development and testing related to the COTS federal financial system.

- Additional development resources may be required for modifications or new versions of financial reports or enhancements or maintenance of the OLAP environment.

6.6 Failure Contingencies

This section discusses possible failure scenarios of the COTS federal financial system hardware or software system, the consequences of such failures, and the options available to mitigate or alleviate the loss of system availability or financial data.

6.6.1 Restart/Recovery

The capability of the existing core financial systems to operate in a degraded mode, or to be restored and operated at an alternate facility, was described in Section 2.3.3. This section describes the desired capabilities for ensuring ICFS effective and efficient recovery from a problem within the hardware or software systems or in the event of a loss of infrastructure support or a disaster at the primary production facility.

Hardware, servers, file systems, and network components require redundancy to provide continuity of operation within the primary facility in the event of hardware failures. Hardware servers can be clustered or operate in a shared database environment so that an alternate server is

immediately available in the event of a hardware outage. File storage systems use Redundant Array of Independent Disk (RAID) technology to store data in a planned redundant manner ensuring its recovery in the event of a storage media problem. Routers, hubs and other networking hardware components are required to be configured in such a manner to provide failover redundancy in the event of a hardware failure.

Software problems are best avoided by thorough testing prior to installation in a production environment. However, problems can occur and the production facility must have application and system software backups available to allow a change to be rolled back due to a problem.

HUD's ICFS must have complete continuity of operations in spite of infrastructure outage or catastrophic loss of the primary data center. This requires a hot backup site for failover in the event an incident disables the primary facility. A hot backup site operated in close parallel to the primary site to immediately receive transactions and database updates and to provide transactional processing support in the event of the failure of the primary site. Hot backup sites are geographically remote from the primary site with no shared infrastructure such as the electrical grid, network circuits, or other utilities.

6.6.2 Other Contingencies

In addition to the restart/recovery requirements describe above, additional failure contingencies may be required and implemented as appropriate. These include:

- Database journaling to allow roll forward recovery to the last committed transaction in the event of a database software or hardware problem.
- Alternate wide area network configurations to allow different circuits to be used in the event of an outage, or dial-up backup to operate to continue at reduced performance levels.
- Secure off-site backup storage facilities to provide readily recoverable copies of system software and production data in the event the primary copy is lost or unreadable.

6.7 Assumptions and Constraints

This section discusses the assumptions and constraints regarding conditions that might affect the operation or use of the COTS federal financial system.

- **Integrated System Standard** – HUD will transition to a single core financial system. The timeline to complete this transition will be completed through an incremental phased plan that supports HUD’s system lifecycle development schedule and process. In the event HUD decides more than one system will best meet its goals, objectives, and business processes, HUD will evaluate the integration and consolidation alternatives that are cost effective and efficient, and will support HUD’s business process.
- **Software Modifications** – It is assumed that the COTS federal financial system will not be modified or customized other than through the use of the available tools in the COTS federal financial system. Additional capabilities beyond those feasible to be implemented using the product’s tools will be achieved through the use of Bolt-On¹ products integrated with the COTS federal financial system.
- **Software Upgrades** – To be able to receive and easily apply vendor-supplied patches, it is assumed that HUD will implement a currently supported COTS federal financial system and will periodically install upgrades to remain on a supported version.
- **Outsourcing** – It is assumed that HUD will adapt the future Enterprise Architecture or CIO product and specification standards to ensure compliance with a commercial Application Service Provider (ASP) or federal sponsored Center of Excellence (COE) standards.
- **COOP** – Current core financial system backup and recovery procedures require reestablishing operations at a cold backup site within 24 hours. It is assumed that in the proposed COTS federal financial system environment immediate continuity of operations will be required and will be achieved through the use of a hot backup site.

¹ A *Bolt-on* is a software product or application that takes advantage of relational database processing and insulation of its processes to carry out simple or complex processing without affecting the bolted-to application.