

# ENVIRONMENTAL ASSESSMENT

## POTENTIAL DEVELOPMENT OF THE WESTERN PORTION OF THE DENVER FEDERAL CENTER

*Prepared for*

U.S. General Services Administration  
Public Building Service  
Denver Federal Center  
P.O. Box 25546  
Denver, CO 80225

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**URS**

URS Group, Inc.  
8181 East Tufts Avenue  
Denver, CO 80237  
Ph: 303-694-2770

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## **Environmental Assessment**

### **Potential Development of the Western Portion of the Denver Federal Center Lakewood, Colorado**

The U.S. General Services Administration (GSA) is proposing to convey, by sale, long-term lease, or otherwise, approximately 60 to 65 acres of land along the western portion of the Denver Federal Center (DFC) to the city of Lakewood for the potential development of a new hospital and transit-related facilities. The purpose of this project is to report excess and dispose of the land and, in return, obtain real property infrastructure improvements at the DFC equivalent in worth to the fair market value of the property. These infrastructure improvements are needed to help GSA meet its mission of providing quality workplaces for their federal agency tenants.

This Environmental Assessment (EA) has been prepared in accordance with the National Environmental Policy Act and the National Historic Preservation Act to evaluate the impacts of the project on the human and physical environment and provide an opportunity for the public to review and comment on the project. This EA serves as notification to the public of proposed actions, consistent with Section 800.2(d) of Title 36 Code of Federal Regulations (CFR), and seeks the views of the public and consulting parties on the effects, if any, on historic properties, in accordance with Section 800.5 of Title 36 CFR.

#### **Note to Reviewers and Respondents**

If you would like to comment on the EA, you may mail comments to the name and address below. Our practice is to make comments, including names and home addresses of respondents, available for public review during regular business hours. Individual respondents may request that we withhold their home address from the record, which we will honor to the extent allowable by law. If you want us to withhold your name and/or address, you must state this prominently at the beginning of your comment. We will make all submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, available for public inspection in their entirety. Written comments on this EA should be submitted within 30 days from the date published and be addressed to:

Ms. Shelly Clubb  
Regional Environmental Manager  
U.S. General Services Administration  
Public Building Service  
Denver Federal Center, 8PD  
P.O. Box 25546  
Building 41, Room 240  
Denver, CO 80225-0546  
e-mail: shelly.clubb@gsa.gov

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## **ABBREVIATIONS AND ACRONYMS**

ac	acre(s)
ADT	average daily traffic
APCD	Air Pollution Control Division
APE	area of potential effects
AQCR	Air Quality Control Region
AST	aboveground storage tank
BMP	Best Management Practice
CAA	Clean Air Act
CAAQS	Colorado Ambient Air Quality Standards
CDOT	Colorado Department of Transportation
CDOW	Colorado Department of Wildlife
CDPHE	Colorado Department of Public Health and Environment
CEQ	Council on Environmental Quality
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CESQG	conditionally exempt small quantity generator
CFR	Code of Federal Regulations
cfs	cubic feet per second
CHS-OAHP	Colorado Historical Society, Office of Archaeology and Historic Preservation
CO	carbon monoxide
CORRACTS	Corrective Action sites
CPG	Comprehensive Procurement Guidelines
CWA	Clean Water Act
dB	decibel
dBA	A-weighted sound levels
DFC	Denver Federal Center
DOP	Denver Ordnance Plant
DRCOG	Denver Regional Council of Governments
EA	Environmental Assessment
EDR	Environmental Data Resources
EIS	Environmental Impact Statement
ERNS	Emergency Response Notification System
ESA	Environmental Site Assessment; <u>also</u> Endangered Species Act

FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
ft	foot/feet
ft <sup>2</sup>	square foot/square feet
FTA	Federal Transit Administration
GSA	United States General Services Administration
HUD	U.S. Department of Housing and Urban Development
ITE	Institute for Transportation Engineers
LOS	level of service
LRT	light-rail transit
LUST	leaking underground storage tank
mg/kg	milligrams per kilogram
MOU	Memorandum of Understanding
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO <sub>2</sub>	nitrogen dioxide
NOI	Notice of Intent
NO <sub>x</sub>	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRHP	National Register of Historic Places
O <sub>3</sub>	ozone
OPS	Colorado Department of Labor and Employment, Oil and Public Safety
PAH	polynuclear aromatic hydrocarbons
Pb	lead
PBS	Public Buildings Services
PCB	polychlorinated biphenyl
PCOC	potential chemicals of concern
PEM	palustrine emergent
PEM/PSS	palustrine emergent and palustrine scrub/shrub
PM <sub>10</sub>	particulate matter less than 10 microns in diameter
PM <sub>2.5</sub>	particulate matter less than 2.5 microns in diameter

ppm	parts per million
PSS	palustrine scrub/shrub
PUD	Planned Unit Development
RAQC	Regional Air Quality Council
RCRA	Resource Conservation and Recovery Act
RCRIS	Resource Conservation and Recovery Information System
RMAN	Recovered Materials Advisory Notice
ROD	Record of Decision
ROW	right-of-way
RTD	Regional Transportation District
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SLC	screening level criteria
SO <sub>2</sub>	sulfur dioxide
SO <sub>x</sub>	sulfur oxides
SRO	soil remediation objectives
SVOC	semivolatile organic compound
TMDL	total maximum daily load
TOD	transit-oriented development
TPH-DRO	total petroleum hydrocarbons - diesel range organics
TPH-GRO	total petroleum hydrocarbons - gasoline range organics
TSD	treatment, storage, and disposal
U.S.	United States
USACE	US Army Corps of Engineers
USC	United States Code
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
UST	underground storage tank
VdB	vibration decibels
VCUP	Voluntary Cleanup Program
VOC	volatile organic compound
VPD	vehicles per day

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## **INTRODUCTION**

The U.S. General Services Administration (GSA) Public Buildings Services (PBS) provides work environments for more than 1 million federal employees nationwide. Created in 1949, the Rocky Mountain Region of the PBS serves as a builder, developer, lessor, and manager of federally owned and leased facilities throughout Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming, including the Denver Federal Center (DFC), located near Lakewood, Colorado (Figure 1). GSA proposes to convey by sale, long-term lease, or otherwise, approximately 60 to 65 acres (ac) of the DFC to the city of Lakewood for the development of a new hospital and transit-related facilities.

The National Environmental Policy Act of 1969 (NEPA) (42 U.S. Code [USC] 4321 et seq.) requires federal agencies to consider alternatives to proposed actions and to analyze impacts of those alternatives on the human and physical environment. NEPA is implemented through regulations of the Council on Environmental Quality (CEQ) (40 CFR 1500-1508). GSA has, in turn, adopted procedures to comply with NEPA and the CEQ regulations, as found in GSA Order ADM 1095.1F (Environmental Consideration in Decision Making); and the GSA PBS NEPA Desk Guide, Final Guidance, October 1999.

This Environmental Assessment (EA) has been prepared to assess whether the proposed action would have potentially significant effects on the environment, in which case an Environmental Impact Statement (EIS) would need to be prepared. If the impacts of the proposed action after mitigation were less than significant, then a Finding of No Significant Impact (FONSI) would be prepared.

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**Figure 1: Regional Context Map**

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## **PURPOSE OF AND NEED FOR ACTION**

The purpose of this project is to report excess and dispose of approximately 60 to 65 ac of land on the western boundary of the DFC (Figure 2). In return for the land, GSA would seek real property infrastructure improvements at the DFC equivalent in worth to the fair market value of the lands that are disposed. These infrastructure improvements are needed to help GSA meet their mission of providing quality workplaces for their federal agency tenants. Therefore, the primary selection criteria established and applied by GSA for carrying out this project was identifying an entity with an interest in the land slated for disposal.

In addition, previous planning efforts for the DFC identified accommodating a light-rail transit (LRT) system, or a major regional depot facility, as a goal of the future transportation plan for the DFC (GSA 1997). The 2004 Record of Decision (ROD) for the *West Corridor Environmental Impact Statement (West Corridor EIS; RTD 2003)* set in motion the efforts to provide such a system that includes transit-related facilities at the DFC. As a result, this project is also needed to provide adequate space for the LRT system and associated features.

## **PROJECT BACKGROUND**

### **Memorandum of Understanding between GSA and the City of Lakewood**

On December 14, 2004, GSA and the city of Lakewood entered into a non-binding Memorandum of Understanding (MOU) to “explore the feasibility of negotiating an agreement for the possible development of a portion of the DFC.” The MOU identified agreed-upon “Permitted Uses” that include:

- A hospital and related health care support facilities;
- An intermodal transit facility and related transit-oriented development (TOD); and
- Associated easements or rights-of-way (ROW) necessary to support the proposed facilities.

In addition, the MOU established the terms of reimbursement, and included the provision for GSA to receive real property infrastructure improvements at the DFC “in amounts equal to the fair market value of the real property disposed of to Lakewood.” To this extent, the MOU also indicated that, “GSA has the right to approve any such infrastructure improvements,” which have not been finalized at this time. Both parties acknowledged in the MOU that it was not an enforceable agreement and that it imposes no obligation to take any particular action, but that it is merely a statement of understanding of the steps that need to be taken to facilitate the possible future development of the Permitted Uses at the DFC.

### **GSA Property Disposal Process**

Early in 2005, GSA began the disposal process. Specifically, GSA’s regional office performed an analysis of the property to report it as excess to the GSA Disposal Office, in accordance with the Federal Property Management Regulations (Section 101-47.202, Reporting Excess of Real Property). The Disposal Office is then responsible for implementing the actual disposal process, which includes a series of screening steps. First, GSA screens the property with other federal agencies to determine if there is an interest. Upon completion of the federal agency screening, GSA submits a detailed checklist to the U.S. Department of Housing and Urban Development (HUD) to determine if the property should be screened for homeless assistance uses, as required by the McKinney-Vento Homeless Assistance Act (42 United States Code [USC] 11301-11412). If the property is determined to be suitable, there is a required 60-day homeless screening process. Concurrent with the homeless screening, GSA also conducts a public body screening. The property would be screened with the city of Lakewood under the public body screening.

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**Figure 2: Project Area**

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GSA has determined, following completion of all required screening processes and other pertinent studies, that the disposal is feasible. Therefore, GSA expects to enter into negotiations for conveying the land to the city of Lakewood, pursuant to 41 CFR Section 102-75.880 (Federal Property Management Regulations, Real Property Disposal). Once acquired, the city of Lakewood would likely assign all or part of its interest in the land to the hospital, its representatives, and RTD.

### **GSA Master Planning**

GSA prepared a Master Plan for the DFC, as well as an accompanying EIS, in 1997 (GSA 1997). The Master Plan was developed and guided by a Planning Advisory Committee, with representation from the Regional Transportation District (RTD), the Colorado Department of Public Health and Environment, Jefferson County, the city of Lakewood, local homeowner associations, and several DFC tenant agencies. Several preliminary tasks were undertaken early in the planning process to assist GSA in developing the Master Plan, and included an analysis of available data for the DFC; an inventory of existing site conditions; an analysis of local and regional demographics and economic conditions; an analysis of planning opportunities and constraints; identification of master site plan goals and objectives; preparation of a preferred site development plan; development of a Master Transportation Plan; development of a model for alternative Master Site Plan scenarios; and urban design studies. GSA also developed an Implementation Plan that was rolled into the Master Plan and included a defined review process, development guidelines and standards, and a schedule of projects. The overall intent of the Implementation Plan was directed towards creating a visually cohesive, attractive, and functional campus that was consistent with the principles of smart planning, design, and environmental practices. Because this Master Plan/EIS has become outdated, GSA commenced a new master plan and EIS process in the fall of 2005.

### **St. Anthony Central Hospital**

Located in Denver, Colorado, St. Anthony Central Hospital is part of St. Anthony Hospitals, a nationally recognized full-service health care organization serving Colorado for more than 100 years. Sponsored by Catholic Health Initiatives, St. Anthony Hospitals are part of the Centura Health system, which operates 12 hospitals, eight senior residences, medical clinics, and home care and hospice services across Colorado.

On June 16, 2005, St. Anthony Central Hospital issued a press release indicating that the Catholic Health Initiatives Board of Stewardship Trustees approved funding for the construction of a new medical campus to replace the existing St. Anthony Central Hospital campus. The decision to relocate came after an 18-month analysis of the anticipated facility and campus needs of St. Anthony Central Hospital for the coming decades. In addition to examining the option of relocating within its current service area, the hospital studied the possibility of a major renovation as well as expansion on the existing site.

St. Anthony Hospitals officials are working with Denver Mayor John Hickenlooper and Denver City Councilman Rick Garcia to establish a task force of business people and community members to assess possible redevelopment options for the existing St. Anthony Central Hospital campus. As part of this community discussion, St. Anthony Central Hospital will explore retaining some health care programs in the neighborhood.

### **Regional Transportation District**

Cold Spring is currently a major bus transfer and park-n-Ride facility located near the intersection of Simms Street/Union Boulevard and West 4<sup>th</sup> Avenue at the DFC and operated by RTD. This facility

currently has 646 parking spaces, is one of RTD's busiest park-n-Rides, and operates near capacity on most weekdays (RTD 2003). RTD expanded the Cold Spring park-n-Ride by leasing an additional approximately 4.5 acres from GSA to the east of the original facility. This increased the total amount of land leased by RTD for this park-n-Ride to approximately 13 acres.

As stated above, during previous planning efforts for the DFC, GSA identified providing an LRT system, or a major regional depot facility, as a goal of the future transportation plan for the DFC. In April 2004, the Federal Transit Administration (FTA) signed a Record of Decision (ROD) for the *West Corridor EIS* (RTD 2003) that authorized such a development along the western boundary of the DFC. The ROD and EIS were part of a larger, interagency planning process that began in 1995. GSA was a cooperating agency in this process and helped develop the requirements for the transit station and LRT alignment that would enter the DFC near the old north rail line. This process culminated in the preferred alternative of an LRT line with improved bus service and improved bicycle/pedestrian facilities. The existing Cold Spring park-n-Ride facility operated by RTD would be moved to the new intermodal facility first, and the LRT would be constructed at a later date (RTD 2003).

## **SCOPE OF THE DOCUMENT**

Scoping is a process to identify resources that may be affected by a project proposal and to explore possible alternative ways of achieving the proposal while minimizing impacts. GSA conducted internal scoping (project kickoff meeting) with appropriate GSA staff and its contractor, and external scoping with the public and interested and affected groups and agencies.

An interdisciplinary team consisting of GSA employees and URS Group, Inc. (URS), a planning consulting firm, conducted internal scoping. Team members held a meeting on June 8, 2005, to discuss the purpose and need for the project; resource issues, values, and concerns; past, present, and foreseeable impacts; possible mitigation measures for the proposed action; reasonable alternatives to be addressed in the EA; and public scoping. In addition, GSA and URS also met with representatives from the City of Lakewood Economic Development Department on June 29, 2005, to further discuss and obtain input from the city on these topics.

GSA sought input for this EA through various public involvement activities. These activities included a comment period; an invitation to the scoping meetings sent to stakeholders on the project mailing list; paid advertisements; a public scoping meeting; and a DFC tenant scoping meeting. The 30-day public comment period extended from June 23 to July 22, 2005, and was publicized in a postcard invitation to more than 1,000 stakeholders; in display ads (*Lakewood Sentinel* on Thursday, June 30, 2005, and Thursday, July 7, 2005); and in a legal notice (Wednesday, June 22, 2005 classified section of the *Denver Post*).

Because the project has varied stakeholders, GSA held two open houses to solicit input- one on-site targeting DFC tenants, and another off-site targeting local residents and businesses. Forty-four people who worked at the DFC came to an open house for federal tenants held on July 13, 2005 from 11:30 a.m. to 1:30 p.m., in Building 25 at the DFC. Eighty-eight people attended a public meeting held on July 14, 2005 from 6:00 p.m. to 8:00 p.m. at Glennon Heights Elementary School, 11025 West Glennon Drive, Lakewood, Colorado.

Major issues for those who commented during the scoping period included concerns about traffic congestion on West Alameda Parkway and Union Boulevard; increased noise impacts to the surrounding neighborhoods; and wildlife management at the DFC. Other topics of concern included potential

contamination at the site; preservation of open space; building and site design; safety and access issues; and security issues associated with building a hospital next to a federal facility.

## **ENVIRONMENTAL ISSUES**

NEPA, which is implemented through CEQ regulations (40 CFR 1500-1508), requires federal agencies to consider alternatives to proposed actions and to analyze impacts of those alternatives. GSA has, in turn, adopted procedures to comply with NEPA and the CEQ regulations, as found in GSA Order ADM 1095.1F (Environmental Consideration in Decision Making); and the GSA Public Buildings Service (PBS) NEPA Desk Guide, Final Guidance, October 1999.

Potential impacts of the proposed alternatives described in this document were assessed in accordance with GSA Order ADM 1095.1F. The GSA NEPA Desk Guide requires that impacts to resources be analyzed in terms of their context, duration, and intensity. To help the public and decision-makers understand the implications of impacts, they are described in the short- and long-term, cumulatively, and within context, based on an understanding and interpretation by resource professionals and specialists.

As a result of public scoping meetings and resource information specific to the proposed study area, resources that could be affected by the alternatives being considered were identified. Environmental issues analyzed in this EA include the following:

- Land Use
- Socioeconomics
- Environmental Justice
- Traffic and Transportation
- Public Services and Utilities
- Air Quality
- Geology and Soils
- Water Resources
- Vegetation
- Wildlife
- Sensitive Species
- Wetlands
- Cultural Resources
- Noise and Vibrations
- Visual Resources
- Hazardous Materials and Waste

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## **DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES**

The alternatives analyzed in this document in accordance with NEPA are the result of agency and public scoping input. All alternatives considered must meet the purpose and need for the proposed action. Three alternatives are analyzed for potential impacts in this EA – the No Action Alternative and two action alternatives. Alternatives that were considered but eliminated are discussed on page 16. Table 1 at the end of this chapter summarizes the impacts of the three alternatives for this project.

### **ALTERNATIVE 1 – CONVEY APPROXIMATELY 60 TO 65 ACRES OF LAND TO THE CITY OF LAKEWOOD FOR HOSPITAL- AND TRANSIT-RELATED FACILITIES**

Under Alternative 1, GSA would convey, by sale, long-term ground lease, or otherwise, a total of approximately 60 to 65 ac of land on the western boundary of the DFC to the city of Lakewood (see Figure 2). In accordance with the MOU between GSA and the city, the following would be considered permitted uses should this alternative be implemented:

- Development of a hospital and related health care support facilities (e.g., medical offices); and
- Development of an intermodal transit facility and related TOD.

The hospital, an outpatient facility, and medical offices would be built on the Hospital Site Phase I location shown on Figure 2. Development of additional buildings for health-care related businesses and other medical offices would occur in the Hospital Site Phase II, and possibly as part of the TOD (see Figure 2). Easements or ROWs necessary to support the proposed facilities would also be provided. The existing DFC fence line would be adjusted accordingly, and a new security fence would be constructed to separate the public use areas from the remainder of the DFC. The fence would be replaced in-kind with a new 6-foot (ft) chain-link fence, and would meet security requirements for federal facilities, including buffer distances to federal buildings. These requirements would be addressed and reexamined in detail during the master site planning process for the DFC, which began in the fall of 2005.

In return for conveying these lands, GSA would receive real property infrastructure improvements at the DFC. These improvements would be worth the fair market value of the approximately 60 to 65 ac conveyed to the city. GSA would have final authority to approve any infrastructure improvements. Once acquired, the city of Lakewood would likely assign all or part of its interest in the property to the hospital, its representatives, and RTD.

#### **Hospital and Related Health Care Support Facilities**

Centura Health and St. Anthony Central Hospital are proposing to relocate the St. Anthony Central campus, a Level I trauma center currently located on 16 ac near West Colfax Avenue and Raleigh Street in Denver, Colorado, in a two-phase process to the property along the western boundary of the DFC (see Figures 1 and 2). Plans for Phase I of the new campus include an approximately 900,000-square-foot (ft<sup>2</sup>) hospital with approximately 380 beds, an approximately 170,000-ft<sup>2</sup> outpatient building, and approximately 150,000 to 200,000 ft<sup>2</sup> of medical office buildings. Current estimated cost for the development, design and construction of the new hospital, which could commence as early as fall 2006 and be completed sometime in 2009, is approximately \$440 million. It is anticipated that approximately 2,600 to 3,100 people would be employed in the new hospital and associated support facilities.

The hospital is expected to be 8 to 12 stories high. The eventual height will be determined through a cooperative process with the city of Lakewood and GSA so as to be appropriate to the surrounding community, including the existing buildings at the DFC or along the Union Boulevard corridor. The primary public entrance for the hospital is expected to be oriented towards Union Boulevard (see Figure 2). From Union Boulevard, access to the hospital would be provided on an existing alignment that serves the DFC (Center Avenue/2<sup>nd</sup> Avenue). A southern access from Alameda Avenue would also be developed as part of this alternative.

Plans for Phase II of the new campus (see Figure 2) may include approximately 450,000 to 500,000 ft<sup>2</sup> of additional buildings and could accommodate ancillary businesses such as pharmacies, durable medical equipment vendors, and other medical suppliers. Additional medical offices associated with the hospital could also be housed in Phase II buildings.

Parking for both Phase I and II of the hospital and associated developments will be both surface and structured parking. The use of structured parking will be considered where appropriate, and in phases, including a potential opportunity for joint development of a multilevel parking structure being considered by RTD.

Access for emergency vehicles is an important issue that is still under consideration, as approximately 120 ambulance trips in and out of the hospital can be expected on a daily basis, based on the existing conditions at St. Anthony Central Hospital. Part of the consideration for emergency vehicle access is that an estimated 20 percent of the 60 ambulances entering the site per day (about 12 ambulances) would enter with their sirens on. The mission of St. Anthony Central Hospital as a trauma center also includes Flight for Life, the nation's first hospital-based emergency medical helicopter program. This program would continue to provide important emergency services for the new hospital. It is anticipated that approximately 500 flights would occur on an annual basis, with July, August, and the ski season being the busiest periods. The current flight path along the 6th Avenue corridor would probably continue to serve the new hospital location. The approach for landings at the hospital would be primarily from the north. Two surface-grade helipads associated with the hospital would support Flight for Life operations; however, the helicopters would not be stored or serviced at the hospital.

It is anticipated that the utilities required to operate the hospital and related health care facilities would be provided from the existing lines outside the DFC and in proximity to the proposed hospital site. Boilers and emergency generators would be provided to adequately serve the needs of the hospital, the annex building, and the health care support facilities.

### **Intermodal Transit Facility and Transit-Oriented Development**

The *West Corridor EIS* (RTD 2003) discussed the following as the preferred alternative for the DFC station (clarifications added in brackets):

“The Denver Federal Center Station will be located north of Center Avenue and west of the [proposed] Quail Street alignment. It will consist of a center platform with an intermodal facility and a large 1,000 space parking structure. The bus transfer facility will be located beneath the parking structure. The facility will accommodate approximately 30 kiss-n-Ride drop-offs. Discussions are underway with the General Services Administration, which is responsible for identifying potential transit-oriented development at this location. Transit-oriented development could be undertaken west of the parking facility and south of the station. A pedestrian plaza will link these facilities. This intermodal facility could be constructed in stages, reflecting transit needs and development potential.”

Preliminary designs indicate that there would be approximately 18 bus bays and 1,000 structured parking spaces. The LRT station would be built at-grade, south of Third Avenue, and would be integrated into the intermodal facility (RTD 2003; City of Lakewood, GSA, and RTD 2002). The intermodal transit facility would be constructed in phases. The park-n-Ride facility would be constructed first, and LRT would be constructed at a later date. The transit-oriented development (TOD) that would be considered as part of this alternative would be mixed-use and could include offices, including medical offices, as well as retail/restaurant spaces (City of Lakewood, GSA, and RTD 2002). Approximately five people would staff the transit facility. It is currently unknown how many jobs would be created by the office and retail/restaurant space.

In addition to the features noted above, development would include the construction of two LRT tracks and grade separation structures, if required. A park-n-Ride would also be constructed at the DFC station, and existing bus routes would be reconfigured or modified, while new routes would be added to link with the LRT station. System elements, such as fencing and other barriers, signage, catenary poles and wires, train control, and communications equipment would be required. It is anticipated that other utilities required to operate the transit-related facilities would be provided from existing lines in the area. RTD projects that more than 5,000 LRT boardings and alightings (deboardings) would occur at the new DFC station daily (RTD 2003).

Roadway and bus access to the DFC, the station's proximity to high-density employment and residential land uses, and north-south traffic access from heavily traveled Simms Street/Union Boulevard contributed to such a high estimate of use. This station would function as a major transportation hub and incorporate the bus transfer and park-n-Ride facilities. It is anticipated that 30 buses would enter and leave the DFC station daily (RTD 2003). In addition, current bus service to stops within the DFC would likely be expanded.

The project is anticipated to occur in two phases. Once the DFC station is complete, the existing Cold Spring park-n-Ride operated by RTD will be closed and moved to the new intermodal facility. The second phase will then include construction of the LRT.

According to RTD, passage of FasTracks (which was approved by voters in November 2004) would result in an operational LRT system by 2013 (RTD 2005). FasTracks is RTD's twelve-year comprehensive plan to build and operate high-speed rail lines, as well as expand and improve bus service and park-n-Rides, throughout the region. Facility design is currently ongoing.

## **ALTERNATIVE 2 – CONVEY APPROXIMATELY 60 TO 65 ACRES OF LAND TO THE CITY OF LAKEWOOD FOR TRANSIT-RELATED FACILITIES AND OTHER UNKNOWN USES**

Under Alternative 2, GSA would convey, by sale, long-term ground lease, or otherwise, a total of approximately 60 to 65 ac of land on the western portion of the DFC to the city of Lakewood (see Figure 2). As with Alternative 1, an intermodal transit facility, as well as TOD, would be developed. Please refer to the Intermodal Transit Facility and Transit-Oriented Development section in the description of Alternative 1 for a detailed discussion.

Easements or ROWs necessary to support the proposed facilities would also be provided. A new security fence would be constructed to separate the lands conveyed to the city of Lakewood from the remainder of the DFC. The fence would be replaced in-kind with a new 6-ft chain-link fence, and would meet security requirements for federal facilities, including buffer distances to federal buildings. These requirements will be addressed in detail in the master planning process for the DFC.

The other uses for the property GSA intends to convey under this alternative have not been identified at this time. It is assumed that, because of the proximity of these lands to the DFC, any proposed uses identified by the city of Lakewood would have to be approved by GSA prior to development. Once the uses have been identified, additional NEPA documentation would be prepared to assess the environmental consequences of those uses. .

In return for conveying these lands, GSA would receive real property infrastructure improvements at the DFC from the city of Lakewood. These improvements shall be worth the fair market value of the approximately 60 to 65 ac conveyed to the city. GSA would have final authority to approve any infrastructure improvements.

### **ALTERNATIVE 3 – NO ACTION ALTERNATIVE**

Under the No Action Alternative, GSA would not convey the approximately 60 to 65 ac of land located on the western boundary of the DFC to the city of Lakewood. This land would continue to be owned by the Federal government and managed by the GSA for potential limited development and open space, in accordance with existing plans for the DFC (GSA 1997). As a result, the proposed hospital- and transit-related facilities would not be developed on the DFC. GSA would not receive infrastructure improvements from the city of Lakewood, and would have to rely on funding from annual budget requests that may or may not be granted.

Although the No Action Alternative would eliminate unavoidable, adverse impacts associated with the proposed action, it does not satisfy the purpose and need for the project. It is included in the environmental analysis to provide a baseline for comparison with the proposed action and is analyzed in accordance with CEQ regulations for implementing NEPA.

### **ALTERNATIVES CONSIDERED BUT DISMISSED**

One alternative was considered but dismissed for the reasons described below.

#### **Convey Approximately 60 to 65 Acres of Land for Unknown Uses**

This alternative would involve conveying by sale, long-term ground lease, or otherwise, a total of approximately 60 to 65 ac of land on the western portion of the DFC to the city of Lakewood. The ultimate use of these lands is currently unknown, but would not include the hospital and/or the transit-related facilities. This alternative was dismissed because it does not meet the GSA's goal of providing an LRT system or major regional depot facility, as identified in previous planning efforts (GSA 1997).

**TABLE 1: COMPARATIVE SUMMARY OF ENVIRONMENTAL IMPACTS**

Environmental Issue	Alternative 1	Alternative 2	Alternative 3 (No Action)
Land Use	Beneficial long-term impacts since this alternative contributes to realization of the community's plans and vision for area.	Beneficial long-term impacts since this alternative contributes to realization of the community's plans and vision for area.	No adverse or beneficial impacts.
Socioeconomics	No long-term adverse impacts; short-term adverse impacts to neighborhoods surrounding the existing hospital location until this area is redeveloped; and minor beneficial impacts to area from employment opportunities.	No long-term adverse impacts; negligible beneficial impacts to area from employment opportunities.	No adverse or beneficial impacts.
Environmental Justice	No long-term disproportionate adverse impacts to minority or low-income populations with the commitment of hospital and city of Denver to work with the community. Potential short-term adverse impacts in the area near the existing hospital location that would decrease over time as hospital property is redeveloped.	No disproportionately adverse impacts to minority or low-income populations.	No disproportionately adverse impacts to minority or low-income populations.
Traffic and Transportation	Long-term adverse impacts due to traffic growth and resulting poor levels of service at certain intersections primarily during peak periods.	Long-term adverse impacts (incrementally smaller than Alternative 1) due to traffic growth and resulting poor levels of service primarily during peak periods.	Long-term adverse impacts to transportation network because no improvements would be constructed.
Public Services and Utilities	No adverse impacts to public services or utilities. Potential long-term beneficial impacts from upgrades to local utility systems and DFC Infrastructure.	Impacts from development and operation of the transit station/TOD and unknown uses could be less than, equivalent to, or greater than impacts under Alternative 1. Potential long-term beneficial impacts from upgrades to local utility systems and DFC Infrastructure.	No long-term adverse or beneficial impacts.
Air Quality	Negligible to minor short-term adverse impacts during construction. Negligible long-term adverse impacts from facility operations.	Short- and long-term, adverse impacts to air quality from construction and operation of the transit facility/TOD and unknown uses. The extent of impacts would depend on the nature and location of the development ultimately proposed by the city of Lakewood. These impacts could be less than, equivalent to, or greater than Alternative 1.	No adverse impacts

**TABLE 1: COMPARATIVE SUMMARY OF ENVIRONMENTAL IMPACTS**

Environmental Issue	Alternative 1	Alternative 2	Alternative 3 (No Action)
Geology and Soils	Long-term, negligible to minor adverse impacts from disturbances to local geology and loss of soil.	Short- and long-term, adverse impacts to geology and soils from construction and operation of the transit facility/TOD and unknown uses. The extent of impacts would depend on the nature and location of the development ultimately proposed by the city of Lakewood. These impacts could be less than, equivalent to, or greater than Alternative 1.	No short-term adverse impacts; potential negligible long-term adverse impacts to geology and soils from other potential limited development.
Water Resources	Short- and long-term, minor to moderate adverse impacts to water resources could occur during construction and operation of the hospital, its related facilities, and the transit station/TOD.	Short- and long-term, adverse impacts to water resources from construction and operation of the transit facility/TOD and unknown uses. The extent of impacts would depend on the nature and location of the development ultimately proposed by the city of Lakewood. These impacts could be less than, equivalent to, or greater than Alternative 1.	No short-term adverse impacts, but long-term adverse impacts could occur from potential limited development.
Vegetation	Long-term minor to moderate adverse impacts from the loss of approximately 60 to 65 ac of vegetation.	Short- and long-term, adverse impacts to vegetation from construction and operation of the transit facility/TOD and unknown uses. The extent of impacts to vegetation would depend on the nature and location of the development ultimately proposed by the city of Lakewood. These impacts could be less than, equivalent to, or greater than Alternative 1.	No short-term adverse impacts, but long-term impacts could occur from potential limited development.
Wildlife	Short-term, minor adverse impacts during construction. Long-term, minor to moderate adverse impacts from the loss of approximately 60 to 65 ac of wildlife habitat.	Short- and long-term, adverse impacts to wildlife from construction and operation of the transit facility/TOD and unknown uses. The extent of impacts to wildlife would depend on the nature and location of the development ultimately proposed by the city of Lakewood. These impacts could be less than, equivalent to, or greater than Alternative 1.	No short-term adverse impacts, but long-term impacts could occur from potential limited development.
Sensitive Species	No adverse impacts to federally-listed species. Short- and long-term minor adverse impacts to black-tailed prairie dogs from construction, the loss of suitable habitat, and possible lethal control of prairie dogs.	Short- and long-term, adverse impacts to sensitive species from construction and operation of the transit facility/TOD and unknown uses. The extent of impacts to sensitive species would depend on the nature and location of the development ultimately proposed by the city of Lakewood. These impacts could be less than, equivalent to, or greater than Alternative 1.	No short-term adverse impacts, but long-term impacts could occur from potential limited development.

**TABLE 1: COMPARATIVE SUMMARY OF ENVIRONMENTAL IMPACTS**

Environmental Issue	Alternative 1	Alternative 2	Alternative 3 (No Action)
Wetlands	Short- and long-term, negligible to minor adverse impacts from construction and the potential loss of wetland habitat.	Short- and long-term, adverse impacts to wetlands from construction and operation of the transit facility/TOD and unknown uses. The extent of impacts would depend on the nature and location of the development ultimately proposed by the city of Lakewood. These impacts could be less than, equivalent to, or greater than Alternative 1.	No short-term adverse impacts, but long-term impacts could occur from potential limited development.
Noise and Vibrations	Short-term and long-term, negligible to minor adverse impacts from construction and operation of the hospital and transit station/TOD.	Short- and long-term, adverse impacts to noise and vibrations from construction and operation of the transit facility/TOD and unknown uses. The extent of impacts would depend on the nature and location of the development ultimately proposed by the city of Lakewood. These impacts could be less than, equivalent to, or greater than Alternative 1.	Short-term minor adverse impacts during construction and long-term, minor impacts from operation of the hospital and transit station/TOD.
Visual Resources	Short-term, negligible adverse impacts during construction and long-term minor adverse impacts from presence of new hospital and transit facility.	Short and long-term minor adverse impacts during construction and from the presence of the new transit facility.	No adverse or beneficial impacts.
Cultural Resources	No adverse impacts.	No adverse impacts.	No adverse impacts.
Hazardous Materials and Waste	Long-term, minor adverse impacts are possible if hazardous materials are not remediated prior to construction. No adverse impacts with pre-construction remediation.	Long-term, minor adverse impacts are possible if hazardous materials are not remediated prior to construction. No adverse impacts with pre-construction remediation.	Long-term, minor adverse impacts are possible.

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# **ENVIRONMENTAL ANALYSIS: AFFECTED ENVIRONMENT AND IMPACTS**

## **METHODOLOGY FOR ASSESSING IMPACTS**

This section describes the affected environment (existing conditions) for land use, socioeconomics, environmental justice, traffic and transportation, public services and utilities, water resources, air quality, noise, visual resources, cultural resources, and hazardous materials and waste, as well as the potential impacts resulting from the implementation of the two alternatives. This section concludes by addressing any cumulative impacts associated with the proposed action.

Potential impacts were identified and assessed for each environmental issue by assigning standards of significance for comparison against existing conditions, which is the No Action Alternative. Proposed mitigation measures are also included for each environmental issue as appropriate, to reduce potential impacts.

Impacts may be direct or indirect and are described in terms of type, context, duration, and intensity, which is consistent with the CEQ regulations. “Direct effects” are caused by an action and occur at the same time and place as the action. “Indirect effects” are caused by the action and occur later in time or are further removed from the place of impact, but are reasonably foreseeable. Impacts are defined in general terms and are qualified as adverse or beneficial, and as short- or long-term. For the purposes of this EA, short-term impacts are generally considered those impacts that would have temporary effects. For example, air quality impacts from fugitive dust associated with construction would be considered short-term as they would only last for the duration of the construction activities. Long-term impacts are generally considered those impacts that would result in permanent effects. For example, the loss of vegetation, or the increase in traffic, associated with new development would be considered long-term.

## **LAND USE**

### **AFFECTED ENVIRONMENT**

#### **Existing Land Use Conditions**

The proposed project site is along the western portion of the 670-ac DFC in the city of Lakewood, Colorado. The boundaries of the DFC are 6<sup>th</sup> Avenue to the north, Kipling Street to the east, Alameda Avenue to the south, and Union Boulevard to the west. See Figure 2 for the study area boundaries. The DFC is located near the western boundary of the Denver metropolitan area within a highly urbanized surrounding. DFC tenants include over 25 federal agencies and bureaus, with more than 6,000 employees. At present, the DFC contains almost 4 million square feet of office, storage, warehouse, and laboratory and other special purpose space in 65 active buildings.

The majority of the buildings that exist on the DFC today were originally constructed in the 1940s as part of the Denver Ordnance Plant (DOP), for the purpose of the production of small arms ammunition. The DOP extended two miles west of the current DFC. Many on-site buildings have been modified, renovated, and expanded over the years to meet the needs of federal tenants. Several buildings have also been constructed more recently to meet specific agency needs. Although the DFC is located within the city of Lakewood, city regulations do not apply to federal property located within the DFC. The GSA is responsible for operating the majority of the buildings and facilities at the DFC.

There are several special uses at the DFC that are not administered by the GSA. These include a U.S. Army Reserve facility on 1<sup>st</sup> Street, adjacent to 6<sup>th</sup> Avenue, the U.S. Post Office adjacent to 7<sup>th</sup> Street and Alameda Avenue, and an RTD park-n-Ride facility at North Avenue and Union Boulevard. RTD Cold Spring park-n-Ride facility is located at the northwest corner of the DFC (GSA 1997). RTD operates the 646-vehicle Cold Spring park-n-Ride, which serves only RTD buses. RTD currently leases 13 ac of the 18-ac facility from GSA. With the passing of Fastracks in November 2004 by metro Denver area voters, funding is available for construction of the West Corridor project and associated LRT (RTD 2003). Design is currently underway.

The western portion of the DFC is primarily undeveloped land. Several scattered buildings used for various purposes, along with one remaining bunker, are located throughout the project area. Multiple roads also exist in the project area, including Center Avenue, Main Avenue, 12<sup>th</sup> Street, and various unnamed dirt and paved access roads. Pedestrian connections also exist in the project area, along McIntyre Gulch, Center Avenue, and the western boundary of the DFC between North Avenue and McIntyre Gulch.

Three drainages exist in the project area. McIntyre Gulch, an east-west oriented drainage area, exists south of Main Street. McIntyre Gulch is a riparian area characterized by cottonwood and willow tree stands, dense shrubs, and tall grasses. An unnamed, north-south oriented drainage ditch exists in the southwest corner of the DFC, directly east of the DFC boundary. Also, Welch Ditch, an agricultural ditch operated by the Agricultural Ditch and Reservoir Company, flows south through and exits the DFC in the project area.

The areas surrounding the DFC consist generally of residential and commercial uses, and office buildings. The DFC is bounded immediately to the north by the 6<sup>th</sup> Avenue Freeway, an east-west six-lane highway providing direct access to downtown Denver. Most of the land to the north of 6<sup>th</sup> Avenue is occupied by office/commercial land uses, with the exception of a residential housing development near the central portion of the DFC border. Kipling Street to the east of the DFC is a north-south four-lane arterial. The majority of the land east of Kipling Street consists of public/institutional land uses, including the Jefferson County Stadium, several schools, and a park/open space area near the southern portion of the DFC border. Farther east, land is primarily utilized for low-density residential housing. Alameda Avenue to the south of the DFC is an east-west four-lane arterial. The property south of Alameda Avenue consists of low-density residential land uses and several small office and commercial developments. Farther south, most of the land is utilized for residential land uses. West of the DFC is a strip of office and commercial development that exists along Union Boulevard. This area has been labeled as Union Center. Farther west, land use is primarily residential.

The 2003 Lakewood Comprehensive Plan has identified Union Center as a major urban center. Major urban centers provide a wide range of community and regional retail uses, in addition to offices, business and personal services, and residential uses. Union Center includes a mix of housing types and densities, convenience retail, entertainment, hotel and office uses. The Cold Spring park-n-Ride and the DFC are both within Union Center (City of Lakewood 2003b).

The 2003 Lakewood Comprehensive Plan has identified the DFC as an employment and community mixed-use center. Employment centers provide locations for light manufacturing, offices, small-scale employment sites, and corporate headquarters. To be effective, employment centers should include a variety of complementary uses, such as business services, retail, restaurants, and childcare. They should have an attractive appearance to enhance their relationship with adjacent neighborhoods. Community mixed-use centers are concentrations of office, multi-family residential, retail, specialty uses, and entertainment facilities that serve several neighborhoods (City of Lakewood 2003b).

## **Zoning**

The 1997 DFC Master Site Plan describes the land use areas within the DFC. The central core area, identified as a Stage I development district, contains the most concentrated employment base, and is classified as mixed-use development. It is located generally between 1<sup>st</sup> Street on the east, 7<sup>th</sup> Street on the west, Main Avenue on the south, and North Avenue on the north. The areas west of the central core area, and near the southern boundary west of 7<sup>th</sup> Street, are identified as a Stage II development district. The area west of the Stage II development district extending to the western boundary, and the area north and east of the U.S. Post Office, is identified as a Stage III development district. Stage II and III development districts are characterized by large, open lands that could be developed without adversely affecting essential open space or the central core area.

Open space areas are located in the vicinity of McIntyre Gulch, along the northern boundary, and in the southwestern, southeastern, and northwestern corners of the DFC. Open space is designed to provide important linkages between buildings and other areas of the site. It also offers recreational opportunities by providing corridors for walking, bicycling, and jogging. Buffer areas exist along the perimeter of the DFC, along McIntyre Gulch and the unnamed drainage ditch, and on either side of Center Avenue. Buffer areas provide protection for natural habitat areas, ensure the aesthetic quality of the perimeter of the site, and satisfy security requirements (GSA 1997).

The project area has been identified as a Stage III development district in the northern portion and open space in the southern portion and along either side of Center Avenue (GSA 1997). The area in the southern portion of the project area was designated as open space in the 1997 Master Site Plan (GSA 1997), primarily because of the unknown environmental issues and possible constraints at that time. The potential contamination issues from the former landfill in this area are currently being characterized as part of a Resource Conservation and Recovery Act (RCRA) Facility Investigation, as further described in the Hazardous Materials and Waste section of this EA, which would allow future development of the site.

Zoning in the area around the DFC includes PD (Planned Development Zone), 1-R (Large Lot Residential) 2-R (Small Lot Residential), 3-R (Duplex and Small Lot Residential), 4-R (Medium Density Attached Residential) 5-R (Higher Density Residential), R-1A (Residential One Acre), 1-C (Convenience Commercial), 2-C (Neighborhood Commercial), 3-C (Community Commercial), 5-C (Large Lot Commercial), IN (Industrial District), and OF (Office District). Figure 3 shows the current land uses and zoning for the area near the DFC.

The residential zoning districts are intended to provide for suburban, one and two-family, and high density residential development, including single-family homes, duplexes, triplexes, fourplexes, condominiums, and apartments. The planned development zone district is intended to permit the planning and development of various land uses within reason. Land uses within this zone may be multiple in nature and many include uses not otherwise permitted within the same zone district. Building height restrictions are comparable to similar structures in other zone districts. The commercial districts are intended to provide for a range of retail, office, service, and other commercial uses. Building heights must not exceed 60 ft for office and other principal structures and 45 ft for all other structures. The office district is intended to provide for a variety of office developments including professional, medical, financial, and similar services. Building heights must not exceed 60 feet. The industrial district provides lighter industrial uses along major vehicular and rail transportation routes serving the community. Building heights must not exceed 60 ft (City of Lakewood 2003a).

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**Figure 3: Current Land Use and Zoning Designations**

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The area north of the DFC (and north of 6<sup>th</sup> Avenue) has areas zoned PD, 1-C, 3-C, 5-C, 2-R, 3-R, 5-R, OF, 3-R, and 5-R. The area east of the DFC is zoned primarily 1-R, with small pockets of R-1A, 2-R, 3-R, 5-R, 1-C, and OF. The neighborhood south of the DFC is zoned primarily 2-R, with some areas of 3-R, 4-R, 1-C, 2-C, PD, and OF. Zoning along Union Boulevard to the west is primarily PD with some pockets of 1-C, 2-C, 3-C, OF, and IN.

## **STANDARDS OF SIGNIFICANCE**

The proposed project would result in adverse land use impacts if it were judged to be in conflict with adopted plans and policies for the site, or if it violated the zoning for the site.

## **IMPACTS**

### **Alternative 1**

Alternative 1 is compatible with the current and future land use plans for the DFC. The northern portion of the study area, including the intermodal transit facility/TOD and the proposed St. Anthony Central Hospital Site Phase I, has been identified as a Stage III development district, which includes development as one of the permissible uses according to the 1997 DFC Master Site Plan. The southern portion of the study area, which includes the proposed St. Anthony Central Hospital Site Phase II, was designated as open space in the 1997 DFC Master Site Plan. As further described in the Hazardous Materials and Waste section of this EA, this area is currently being characterized as part of a RCRA Facility Investigation, and any necessary contamination would be remediated prior to development of this portion of the project area. However, remediation would likely not be completed prior to development of the Hospital Site Phase I. Once the Hospital Site Phase II is remediated to appropriate standards for its use, its open space status would likely change. Although the planning concepts outlined within the 1997 Master Site Plan have served as a guideline for land use decisions by GSA, the plan has not constituted a rigid blueprint for the DFC's development. Modifications to the guidelines and proposed land use layout established within the plan have occurred since its adoption (GSA 2005).

Alternative 1 is also compatible with the current and future land use plans for the surrounding area, as described in the Lakewood Comprehensive Plan. The development of the intermodal transit facility/TOD, including expanded bus service and parking at the Cold Spring park-n-Ride, and the eventual development of the West Corridor LRT, also meets the objectives of the Lakewood Urban Center Master Plan. The zoning for this alternative is also compatible with the zoning of the surrounding area. The entire study area would be zoned as PD. The city of Lakewood would allow a higher height limit than normally permissible under the PD zoning to accommodate the hospital, office buildings, and any TOD development (City of Lakewood 2005).

According to the Lakewood Urban Center Master Plan, the proposed intermodal transit facility/TOD would replace the Cold Spring Transit Center and park-n-Ride and serve as a transit center as part of the West Corridor LRT. It would also serve as the initial anchor tenant for future TOD. The development of the intermodal transit facility/TOD would occur in two phases. The first phase would relocate the Cold Spring park-n-Ride and develop the intermodal transit facility/TOD and a structured parking garage to accommodate 750 vehicles. The second phase would include an additional 750-1250 parking spaces and a station on the West Corridor light-rail line. Ultimately, the existing facility at Union Boulevard and 6<sup>th</sup> Avenue would be closed.

The Urban Center portion of the project would integrate a high-density walkable mixed-use office and residential center with retail serving local uses. The center would complement the existing center along Union Boulevard and serve as the future office core for the city of Lakewood. The Urban Center would

be designed to complement and reinforce existing uses within the DFC and along Union Boulevard (City of Lakewood 2002). This would result in a beneficial long-term impact to land use.

The addition of the intermodal transit facility/TOD and the hospital and related health care facilities would be consistent with surrounding land uses and would provide a benefit to surrounding residents. The transit facility would improve upon the existing Cold Spring park-n-Ride. The hospital would be the first hospital in Lakewood, and would complement the medical office buildings that exist along Union Boulevard and Alameda Avenue.

Conclusion. There would be no adverse impacts to land use as a result of the preferred alternative. In fact, the implementation of Alternative 1 would contribute to the realization of the community's plans and vision for the area, resulting in a beneficial long-term impact.

### **Alternative 2**

Impacts to the land use of the intermodal transit facility/TOD site under Alternative 2 would be similar to the transit facility/TOD-related impacts under Alternative 1. The intermodal transit facility/TOD is compatible with the current and future land use plans for the DFC, as well as the current and future land use plans for the surrounding area, as described in the Lakewood Comprehensive Plan. The development of the intermodal transit facility/TOD, including expanded bus service and parking at the Cold Spring park-n-Ride, and the eventual development of the West Corridor light-rail line, also meets the objectives of the Lakewood Urban Center Master Plan. The zoning for this site is also compatible with the zoning of the surrounding area. The northern portion of the study area would be zoned as PD. This alternative would have a long-term beneficial impact on land use.

Impacts to land use from development of the remaining property scheduled for disposal are currently unknown. The effects of the unknown uses under this alternative could be less than, equivalent to, or greater than the impacts of the hospital and its related facilities under Alternative 1, depending on the nature of the development ultimately proposed by the city of Lakewood. As stated previously, these impacts would be determined through a separate NEPA analysis to be conducted at the time the unknown uses are identified.

Conclusion. The development of the intermodal transit facility/TOD would contribute to the realization of the community's plans and vision for the area, resulting in a beneficial long-term impact. Impacts to land use are currently unknown for the remaining property scheduled for disposal.

### **Alternative 3 (No Action)**

Under the No Action Alternative, no adverse impacts to the study area would result. The western portion of the DFC would remain under GSA ownership and management. The Cold Spring park-n-Ride would remain in its current location and the proposed intermodal transit facility/TOD would not be constructed on the DFC. Furthermore, the proposed hospital would not be constructed in the study area. The Union Boulevard Urban Center would remain. This alternative would not contribute to the realization of the community's plans and visions for the area. There would be no changes to the zoning either within or surrounding the DFC.



## SOCIOECONOMICS

### AFFECTED ENVIRONMENT

The primary source for socioeconomic data is the U.S. Census Bureau. The study area for the socioeconomic analysis consists of the DFC and the surrounding area in Lakewood, and the area adjacent to the existing St. Anthony Central Hospital site at 4231 West 16<sup>th</sup> Avenue in Denver. The U.S. Census Bureau Tracts for the area surrounding the DFC include Jefferson County Census Tracts 112.01 (DFC), 117.22, 112.02, 117.01, 117.08, and 109.02 (Figure 4). Figure 5 shows the location of the existing St. Anthony Central Hospital. The tracts near the existing hospital location include Denver County Census Tracts 7.01, 7.02, and 5.01 (Figure 6).

According to the 2000 U.S. Census, the total resident population for Jefferson County was 527,056, and was 554,636 for the city and county of Denver. Of that, the resident population for the census tracts surrounding the DFC was 22,462, or approximately 4.3 percent of the county total. The resident population for the census tracts surrounding the existing hospital location was 12,768, or approximately 2.3 percent of the county total (U.S. Census 2000).

Of the 22,462 people living around the DFC, 48.9 percent were male and 51.1 percent were female. Of the 527,056 people living in Jefferson County, 49.7 percent were male and 50.3 percent were female. Of the 12,768 people living in Denver near the existing hospital location, 50.4 percent were male and 49.6 percent were female. Of the 554,636 people living in the city and county of Denver, 50.5 percent were male and 49.5 percent were female (U.S. Census 2000). The ratio of males to females is similar for both study areas and both counties, with approximately half males and half females in each. The age of people living in the area surrounding the DFC is similar to those living in Jefferson County, with slightly fewer people under 15 years of age and slightly more people over 65 years of age in the study area versus the county. The population of people living in the area around the existing hospital location is slightly younger than that in the city and county of Denver, with approximately 42 percent of people younger than 24 near the hospital, while 33 percent are younger than 24 in the city and county of Denver. Table 2 shows the distribution of both study areas and county populations by major age categories.

**TABLE 2: SOCIAL CHARACTERISTICS OF THE AFFECTED AREA - AGE**

Area	Total Population	Percentage of Population by Age					Total
		Under 15 Years	15 to 24 Years	25 to 44 Years	45 to 64 Years	65 Years and Over	
DFC and surrounding area	22,462	16.11%	15.89%	32.44%	23.11%	12.45%	100.00%
Jefferson County	527,056	20.84%	12.57%	32.07%	24.88%	9.64%	100.00%
Existing Hospital Location (Census Tracts 7.01, 7.02, & 5.01)	12,768	25.23%	16.44%	32.11%	16.22%	10.00%	100.00%
City & County of Denver	554,636	18.67%	14.03%	36.08%	19.97%	11.26%	100.00%

Source: U.S. Census Age Data (2000)

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**Figure 4: Census Tracts and Low Income Populations Near the Denver Federal Center**

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**Figure 5: Existing St. Anthony Central Hospital Location**

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**Figure 6: Census Tracts Near the Existing St. Anthony Central Hospital Location**

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On a per capita income basis, both study areas have a per capita income less than that of their respective counties. The per capita income of people living near the DFC is \$24,276, while it is \$28,066 for Jefferson County as a whole. The per capita income of people living near the existing hospital location is \$17,031, while it is \$24,101 for the entire city and county of Denver (U.S. Census Per Capita Income Data 2000). Overall, the percent of the population near the DFC that falls in the “Income in 1999 Below Poverty Level” category is higher than the entire county, 7 percent versus 5 percent for Jefferson County. This percentage for the population near the existing hospital location is also higher than the entire county, 25 percent versus 14 percent for the city and county of Denver (U.S. Census Poverty Status Data 2000). The percentage of the population that has a household income of more than \$100,000 is much lower for the project areas than for their respective counties. Table 3 shows the distribution by household income for the project areas and the counties.

**TABLE 3: SOCIAL CHARACTERISTICS OF THE AFFECTED AREA - HOUSEHOLD INCOME**

Household Income (1999)	Total Households	Less than \$10,000	\$10,000 to \$24,999	\$25,000 to \$49,999	\$50,000 to \$74,999	\$75,000 to \$99,999	\$100,000 or more	Total
DFC and surrounding area (Census Tracts 109.02, 112.02, 117.01, 117.08, 117.22)	9,783	4%	13%	34%	27%	13%	9%	100%
Jefferson County	206,256	4%	11%	27%	24%	15%	19%	100%
Existing Hospital Location (Census Tracts 7.01, 7.02, and 5.01)	3,011	15%	25%	35%	16%	5%	4%	100%
City & County of Denver	239,415	10%	20%	31%	18%	9%	12%	100%

Source: U.S. Census Household Income Data (2000)

In 2000, the study area near the DFC contained 10,089 housing units, compared to 212,488 for Jefferson County, resulting in a persons per household figure of 2.23 for the study area, as opposed to 2.48 for the county. The project area near the existing hospital location contained 4,755 housing units, compared to 251,435 for the city and county of Denver, resulting in a persons per household figure of 2.69 for the project area, as opposed to 2.21 for the county as a whole. As can be seen in Table 2, there are relatively fewer children under age 15 near the DFC compared to the entire county, which results in a smaller household size. The opposite is true for the study area near the existing hospital location, which has a large percentage of the population under age 15. Both study areas have a higher percentage of housing units that are renter occupied compared to the corresponding counties. Table 4 shows the distribution of housing units for downtown and the whole city, based on both tenure and vacancy status.

**TABLE 4: HOUSING CHARACTERISTICS OF THE AFFECTED AREA - TENURE AND VACANCY STATUS**

Area	Total Housing Units	Occupied		Vacant			Total
		Owner Occupied	Renter Occupied	For Rent or for Sale	For Occasional Use	For Other Reasons	
DFC and surrounding area (Census Tracts 109.02, 112.02, 117.01, 117.08, 117.22)	10,089	58.14%	38.50%	1.93%	0.41%	1.02%	100.00%
Jefferson County	212,488	70.31%	26.67%	1.44%	0.73%	0.85%	100.00%
Existing Hospital Location (Census Tracts 7.01, 7.02, and 5.01)	4,755	35.60%	59.54%	3.45%	0.17%	1.24%	100.00%
City & County of Denver	251,435	49.93%	45.22%	2.99%	0.57%	1.29%	100.00%

Source: U.S. Census Tenure Data and Vacancy Status Data (2000)

The DFC houses over 6,000 employees and 26 government agencies in approximately 90 buildings and is considered a large regional employment center. There is currently no private development in the DFC. The 2003 Lakewood Comprehensive Plan has identified Union Center, located along Union Boulevard to the west of the DFC, as a major urban center. Major urban centers provide a wide range of community and regional retail uses, in addition to offices, business and personal services, and residential uses. Union Center provides approximately 6,000 jobs. Many of the businesses have located there to take advantage of Union Boulevard's proximity to the DFC. Employment near the existing hospital location consists primarily of hospital-related jobs and retail establishments of varying sizes.

According to the Denver Regional Council of Government's (DRCOG) employment statistics, there were 17,554 employees in the study area including and around the DFC, while there were 3,805 employees in the study area around the existing hospital location in 2000. Projections for 2005 indicate an increase to 20,358 around the DFC and 4,692 around the existing hospital, while projections for 2015 indicate an increase to 23,499 around the DFC and 5,083 around the existing hospital (DRCOG 2005).

In summary, both study areas tend to be poorer than their respective counties. The ratio of males to females is similar for both study areas and both counties, with approximately half males and half females in each. The households within the Denver study area have more young children at home, which tends to increase the household size, compared to the DFC study area and respective counties. Information on race and ethnicity can be found in the Environmental Justice section.

#### **STANDARDS OF SIGNIFICANCE**

The proposed project would result in adverse socioeconomic impacts if it caused a major shift in population, housing, or employment in the census tracts around both project areas, or in Jefferson County or the city and county of Denver. For the purpose of this analysis, a major change would result from a 5 percent increase or decrease to any of these indicators.

#### **IMPACTS**

##### **Alternative 1**

Relocating the hospital and the Cold Spring park-n-Ride would have beneficial impacts to the socioeconomic profile of the DFC area and short-term adverse impacts to the socioeconomic profile of the study area around the existing hospital location. The residential populations of both study areas would not increase or decrease as a result of the preferred alternative. Furthermore, there would be no change in demographics.

There would be a slight shift in the location of jobs provided by the hospital. The hospital employs 1,200 to 1,500 people. These jobs would move from Denver to Lakewood under this alternative. The medical office building and the additional commercial/support enterprises would support another 1,400 to 1,600 jobs. Some medical services could remain at the existing hospital location. The redevelopment options, including the type of services that could likely remain, will be discussed as part of the St. Anthony Central Community Advisory Task Force activities. The task force, which is composed of neighborhood representatives, city officials, and hospital, business and real estate development representatives, will help identify opportunities and strategies to address the transformation of the existing facility into a community redevelopment complex that would improve the vitality of the surrounding neighborhood. The redevelopment would provide additional jobs for the surrounding community that would replace some of the jobs lost by the hospital moving to Lakewood. Therefore, the adverse impacts on the project area around the existing hospital would be short-term, and would decrease over time as the area is redeveloped with additional employment opportunities.

The intermodal transit facility would provide approximately five or fewer RTD-related jobs, and an unknown number of jobs associated with the ancillary TOD. This facility would have a negligible beneficial impact on the study area by providing additional jobs.

Conclusion. Overall, there would be no long-term adverse impacts to socioeconomic conditions as a result of the proposed project. There would be short-term adverse impacts to the neighborhoods surrounding the existing hospital location until the area is redeveloped. There would be minor beneficial impacts to the area around the DFC from the additional employment opportunities the hospital and transit station/TOD would provide.

## **Alternative 2**

Impacts to socioeconomics associated with development intermodal transit facility/TOD under this alternative would be similar to intermodal transit facility/TOD-related impacts under Alternative 1. Fewer than 5 RTD-related jobs would be created as part of the intermodal transit facility, and an unknown number of jobs related to the TOD would be created. The facility would have a negligible beneficial impact on the study area.

Impacts to socioeconomics from development of the remaining property scheduled for disposal are currently unknown. The effects of the unknown uses under this alternative could be less than, equivalent to, or greater than the impacts of the hospital and its related facilities under Alternative 1, depending on the nature of the development ultimately proposed by the city of Lakewood. As stated previously, these impacts would be determined through a separate NEPA analysis to be conducted at the time the unknown uses are identified.

Conclusion. No long-term adverse impacts to socioeconomic conditions would occur as a result of the proposed project. There would be negligible beneficial impacts to the area from the additional employment opportunities generated by the intermodal transit facility/TOD. Impacts to socioeconomics from development of the remaining property scheduled for disposal are currently unknown.

## **Alternative 3 (No Action)**

No adverse impacts to socioeconomics would result under Alternative 3. If the hospital and park-n-Ride remained at their existing locations, the socioeconomic demographics for the study areas would not change. Employment would not change, as hospital, RTD, and DFC employees would remain in their respective locations. Population, income, age, race and ethnicity, and other population or economic characteristics would not be affected by the No Action Alternative.

## **ENVIRONMENTAL JUSTICE**

### **AFFECTED ENVIRONMENT**

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (FHWA 1998), requires that all federal agencies address the effects of policies on minorities and low-income populations and communities, and to ensure that there would be no disproportionately high and adverse human health or environmental effects to minority or low-income populations or communities in the area.

A “minority” is defined as a person who is Black, Hispanic (regardless of race), Asian American, or American Indian and Alaskan Native. “Low-income” is defined as a household income at or below the U.S. Department of Health and Human Services poverty guideline (FHWA 1998).

The study area for analysis of potential Environmental Justice issues was determined after reviewing the location of the existing St. Anthony Central hospital location in Denver and the proposed new hospital/transit facility at the DFC, and the boundaries of the census tracts established by the U.S. Census Bureau. Study area boundaries follow the boundaries for Jefferson County Census Tracts 109.02, 112.01, 112.02, 117.01, 117.08, and 117.22 for the proposed hospital/RTD location at the DFC and Denver County Census Tracts 5.01, 7.01 and 7.02 for the existing hospital location. The study area for the proposed hospital/RTD location at the DFC is bounded by West Colfax Avenue to the north, approximately Arbutus Drive on the west, West Mississippi Avenue to the south, and South Wadsworth Boulevard to the east (Figure 4). The study area for the existing hospital location is bounded by Sheridan Boulevard to the west, approximately 12<sup>th</sup> Avenue to the south, and Federal Boulevard to the east. On the north side, the study area is bounded by West 29<sup>th</sup> Avenue on the western side near Sloan’s Lake, and West 19<sup>th</sup> Avenue on the eastern side (Figure 6).

Information regarding minority and low-income populations was obtained from the U.S. Census Bureau, the Lakewood Housing Authority, and the Denver Housing Authority. Minority populations in the study areas are based on information from the U.S. Census Bureau and were compared to the population characteristics of the county and state. The CEQ guidance states that “minority populations should be identified where either (a) the minority population of the affected area exceeds 50 percent, or (b) the population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographical analysis” (CEQ 1997).

Executive Order 12898 directs federal agencies to utilize existing law to ensure that they provide opportunities for community input in the NEPA process, including input on potential effects and mitigation measures. An invitation to the public scoping meeting on July 14, 2005, was sent to more than 1,000 stakeholders, including federal, state, and local government officials, school officers, emergency responders, and residents and businesses within 0.25 mile of the western and southern boundaries of the DFC. Flyers were sent to DFC managers and building coordinators. Display ads were also placed in the *Lakewood Sentinel* the weeks of June 27 and July 4, 2005.

### **Low-Income Populations**

Low-income status was based upon comparing the study area income to federal poverty measures determined by the U.S. Department of Health and Human Services. The CEQ guidelines do not specifically state the percentage considered meaningful in the case of low-income populations. The poverty guidelines for 2005 are an annual income of \$19,350 for a family of four, or \$12,830 for a family of two (Federal Register 2005).

According to the 2000 U.S. Census, 6.6 percent of the people living within the census tracts around the DFC (Figure 4) lived below the federal poverty measure, compared to 5.2 percent of the residents of Jefferson County. The percentage of households within these tracts that had an income of less than \$10,000 (4 percent) is the same as that of Jefferson County households. A total of 25.5 percent of people living within the census tracts around the existing hospital location in Denver (Figure 6) lived below the federal poverty measure, compared to 14 percent of the residents of the city and county of Denver. Fifteen percent of the households within these tracts had an income less than \$10,000, compared to 10 percent of the households within the city and county of Denver. Conversely, 9 percent of the people living near the DFC had an income over \$100,000, compared to 19 percent of the residents of Jefferson County, while 4 percent of the people living near the existing hospital had an income over \$100,000,

compared to 12 percent of the residents of the city and county of Denver. The average per capita income of residents within the DFC study area was \$24,277 in 1999, compared to \$28,066 for the residents of Jefferson County. The average per capita income of residents within the existing hospital study area was \$17,031 in 1999, compared to \$24,101 for the city and county of Denver (U.S. Census Bureau 2000).

Based on this analysis, the study area around the DFC is not a low-income population, although 25 low-income residence complexes or houses composed of 808 units exist in the study area. These include five larger complexes that total 761 units, and 20 smaller complexes or single-family homes or duplexes that total 47 units. The larger complexes are shown on Figure 4, and further details are given in Table 5. All of these facilities are low-income housing developments and receive federal assistance.

The study area around the existing hospital location in Denver is considered a low-income population. A total of 15 identified low-income individual houses or duplexes are located within the study area around the existing hospital location. No larger complexes are located in this study area. These 15 low-income housing units receive federal assistance.

**TABLE 5: LOW-INCOME HOUSING DEVELOPMENTS NEAR THE DENVER FEDERAL CENTER**

Name of Facility	Address	Number of Units
Ridgemoor	693 S. Urban Court	254
Foothills Green	818-846 Union Street	71
Panorama West	184 S. Zang Street	204
Maplewood	856 Van Gordon Street	132
Westland Tower	1430 Nelson Street	100
Unnamed Facility	10610-10640 W. 7 <sup>th</sup> Place	12

### **Minority Populations**

A minority population is defined as any readily identifiable group of minority persons who live in geographic proximity, or are geographically dispersed or transient persons (such as migrant workers) who will be similarly affected by a proposed program, policy, or action (FHWA 1998). Although minorities exist within the study area around the DFC, no minority populations are present within this study area. However, a large minority population of Hispanics or Latinos exists in the study area around the existing hospital location in Denver.

The population of the area near the DFC is similar in racial and ethnic diversity to Jefferson County as a whole. In the study area and county-wide, of those claiming only one race, about 85 percent identify themselves as Non-Latino White, and approximately 10 percent identify themselves as Hispanic or Latino. There are more African Americans, American Indians, Alaska Natives, Native Hawaiians or Other Pacific Islanders in the study area than in the county as a whole. There are fewer Asians living in the study area than in the county as a whole.

The population of the area near the existing hospital location tends to be more racially and ethnically diverse than the city and county of Denver as a whole. County-wide, of those claiming only one race, about half identify themselves as Non-Latino White, whereas in the study area, approximately 30 percent identify themselves as Non-Latino White, while 62 percent identify themselves as Hispanic or Latino. There are more American Indians, Alaska Natives, Native Hawaiians or Other Pacific Islanders in the study area than in the county as a whole. There are fewer African American and Asians living in the study area than in the county as a whole. Table 6 shows the racial and ethnic breakdown for both study areas, Jefferson County, and the city and county of Denver.

**TABLE 6: SOCIAL CHARACTERISTICS OF THE AFFECTED AREA - RACE & ETHNICITY**

Area	Total Population	Percentage of Population by Race & Ethnicity								Total
		Non-Latino White Alone	Black or African American Alone	American Indian or Alaska Native Alone	Asian Alone	Native Hawaiian or Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Hispanic or Latino (regardless of race)	
DFC and surrounding area (Census Tracts 109.02, 112.02, 117.01, 117.08, 117.22)	22,462	84.58%	1.04%	0.72%	2.06%	0.10%	0.19%	1.57%	9.74%	100.00%
Jefferson County	527,056	84.89%	0.82%	0.52%	2.25%	0.06%	0.10%	1.41%	9.95%	100.00%
Existing Hospital Location (Census Tracts 7.01, 7.02, & 5.01)	12,768	29.48%	2.65%	1.07%	2.15%	0.19%	0.12%	1.72%	62.62%	100.00%
City & County of Denver	554,636	51.93%	10.80%	0.69%	2.73%	0.09%	0.18%	1.91%	31.68%	100.00%

Source: U.S. Census Race and Ethnicity (2000)

According to the 2000 U.S. Census Bureau, Caucasians comprise 84.9 percent of the residents of Jefferson County. The predominant minority population is Hispanic or Latino (9.9 percent), followed by Asian (2.3 percent), African American (0.8 percent), and American Indian or Alaska Native (0.5 percent). Within the study area around the DFC, Caucasians comprise 84.6 percent of the residents, followed by 9.7 percent Hispanic or Latino, 2.1 percent Asian, one percent African American, and 0.7 percent American Indian or Alaska Native. Caucasians comprise 51.9 percent of the residents of the city and county of Denver. The predominant minority population is Hispanic or Latino (31.7 percent), followed by African American (10.8 percent), Asian (2.7 percent), and American Indian or Alaska Native (approximately 0.7 percent). Within the study area around the existing hospital location in Denver, Hispanics or Latinos comprise 62.6 percent of the population, while Caucasians represent 29.5 percent, African Americans comprise 2.7 percent, Asians comprise 2.2 percent, and American Indian or Alaska Native comprise approximately 1.1 percent.

The total minority population of the study area near the DFC (15.4 percent) is comparable to the total minority population of Jefferson County (15.1 percent) but considerably lower than the state of Colorado (25.5 percent). However, the total minority population of the study area near the existing hospital location in Denver (70.5 percent) is noticeably higher than the total minority population of the city and county of Denver (48.1 percent) and the state of Colorado (25.5 percent). Based on this analysis, the study area around the existing hospital location in Denver is a minority population.

### STANDARDS OF SIGNIFICANCE

Executive Order 12898 is designed to prevent federal policies and actions from creating disproportionately high and adverse impacts on minority and low-income populations. The order was issued as a result of concerns that minority populations and/or low-income populations bear a disproportionate amount of adverse health and environmental effects. A proposed project would result in a significant environmental justice impact if it were judged to be in conflict with the fair treatment for people of all races, cultures, and incomes. It should be noted that while GSA has control over the land

status at DFC, it has no control or input into the ultimate decision of St. Anthony Central Hospital to move from its existing location or how the property will be redeveloped.

## **IMPACTS**

### **Alternative 1**

Both low-income and minority populations exist within the study area around the existing hospital location, and multiple low-income housing facilities or individual houses exist in the study area around both the proposed project area and the existing hospital location. The addition of the hospital would have a beneficial impact on the residents around the DFC, since this area currently has limited medical facilities. The intermodal transit facility/TOD and LRT would also have a beneficial impact on the residents in the area, and would improve access to the hospital, especially for the low-income populations.

Moving the hospital to the DFC would have an initial adverse impact on all of the residents around the existing hospital location. To help mitigate that impact, a portion of the medical services provided at the existing St. Anthony Central Hospital location may remain in the neighborhood.

A joint task force has been created to explore the redevelopment options for the hospital campus. The St. Anthony Central Community Advisory Task Force, composed of neighborhood representatives, city officials, and hospital, business and real estate development representatives, will help identify opportunities and strategies to address the transformation of the existing facility into a community redevelopment complex that would improve the vitality of the surrounding neighborhood. This could include providing beneficial impacts to the minority and low-income population in the neighborhood. The adverse impact on the residents near the existing hospital location would be short-term, and would decrease over time as the area is redeveloped.

The short-term construction impacts associated with the demolition of the existing hospital and the redevelopment of the site, such as noise or traffic impacts, would equally affect everyone living in the area of the low-income and minority residences. While GSA has no jurisdiction over the ultimate disposition of the existing hospital site, the hospital board and the city of Denver have committed to work with the local neighborhoods to make sure that the needs of the community are considered during the redevelopment. As part of any redevelopment, the Colorado Coalition for the Homeless would work with the hospital board to explore ways to meet their objectives in the vicinity of the existing hospital. In addition, the City of Lakewood has agreed to work with the Colorado Coalition for the Homeless to provide services for the low-income population. Redevelopment could provide beneficial impacts in the form of job opportunities and additional services for the low-income population.

Conclusion. With mitigation measures and the commitment of the hospital and the city of Denver to work with the community, there would be no long-term disproportionate adverse impacts to minority or low-income populations as a result of Alternative 1. Adverse impacts would be short-term and would decrease over time as the hospital campus is redeveloped.

### **Alternative 2**

Multiple low-income housing facilities or individual houses exist in the study area around the DFC. The intermodal transit facility/TOD would have a beneficial impact on the residents in the area, since RTD service to the area would improve. Since the hospital would not move to the DFC under this alternative, there would be fewer adverse impacts to all the residents near the existing hospital location, regardless of their socioeconomic or minority status. However, potential beneficial impacts from redevelopment opportunities would not be available. This would not preclude the hospital moving to another location.

Impacts to environmental justice from development of the remaining property scheduled for disposal are currently unknown. The effects of the unknown uses under this alternative could be less than, equivalent to, or greater than the impacts of the hospital and its related facilities under Alternative 1, depending on the nature of the development ultimately proposed by the city of Lakewood. As stated previously, these impacts would be determined through a separate NEPA analysis to be conducted at the time the unknown uses are identified. However, it is not expected that Alternative 2 would result in disproportionately high or adverse impacts to minority or low-income populations.

Conclusion. Disproportionate adverse impacts to minority or low-income populations are not expected as a result of implementing this alternative.

### **Alternative 3 (No Action)**

The No Action Alternative would have no adverse impact on the low-income and minority populations in the study area. However, there would also be no beneficial impact since there would be no improved RTD services. Furthermore, potential beneficial impacts from redevelopment opportunities of the existing hospital campus would not be available.

## **TRAFFIC AND TRANSPORTATION**

### **AFFECTED ENVIRONMENT**

The affected environment for traffic and transportation includes surface streets, bicycle paths, and pedestrian access near the project site. This primarily includes Alameda Avenue (Alameda), Union Boulevard (Union), Kipling Street (Kipling) and the transportation network within the DFC.

The majority of the information included in this section was taken from a Traffic Impact Study performed by Krager and Associates, Inc. in October 2005 (Krager and Associates 2005). The study focused on the impacts to city streets as a result of the hospital relocation.

### **Traffic Circulation**

US Highway 6, also known as 6<sup>th</sup> Avenue, is located on the northern end of the DFC. This freeway facility is the major thoroughfare for traffic entering and exiting the study area from the east or west. Union, Alameda, and Kipling are the three major arterials in the area, bordering the DFC on the west, south, and east respectively. Along Union there are numerous local arterials, such as 1<sup>st</sup> Avenue, 2<sup>nd</sup> Place, W. 4<sup>th</sup> Avenue, and Cedar Drive. Along Alameda there are several collector streets (Swadley Street, Simms Street, and Robb Way) going south into a residential neighborhood. Eighth Street goes north into the DFC from Alameda. On the western side of the DFC, the primary arterials for circulation are Center Street (2<sup>nd</sup> Place), North Avenue (W. 4<sup>th</sup> Ave.), Main Avenue, and 12<sup>th</sup> Street. There are numerous other arterials located within the DFC for circulation on the eastern side of the complex. These arterials access Kipling at two locations, Main Avenue and Center Avenue. For security purposes, guarded gates are located at each entrance into the DFC. The roadway network is depicted in Figure 7.

### **Traffic Volumes**

Existing traffic volumes from 2005 were used as a baseline. Traffic volumes were projected for the year 2025. For Alternatives 1 and 2, traffic volumes from the traffic impact study (Krager and Associates, Inc. 2005) were used. These projections used information from the Denver Regional Council of Governments (DRCOG), the RTD, and the Institute of Transportation Engineers (ITE).



**Figure 7: Roadway Networks**

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For Alternative 3, existing traffic volumes were increased by the average growth rate for the area, approximately 2 percent per year. Traffic volumes are shown in Table 7 and are measured in vehicles per hour.

**TABLE 7: EXISTING AND FUTURE TRAFFIC VOLUMES**

	Existing (2005)		Alt. 1 (2025)		Alt. 2 (2025)		Alt. 3 (2025)	
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
On Union north of Center	3501	4152	5913	7049	5124	5912	5251	6228
On Union north of Alameda	2915	3620	4166	5225	3940	4900	4372	5430
On Alameda west of Robb Way	1900	2629	3318	4653	2641	3670	2850	3943
On Quail north of Alameda*	N/A	N/A	1381	1956	141	168	N/A	N/A
On Alameda west of Kipling	1130	1530	1734	2842	1582	2142	1695	2295
On Kipling north of Alameda	1060	2435	1571	3455	1484	3409	1590	3652

\* Proposed

Source: Traffic Impact Study, Krager and Associates, Inc. (2005)

### **Transit Service**

The Cold Spring park-n-Ride is located in the southeast corner of 6<sup>th</sup> Avenue and Union. Access to the park-n-Ride is from North Avenue. The park-n-Ride has 646 parking spaces and serves 16 bus routes (3, 9, 14, 16, 17, 21, 100, 125, 2X, 5X, 6X, 119X, CV, G, Z, and AF). At present, there is no transit service to this park-n-Ride.

### **Pedestrian and Bicycle Facilities**

The city and county of Denver has an extensive bicycle route system and completed a Bicycle Master Plan in 2001. There is a bicycle and pedestrian path along the north side of Alameda. There are also numerous sidewalks and off-street paths for bicyclists and pedestrians throughout the area.

### **STANDARDS OF SIGNIFICANCE**

The proposed project would result in a traffic and transportation impact if it contributed to an increase in vehicle traffic that could not be accommodated by the roadway network.

### **IMPACTS**

#### **Alternative 1**

Under Alternative 1, the following proposed activities or improvements were considered in determining potential impacts:

- A 380-bed hospital (900,000 square feet) and approximately 900,000 square feet of associated office and medical support buildings would be constructed.

- The Cold Spring park-n-Ride would be relocated to just north of Center Avenue. The new park-n-Ride would have approximately 1,000 spaces and be a stop on the West Corridor Light-Rail Line (RTD 2003).
- A new southern entrance, Quail Street, connecting Alameda and Center Avenue, would be constructed along the eastern edge of the proposed development (Figure 7). This street would have a signalized intersection at Alameda.
- Improvements would be made to several intersections. The intersection of Center Avenue and Union Boulevard would have dual left-turn lanes from southbound to eastbound and from westbound to southbound. A right-turn lane from westbound Center Avenue to northbound Union is included. Simms Street and Robb Way, south of Alameda Avenue, would be converted to right-in/right-out only.

In addition to the growth of existing traffic volumes, traffic would increase in the area due to the increased size of the relocated transit center, the new hospital, and associated office and medical support buildings. In addition to a park-n-Ride facility, the relocated transit center would now be a stop on the West Corridor Light-Rail Line. The hospital and associated buildings would generate additional employee, patient, visitor, and emergency traffic. This traffic would access the western side of the DFC by using Union or Alameda. Depending on the direction of travel, they would access the project area in three ways; North Avenue (from Union) on the north, Center Avenue (from Union) on the west, and Quail Street (from Alameda) on the south. This distribution would alleviate some of the increased demand. In addition, the planned intersection improvements would provide increased capacity.

Traffic volumes inside the DFC would not change as a result of this alternative. Traffic entering and exiting the DFC would mix with traffic from the transit center and hospital. This would happen on the local street network and the roadways leading to DFC gates. The new entrance at Quail Street would help reduce congestion on the roadways leading to the DFC gates.

Conclusion. Alternative 1 would result in adverse impacts to the transportation network due to traffic growth, the larger transit center, and the proposed hospital and associated buildings. While the transportation network could accommodate the increased traffic, it would result in poor levels of service at certain intersections. These poor levels of service would occur primarily during the peak periods, but could extend to longer periods of time during the day. As a result, some drivers entering and exiting the DFC might change their travel pattern to utilize the new entrance at Quail Street or shift their commute time to avoid congestion.

## **Alternative 2**

Similar to Alternative 1, the following proposed activities or improvements were considered in determining potential impacts.

- The Cold Spring park-n-Ride would be relocated to just north of Center Avenue. The new park-n-Ride would have approximately 1,000 spaces and be a stop on the West Corridor LRT (RTD 2003).
- A new southern entrance, Quail Street, connecting Alameda Avenue and Center Avenue would be constructed along the eastern edge of the proposed development (Figure 7). This street would have a signalized intersection at Alameda.
- Improvements would be made to several intersections. The intersection of Center Avenue and Union Boulevard would have dual left-turn lanes from southbound to eastbound and from westbound to southbound. A right-turn lane from westbound Center Avenue to northbound Union Boulevard is included. Simms Street and Robb Way would be converted to right-in/right-out only.

In addition to the growth of existing traffic volumes, traffic would increase in the area due to the increased size of the relocated transit center. In addition to a park-n-Ride facility, this location would now be a stop on the West Corridor Light-Rail Line. Instead of using North Street to access the Cold Spring park-n-Ride, traffic would primarily use Center Street to access the relocated transit center. Access to the transit center would be available from three directions: North Avenue (from Union) on the north, Center Avenue (from Union) on the west, and Quail Street (from Alameda) on the south. This distribution would alleviate some of the increased demand. In addition, the planned intersection improvements would provide increased capacity.

Traffic volumes inside the DFC would not change as a result of this alternative. Traffic entering and exiting the DFC would mix with traffic from the transit center and other unknown uses. This would happen on the local street network and the roadways leading to DFC gates.

Instead of a 380-bed hospital (900,000 square-feet) and approximately 900,000 square feet of associated office and medical support buildings, the project area would be used for other purposes. Those purposes are not known at this time. Therefore, impacts to transportation from development of the remaining property scheduled for disposal are currently unknown. The effects of the unknown uses under this alternative could be less than, equivalent to, or greater than the impacts of the hospital and its related facilities under Alternative 1, depending on the nature of the development ultimately proposed by the city of Lakewood. As stated previously, these impacts would be determined through a separate NEPA analysis to be conducted at the time the unknown uses are identified.

Conclusion. Alternative 2 would result in adverse impacts to the transportation network due to traffic growth and the larger transit center. These impacts would be incrementally smaller than those anticipated under Alternative 1, as there would be no hospital under Alternative 2. However, there could be additional impacts to the transportation network depending on the unknown future use of the property. Although the transportation network could accommodate the increased traffic from the transit center, it would result in poor levels of service at certain intersections. These poor levels of service would occur primarily during the peak periods. As a result, some drivers entering and exiting the DFC might change their travel pattern to utilize the new entrance at Quail Street or shift their commute time to avoid congestion.

### **Alternative 3 (No Action Alternative)**

In Alternative 3, traffic volumes are projected to increase in the project area by 50 percent over the next 20 years. This increase is due to general population and traffic growth. There would be no changes or improvements to the transportation network. The Cold Spring park-n-Ride would remain in the existing location and additional parking spaces would not be added. This facility would not be a stop on the West Corridor LRT. This would cause additional miles of vehicle travel as people would drive to the next available transit center. There would be no intersection improvements to accommodate the increased traffic demand. Quail Street, a new southern entrance into the DFC from Alameda, would not be constructed. Traffic volumes and circulation inside the DFC would not increase or change as a result of this alternative.

Conclusion. The No Action Alternative results in adverse impacts to the transportation network. This is primarily because no improvements would be constructed. Although the transportation network could accommodate the increased traffic, it would result in poor levels of service at certain intersections. These poor levels of service would occur primarily during the peak periods. As a result, some drivers entering and exiting the DFC might change their travel pattern or commute time to avoid congestion.

## **MITIGATION MEASURES**

Some mitigation measures, such as intersection improvements, have already been incorporated into the above alternatives. The following are additional potential mitigation measures.

- To provide better distribution of traffic onto the transportation network, Quail Street could be extended north to intersect with North Avenue.
- Quail Street could be extended farther north, across 6<sup>th</sup> Avenue, and into the Lakewood Industrial Park.
- Additional capacity could be added to the main thoroughfares of Union, Alameda, and Kipling.

## **PUBLIC SERVICES AND UTILITIES**

### **AFFECTED ENVIRONMENT**

#### **Fire and Police Protection**

The West Metro Fire Protection District, also referred to as the West Metro Fire/Rescue, provides fire protection services for nearly all areas within the city of Lakewood. The area in the vicinity of the DFC is located within the first-in response area for the West Metro Fire Protection District's Station Number 3, located at 95 Garrison Street, Lakewood. A separate water line system has been constructed for fire protection purposes for all major buildings at the DFC, while a separate fire alarm system has been placed in the underground communications conduits (GSA 1997b). These fire suppression lines extend into the RTD and Hospital Site Phase I project areas, and serve Building 810 immediately adjacent to the Hospital Site Phase II project area. Fire hydrants are currently located in both the RTD and Hospital Site Phase I project areas, and several are located around Building 810 (GSA 2002).

The Lakewood Police Department has authority on the lands surrounding the DFC. Police protection within the DFC is provided by the Federal Protective Services (FPS), which has exclusive jurisdiction and police authority on the DFC property. The FPS provides 24-hour security and controlled access to the DFC. Security guards under contract to the FPS are posted at security access gates along the perimeter of the DFC (GSA 1997b).

#### **Medical Facilities**

There are no hospitals within the city of Lakewood; the Lutheran Hospital in Wheat Ridge and St. Anthony Central Hospital in Denver are the closest hospitals. There are, however, numerous medical offices and health care providers within the city limits (GSA 1997b).

#### **Water Supply and Distribution System**

Most of the water supply to the city of Lakewood is provided by the Denver Water Board through 22 special districts (GSA 1997). Immediately west of the DFC, water supply is distributed by the Green Mountain Water and Sanitation District. According to information provided in the *West Corridor EIS* (RTD 2003), a water line currently extends into the area occupied by the Cold Spring park-n-Ride. It is also assumed that water supply lines serve the extensive developments immediately to the west of the project area.

The Denver Water Board supplies water to the DFC via a 16-inch line located near the corner of Kipling Street and 6<sup>th</sup> Avenue. The water is delivered to a small reservoir (wetwell) under Building 7, and is pumped from this reservoir to the rest of the DFC. DFC water lines are located throughout the transit

station/TOD and Hospital Site Phase I project areas, but do not currently extend into the Hospital Site Phase II project area. The current service lines at the DFC range from ¾ inch to 14 inches in diameter (GSA 2002).

### **Wastewater Collection and Treatment**

Nearly all of the sanitary sewer service within the city of Lakewood is provided by the Metro Denver Sewage Disposal District Number One through 18 special districts (GSA 1997b). As with water supply, the Green Mountain Water and Sanitation District provides wastewater collection lines immediately west of the DFC. It is assumed that sanitary sewer lines serve the developments immediately to the south and west of the project area.

Sanitary sewer lines at the DFC are owned and maintained by the federal government. With the exception of a few buildings at the DFC (which discharge wastewater directly to the sanitary sewer main located beneath Kipling Street), all service and main lines drain to a single common interceptor before entering the Kipling Street sewer main. Sewer service and main lines at the DFC are 4 to 12 inches in diameter, while the Kipling Street sewer main is 12 inches in diameter (GSA 1997b, 2002). As with the potable water lines, DFC sewer service and main lines are located throughout the transit station/TOD and Hospital Site Phase I project areas, but do not currently extend into the Hospital Site Phase II project area.

The Metro Sanitation District processes the wastewater generated at the DFC. All wastewater is transported to the Metro Water Reclamation District Treatment Plant in Commerce City, where it is treated and eventually discharged to the South Platte River. The estimated peak sewage flow from the DFC is approximately 1.2 cubic feet per second (cfs), while maximum capacity is 2.2 cfs (GSA 1997b, 2002).

### **Stormwater Collection**

Drainage and flood control within the city of Lakewood is provided in conjunction with the Urban Drainage and Flood Control District (GSA 1997).

McIntyre Gulch receives the majority of stormwater discharged from the areas immediately west of the project area, as well as from the DFC. In response to a master drainage study conducted in 1991, the gulch has been channelized to provide flood control and additional storage capacity; other stormwater system upgrades have also been accomplished. It flows through the project area for the proposed hospital and transit station/TOD, and existing stormwater collection system lines are located within the transit station/TOD and Hospital Site Phase I project areas (GSA 1997b). Subsurface storm sewer lines range from 4 to 60 inches in diameter (GSA 2002). Although there are no formal stormwater collection lines in the Hospital Site Phase II, the unnamed drainage ditch located along the western boundary of the DFC, as well as an unnamed drainage just west of Building 810, likely collect some stormwater from this area. These drainages discharge directly to McIntyre Gulch.

### **Solid Waste**

Solid waste is collected by private contractor(s) both within the city of Lakewood and the DFC.

### **Gas and Electricity**

Xcel Energy supplies gas and electricity to the DFC and the area immediately to the west. Natural gas is provided via underground service lines owned by Xcel, some of which occur in the vicinity of the transit station/TOD and hospital project area (GSA 1997b, 2002; RTD 2003). Known natural gas lines at the

DFC run along Main Street, and up the road along the western boundary of the transit station/TOD and Hospital Site Phase I. No known natural gas lines occur within the Hospital Site Phase II (GSA 1997b, 2002).

Electric service is provided to the developments along Union Boulevard immediately west of the project area (RTD 2003). At the DFC, electric service is provided via a 115-kilovolt, overhead conductor system to the substation between North Avenue and 6<sup>th</sup> Avenue (GSA 2002). The majority of all electric utility lines at the DFC have been upgraded and placed in an underground vault and conduit system, although some secondary electrical lines are still located on aboveground poles. The electric system upgrades also included the installation of two 15-kilovolt circuits with various aboveground high voltage boxes (GSA 1997b). Currently, DFC electrical lines extend to only the Hospital Site Phase I project area.

### **Telecommunications**

Local telephone service is generally provided by Qwest Communications. Underground telephone and fiber optic lines, as well as aboveground lines, occur in the vicinity of the project area (RTD 2003). All communication lines at the DFC have been upgraded to fiber optic technology, and these lines are buried in the same trench as the electrical lines (although in separate conduits; GSA 1997b). Currently, DFC communication lines extend to only the Hospital Site Phase I project area.

### **STANDARDS OF SIGNIFICANCE**

The proposed project would result in an adverse impact to public services if it resulted in an unacceptable burden on the West Metro Fire Protection District, the city of Lakewood Police Department, the FPS, or medical facilities. The proposed project would result in an adverse impact to utilities if the project required more capacity than the existing utility providers could supply or required services in conflict with adopted plans and policies for the area.

### **IMPACTS**

#### **Alternative 1**

##### Fire and Police Protection

Once the city of Lakewood acquires the land from GSA, the city would assume exclusive jurisdiction over the property that was disposed. It is assumed that officials from the city of Lakewood, the hospital, and RTD would coordinate with local fire and police officials to ensure that the appropriate level of protection is provided once the land is no longer under federal jurisdiction. Given the proximity of the project area to the West Metro Fire Protection District's Station Number 3, it is not anticipated that Alternative 1 would have a major adverse impact on fire protection. The Lakewood Police Department would continue to patrol the area east of Union Boulevard (given the presence of numerous private developments), and it is assumed that they would expand these patrols to include the hospital, the related facilities, and the transit station/TOD. This is not expected to adversely impact the Lakewood Police Department. Also, given that the FPS currently has jurisdiction at the DFC and conducts patrols to ensure the security of the DFC and its perimeter, there would be no adverse impacts to their services. Therefore, implementation of this alternative is not expected to have an adverse impact on police protection.

##### Medical Facilities

Implementation of Alternative 1 would have a long-term beneficial impact on medical services in the city of Lakewood, as well as in the surrounding communities. The hospital would be the only trauma center within city limits, and residents requiring hospital services, including those with medical emergencies,



would not have to travel as far to receive the care that they need. The presence of the proposed hospital would also reduce the number of patients that rely on the hospitals in surrounding communities. This would allow these medical facilities to concentrate on a smaller portion of the population, reducing possible strains on hospital services.

#### Water Supply and Distribution System

It is anticipated that water demands would increase both during and after construction. For example, water would be needed to control fugitive dust emissions during construction. It would also be needed once construction is complete to service the hospital, its related facilities, and the transit station/TOD. Water would be needed for services such as drinking supply, fire protection systems, restrooms, restaurant sites, and landscaping irrigation, as well as general building operation (boilers). Substantial upgrades to the water supply system of the Green Mountain Water and Sanitation District would likely be required to meet these demands. It is assumed that officials from the city of Lakewood, the hospital, and RTD would coordinate these additional water supply needs with the Green Mountain Water and Sanitation District, and Denver Water Board, as necessary. As a result, implementation of Alternative 1 could have long-term beneficial effects on the water suppliers by improving the infrastructure that could be used to service other customers. New water distribution lines would be needed in the project area for Alternative 1. These lines would tie into the existing municipal water supply infrastructure to the west of the DFC. Given these assumptions, Alternative 1 would not put undue strain on the ability of the Green Mountain Water and Sanitation District, or the Denver Water Board, to supply its existing customers with service.

Water supply and distribution systems for the hospital, its related facilities, and the transit station/TOD would not connect to the system that services the DFC. However, in return for the land disposed of to the city of Lakewood, GSA would receive real-property infrastructure upgrades at the DFC. Although these upgrades have not been specifically identified, implementation of Alternative 1 could have long-term beneficial effects on the water supply and distribution system at the DFC.

#### Wastewater Collection and Treatment

Operation of the hospital, the related facilities, and the transit station/TOD under Alternative 1 would increase wastewater that needs to be collected and treated. The wastewater lines required would tie into the existing municipal infrastructure located in the vicinity of the project area. Preliminary discussions with the city of Lakewood have indicated that the Green Mountain Water and Sanitation District may not be able to provide wastewater collection for the project without upgrades to the system. However, there is the possibility that the Alameda Water and Sanitation District could provide the service (Castillo personal communication, 2005). If the existing wastewater collection system is near capacity, it is assumed that officials from the city of Lakewood, the hospital, and RTD would coordinate an upgrade to the system, as necessary. As a result, implementation of Alternative 1 could have long-term beneficial effects on the wastewater collection system if infrastructure that could be used to service other customers is upgraded. Given these assumptions, Alternative 1 would not put undue strain on the capacity of the wastewater collection system.

It is assumed that a greater amount of wastewater would be produced from the proposed hospital and associated facilities when compared to the existing hospital. In addition, the new transit station/TOD would also generate additional wastewater that would have to be treated, when compared to the existing Cold Spring park-n-Ride. If the existing wastewater treatment system operated by the Metro Water Reclamation District is near capacity, it is assumed that officials from the city of Lakewood, the hospital, and RTD would coordinate an upgrade to this system. As a result, implementation of Alternative 1 could have beneficial effects on the wastewater treatment system by upgrading infrastructure that could be used

to service other customers. Given these assumptions, Alternative 1 would not put undue strain on the Metro Water Reclamation District wastewater treatment system.

None of the wastewater collection system would tie into the existing infrastructure at the DFC. However, in return for the land disposed of to the city of Lakewood, GSA would receive real-property infrastructure upgrades at the DFC. Although these upgrades have not been specifically identified, implementation of Alternative 1 could have beneficial effects on the wastewater collection and treatment system at the DFC.

#### Stormwater Collection

The existing storm sewer system, both at the DFC and off site, would remain in place. It is assumed that a stormwater system for the hospital, its related facilities, and the transit station/TOD would be developed, and would be sized adequately to handle runoff volumes from the increase in impervious surfaces. Direct runoff from the sites may need to be treated or captured in detention facilities to trap pollutants and control runoff volumes. The size and location of any detention facility would be determined based on a site plan evaluation. It is also expected that the open stormwater ditches in the project area, as well as McIntyre Gulch, may receive some surface water runoff. However, the volume of runoff that would be discharged to these existing features would be limited, given the assumption that an independent stormwater system would be established for the new developments. Therefore, Alternative 1 is not expected to have adverse impacts on stormwater collection systems.

#### Solid Waste

Service would continue to be provided by private contractors and disposed of in appropriate facilities. It is anticipated that disposal sites would be able to handle the amount of solid waste that would be generated by operation of the hospital, its related facilities, and the transit station/TOD.

#### Gas and Electricity

Demands for natural gas and electrical supply would increase both during and after construction. Construction-related increases would be primarily associated with electrical supply needed to serve on-site construction management offices. After construction, operation of the hospital, its related facilities, and the transit station/TOD would contribute to the increased demand for natural gas and electricity. As a result, additional service lines would need to be extended from existing lines available in the area. It is assumed that officials from the city of Lakewood, the hospital, and RTD would coordinate any necessary upgrades to this system with Xcel Energy. As a result, implementation of Alternative 1 could have long-term beneficial effects on the natural gas and electrical distribution system by upgrading infrastructure that could be used to service other customers. Given these assumptions, Alternative 1 would not put undue strain on the ability of Xcel Energy to provide natural gas and electricity to its existing customers.

None of the natural gas or electricity lines would tie into the existing infrastructure at the DFC. However, in return for the land disposed of to the city of Lakewood, GSA would receive real-property infrastructure upgrades at the DFC. Although these upgrades have not been specifically identified, implementation of Alternative 1 could have long-term beneficial effects on the natural gas and electrical systems at the DFC.

#### Telecommunications

As with gas and electricity, demands for telecommunication service would increase both during and after construction. Construction-related increases would be primarily associated with the infrastructure needed to serve on-site construction management offices. After construction, operation of the hospital, its related facilities, and the transit station/TOD would contribute to the increased demand for telecommunication service. As a result, additional service lines would need to be extended from the existing lines available in the area. It is assumed that officials from the city of Lakewood, the hospital, and RTD would

coordinate any necessary upgrades to this system with Qwest Communications or other providers. As a result, implementation of Alternative 1 could have beneficial effects on telecommunication systems by upgrading infrastructure that could be used to service other customers. Given these assumptions, Alternative 1 would not put undue strain on the ability of Qwest Communications or other providers to serve its existing customers.

Telecommunications service for the hospital, its related facilities, and the transit station/TOD may be connected to the existing infrastructure at the DFC. However, in return for the land disposed of to the city of Lakewood, GSA would receive real-property infrastructure upgrades at the DFC. Although these upgrades have not been specifically identified, implementation of Alternative 1 is not expected to have adverse impacts on the telecommunications system at the DFC.

Conclusion. Police and fire protection, as well as solid waste collection, would be expanded to the lands that the city of Lakewood would acquire under this alternative. New utility lines would need to be connected to existing infrastructure to provide water, wastewater, natural gas, electricity, stormwater, and telecommunications service to the buildings associated with Alternative 1. There would be no adverse impacts to public services or utilities as a result of implementing Alternative 1. Long-term beneficial effects to utility providers could occur if upgrades are made to the municipal systems. Also, in return for the land disposed of to the city of Lakewood, GSA would receive real-property infrastructure upgrades, which could have beneficial effects on the utility systems of the DFC.

### **Alternative 2**

As with Alternative 1, public and utility services would have to be expanded to cover the new transit station/TOD under Alternative 2. Impacts to utilities from the development of the transit station/TOD were considered in the *West Corridor EIS* (RTD 2003), and no long-term effects were found. Therefore, operation of the transit station/TOD under Alternative 2 would not have adverse impacts.

Impacts to public services and utilities from development of the remaining property scheduled for disposal are currently unknown. The effects of the unknown uses under this alternative could be less than, equivalent to, or greater than the impacts of the hospital and its related facilities under Alternative 1, depending on the nature of the development ultimately proposed by the city of Lakewood. As stated previously, these impacts would be determined through a separate NEPA analysis to be conducted at the time the unknown uses are identified.

In return for the land disposed of to the city of Lakewood, GSA would receive real-property infrastructure upgrades at the DFC, which could have beneficial effects on the utility systems of the DFC.

Conclusion. There would be no adverse impacts to public services and utilities from development of the transit station/TOD under Alternative 2. Impacts to public services and utilities from development of the remaining property scheduled for disposal are currently unknown. In return for the land disposed of to the city of Lakewood, GSA would receive real-property infrastructure upgrades at the DFC, which could have beneficial effects on the utility systems of the DFC.

### **Alternative 3 (No Action)**

Under the No Action Alternative, this land would continue to be owned by the GSA and managed for potential limited development and open space, in accordance with existing plans for the DFC (GSA 1997). Therefore, no impacts to public services or utilities are expected in the short-term; however, potential limited development could occur under this alternative, and therefore, long-term impacts could occur. However, these impacts are not anticipated to be major.

## **MITIGATION MEASURES**

All existing utility locations and sizes need to be located and noted prior to construction to avoid damage. Upgrades to utility systems would be coordinated between the providers and officials from the hospital, its related facilities, and the transit station/TOD. Stormwater detention and BMPs for water quality will be addressed to treat the site runoff.

## **AIR QUALITY**

### **AFFECTED ENVIRONMENT**

The regulatory structure for air quality planning in Colorado includes federal, state, regional, and local agencies. These agencies either have actual regulatory authority or are responsible for the development and implementation of programs and plans designed to reduce air pollution levels.

National air quality policies are regulated through the federal Clean Air Act (CAA). Pursuant to the CAA, the U.S. Environmental Protection Agency (USEPA) has established National Ambient Air Quality Standards (NAAQS) for the following air pollutants (termed “criteria” pollutants): carbon monoxide (CO), ozone (O<sub>3</sub>), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), particulate matter less than 10 micrometers in diameter (PM<sub>10</sub>), particulate matter less than 2.5 microns in diameter (PM<sub>2.5</sub>), and lead (Pb). The CAA was amended in 1977 to require each state to maintain a State Implementation Plan (SIP) for achieving compliance with the NAAQS. In 1990, the CAA was amended again to strengthen regulation of both stationary and motor vehicle emission sources. In 1997, USEPA promulgated new 8-hour O<sub>3</sub>, PM<sub>2.5</sub>, and regional haze standards. However, litigation delayed the implementation of these standards and it was not until April 15, 2004 that the USEPA issued their final 8-hour ozone designations.

The Colorado Air Pollution Control Division (APCD) oversees Colorado air quality policies and is responsible for preparing and submitting Colorado’s SIP to the EPA. Colorado has established state Ambient Air Quality Standards (CAAQS). The NAAQS and CAAQS are summarized in Table 8 and represent safe levels that allow for avoidance of specific adverse health effects associated with each pollutant.

The USEPA classifies air quality in an air quality control region (AQCR) or in subareas of an AQCR according to whether the concentration of criteria pollutants in ambient air exceeds the primary or secondary NAAQS. All areas within each AQCR are therefore designated as either “attainment,” “nonattainment,” or “unclassified” for each of the seven criteria pollutants. Attainment means that the air quality within an AQCR is better than the NAAQS for a criteria pollutant, as set by the USEPA. Nonattainment indicates that air quality exceeds NAAQS, while an unclassifiable air quality designation by the USEPA means that there is not enough information to appropriately classify an AQCR, so the area is considered attainment. Areas designated by the USEPA as being in nonattainment for one or more of the seven NAAQS may petition the USEPA for redesignation as a maintenance area if they are able to demonstrate they have met the national standard for the three years preceding the redesignation request.

In the past, air quality in Denver AQCR violated NAAQS for CO, O<sub>3</sub>, and PM<sub>10</sub>. In response, plans were developed for the Denver metropolitan area to attain and maintain compliance with the standards for these pollutants, including an Early Action Compact Ozone Action Plan (CDPHE 2005). This early action plan was developed because, based on the most recent three years of data (2001-03), the Front Range 8-hour ozone control area is slated to be designated nonattainment by EPA. However, by implementing the Early Action Compact, the USEPA will defer the nonattainment designation as long as the region continues to meet the terms of the agreement and demonstrates attainment by December 31, 2007.

**TABLE 8: COLORADO AND FEDERAL AMBIENT AIR QUALITY STANDARDS**

Pollutant	Averaging Time	Colorado Standards	National Standards	
			Primary	Secondary
Ozone	8-Hour <sup>3</sup>	–	0.085 ppm	0.085 ppm
	1-Hour <sup>2</sup>	0.125 ppm	0.125 ppm	0.125 ppm
CO	8-Hour <sup>1</sup>	9 ppm	9 ppm	–
	1-Hour <sup>1</sup>	35 ppm	35 ppm	–
NO <sub>2</sub>	Annual Average	100 µg/m <sup>3</sup>	100 µg/m <sup>3</sup>	100 µg/m <sup>3</sup>
SO <sub>2</sub>	Annual Average	–	80 µg/m <sup>3</sup>	–
	24-Hour <sup>1</sup>	–	365 µg/m <sup>3</sup>	–
	3-Hour <sup>1</sup>	700 µg/m <sup>3</sup>	–	1300 µg/m <sup>3</sup>
Pb	Quarterly Average	–	1.5 µg/m <sup>3</sup>	1.5 µg/m <sup>3</sup>
PM <sub>10</sub>	Annual Arithmetic Mean	50 µg/m <sup>3</sup>	50 µg/m <sup>3</sup>	50 µg/m <sup>3</sup>
	24-Hour	150 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>
PM <sub>2.5</sub>	Annual Arithmetic Mean	15 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>
	24-Hour <sup>4</sup>	65 µg/m <sup>3</sup>	65 µg/m <sup>3</sup>	65 µg/m <sup>3</sup>

Notes:

<sup>1</sup>Not to be at or above this level more than once per calendar year.

<sup>2</sup>Not to be at or above this level more than 3 days over 3 years.

<sup>3</sup>To attain standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor must not exceed 0.085 ppm.

<sup>4</sup>To attain the standard, the 3-year average of the 98<sup>th</sup> percentile concentration must not exceed this level.

µg/m<sup>3</sup> = micrograms per cubic meter; NO<sub>2</sub> = nitrogen dioxide; Pb = lead; PM<sub>10</sub> = particulate matter less than 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than 2.5 microns in diameter; ppm = parts per million; SO<sub>2</sub> = sulfur dioxide

Failure to meet the obligations of the Early Action Compact will result in immediate reversion to the traditional nonattainment process (CDPHE and RAQC 2004). As of August 2005, all communities in Colorado are considered to be in attainment with all NAAQS (CPHE 2005).

Air quality is typically good at the DFC, and is generally influenced by vehicle emissions, particulate pollution from vehicle traffic, and construction activities. The Department of Public Health and Environment (CDPHE) Air Care Colorado Program and the Colorado SIP regulate vehicle emissions in the Denver metropolitan area. However, winter air pollution can be a concern. Strong temperature inversions can lead to increased CO and particulate matter levels that impair visual air quality in the region during the winter months. APCD's High Pollution Advisory Program urges citizens to do their part to reduce winter air pollution (RAQC 2005).

### STANDARDS OF SIGNIFICANCE

The proposed project would result in an adverse air quality impact if the activities associated with its construction or operation would result in deterioration in air quality, which could include a violation of the NAAQS.

### IMPACTS

#### Alternative 1

Short-term, negligible to minor adverse impacts to air quality at the DFC are expected as a result of construction of the hospital, the related facilities, and RTD transit station/TOD. Ground disturbance associated with construction of these facilities has the potential to impact air quality by increasing fugitive emissions (i.e., dust) from exposed soil. The short-term impacts to air quality would also result from emissions from equipment used during site preparation and project construction. These activities would involve the use of heavy-duty, off-road, diesel- and gasoline-powered equipment that would generate emissions of air pollutants, namely NO<sub>x</sub>, CO, PM<sub>10</sub>, PM<sub>2.5</sub>, sulfur oxides (SO<sub>x</sub>), and VOCs. These

emissions would be short-term in nature and would not affect regional air quality or exceed NAAQS. Ozone emissions from the construction project should be negligible. According to the CDPHE APCD regulations (Regulation 3.II.D.1.j), a construction permit would be required if the project disturbs more than 25 ac or if the construction duration would be more than six months.

Once construction is completed, there is a potential for negligible, long-term adverse impacts to air quality. Given the increased employment opportunities associated with the hospital, the related facilities, and transit station/TOD, it is assumed that additional vehicle traffic on the roads surrounding the DFC would increase mobile emissions. However, the increase in traffic would be partially offset by the availability of the LRT service and expanded bus service to the DFC (i.e., a portion of the additional employees would ride the LRT and/or buses to get to the DFC, reducing the increase in the number of people who would commute by vehicle). Other mobile sources with the potential to affect air quality include the increase in bus service; the ambulances that arrive and leave the hospital; and the operation of the Flight for Life helicopter.

Currently, bus routes serve both the Cold Spring park-N-Ride facility at the northeast corner of the DFC, as well as the DFC itself. When construction is complete, the park-N-Ride facility would be closed and operations would be shifted to the new RTD transit station/TOD. It is anticipated that the number of bus routes to the new transit station/TOD, as well as to the DFC itself, would increase under Alternative 1. Impacts at the DFC from the additional bus routes would be intermittent. This increase in bus service could possibly affect air quality along the routes to and from the DFC, but it is not expected to be noticeable in an urban setting such as that surrounding the project area. In addition, ambulances do not typically sit in traffic and would not be expected to idle at the hospital for long periods of time.

Considering the Flight for Life helicopters would not be stored or serviced on site, air quality impacts at the DFC from the helicopters would be primarily limited to the start-up and shutdown operations when the aircraft is on site. Current air quality impacts from this helicopter occur along the 6<sup>th</sup> Avenue corridor when it is transporting patients to the existing hospital site in Denver, as well as during refueling trips to Westminster. The distance the helicopter would have to travel with patients from the mountains and to the refueling location would actually be reduced under Alternative 1, which could have a negligible, beneficial impact on air quality. As all of the air quality impacts from these mobile sources would be intermittent in nature, and given that impacts from additional traffic would be somewhat offset by the new LRT service and expanded bus service, it is anticipated that impacts to air quality would not exceed NAAQS.

Operational activities associated with the new buildings proposed under Alternative 1, including the use of heating and air-conditioning units and backup power generating units, would contribute to air emissions, and could potentially affect air quality over the life of the project. However, the new buildings would likely incorporate new technologies, including energy conservation strategies, which would minimize any long-term impacts from operation.

Conclusion. There would be negligible to minor short-term adverse impacts to air quality as a result of the construction, and negligible long-term adverse impacts to air quality from operation of, the proposed hospital sites and transit station/TOD. These impacts would not cause violations of the NAAQS.

## **Alternative 2**

Short-term, negligible to minor adverse impacts to air quality at the DFC are expected as a result of construction of the RTD transit station/TOD. Ground disturbance associated with construction has the potential to impact air quality by increasing fugitive emissions (i.e., dust) from exposed soil. The short-term impacts to air quality would also result from emissions from equipment used during site preparation

and project construction. These activities would involve the use of heavy-duty, off-road, diesel- and gasoline-powered equipment that would generate emissions of air pollutants, namely NO<sub>x</sub>, CO, PM<sub>10</sub>, PM<sub>2.5</sub>, sulfur oxides (SO<sub>x</sub>), and VOCs. These emissions would be short-term in nature and would not affect regional air quality. Ozone emissions from the construction project should be negligible. According to the CDPHE APCD regulations (Regulation 3.II.D.1.j), a construction permit would be required if the project disturbs more than 25 acres or if the construction duration would be more than six months.

Once construction is completed, there is a potential for negligible, long-term adverse impacts to air quality. Given the increased employment opportunities associated with the transit station/TOD, it is assumed that additional vehicle traffic on the roads surrounding the DFC would increase mobile emissions. However, the increase in traffic would be partially offset by the availability of the LRT service and expanded bus service to the DFC (i.e., a portion of the additional employees would ride the LRT and/or buses to get to the DFC), reducing the increase in the number of people who would commute by personal vehicle.

Currently, bus routes serve both the Cold Spring park-N-Ride facility at the northeast corner of the DFC, as well as the DFC itself. When construction is complete, the park-N-Ride facility would be closed and operations would be shifted to the new RTD transit station/TOD. It is anticipated that the number of bus routes to the new transit station/TOD, as well as to the DFC itself, would increase under Alternative 2. Impacts at the DFC from the additional buses would be intermittent. This increase in bus service could possibly affect air quality along the routes to and from the DFC, but this should not result in a noticeable increase in pollutant emissions. As air quality impacts from mobile sources would be intermittent in nature, and given that impacts from additional traffic would be somewhat offset by the new LRT service and expanded bus service, it is anticipated that impacts to air quality would not be considered major.

Operational activities associated with the transit station/TOD proposed under Alternative 1, including the use of heating and air-conditioning units and backup power generating units, would contribute to air emissions, and could potentially affect air quality over the life of the project. However, the new buildings would likely incorporate new technologies, including energy conservation strategies, which would minimize any long-term impacts from operation.

Impacts to air quality from development of the remaining property scheduled for disposal are currently unknown. The effects of the unknown uses under this alternative could be less than, equivalent to, or greater than the impacts of the hospital and its related facilities under Alternative 1, depending on the nature of the development ultimately proposed by the city of Lakewood. As stated previously, these impacts would be determined through a separate NEPA analysis to be conducted at the time the unknown uses are identified.

Conclusion. There would be negligible to minor short-term adverse impacts to air quality as a result of the construction, and negligible long-term adverse impacts to air quality from operation of the transit station/TOD. Impacts to air quality from development of the remaining property scheduled for disposal are currently unknown.

### **Alternative 3 (No Action)**

Under the No Action Alternative, this land would continue to be owned by the GSA and managed for potential limited development and open space, in accordance with existing plans for the DFC (GSA 1997). Therefore, no impacts to air quality are expected in the short-term; however, potential limited development could occur under this alternative, and therefore, long-term air quality impacts could occur. These impacts are not anticipated to be major.

## **MITIGATION MEASURES**

Fugitive emissions include PM<sub>10</sub> and PM<sub>2.5</sub> resulting from the ground-disturbing phase of construction activities. These emissions will be controlled through watering disturbed areas for the duration of construction activities. New building technologies, including energy conservation strategies, would likely be incorporated into the new developments.

## **GEOLOGY AND SOILS**

### **AFFECTED ENVIRONMENT**

#### **Geology**

The DFC lies in the Denver Basin, which encompasses an area of approximately 6,700 square miles. This geologic feature extends from Colorado Springs to the vicinity of the northern border of Colorado, and from the foothills west of Denver to the western edge of the northern high plains to the east (GSA 1997a).

The surficial geologic materials found at the DFC include alluvial deposits known as the Piney Creek, Broadway, and Lower Verdos Terrace. These alluvial deposits are composed of unconsolidated, stratified, poorly- to well-sorted gravel, sand, and silt materials eroded from the Front Range of the Rocky Mountains. The Denver and Arapahoe Formations underlie the alluvial material, and consist of consolidated, interbedded sandstone, siltstone, claystone, shale, and conglomerate. The depth to bedrock at the DFC varies from zero to several tens of feet (GSA 1998, 2000).

#### **Soils**

The U.S. Department of the Agriculture Soil Conservation Service (USDA-SCS), now the Natural Resources Conservation Service (NRCS), mapped soils at the DFC in 1980 (USDA-SCS 1980). Two soil types have been identified within the project area: Denver-Urban land complex, 2 to 5 percent slopes and Denver-Urban land complex, 5 to 9 percent slopes. Where these soil complexes occur, Denver soils make up approximately 65 percent of the area, and Urban land makes up about 20 percent of the area (or more). The remaining 15 percent of the soil complex comprise numerous soil types as well as small areas that are less than 20 percent Urban land, such as parks, playgrounds, vacant lots, and small fields and pastures (USDA-SCS 1980). This soil complex is not considered prime or other important farmland by the NRCS (USDA-NRCS 2004). It is also important to note that these soils have been disturbed in the past at the DFC, as a result of construction/demolition activities, remediation projects, and the presence of an old landfill in the Hospital Phase II project site.

Typically, the surface layer of Denver soils is a mildly alkaline, grayish-brown clay loam about 6 inches thick. The upper part of the subsoil is mildly to moderately alkaline, grayish-brown clay about 14 inches thick. Below this is a layer of moderately alkaline, light yellowish-brown clay that is 9 inches thick. The lower part of the subsoil is moderately alkaline, light yellowish-brown clay to a depth of 60 inches. Permeability of Denver soils is slow, and as a result, runoff rates are considered medium. Water erosion is a moderate hazard, while the shrink-swell potential of these soils is high (USDA-SCS 1980).

Streets, parking lots, sidewalks, buildings, and other impervious man-made structures generally characterize the Urban land soil type. Because Urban land is very slowly permeable or is impermeable, runoff is rapid (USDA-SCS 1980).



## **STANDARDS OF SIGNIFICANCE**

The proposed project would result in an adverse impact if regional geology were affected; if soils classified as prime and unique farmland were affected; or if the soils affected were considered unsuitable for development.

## **IMPACTS**

### **Alternative 1**

#### Geology

Development of the hospital sites and transit station/TOD would affect local geology at the DFC. The impacts to surficial, and possibly bedrock geology (depending on the extent of excavation necessary and the exact depth of bedrock in the project area) would result from the site preparation and covering of geologic features. However, there would be no adverse impacts to regional geologic features, and therefore long-term effects to geology would be considered negligible to minor.

#### Soils

Approximately 60 to 65 ac of soil mapped as Denver-Urban land complex (2 to 5 and 5 to 9 percent slopes) would be disturbed during construction and lost as a result of implementing Alternative 1, resulting in a long-term, minor adverse impact. However, this soil complex is not considered prime or unique, and has been disturbed in the past by development (roads, buildings, landfill) and remediation efforts at the DFC. Although these soils have high shrink-swell potential, this can be overcome with proper engineering design and techniques such as using deep foundations; backfilling excavated areas with material that has low shrink-swell potential; compacting the building site before construction begins; and installing surface and subsurface drains near foundations (USDA-SCS 1980).

Conclusion. Alternative 1 would have negligible long-term adverse impacts on local geology at the DFC, but would not affect regional geology. Long-term, minor adverse impacts to soils would occur from the loss of 60 to 65 acres of previously disturbed soils.

### **Alternative 2**

#### Geology

Development of the transit station/TOD would affect local geology at the DFC. The impacts to surficial, and possibly bedrock geology (depending on the extent of excavation necessary and the exact depth of bedrock in this area) would result from the site preparation and covering of geologic features. However, there would be no impacts to regional geologic features, and therefore long-term effects to geology from development of the transit station/TOD would be considered negligible to minor.

Impacts to geology from development of the remaining property scheduled for disposal are currently unknown. The effects of the unknown uses under this alternative could be less than, equivalent to, or greater than the impacts of the hospital and its related facilities under Alternative 1, depending on the nature of the development ultimately proposed by the city of Lakewood. As stated previously, these impacts would be determined through a separate NEPA analysis to be conducted at the time the unknown uses are identified.

## Soils

Approximately 20 to 65 ac of soil mapped as Denver-Urban land complex (2 to 5 and 5 to 9 percent slopes) would be lost as a result of building the RTD transit station/TOD under Alternative 2, as well as from the development of the unknown uses. This would result in a long-term, adverse impact, however, this soil complex is not considered prime or unique, and has been disturbed in the past by development (roads, buildings, landfill) and remediation efforts at the DFC. Although these soils have high shrink-swell potential, this can be overcome with proper engineering design and techniques such as using deep foundations; backfilling excavated areas with material that has low shrink-swell potential; compacting the building site before construction begins; and installing surface and subsurface drains near foundations (USDA-SCS 1980).

The area of soil that could be lost under this alternative would be dependent on the nature of the development ultimately proposed by the city of Lakewood. As a result, the effects of the unknown uses under this alternative could be less than, equivalent to, or greater than the impacts of the hospital and its related facilities under Alternative 1. As stated previously, these impacts would be determined through a separate NEPA analysis to be conducted at the time the unknown uses are identified.

Conclusion. Development of the transit station/TOD under Alternative 2 would have negligible to minor long-term adverse impacts on local geology and soils at the DFC, but would not affect regional geology. Impacts to geology and soils from development of the remaining property scheduled for disposal are currently unknown.

### **Alternative 3 (No Action)**

Under the No Action Alternative, GSA would not convey the land located on the western boundary of the DFC to the city of Lakewood. This land would continue to be owned by the GSA and managed for potential limited development and open space, in accordance with existing plans for the DFC (GSA 1997). Therefore, no impacts to geology and soils are expected in the short-term; however, potential limited development could occur under this alternative, and therefore, long-term geology and soil impacts could occur. These impacts are not anticipated to be major.

### **MITIGATION MEASURES**

The construction contractor will adhere to the terms of the general permit to discharge stormwater associated with construction activities in accordance with the National Pollutant Discharge Elimination System (NPDES) Stormwater Permit requirements and guidelines. Best management practices (BMPs) will be implemented to control runoff, erosion, and sediment transport during and after construction. The development of the proposed project will comply with federal, state, and local regulations governing sediment and erosion control during construction activities.

A Stormwater Management Plan will be submitted to CDPHE and certified prior to proposed construction activities. CDPHE regulates the NPDES Program and requires that a Notice of Intent (NOI) be submitted at least 15 days before starting construction. The permit specifies that BMPs be utilized during construction and operation of the proposed project.

GSA has developed the *Denver Federal Center Draft Stormwater Management Plan* (GSA 2003) to comply with the requirements of their small municipal separate storm sewer system permit (MS4). This plan includes construction-related BMPs that would be implemented while the land is under the jurisdiction of the Federal government. At the point of title transfer to the city of Lakewood, the city would be responsible for managing stormwater appropriately during construction. Stormwater

management may include the review of pre-construction site plans to ensure that runoff, erosion, and/or sedimentation from the activity would not have a major impact on surface waters; requirements for Erosion and Sedimentation Control Plans; and construction site inspections.

## **WATER RESOURCES**

### **AFFECTED ENVIRONMENT**

#### **Surface Water**

The proposed project site lies within the Platte River Basin, which covers approximately 21,000 square miles in northeastern Colorado, and is composed of smaller sub-basins, including the North Platte River, the Laramie River, and the South Platte River. The site is located within the South Platte River sub-basin, and the primary surface water feature in the project area is McIntyre Gulch, a perennial water course that flows west to east (see Figure 8). McIntyre Gulch eventually flows to Lakewood Gulch, near the intersections of 6<sup>th</sup> Avenue and Wadsworth Boulevard; Lakewood Gulch flows into Dry Gulch south of Colfax Avenue between Sheridan and Federal boulevards. Dry Gulch eventually flows into the South Platte River near the intersection of Interstate 25 (I-25) and Colfax Avenue, approximately 8 miles east of the DFC.

McIntyre Gulch serves as a major drainage way for the urban developments west of the DFC, and is characterized by steep channel banks, erodible soils, and high runoff velocities (GSA 1997). Within the project area, McIntyre Gulch is fed by three ditches that originate both on- and off-site, as well as by sheet flow over the ground surface. Various portions of the gulch have been altered by development over the years, including the western portion in the vicinity of the project area, which was completely realigned during the construction of Building 810 (GSA 1998). Historically, McIntyre Gulch was used as a discharge feature for stormwater and industrial waste. However, in 1942, an Industrial Wastewater Treatment Plant was constructed, and industrial waste discharges to the gulch were discontinued (GSA 1998).

In addition, Welch Ditch flows through the Hospital Site Phase II project area (see Figure 8). This is an agricultural ditch operated by the Agricultural Ditch and Reservoir Company. It does not receive any storm flows from the DFC and is often dry. Welch Ditch flows along the western boundary of the DFC and enters the property in the southwest corner. It then travels south, discharging into Smith Reservoir and then Kendrick Reservoir, approximately 2 miles south of the DFC. The Kendrick Reservoir empties into Sanderson Gulch and flows east to the South Platte River (GSA 1997b).

A third surface waterbody occurs in the project area along the western boundary of the DFC (see Figure 8). This is an unnamed, concrete-lined drainage ditch that enters the DFC in the southwestern corner, and flows north until it discharges to McIntyre Gulch. During a recent wetlands delineation, both McIntyre Gulch and this unnamed drainage ditch were assessed as Waters of the U.S. under Section 404 of the Clean Water Act (GSA 2005a). The U.S. Army Corps of Engineers (USACE) was contacted for a jurisdictional determination, and concurred with this assessment by letter dated December 1, 2005 (see Appendix A).

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**Figure 8: Water Resources**

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Currently, McIntyre Gulch and the unnamed drainage ditch receive potentially contaminated surface water discharge from several upstream sources. A number of current and former commercial businesses, including a garden center and several service stations, are located immediately west of the DFC and runoff from these facilities, as well as parking lots in the area, flows to the gulch. In addition to pollutants associated with commercial activities, sediment, trash, and other debris is carried to McIntyre Gulch, likely during storm events. Petroleum products have also reportedly been discharged to the gulch as a result of a diesel spill in the vicinity of Building 810, located east of the project area (GSA 1998).

Based on the results of water quality testing, the existing water quality at the DFC, including McIntyre Gulch and Welch Ditch, is considered generally representative of an urbanized area (GSA 1997b). Sediment and surface water sampling conducted in McIntyre Gulch in the vicinity of the project area indicated that potential contaminants of concern included semi-volatile organic compounds (such as pesticides and poly-aromatic hydrocarbons) and metals (GSA 2001).

The Clean Water Act (CWA) requires each state to develop standards for their waters to protect beneficial uses such as swimming and fishing. The CDPHE Water Quality Control Division is responsible for assigning beneficial uses to the state's surface waters. CDPHE regulates the surface water resources of the DFC as part of Segment 16 of the Upper South Platte River Basin. This segment has been classified as suitable for warm water aquatic life (Class 2), recreation (Class 2), and agriculture. However, no beneficial uses have been assigned to surface waters at the DFC specifically (CDPHE 2002).

CDPHE has developed a list of waterbodies that require development of total maximum daily loads (TMDLs). TMDLs are established to address pollutants that impair waters for beneficial uses. CDPHE has not listed any of the surface waters at the DFC amongst those waters that require TMDLs (CDPHE 2004).

The Federal Emergency Management Agency (FEMA) has mapped floodplains in the vicinity of the DFC (Map Panel numbers 08059C0285E and 08059C0305E); however, it has not performed a detailed study within the boundaries. The project area is characterized by FEMA as 'Zone D,' which indicates that flood hazards have not been determined, but are possible (FEMA 2003). Although FEMA has not mapped floodplains at the DFC, the floodplain of McIntyre Gulch and the unnamed drainage ditch in the project area has been extrapolated, and is shown in Figure 8. Approximately 2.6 ac of floodplain occurs in the project area.

## **Groundwater**

The Denver Basin aquifer system, which contains major aquifers in the Fox Hills sandstone, Laramie, and Dawson deposits, supplies water to rural and suburban residents for much of the plains area along the Front Range of the Rocky Mountains in northeastern Colorado. It underlies an area of approximately 7,000 square miles that extends from Greeley, Colorado, south to near Colorado Springs, and from the Front Range east to near Limon (USGS 1995, GSA 1997a). At the DFC, there are two primary shallow, groundwater-bearing units: an upper unit comprising saturated portions of alluvium and weathered material from the Denver Formation, and a lower unit comprising of saturated, unweathered portions of the Denver Formation (GSA 1998).

Groundwater in the upper unit generally flows from west to east/northeast, following surface hydrology at the DFC. In the southern portions of this unit, groundwater flows southeast toward McIntyre Gulch, and even discharges to the gulch in some areas. Historically, the approximate depth to groundwater in the upper unit at the DFC has ranged from 5 to 25 feet below the ground surface. Typically, the groundwater

table is highest during the spring and early summer months, and is the lowest during the fall and winter (GSA 1998).

The lower groundwater-bearing unit at the DFC typically consists of interbedded claystone, sandstone, siltstone, and shale of the Denver Formation bedrock aquifer system. Information regarding water levels and flow in this unit is limited, however, the top of this formation is generally found at about 21 to 28 feet below the ground surface. In general, the majority of groundwater flow enters the DFC property across the western boundary, and flows east, exiting at the eastern boundary (GSA 1997a, 1998, and 2000).

Recent and historic operations at the DFC have resulted in some groundwater contamination, primarily in the upper unit (GSA 1998, 2000). Currently, available information indicates that the greatest impacts to groundwater have been outside the project area, on the eastern portion of the DFC. The primary contaminant has been volatile organic compounds (VOCs). However, groundwater monitoring within the project area has shown some elevated results. These are discussed further in the Hazardous Materials and Waste section of the EA.

### **STANDARDS OF SIGNIFICANCE**

The proposed project would result in an adverse water resources impact if the project were to impact surface water/groundwater quantity; drainage or floodplains; or water quality. Adverse surface and groundwater impacts would result if existing water resources were directly or indirectly impacted from water resource extraction. Water resource requirements of the project must be balanced with available supplies, and appropriate water rights and extraction procedures must be followed. The proposed project would result in an adverse drainage or floodplain impact if the project:

- Is located in a regulatory floodplain without appropriate flood study, FEMA map revisions, and mitigation measures;
- Fails to adequately address upstream drainage as it is conveyed through the study area; or
- Changes historic drainage flows and/or patterns, potentially impacting downstream areas.

The proposed project would result in water quality impacts if federal or state water quality regulations and standards were violated or if the project did not meet water design requirements. Such violations could involve either surface water or groundwater.

### **IMPACTS**

#### **Alternative 1**

##### Surface Water

Indirect impacts to surface waters during construction could result from ground disturbances across the 60 to 65 ac, which has the potential to increase erosion and sedimentation in the project area. Also during construction, there is the potential that fuel, oil, and lubricants could be discharged from heavy equipment directly to surface waters in the project area, or could contaminate stormwater that could reach these surface waters. However, adherence to the mitigation measures described later would reduce the potential for erosion and sedimentation, as well as spills, during construction. Violations of water quality standards are therefore not anticipated during construction, and short-term adverse impacts are expected to be negligible.

To reduce potential impacts to surface waters in the project area, project officials would consider ways to avoid surface waters to the extent practical during construction and operation of the hospital, the related



facilities, and transit station/TOD under Alternative 1. However, portions of these surface waters could be routed through subsurface drainage structures (e.g., culverts) if this is not possible. This could have long-term, minor to moderate adverse impacts on surface waters, and in the case of McIntyre Gulch and the unnamed drainage ditch, would require consultation with the USACE to determine the appropriate mitigation.

Once construction is complete, increases in impervious surfaces in the project area would increase sheet flow across the ground surface, which is likely to result in an increase of stormwater discharged to the surface waters in the project area. In addition, flow velocities in these surface waters could increase if any portion is routed through a culvert. This increase in flow and/or velocity has the potential to cause erosion and downcutting in the channel, increasing sediment loads in the water. The presence of parking lots would also increase the potential for this stormwater to carry pollutants (e.g., fuels and oil from leaking vehicle lines) to the surface waters. The application of BMPs discussed below should help offset these impacts, and violations of water quality standards are therefore not anticipated. Operation of the buildings within the project area is not expected to result in direct discharges to surface water, nor would it consume surface water in the vicinity of the DFC. Therefore, long-term, negligible to minor adverse impacts to surface water are expected under Alternative 1.

Although FEMA has not mapped floodplains at the DFC, it is unlikely that the floodplain of McIntyre Gulch would be affected during construction due to the steep banks of the gulch. Riparian vegetation surrounding the gulch and unnamed drainage ditch would also be avoided to the extent practical (see Vegetation section), and would help establish construction limits outside of the floodplain. However, if impacts to the gulch or ditch cannot be avoided, up to 2.6 ac of floodplain in the project area could be lost. The loss of floodplain from the project area, the increase in stormwater discharges from the increase in impervious surfaces, as well as the potential for increased flow velocities from the use of culverts, could increase the volume and velocity of stream flows downstream of the project area. As a result, the implementation of Alternative 1 could have minor to moderate adverse impacts on floodplains.

#### Groundwater

Historically, the approximate depth to groundwater in the upper water-bearing unit at the DFC has ranged from 5 to 25 feet below the ground surface. Therefore, any excavations associated with Alternative 1 have the potential to encounter groundwater, depending on the actual depth in the project area. Should this occur, a Construction Dewatering Permit would be obtained from the Colorado Water Quality Control Division (see Mitigation Measures section).

Both during and after construction, potentially contaminated surface waters could reach groundwater by infiltration; however, no direct discharges to groundwater are expected. Withdrawals of groundwater from the aquifers in the vicinity of the DFC are not expected during construction or operation of the hospital, the related health care facilities, or transit station/TOD. The increase in impervious surface would reduce the amount of groundwater that infiltrates the aquifers underlying the project area; however, this is not expected to have a noticeable impact on water availability in these aquifers. Implementation of the requirements described in the Mitigation Measures section below would help offset impacts to groundwater, and therefore, short and long-term adverse impacts are expected to be negligible.

Conclusion. Alternative 1 could have short- and long-term, minor to moderate adverse impacts on water resources at the DFC.

## **Alternative 2**

Sources of impacts to water resources from development of the transit station/TOD under Alternative 2 would be the same as those described under Alternative 1. However, impacts to water resources from development of the remaining property scheduled for disposal are currently unknown. The effects of the unknown uses under this alternative could be less than, equivalent to, or greater than the impacts of the hospital and its related facilities under Alternative 1, depending on the nature of the development ultimately proposed by the city of Lakewood. As stated previously, these impacts would be determined through a separate NEPA analysis to be conducted at the time the unknown uses are identified.

Conclusion. Development of the transit station/TOD under Alternative 2 could have short- and long-term, negligible adverse impacts on water resources at the DFC. Impacts to water resources from development and operation of the remaining property scheduled for disposal are currently unknown.

## **Alternative 3 (No Action)**

Under the No Action Alternative, GSA would not convey the land located on the western boundary of the DFC to the city of Lakewood. This land would continue to be owned by the GSA and managed for potential limited development and open space, in accordance with existing plans for the DFC (GSA 1997). Therefore, no impacts to water resources are expected in the short-term; however, potential limited development could occur under this alternative, and therefore, long-term impacts to water resources could occur. These impacts are not anticipated to be major.

## **MITIGATION MEASURES**

The development of the proposed project will comply with federal, state, and local regulations governing construction activities. A Stormwater Management Plan will be submitted to CDPHE and certified prior to proposed construction activities. The construction contractor will comply with the terms of a general permit to discharge stormwater associated with construction activities in accordance with the NPDES Stormwater Permit. CDPHE regulates the NPDES Program and requires that an NOI be submitted at least 15 days before starting construction. The permit specifies that BMPs be utilized during construction and operation of the proposed project. BMPs will be implemented to control runoff, erosion, and sediment transport during and after construction.

GSA has developed the *Denver Federal Center Draft Stormwater Management Plan* (GSA 2003) to comply with the requirements of their small municipal separate storm sewer system permit (MS4). This plan includes construction-related BMPs that would be implemented while the land is under the jurisdiction of the Federal government. At the point of title transfer to the city of Lakewood, the city would be responsible for managing stormwater appropriately during construction. Stormwater management may include the review of pre-construction site plans to ensure that runoff, erosion, and/or sedimentation from the activity would not have a major impact on surface waters; requirements for Erosion and Sedimentation Control Plans; and construction site inspections. This plan also recommends several house-keeping measures that will be enforced, such as hazardous materials/waste storage and spill response (GSA 2003). Spill prevention, control, and countermeasure procedures would also reduce the potential for any hazardous substances used during construction or operation to infiltrate underlying aquifers or surface waters.

The project proponent would be required to coordinate with the USACE and apply for a permit under Section 404 of the Clean Water Act if there were any impacts to the channel or wetlands associated with McIntyre Gulch and/or the unnamed drainage ditch. Section 404 Nationwide Permit #39 for Residential,

Commercial and Institutional Developments could apply unless one of the following conditions were not met, in which case an Individual Section 404 Permit would be required:

- The project does not cause the loss of greater than 0.5 acre of non-tidal waters of the U.S.;
- The project does not cause the loss of greater than 300 linear feet of a stream bed (unless this criterion is waived in writing by the USACE District Engineer);
- The project does not cause more than minimal degradation of water quality or more than minimal changes to the flow characteristics of any stream; and
- The permittee establishes and maintains wetland or upland vegetated buffers next to the open waters or streams

If an Individual Permit is required, further consultation with state and federal agencies (e.g., the Colorado Division of Wildlife, EPA, U.S. Fish and Wildlife Service) would be conducted as part of the Section 404 permitting process. In either case (Nationwide or Individual Permit), the project proponent would be subject to the special conditions and restrictions of the permit, which would likely require compensatory mitigation to reduce the impacts, such as replacement of wetland and riparian habitats.

If it appears that the construction will come in contact with groundwater and that groundwater dewatering becomes necessary, a Construction Dewatering Permit must be obtained. An application for the permit must be submitted to the CDPHE Water Quality Control Division at least 30 days prior to the anticipated date of discharge. All groundwater discharges must return directly to surface waters to avoid material injury to a water right.

Post-construction stormwater controls, such as detention basins and vegetated buffer strips, will be incorporated into the final design for the hospital sites and transit station/TOD. This would help control/reduce the amount of stormwater discharged to surface waters as well as help filter out contaminants in the stormwater prior to reaching the McIntyre Gulch, the unnamed drainage ditch, or Welch Ditch.

## **VEGETATION**

### **AFFECTED ENVIRONMENT**

The DFC is located along the Front Range of Colorado, which falls within the Great Plains-Palouse Dry Steppe Province as mapped in the *Description of the Ecoregions of the United States* (Bailey 1995). Generally, this province is characterized by rolling plains and tablelands of moderate relief, and supports shortgrass prairie plant communities. Scattered trees and shrubs do occur, the majority of which are found in the floodplains along drainages. Vegetation at the DFC has been mapped and is shown in Figure 9.

A disturbed, mixed grassland is the primary plant community supported in much of the project area (GSA 2005). Introduced pasture grasses such as smooth brome (*Bromus inermis*) and crested wheatgrass (*Agropyron cristatum*) dominate these mixed grasslands at the DFC. Patches of native grasses such as blue grama (*Bouteloua gracilis*), buffalograss (*Buchloe dactyloides*), and western wheatgrass (*Agropyron smithii*) also occur, while individual yucca (*Yucca glauca*) plants can be found scattered throughout the community (GSA2005a).

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**Figure 9: Vegetation Types**

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There is a small patch of riparian woodland located in the Hospital Site Phase II. This plant community is characterized by cottonwood (*Populus deltoides*) uplands along dry swales and depressions. The understory supports the non-native smooth brome and other upland grasses, with occasional patches of sandbar willow (*Salix exigua*) (GSA 2005). The plant community structure and diversity supported in riparian woodlands make them important wildlife habitat in Colorado.

A riparian plant community is also supported along McIntyre Gulch, which bisects the two areas proposed for the hospital and its related developments, as well as along a drainage ditch on the western boundary of the DFC. Woody vegetation in this community includes plains cottonwood, peachleaf willow (*Salix amygdaloides*), sandbar willow, as well the exotics Russian olive (*Elaeagnus angustifolia*), crack willow (*Salix fragilis*) and Siberian elm (*Ulms pumilla*). Shrubs, including chokecherry (*Prunus virginianua*) and Wood's rose (*Rosa woodsii*), are supported on the upper banks. Non-native grasses and forbs also occur, including smooth brome, redtop (*Agrostis gigantean*), lambsquarters (*Chenopodium album*), and Canada thistle (*Cirsium arvense*) (GSA 2005, 2005a).

In addition, palustrine emergent, palustrine scrub/shrub, and palustrine emergent and palustrine scrub/shrub wetlands occur in the Hospital Site Phase II project area (GSA 2005a). These wetlands are described in detail later in the Wetlands section of this EA.

#### **STANDARDS OF SIGNIFICANCE**

The proposed project would have an adverse impact if it would have a considerable affect on native plant populations and would affect a relatively large area.

#### **IMPACTS**

##### **Alternative 1**

Approximately 60 to 65 ac of vegetation would be disturbed and lost as a result of implementing Alternative 1, resulting in a long-term, minor to moderate adverse impact. The majority of this acreage is mixed grassland dominated by non-native species. An isolated patch of riparian woodland with a primarily non-native understory of smooth brome and other upland grasses would be lost in the Hospital Site Phase II, and other riparian areas exist along McIntyre Gulch, the unnamed drainage ditch, and Welch Ditch. To reduce potential impacts to riparian vegetation in the project area, project officials would consider ways to avoid such areas to the extent practical during construction and operation of the hospital, the related facilities, and transit station/TOD under Alternative 1. However, if this is not possible, some riparian vegetation associated with these drainages could be lost. Up to 0.59 ac of wetland vegetation could also be lost (see Wetlands section for details). Therefore, long-term adverse impacts to vegetation would occur under this alternative; however, these impacts are not considered major. Operation of the hospital and associated facilities, as well as the transit station/TOD, would not affect vegetation.

Conclusion. Alternative 1 would result in long-term, minor to moderate adverse impacts from the loss of 60 to 65 ac of vegetation that is primarily mixed, non-native grassland, but also includes small patches of riparian and wetland plant communities.

##### **Alternative 2**

As with Alternative 1, long-term, adverse impacts to vegetation would occur. Impacts under this alternative would result from the disturbance and loss of approximately 20 to 65 ac of mixed, primarily non-native grassland. The area and type of vegetation that could be lost under this alternative would be

dependent on the nature and location of the development ultimately proposed by the city of Lakewood. As a result, the effects of constructing the unknown developments under this alternative could be less than, equivalent to, or greater than the impacts of constructing the hospital and its related facilities under Alternative 1. As stated previously, these impacts would be determined through a separate NEPA analysis to be conducted at the time the unknown uses are identified.

Operation of the transit station/TOD would not affect vegetation. Operational impacts to vegetation from the unknown uses would be dependent on the nature and location of the development ultimately proposed by the city of Lakewood. As a result, the operational effects of the unknown uses under this alternative could be equivalent to or greater than the operational impacts of the hospital and its related facilities under Alternative 1. As stated previously, these impacts would be determined through a separate NEPA analysis to be conducted at the time the unknown uses are identified.

Conclusion. Alternative 2 would result in long-term, adverse impacts from the loss of approximately 20 to 65 ac of vegetation that is mixed, primarily non-native grassland. The extent of the impacts to vegetation would be dependent on the nature and location of the development ultimately proposed by the city of Lakewood.

### **Alternative 3 (No Action)**

Under the No Action Alternative, this land would continue to be owned by the GSA and managed for potential limited development and open space, in accordance with existing plans for the DFC (GSA 1997). Therefore, no impacts to vegetation are expected in the short-term; however, potential limited development could occur under this alternative, and therefore, long-term impacts to vegetation could occur. These impacts are not anticipated to be major.

### **MITIGATION MEASURES**

To reduce potential impacts to riparian areas and wetlands in the project area, project officials would consider ways to avoid such areas to the extent practical during construction and operation of the new developments. During construction, contractor staging areas would be limited to only those areas necessary for storing equipment and materials, parking personally owned vehicles, and setting up an office in a modular facility. Construction could be phased so that staging would occur in areas planned for subsequent development, minimizing vegetation impacts.

### **WILDLIFE**

#### **AFFECTED ENVIRONMENT**

Open space at the DFC provides a variety of habitats for mammals, birds, reptiles, and amphibians. More than 40 species of mammals, 300 species of birds, and 17 species of reptiles and amphibians have the potential to occur at the DFC (GSA 2005). The following discussions identify some of the representative species that may occur in the project area based on their habitat requirements.

#### **Mammals**

Ungulates, small mammals, and carnivores all have the potential to occur at the DFC. Common species that occur in Jefferson County and that are known to or are likely to occur in the project area include: mule deer (*Odocoileus virginianus*), cottontail rabbits (*Sylvagus* spp.), deer mice (*Pemoyscus maniculatus*), thirteen-lined ground squirrels (*Spermophilustridecemlineatus*), striped skunks (*Mephitis*



*mephitis*), raccoons (*Procyon lotor*), coyote (*Canis latrans*), and red fox (*Vulpes vulpes*) (GSA 2005). Black-tailed prairie dog (*Cynomys ludovicianus*) colonies also occur in the project area, and this small mammal is described further in the Sensitive Species section of this EA.

A known coyote den does occur in the project area, north of McIntyre Gulch, in riparian habitat. This is one of six known dens at the DFC; the other five are located in the southeast portion of the DFC, near the Agricultural Ditch. Coyotes are extremely adaptable animals, and rapidly adjust to changing conditions; in urban settings such as the DFC, they can lose their fear of people and may threaten domestic pets (GSA 2005).

## **Birds**

The habitats in the project area, which include mixed grassland, riparian woodland, as well as wetlands, have the potential to support a variety of birds including raptors, wading birds, waterfowl, and migratory songbirds. The majority of these birds are protected by the Migratory Bird Treaty Act (MBTA; 16 U.S.C § 703-712), which provides that it is unlawful to pursue, hunt, capture, or kill any migratory bird, part, nest, egg, or product, manufactured or not. The U.S. Fish and Wildlife Service (USFWS) allows vacant nests to be taken, but nests with active birds, young, or the presence of eggs must be left alone. For most migratory bird species, the active nesting season in Colorado is between March and August (GSA 2005).

Raptors known to occur at the DFC, and that potentially forage or nest in the project area, include the red-tailed hawk (*Buteo jamaicensis*), Swainson's hawk (*Buteo swainsoni*), Cooper's hawk (*Accipiter cooperii*), and the great-horned owl (*Bubo virginianus*) (GSA 2005). One raptor nest was located in the Hospital Site Phase II project area in 2004, along the western boundary of the DFC in a small wooded area (GSA 2005).

Waterfowl and wading birds that may use the habitat provided by McIntyre Gulch, riparian areas, and wetlands in the project area include the blue-winged teal (*Anas discors*), mallard (*Anas platyrhynchos*), great blue heron (*Ardea herodias*), and the Canada goose (*Branta canadensis*) (GSA 2005).

Other birds with the potential to be supported in the project area include red-winged blackbird (*Agelaius phoeniceus*), American goldfinch (*Carduelis tristis*), killdeer (*Charadrius vociferus*), downy woodpecker (*Dendrocopos pubescens*), common crow (*Corvus brachyrhynchos*), yellow warbler (*Dendroica petechia*), American kestrel (*Falco sparverius*), savannah sparrow (*Passerculus sandwichensis*), western bluebird (*Sialia mexicana*), western meadowlark (*Sturnella neglecta*), American robin (*Turdus migratoris*), as well as the eastern and western kingbirds (*Tyrannus tyrannus* and *Tyrannus verticalis*, respectively). A songbird nest and tree cavity nest were both identified in a small wooded area in the western portion of the Hospital Site Phase II in 2004. Another songbird nest was also found in this site, but at the southern end of the project area near the boundary with Alameda Avenue (GSA 2005).

## **Reptiles and Amphibians**

Most of the reptile and amphibian species with the potential to occur at the DFC are uncommon and secretive; however, several species are common in the Lakewood area and are likely to occur in the project area. These include the wandering garter snake (*Thamnophis elegans*), western plains garter snake (*Thamnophis radix*), western rattlesnake (*Crotalus viridis*), bullsnake (*Pituophis melanoleucus*), and bullfrog (*Rana catesbeiana*). The northern leopard frog (*Rana pipiens*) and common garter snake (*Thamnophis sirtalis*) also have the potential to occur at the DFC, and are considered state species of special concern. As such, they are described further in the Sensitive Species section of this EA.

## **STANDARDS OF SIGNIFICANCE**

The proposed project would have an adverse impact if effects to wildlife would be obvious and would have substantial consequences to wildlife populations in the region.

## **IMPACTS**

### **Alternative 1**

During construction, the presence of heavy equipment and people in the project area has the potential to disperse wildlife into surrounding habitat already occupied by other wildlife. It is assumed that wildlife in the project area is accustomed to some noise from heavy equipment use and the presence of people associated with remediation efforts. However, dispersal of wildlife from the project area would result in higher competition with other species for available resources, such as food and cover. Also, wildlife could be inadvertently trampled by construction equipment or workers. Should lethal prairie dog control be employed, this could adversely impact non-target species that inhabit prairie dog burrows (e.g., snakes, rabbits, rodents). Therefore, construction activities are anticipated to have short- and long-term, minor adverse impacts on wildlife; however, these impacts would not be considered major.

Although project officials may consider ways to avoid McIntyre Gulch, any loss of open water habitat that results from routing the drainage through subsurface structures would represent a loss of habitat for waterfowl and wading birds that use this area. The remaining open water associated with the gulch would continue to provide habitat for such species once construction is complete. The known coyote den in the project area would be lost if the riparian area in which it occurs cannot be avoided during construction and operation of the hospital, the related facilities, and transit station/TOD. Considering the ability of the coyote to adapt to urban environments, it is anticipated that the coyotes inhabiting this den would relocate to other suitable habitat at the DFC or in the surrounding area.

The loss of approximately 60 to 65 ac of mixed grassland, riparian, and wetland habitat would have long-term, minor to moderate adverse effects on wildlife. Although dominated by non-native species, the grassland habitat is relatively important for some bird species (including those protected by the MBTA; see Sensitive Species section). In addition, black-tailed prairie dog burrows that are lost would affect other species that inhabit their burrows, such as snakes, cottontails, and other rodents. Removal of prairie dogs from this area would also reduce the prey base for other wildlife at the DFC, including raptors. The diverse vegetation in riparian and wetland areas are also important habitats for many species of wildlife (even if they support non-native vegetation), so any loss of these habitats would also affect wildlife.

Operation of the hospital, its related facilities, and the transit station/TOD would also have the potential to disturb wildlife in the open spaces surrounding the project site, due to the increased presence of people and vehicles, and the introduction of the LRT. However, considering these impacts and the mitigation measures discussed below, effects on wildlife as a result of implementing Alternative 1 are expected to be negligible.

Conclusion. Short-term, minor adverse impacts to wildlife are anticipated during construction. Long-term, minor to moderate adverse impacts would result from the loss of approximately 60 to 65 ac of habitat.

### **Alternative 2**

As with Alternative 1, short- and long-term, adverse impacts to wildlife would occur. Impacts under this alternative would result from the disturbance of wildlife during construction activities, and the loss of

approximately 20 to 65 ac of mixed, primarily non-native grassland habitat. The extent of construction-related disturbances under this alternative, as well as wildlife habitat that could be lost, would be dependent on the nature and location of the development ultimately proposed by the city of Lakewood. As a result, the effects of constructing the unknown developments under this alternative could be less than, equivalent to, or greater than the impacts of constructing the hospital and its related facilities under Alternative 1. As stated previously, these impacts would be determined through a separate NEPA analysis to be conducted at the time the unknown uses are identified.

As with Alternative 1, operation of the transit station/TOD would affect wildlife. However, operational impacts to wildlife from the unknown uses would be dependent on the nature of the development ultimately proposed by the city of Lakewood. As a result, the operational effects of the unknown uses under this alternative could be less than, equivalent to, or greater than the operational impacts of the hospital and its related facilities under Alternative 1. As stated previously, these impacts would be determined through a separate NEPA analysis to be conducted at the time the unknown uses are identified.

**Conclusion.** Short-term minor adverse impacts to wildlife are anticipated during construction. Long-term, adverse impacts would result from the loss of approximately 20 to 65 ac of habitat. The extent of the impacts to wildlife would be dependent on the nature and location of the development ultimately proposed by the city of Lakewood.

### **Alternative 3 (No Action)**

Under the No Action Alternative, GSA would not convey the land located on the western boundary of the DFC to the city of Lakewood. This land would continue to be owned by the GSA and managed for potential limited development and open space, in accordance with existing plans for the DFC (GSA 1997). Therefore, no impacts to wildlife are expected in the short-term; however, potential limited development could occur under this alternative, and therefore, long-term impacts to wildlife could occur. These impacts are not anticipated to be major.

### **MITIGATION MEASURES**

To reduce potential impacts to wildlife habitat, project officials would consider ways to avoid riparian areas and wetlands to the extent practical during construction and operation of the new developments. During construction, contractor staging areas would be limited to only those areas necessary for storing equipment and materials, parking personally owned vehicles, and setting up an office in a modular facility. Construction could be phased so that staging would occur in areas planned for subsequent development, minimizing wildlife impacts.

### **SENSITIVE SPECIES**

#### **AFFECTED ENVIRONMENT**

Threatened and endangered plant and animal species are protected under the Endangered Species Act (ESA) or Colorado State law. An endangered species is defined as any species in danger of extinction throughout all or a major portion of its range; a threatened species is one that is likely to become endangered in the foreseeable future. Other sensitive species include those listed by the Colorado Division of Wildlife (CDOW) as special concern, which receive no formal protection, but are still considered when assessing potential project impacts. These include species that have been removed from state listing within the last five years; species that are proposed for federal listing or are candidates; or

species that have experienced a downward trend in numbers or distribution in the state and warrant evaluation (CNHP 1999)

### **Federally-listed Species**

On August 1, 2005, a letter was sent to the USFWS Colorado Field Office requesting a list of threatened, endangered, and candidate species with the potential to occur in the project area at the DFC. The USFWS responded on August 11, 2005, and identified three threatened species with the potential to occur at the DFC (see Appendix A). These include the bald eagle (*Haliaeetus leucocephalus*), Ute ladies'-tresses orchid (*Spiranthes diluvialis*), and the Colorado butterfly plant (*Platanthera praeclara*). The bald eagle is not known to nest on the DFC, and is not expected to occur as a transient (GSA 2005), given the lack of suitable breeding, roosting, or foraging habitat (tall trees/cliffs in proximity to open water bodies that support food sources).

The Ute ladies'-tresses orchid is supported primarily in riparian areas, which are present in the southern portion of the project site; however, this species is not expected to occur, and was not identified during a recent wetlands delineation in the project area (GSA 2005b). Ecologists who conducted this delineation stated that the riparian habitat that is available does not exhibit the terraced topography and subsurface hydrology preferred by the Ute ladies'-tresses (Herb personal communication, 2005). The USFWS published a 90-day finding in the *Federal Register* on October 12, 2004 (69 *Federal Register* 196) that a petition to delist this plant may be warranted, and is currently undergoing a 12-month finding on the petition, as well as a 5-year status review.

Habitat for the Colorado butterfly plant includes alluvial soils on level or slightly sloping floodplains and drainage bottoms at elevations of 5,000-6,400 feet. Colonies are often found in low depressions or along bends in wide, meandering stream channels, a short distance upslope of the actual channel. Given the urban nature of the soils at the DFC, as well as the lack of meandering streams, the Colorado butterfly plant is not expected to occur.

The USFWS also noted that the potential exists for impacts from new water depletions on listed species that occur downstream in the Platter River system, including the whooping crane (*Grus americana*), interior least tern (*Sterna antillarum*), piping plover (*Charadrius melodus*), pallid sturgeon (*Scaphirhynchus albus*), and Western prairie fringed orchid (*Platanthera praeclara*). Water depletions include evaporative losses and/or consumptive uses (less return flows), and result from project elements such as construction of ponds, lakes, reservoirs, pipelines, water treatment facilities, dust control, and compaction.

### **State-Listed Species**

CDOW-maintained lists of threatened, endangered, and special concern species (NDIS 2005 and 2005a) were consulted and compared to a species list for Jefferson County (NDIS 2005b) to identify sensitive species designated by the state of Colorado with the potential to occur at the DFC. The results were then compared to existing species data for the DFC to further refine the species with the potential to occur at the DFC. Finally, the habitat requirements of the species identified were compared to the habitats supported in the project area, and known species occurrences were taken into consideration. This led to the determination that of those species listed by the state of Colorado, the black-tailed prairie dog, Preble's meadow jumping mouse (*Zapus hudsonius preblei*), the northern leopard frog, and the common garter snake were either known to or had the potential to occur in the project area.

Black-tailed prairie dog colonies occur within the project area at the DFC. Of the approximately 52.4 ac of prairie dog colonies at the DFC (GSA 2005), approximately 16.9 ac occur in the project area in four

separate areas (see Figure 10). The prairie dog colonies in the project area supported an average of 18 individuals per acre when surveyed in 2004 (GSA 2005). Although once established as a candidate species for listing under the ESA, the USFWS determined that recent distribution, abundance, and trend data indicated that the threats to the black-tailed prairie dog were not as serious as earlier believed and that the species was not likely to become endangered in the foreseeable future. A finding that the black-tailed prairie dog did not warrant listing was published in the *Federal Register* on August 18, 2004 (69 *Federal Register* 159). However, the black-tailed prairie dog is listed by the CDOW as a state species of special concern.

The northern leopard frog and common garter snake are both listed by the CDOW as state species of special concern. The northern leopard frog is typically found in riparian and open water habitats (GSA 2005), such as that associated with McIntyre Gulch, and may also use the cattail and willow wetlands in the project area. The common garter snake may occur in the mixed grassland habitat of the project area (GSA 2005).

The Preble's meadow jumping mouse also has the potential to occur at the DFC. The riparian areas of McIntyre Gulch and the adjacent uplands in the project area may provide suitable habitat for this species. Once listed as threatened under the ESA, the USFWS published a notice in the *Federal Register* on February 2, 2005 indicating its proposal to delist the Preble's meadow jumping mouse. Although the delisting has not been finalized, the DFC is located within the Denver metropolitan area block clearance zone for this species. Within this zone, there is no need for individuals or agencies to coordinate their activities with the USFWS if they would affect the Preble's meadow jumping mouse (the establishment of a block clearance zone was based on the likely absence of this species within the area, due to negative trapping surveys, and the presence of residential, commercial, and other development) (GSA 2005). However, the Preble's meadow jumping mouse is listed by the CDOW as threatened in the state of Colorado (NDIS 2005a), and is therefore protected under the guidelines established by the Colorado Non-Game, Endangered, or Threatened Species Conservation Act (Colorado Revised Statutes §33-2-101 through 108).

## **STANDARDS OF SIGNIFICANCE**

The proposed project would have an adverse effect if an individual or population of a listed species or sensitive species would be noticeably affected with a vital consequence to the individual, population, or habitat.

## **IMPACTS**

### **Alternative 1**

#### Federally-listed Species

Considering the lack of suitable habitat for the bald eagle, Colorado butterfly plant, and Ute ladies'-tresses within the project area at the DFC, impacts to these federally-listed species are not anticipated.

#### State-listed Species

Prior to construction, active prairie dog burrows within the project area would be managed in one of three ways (GSA 2005), following all applicable state and local laws. This could include active relocation (flushing and physically relocating individuals, within and/or off the DFC); passive relocation (which combines the use of exclusion fences and methods to discourage prairie dog occupancy, such as filling burrow openings with newspaper and dirt, disturbing burrow entrances by disking, and/or flooding burrows to flush individuals); or lethal control using rodenticides (GSA 2005).

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**Figure 10: Prairie Dog Colonies**

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Prairie dog relocation, both active and passive, is non-lethal, but would move this species into habitat that is likely occupied, either by other wildlife or by other prairie dogs. This would result in higher competition for available resources, such as food and cover. Rodenticide application, if employed, would result in the direct loss of individual prairie dogs. These management prescriptions would also be applied in an adequate buffer area surrounding the project sites that would be established to ensure prairie dogs do not re-colonize the site prior to construction. Therefore, prairie dog management prior to construction would have long-term minor adverse effects on individual prairie dogs. However, given that prairie dog populations are relatively stable (as evidenced in the USFWS determination that they do not warrant listing), these effects would not be considered major.

Construction activities associated with Alternative 1 have the potential to disturb or disperse prairie dogs adjacent to the project area. Given that suitable habitat for the northern leopard frog and common garter snake also occur in the project area, it is possible that, if present, these species would also be disturbed during construction, and could be dispersed to habitat that is already occupied. However, it is assumed that these species are accustomed to some noise from heavy equipment use and the presence of people associated with remediation efforts. Prairie dogs, and if present, northern leopard frogs and common garter snakes, could also be inadvertently trampled by construction equipment or workers. Therefore, short-term construction-related adverse impacts to state-listed sensitive species would be minor.

Approximately 16.9 ac of occupied prairie dog colonies that occur within the project area for Alternative 1 would be lost. In addition, suitable habitat for the northern leopard frog and common garter snake would also be lost. The increased presence of people and vehicles, and introduction of the LRT, would also have the potential to disperse prairie dogs, and if present, northern leopard frogs and common garter snakes, surrounding the project site. However, as stated above, it is assumed that these species are used to some levels of noise. Therefore, long-term, minor, adverse impacts to state-listed species would occur under Alternative 1 once construction is complete.

The DFC is located within the Denver metropolitan area block clearance zone for the Preble's meadow jumping mouse, which indicates that this species is not likely to occur within the area, due to negative trapping surveys, and the presence of residential, commercial, and other development. Therefore, impacts to the Preble's meadow jumping mouse are not expected with implementation of Alternative 1.

Conclusion. Short-term minor adverse impacts to sensitive species are anticipated during construction. Long-term, minor adverse impacts would result from the loss of suitable habitat for sensitive species, and, if employed, from lethal control of prairie dogs.

## **Alternative 2**

### Federally-listed Species

Considering the lack of suitable habitat for the bald eagle, Colorado butterfly plant, and Ute ladies'-tresses within the project area at the DFC, impacts to these federally-listed species are not anticipated.

### State-listed Species

As with Alternative 1, short- and long-term adverse impacts to sensitive species would occur. Impacts under this alternative would result from prairie dog management prior to construction; the disturbance of sensitive species during construction activities; the loss of approximately 3.5 to 16.9 ac of occupied prairie dog colonies; and the loss of suitable habitat for the northern leopard frog and common garter snake. The extent of construction-related disturbances under this alternative, as well as sensitive species habitat that could be lost, would be dependent on the nature and location of the unknown development

ultimately proposed by the city of Lakewood. As a result, the effects of constructing the unknown developments under this alternative could be less than, equivalent to, or greater than the impacts of constructing the hospital and its related facilities under Alternative 1. As stated previously, these impacts would be determined through a separate NEPA analysis to be conducted at the time the unknown uses are identified.

As with Alternative 1, operation of the transit station/TOD would affect sensitive species. However, operational impacts to sensitive species from the unknown uses would be dependent on the nature of the development ultimately proposed by the city of Lakewood. As a result, the operational effects of the unknown uses under this alternative could be less than, equivalent to, or greater than the operational impacts of the hospital and its related facilities under Alternative 1. As stated previously, these impacts would be determined through a separate NEPA analysis to be conducted at the time the unknown uses are identified.

Conclusion. Short-term adverse impacts to sensitive species are anticipated during construction. Long-term, adverse impacts would result from the loss of suitable sensitive species habitat, and, if employed, from lethal control of prairie dogs. The extent of the impacts to sensitive species would be dependent on the nature and location of the development ultimately proposed by the city of Lakewood.

### **Alternative 3 (No Action)**

Under the No Action Alternative, this land would continue to be owned by the GSA and managed for potential limited development and open space, in accordance with existing plans for the DFC (GSA 1997). Therefore, no impacts to sensitive species are expected in the short-term; however, potential limited development could occur under this alternative, and therefore, long-term impacts to sensitive species could occur. These impacts are not anticipated to be major.

### **MITIGATION MEASURES**

Prairie dog relocation may be employed where practicable, and would have less effect than lethal control. Active relocation would require a permit from the CDOW (GSA 2005). If active or passive relocation is employed, it would be carried out in a manner that would control impacts to surrounding facilities at the DFC, as well as properties adjacent to or in the vicinity of the DFC, where necessary. To reduce potential impacts, project officials would consider ways to avoid riparian areas and wetlands to the extent practical during construction and operation of the hospital, the related facilities, and transit station/TOD, which would benefit the northern leopard frog. During construction, contractor staging areas would be limited to only those areas necessary for storing equipment and materials, parking personally owned vehicles, and setting up an office in a modular facility. Construction could be phased so that staging would occur in areas planned for subsequent development, minimizing impacts to sensitive species.

### **WETLANDS**

#### **AFFECTED ENVIRONMENT**

Wetlands are important biological resources that perform many functions including groundwater recharge, flood flow attenuation, erosion control, and water quality improvement. They also provide habitat for multiple plants and animals, including special status species.

Wetlands are defined by the USACE and the USEPA based on the presence of wetland vegetation, wetland hydrology, and hydric soils. Many wetlands (and other aquatic features, including intermittent

and perennial streams) are considered waters of the U.S. by the USACE and these “jurisdictional” areas are protected under Section 404 of the CWA. The CWA requires that the USACE issue a permit for any discharge of dredged or fill material into such waters.

A wetland delineation was conducted for the project area from August 15 to 16, 2005, and the associated report (GSA 2005a) is incorporated by reference. Eleven wetlands associated with four drainages and one seep totaling 0.92 ac were delineated in and adjacent to the Hospital Site Phase II project area, as depicted in Figure 11. All wetlands were classified as palustrine emergent (PEM), palustrine scrub/shrub (PSS), or palustrine emergent and palustrine scrub/shrub (PEM/PSS), as shown in Table 9 (GSA 2005a). The USACE was contacted for a jurisdictional determination of these wetlands, and provided a response by letter dated December 1, 2005 (see Appendix A). Based on their assessment, all but one of the wetlands identified, Wetland S, was considered jurisdictional by the USACE.

**TABLE 9: WETLANDS WITHIN AND ADJACENT TO THE PROJECT AREA**

Wetland Areas	Wetlands in Area <sup>1</sup>	Size (acres)	Classification <sup>2</sup>	Jurisdictional <sup>3</sup>
McIntyre Gulch (MG) Wetlands	MG1, MG2, MG3, MG4	0.03	PSS and PEM/PSS	Yes
Drainage 1 Wetlands (DR 1)	DR1-1, DR1-2, DR1-3	0.10	PEM/PSS	Yes
Drainage 2 Wetlands (DR 2)	DR2-1, DR2-2	0.42	PEM (some PSS)	Yes
Drainage 3 Wetlands (DR 3)	DR3	0.01	PEM	Yes
Wetland S (Seep)	S	0.36	PSS	No
TOTAL		0.92		

<sup>1</sup>Wetland DR2-1, and the majority of Wetland DR2-2, are located immediately adjacent to the Hospital Site Phase II, between this site and Building 810.

<sup>2</sup>Classification based on Cowardin, et al. (1979)

<sup>3</sup>See Appendix A for USACE jurisdictional determination letter.

The vegetation of these wetlands is described in the following sections, and is based on the discussion in the *Final Wetland Delineation Report for the Potential Development of the Western Portion of the Denver Federal Center, Jefferson County, Colorado* (GSA 2005a).

**McIntyre Gulch Wetlands**

McIntyre Gulch wetlands occur as fringe wetlands along sections of the gulch (0.02 ac in Wetland MG-2, MG-3, and MG-4) and on a sandbar (0.01 ac in Wetland MG-1, approximately 100 ft long) that splits the active channel. These wetlands are primarily dominated by sandbar willow (*Salix exigua*) with some emergent vegetation including soft stem bulrush (*Schoenoplectus tabernaemontani*), as well as the non-natives curlytop knotweed (*Polygonum lapathifolium*) and reed canarygrass (*Phalaris arundinacea*). Other plant species observed in the wetland included cloaked bulrush (*Scirpus pallidus*), fringed willowherb (*Epilobium ciliatum*), wild mint (*Mentha arvensis*), and the non-native spotted ladysthumb (*Polygonum persicaria*).

**Drainage 1 Wetlands**

Drainage 1 wetlands are fringe wetlands supported along the unnamed drainage ditch on the western side of Hospital Site Phase II (see Figure 11). These wetlands extend from the south end of the study area, north to a 10-ft high concrete drop structure with a small pocket of wetland at the northern end of the drainage. Dominant wetland vegetation observed included sandbar willow, panicked bulrush (*Scirpus microcarpus*), soft stem bulrush, and fringed willowherb. The non-natives spotted ladysthumb, reedtop,

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**Figure 11: Wetlands**

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and timothy (*Phleum pratense*) were also supported. Other plant species observed in the wetland included common spikerush (*Eleocharis palustris*), broadleaf cattail (*Typha latifolia*), and wild mint, as well as the non-natives curlytop knotweed, reed canarygrass, curly dock (*Rumex crispus*), barnyardgrass (*Echinochloa crus-galli*), hairy evening-primrose (*Oenothera villosa*), and poison hemlock (*Conium maculatum*).

#### Drainage 2 Wetlands

Drainage 2 is located immediately east of the Hospital Site Phase II project area and contains two wetlands (see Figure 11). Dominant wetland vegetation observed included sandbar willow, common spikerush, common duckweed, narrowleaf cattail (*Typha angustifolia*), broadleaf cattail, and the non-native poison hemlock. Other plant species observed in the wetland included Torrey's rush (*Juncus torreyi*), showy milkweed (*Asclepias speciosa*), wild mint, and the non-natives reedtop, jointleaf rush (*Juncus articulatus*), annual rabbitsfoot grass (*Polypogon monspeliensis*), and crack willow.

#### Drainage 3 Wetlands

Drainage 3 is located at the southwest end of Drainage 1 and appears to carry stormwater to Drainage 1 from the west (see Figure 11). Wetland vegetation observed was dominated by non-natives, such as spotted ladysthumb, curly dock, barnyardgrass, poison hemlock, and reedtop. Native species observed in the wetland included sandbar willow.

#### Wetland S (Seep)

Wetland S is located in a filled meander scar of McIntyre Gulch that was part of the channel before it was straightened (see Figure 11). Dominant wetland vegetation observed in Wetland S included sandbar willow, showy milkweed, and the non-natives poison hemlock and Canada thistle.

### **STANDARDS OF SIGNIFICANCE**

The proposed project would have an adverse impact if it would have a considerable affect on wetlands regulated by the USACE and would affect a relatively large area.

### **IMPACTS**

#### **Alternative 1**

Wetlands that would potentially be impacted under Alternative 1 are limited to those identified in and adjacent to the Hospital Site Phase II (wetlands were not identified in the Hospital Site Phase I or the transit station/TOD project areas during a 2005 wetlands delineation [GSA 2005a]). During construction, erosion and sedimentation, as well as the potential for spills of fuel and oil from construction activities, could cause short-term degradation of wetlands within and adjacent to the project area. This would be limited to construction in Hospital Site Phase I and Phase II, given that construction in the transit station/TOD project area is more than 1,200 ft from any wetlands. However, adherence to the mitigation measures described later would reduce the potential for erosion and sedimentation, as well as spills, during construction. Therefore, short-term, adverse impacts to wetlands are anticipated to be negligible.

The long-term loss of wetland habitat would result from implementation of Alternative 1. To reduce potential impacts to wetlands in the project area, project officials would consider ways to avoid such areas to the extent practical during construction and operation of the hospital, the related facilities, and transit station/TOD under Alternative 1. However, portions of McIntyre Gulch could be routed through subsurface drainage structures if this is not possible. This could result in the loss of up to 0.03 acre of

wetlands supported by the gulch (Wetlands MG1, MG2, MG3, and MG4). In addition, if the fringe wetlands along the unnamed drainage ditch cannot be avoided, up to 0.10 acres of wetlands (Wetland DR1-1, DR1-2, and DR1-3) may also be permanently lost. Other wetlands that would likely be lost include Wetland S, and a small portion of Wetland DR2-2. This would result in the additional loss of approximately 0.46 ac of wetland. Therefore, a total of approximately 0.59 ac of wetland habitat could be lost as a result of implementing Alternative 1. Of this total, approximately 0.23 acre of wetland is considered jurisdictional by the USACE and would require mitigation to offset impacts if they were lost. Therefore, implementation of Alternative 1 would have negligible to minor adverse impacts from the loss of wetland habitat.

Once construction is complete, increases in impervious surfaces in the project area would increase sheet flow across the ground surface, which is likely to result in an increase of stormwater discharged to wetlands in and adjacent to the project area. A corresponding increase in flow in McIntyre Gulch has the potential to cause erosion and downcutting in the channel, increasing sediment loads that could affect the sandbar wetland in the gulch (if it is preserved). The presence of parking lots would also increase the potential for this stormwater to carry pollutants (e.g., fuels and oil from leaking vehicle lines) to the wetlands in and around the project area. The application of BMPs discussed below should help offset impacts to the wetlands. Therefore, potential long-term, adverse impacts (including the potential loss of wetland habitat) associated with operation of the new developments under Alternative 1 are expected to be negligible.

Conclusion. Potential impacts to wetlands during construction would be short-term and negligible from potential erosion, sedimentation, and spills of fuels and oil. The loss of up to 0.59 ac of wetland habitat would have long-term adverse effects, as would the potential for an increase in contaminated surface water as a result of increased impervious surfaces. However, mitigation measures coordinated with the USACE would minimize impacts associated with the loss of jurisdictional wetlands. Operations of the new developments, and the loss of wetland habitat, under Alternative 1 would have negligible to minor, long-term adverse impacts.

## **Alternative 2**

As with Alternative 1, impacts to wetlands under this alternative could result from construction-related activities, and the long-term loss of up to 0.59 ac of wetland habitat. Construction of the transit station/TOD is not expected to affect wetlands, as this site is located more than 1,200 feet from any wetland area. However, the extent of construction-related impacts under this alternative, as well as wetland habitat that could be lost, would be dependent on the nature and location of the unknown development ultimately proposed by the city of Lakewood. As a result, the effects of constructing the unknown developments under this alternative could be less than, equivalent to, or greater than the impacts of constructing the hospital and its related facilities under Alternative 1. As stated previously, these impacts would be determined through a separate NEPA analysis to be conducted at the time the unknown uses are identified.

Operation of the transit station/TOD is not expected to affect wetlands, as this site is located more than 1,200 feet from any wetland area. Operational impacts to wetlands from the unknown uses would be dependent on the nature and location of the development ultimately proposed by the city of Lakewood. As a result, the operational effects of the unknown uses under this alternative could be less than, equivalent to, or greater than the operational impacts of the hospital and its related facilities under Alternative 1. As stated previously, these impacts would be determined through a separate NEPA analysis to be conducted at the time the unknown uses are identified.



Conclusion. Potential impacts to wetlands during construction would be short-term as a result of erosion, sedimentation, and spills of fuels and oil. The loss of up to 0.59 ac of wetland habitat would have long-term adverse effects, as would the potential for an increase in contaminated surface water as a result of increased impervious surfaces. The extent of the impacts to wetlands would be dependent on the nature and location of the development ultimately proposed by the city of Lakewood, and mitigation required by the USACE.

### **Alternative 3 (No Action)**

Under the No Action Alternative, GSA would not convey the land located on the western boundary of the DFC to the city of Lakewood. This land would continue to be owned by the GSA and managed for potential limited development and open space, in accordance with existing plans for the DFC (GSA 1997). Therefore, no impacts to wetlands are expected in the short-term; however, potential limited development could occur under this alternative, and therefore, long-term impacts to wetlands could occur. These impacts are not anticipated to be major.

### **MITIGATION MEASURES**

To reduce potential impacts to wetlands in the project area, project officials would consider ways to avoid such areas to the extent practical during construction and operation of the new developments.

Although these measures are intended to protect water resources, they also serve to mitigate impacts to wetlands. The development of the proposed project will comply with federal, state, and local regulations governing construction activities. A Stormwater Management Plan will be submitted to CDPHE and certified prior to proposed construction activities. The construction contractor will comply with the terms of a general permit to discharge stormwater associated with construction activities in accordance with the NPDES Stormwater Permit. CDPHE regulates the NPDES Program and requires that an NOI be submitted at least 15 days before starting construction. The permit specifies that BMPs be utilized during construction and operation of the proposed project. BMPs will be implemented to control runoff, erosion, and sediment transport during and after construction.

As per the July 2003 *Denver Federal Center Draft Stormwater Management Plan* (GSA 2003), GSA would review pre-construction site plans to ensure that runoff, erosion, and/or sedimentation from the activity will not have a major impact on McIntyre Gulch. This plan also recommends several house-keeping measures that will be enforced, such as hazardous materials/waste storage and spill response (GSA 2003). Spill prevention, control, and countermeasure procedures would also reduce the potential for any hazardous substances used during construction or operation to be discharged to wetlands.

The project proponent would be required to apply for a permit under Section 404 of the Clean Water Act if there were any impacts to the channel or wetlands associated with McIntyre Gulch and/or the unnamed drainage ditch. Section 404 Nationwide Permit #39 for Residential, Commercial and Institutional Developments could apply unless one of the following conditions were not met, in which case an Individual Section 404 Permit would be required:

- The project does not cause the loss of greater than 0.5 ac of non-tidal waters of the U.S.;
- The project does not cause the loss of greater than 300 linear feet of a stream bed (unless this criterion is waived in writing by the USACE District Engineer);
- The project does not cause more than minimal degradation of water quality or more than minimal changes to the flow characteristics of any stream; and

- The permittee establishes and maintains wetland or upland vegetated buffers next to the open waters or streams

If an Individual Permit is required, further consultation with state and federal agencies (e.g., the Colorado Division of Wildlife, EPA, U.S. Fish and Wildlife Service) would be conducted as part of the Section 404 permitting process. In either case (Nationwide or Individual Permit), the project proponent would be subject to the special conditions and restrictions of the permit, which would likely require compensatory mitigation to reduce the impacts, such as replacement of wetland and riparian habitats.

Post-construction stormwater controls, such as detention basins and vegetated buffer strips, will be incorporated into the final design for the hospital sites and transit station/TOD. This would help control/reduce the amount of stormwater discharged to wetlands, as well as help filter out contaminants in the stormwater prior to reaching the wetlands.

## **NOISE AND VIBRATIONS**

### **AFFECTED ENVIRONMENT**

#### **Noise**

Noise is defined as unwanted sound. Sounds are described as noise if they interfere with an activity or disturb the person hearing them. Sound pressure levels are commonly measured in a logarithmic unit called a decibel (dB). The human ear is not equally sensitive to all sound frequencies, being generally less sensitive to very low and very high frequency sounds. Therefore, sound levels in standard frequency bands are weighted differentially to correspond more closely to the frequency response of the human ear and the human perception of loudness. Such weighted sound levels are designated as A-weighted and measured in units of dBA.

For the average person, a 10-dBA increase in the measured sound level is subjectively perceived as being twice as loud, and a 10-dBA decrease is perceived as half as loud. The decibel change at which the average human would indicate that the sound is just perceptibly louder or perceptibly quieter is 3 dBA. There is generally a 10-dBA reduction in sound level for each doubling of distance from a noise source due to spherical spreading loss (e.g., if the sound level at 25 ft from a piece of construction equipment was 86 dBA, the sound level at 50 ft would be expected to be 76 dBA, at 100 ft 66 dBA, etc.). Typical sound levels experienced by people range from about 40 dBA in a quiet living room, to about 85 dBA on a sidewalk adjacent to heavy traffic. Table 10 provides a list of typical noise levels.

The general principle on which most noise acceptability criteria are based is that a perceptible change in noise is likely to cause annoyance wherever it intrudes upon the existing ambient sound; that is, annoyance depends upon the sound that exists before the introduction of the new sound. The proposed project is subject to the city of Lakewood's Noise Control Ordinance (Lakewood City Code, Title 9, Chapter 9.52), as well as the Jefferson County Noise Abatement Regulation (Jefferson County Regulatory Policy, Chapter 5.90).

The area surrounding the proposed project site consists of a variety of developments and transportation corridors that are sources of noise. Ambient noise levels in the corridor that includes the DFC, as recorded during preparation of the *West Corridor EIS* range from 52 to 71 dBA (RTD 2003).

**TABLE 10: TYPICAL NOISE LEVELS**

Noise Level (dBA)	Noise Source
140	Jet Engine
130	Threshold of Pain
115-120	Amplified Rock Band
105-115	Commercial Jet Takeoff at 200 feet
100	Ambulance siren at 100 feet
95-105	Community Warning Siren at 100 feet
85-95	Busy Urban Street
75-85	Rail Transit at 50 feet; Construction Equipment at 50 feet
65-75	Freeway Traffic at 50 feet
55-65	Normal Conversation at 6 feet
45-55	Typical Office Interior
35-45	Soft Radio Music
25-35	Typical Residential Interior
15-25	Typical Whisper at 6 feet
5-15	Human Breathing
0-5	Threshold of Hearing

Several DFC buildings and access roads are located just to the north and east of the project area, including a complex of small buildings to the north (to be demolished, see below); and Building 810, Building 95, as well as Buildings 85 and 85A, to the east. Residential developments occur to the south of Alameda Avenue, which borders the southern boundary of the DFC in the project area. To the west, along the Union Boulevard corridor, there are numerous mixed office, commercial, and retail areas. Some buildings and parking lots are within approximately 125 ft of the western boundary of the DFC.

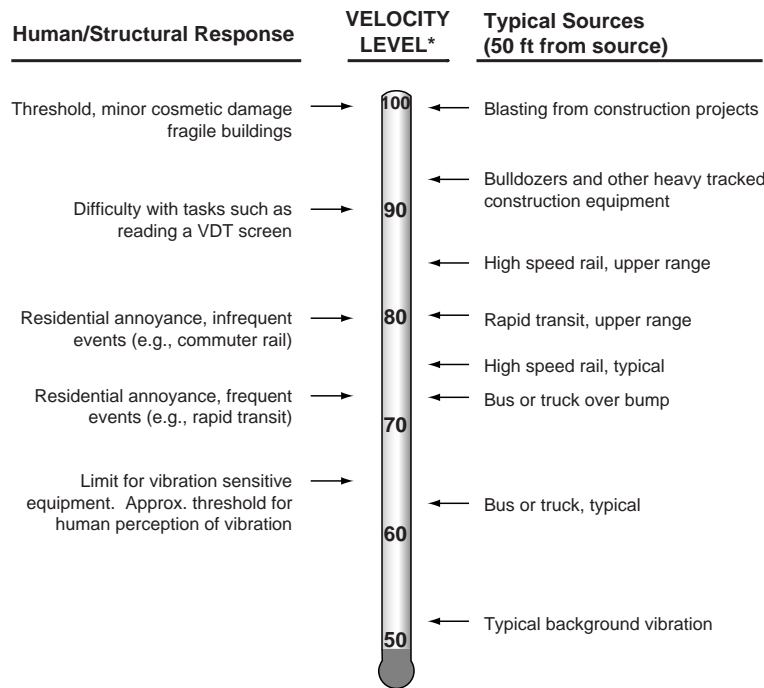
Within the project area, the western entrance at Center Avenue provides access through the project area to the developed core of the DFC. Main Street, which provides access to the southwestern portion of the DFC from the main entrance on Kipling Street, enters the project area from the east, just south of the USGS lab. There are also several small buildings within project area for the RTD and Hospital Site Phase I that are served by smaller access roads.

Most of the buildings currently surrounding the project area, as well as those within the development footprint for the proposed projects have either been demolished, or are scheduled for demolition. There are also ongoing remediation efforts in the project area to remove asbestos-containing soils as well as buried steam pipes. The operation of heavy equipment associated with these activities, including vehicles hauling debris from the project area for off-site disposal, contributes to existing noise in the project area.

**Vibrations**

Groundborne vibration is the oscillatory motion of the ground about some equilibrium position, and is typically described in terms of velocity for evaluating impact. Vibration above certain levels can damage buildings, disrupt sensitive operations, and cause discomfort to humans within buildings. Figure 12 illustrates typical groundborne vibration levels for common sources, as well as criteria for human and structural response to groundborne vibration. As shown, the range of interest is from approximately 50 vibration decibels (VdB) to 100 VdB, from imperceptible background vibration to the threshold of damage. Although the threshold of human perception to vibration is approximately 65 VdB, annoyance is not usually major unless the vibration exceeds 70 VdB.

**Figure 12: Typical Ground-Borne Vibration Levels and Criteria**



\* RMS Vibration Velocity Level in VdB relative to 10<sup>6</sup> inches/second

Source: U.S. Federal Transit Administration 1995.

Airborne sound waves can also cause vibrations to structures. Studies have shown sound levels reaching a home or other structure must be greater than 137 decibels to cause any damage (USACHPPM 2005a).

Most of the buildings currently surrounding the project area, as well as those within the development footprint for the proposed projects have either been demolished, or are scheduled for demolition. There are also ongoing remediation efforts in the project area to remove asbestos-containing soils as well as buried steam lines. The operation of heavy equipment associated with these activities, including vehicles hauling debris from the project area for off-site disposal, contributes to existing vibrations in the project area.

### STANDARDS OF SIGNIFICANCE

The proposed project would result in an adverse noise or vibration impact if it resulted in conditions that violated established noise guidelines or if there are long-term increases in the number of people highly annoyed by the noise/vibrational environment. Adverse impacts would also occur if there are noise-associated adverse health effects to individuals; or if there are unacceptable increases to the noise environment for sensitive receptors. A sensitive receptor is any person or group of persons in an environment where low noise levels are expected, such as schools, day cares, hospitals, and nursing homes.

## **IMPACTS**

### **Alternative 1**

#### Noise

Heavy equipment use during construction activities associated with the proposed hospital sites and transit station/TOD would increase noise in the project area. Construction activities would be of a short-term nature, and depending on the nature of the construction operations, would last from seconds (e.g., a truck passing by) to months (e.g., constructing a building). Construction noise, which typically ranges from 75-80 dBA at 50 ft, is also intermittent and depends on the type of operation, location, and function of the equipment, as well as the equipment usage cycle. The buildings closest to the project area (within approximately 50 to 100 ft) include some structures outside of the DFC near the Hospital Site Phase II, as well as Building 810 at the DFC. Buildings 85 and 95 at the DFC are located approximately 200 ft and 150 ft from the project area, respectively.

While the proposed project is being built, adjoining properties in the study area would be exposed to noise from construction activities. The construction activities would result in adverse and short-term noise impacts to the closest buildings (within approximately 50 to 100 ft, such as Building 810), as noise levels would range from 65 dBA to 80 dBA (based on a 10 dBA reduction with a doubling of distance from the source). These activities would have less of an effect on the other buildings (which are approximately 150 to 200 ft away), as natural attenuation is expected to reduce construction-related noise levels to approximately 55-70 dBA. In addition, it is assumed that some construction noise is common in the project area, considering the heavy equipment use associated with demolition and remediation activities at the DFC. There are no sensitive receptors (e.g., schools, day cares, hospitals, and nursing homes) in or adjacent to the project area, and therefore, construction-related noise impacts are expected to be minor.

Once construction is complete, the Flight for Life helicopter and LRT trains that would pass through the transit station would be the primary sources of noise near the project area. It is anticipated that, on average, less than two flights would occur with patients daily, and that the majority of these would occur in July, August, and during the ski season. During level flyovers, helicopters typically produce approximately 78 to 87 dBA at 500 feet. During takeoff and approach, noise levels are typically range from 75 to 91 dBA at 500 feet (FAA 1985). This would not only affect the areas immediately adjacent to the project site, but also receptors along the flight path; however, impacts would be intermittent and generally temporary.

Considering the Flight for Life helicopters would not be stored or serviced on site, the increased noise is likely to be noticed most during the start-up and shutdown of the aircraft at the hospital site. These operations would result in adverse but intermittent noise impacts to the buildings closest to the Hospital Site Phase I (depending on exactly where the helicopter pad is located). The receptors along the flight paths would only be affected temporarily when the helicopter passes overhead. The current flight path along the 6<sup>th</sup> Avenue corridor would continue to serve the new hospital location, and therefore, existing noise levels along this route would stay the same. In fact, the flight path would be scaled back under Alternative 1 when compared to the distance the helicopter travels to the existing hospital site. This would have a beneficial effect by reducing the number of receptors affected by helicopter noise. Therefore, long-term, minor adverse impacts would occur from operation of the Flight-for-Life helicopter.

Approximately 120 ambulances are expected to enter and leave the hospital location under Alternative 1, of which 12 are expected to produce additional noise from sirens. Ambulances typically produce 100 dB

at 100 ft (USACHPPM 2005), which would affect areas immediately adjacent to the hospital site, as well as receptors along the routes used by the emergency vehicles. The primary arteries from which ambulances would access the proposed hospital site would be Union Boulevard and Alameda Avenue, by route of 6<sup>th</sup> Avenue or Kipling Street, respectively. The receptors along the roads and adjacent to the hospital would only be affected for a short period, when the ambulances pass by, or depart/arrive the hospital site. As a result, long-term, minor adverse impacts to noise from the operation of ambulances would occur.

The primary sources of noise from operation of buildings within the hospital sites would be high voltage heating, ventilating, and air-conditioning systems (HVAC); back-up generators (when operated); maintenance activities; and vehicle movement in and out of the parking areas (a combination of car pass, car horn, and door slamming noise). Operation of a hospital would have long-term, negligible adverse impacts.

Noise impacts from the transit station/TOD were evaluated in detail in the *West Corridor EIS* (RTD 2003). The most likely source of increased noise would be intermittent LRT trains, which produce noise in the range of 75-80 dB when operated at grade (RTD 2003). Although this would have long-term, adverse effects, the *West Corridor EIS* determined that operation of the transit station/TOD would not have moderate or severe impacts on any structures at or in the vicinity of the DFC, and therefore noise mitigation was not required (RTD 2003). Therefore, operation of the transit station/TOD under Alternative 1 would not have major impacts.

Traffic noise, which typically generates 65-75 dBA, is a component of the ambient sound levels for the corridor in which the DFC occurs (RTD 2003). Given the increased employment opportunities associated with the hospital, its related facilities, and the transit station/TOD, it is assumed that additional vehicle traffic would occur primarily during rush hour. However, the increase in traffic would be partially offset by the availability of the LRT service and expanded bus service to the DFC (i.e., a portion of the additional employees would ride the LRT and/or buses to get to the DFC, reducing the number of people that would commute by vehicle). The additional traffic would increase the duration of traffic noise on roads outside of the DFC, which would have negligible adverse impacts on the ambient noise levels in or surrounding the project area.

#### Vibrations

Heavy equipment use during construction activities associated with the proposed hospital sites and transit station/TOD would increase vibrations in the project area. Construction activities would be of a short-term nature, and depending on the nature of the construction operations, would last from seconds (e.g., a truck passing by) to months (e.g., constructing a building). Vibrations from construction, which are approximately 90 VdB at 50 ft, are also intermittent and depend on the type of operation, location, and function of the equipment, and the equipment usage cycle.

The buildings closest to the project area (within approximately 50 to 100 ft) include some structures outside of the DFC adjacent to the Hospital Site Phase II, as well as Building 810 at the DFC. Buildings 85 and 95 at the DFC are located approximately 200 and 150 ft from the project area, respectively. The construction activities could result in intermittent effects to these buildings, but would not cause any structural damage. In addition, natural attenuation of the vibrations over the approximately 150- to 200-ft distance to Buildings 85 and 95 would reduce VdB levels. Noise from construction would not be expected to be above 137 dBA during construction, and therefore, airborne vibrations are not expected. It is also assumed that some vibration from construction equipment is common in the project area, considering the heavy equipment use associated with demolition and remediation activities at the DFC.

Therefore, vibrations from construction activities are anticipated to have short-term, negligible to minor adverse impacts.

Once construction is complete, the Flight for Life helicopter and LRT trains that would pass through the transit station would be the primary sources of vibrations near the project area. It is anticipated that, on average, less than two flights would occur with patients daily, and that the majority of these would occur in July, August, and during the ski season. This would not only affect the areas immediately adjacent to the project site, but also receptors along the flight path; however, impacts would be generally intermittent and temporary.

Considering the Flight for Life helicopters would not be stored or serviced on site, the increase in vibrations is likely to be noticed most during the start-up and shutdown of the helicopter at the hospital. These operations would result in temporary vibration impacts to the buildings closest to the Hospital Site Phase I (depending on exactly where the helicopter pad is located), but would not cause any structural damage. In addition, natural attenuation of the vibrations over the approximately 150- to 200-ft distance to Buildings 85 and 95 would reduce VdB levels. Noise from operation of the helicopter would not be expected to be above 137 dBA, and therefore, airborne vibrations are not expected.

The receptors along the flight paths would only be affected for a short period when the helicopter passes overhead, which is not expected to have a noticeable effect. The current flight path along the 6<sup>th</sup> Avenue corridor would continue to serve the new hospital location, and therefore, existing vibration levels along this route would stay the same. In fact, the flight path would be scaled back under Alternative 1 when compared to the distance the helicopter travels to the existing hospital site. This would have a beneficial effect by reducing the number of receptors affected by the limited vibrations associated with helicopter flights. Therefore, long-term, minor, adverse impacts would occur from operation of the Flight-for-Life helicopter.

Vibration impacts from the operation of LRT trains were evaluated in detail in the *West Corridor EIS*. This analysis determined that “building damages due to the operation of the LRT are not likely to be an issue; however, annoyance due to the operation might be (RTD 2003).” The annoyances were expected between Kipling and Oak streets north of 6<sup>th</sup> Avenue, and are not expected to impact receptors in the vicinity of the proposed transit station/TOD at the DFC.

Conclusion. Under the proposed action, there would be short- and long-term, negligible to minor adverse impacts as a result of noise from proposed construction activities, as well as operation of the hospital, its related facilities, and the transit station/TOD. Vibrations associated with the proposed construction and operation of the hospital and transit station/TOD would also have short- and long-term, negligible to minor adverse impacts.

## **Alternative 2**

### Noise

As with Alternative 1, heavy equipment use during construction activities associated with the proposed transit station/TOD and the unknown developments would increase noise in the project area. However, the extent of construction-related impacts under this alternative would be dependent on the nature and location of the unknown development ultimately proposed by the city of Lakewood. As a result, the effects of constructing the unknown developments under this alternative could be less than, equivalent to, or greater than the impacts of constructing the hospital and its related facilities under Alternative 1. As stated previously, these impacts would be determined through a separate NEPA analysis to be conducted at the time the unknown uses are identified.

Once construction is complete, the new sources of noise would include the transit station/TOD and the other unknown developments. Noise impacts from the transit station/TOD were evaluated in detail in the *West Corridor EIS* (RTD 2003). The most likely source of increased noise would be intermittent LRT trains, which produce noise in the range of 75-80 dB when operated at grade (RTD 2003). Although this would have long-term, adverse effects, the *West Corridor EIS* determined that operation of the transit station/TOD would not have moderate or severe impacts on any structures at or in the vicinity of the DFC, and therefore noise mitigation was not required (RTD 2003). Operational impacts of noise associated with the unknown uses would be dependent on the nature and location of the development ultimately proposed by the city of Lakewood. As a result, the operational effects of the unknown uses under this alternative could be less than, equivalent to, or greater than the operational impacts of the hospital and its related facilities under Alternative 1. As stated previously, these impacts would be determined through a separate NEPA analysis to be conducted at the time the unknown uses are identified.

### Vibrations

As with Alternative 1, heavy equipment use during construction activities associated with the proposed transit station/TOD and the unknown developments would increase vibrations in the project area. However, the extent of construction-related impacts under this alternative would be dependent on the nature and location of the unknown development ultimately proposed by the city of Lakewood. As a result, the effects of constructing the unknown developments under this alternative could be less than, equivalent to, or greater than the impacts of constructing the hospital and its related facilities under Alternative 1. As stated previously, these impacts would be determined through a separate NEPA analysis to be conducted at the time the unknown uses are identified.

Vibration impacts from the operation of LRT trains were evaluated in detail in the *West Corridor EIS*. This analysis determined that “building damages due to the operation of the LRT are not likely to be an issue; however, annoyance due to the operation might be” (RTD 2003). The annoyances were expected between Kipling and Oak streets north of 6<sup>th</sup> Avenue, and are not expected to impact receptors in the vicinity of the proposed transit station/TOD at the DFC. Operational impacts of noise associated with the unknown uses would be dependent on the nature and location of the development ultimately proposed by the city of Lakewood. As a result, the operational effects of the unknown uses under this alternative could be less than, equivalent to, or greater than the operational impacts of the hospital and its related facilities under Alternative 1. As stated previously, these impacts would be determined through a separate NEPA analysis to be conducted at the time the unknown uses are identified.

Conclusion. Under Alternative 2, there would be adverse, short- and long-term impacts as a result of noise from proposed construction activities, as well as operation of the transit station/TOD. Vibrations associated with the proposed construction and operation of the hospital and transit station/TOD would also have short- and long-term adverse impacts. Impacts of noise and vibrations associated with Alternative 2 would be dependent on the nature and location of the development ultimately proposed by the city of Lakewood.

### **Alternative 3 (No Action)**

Under the No Action Alternative, GSA would not convey the land located on the western boundary of the DFC to the city of Lakewood. This land would continue to be owned by the GSA and managed for potential limited development and open space, in accordance with existing plans for the DFC (GSA 1997). Therefore, no impacts from noise or vibrations are expected in the short-term; however, potential limited development could occur under this alternative, and therefore, long-term impacts could occur. These impacts are not anticipated to be major.



## **MITIGATION MEASURES**

To address the temporary elevated noise levels anticipated during construction, standard mitigation measures would be incorporated into construction contracts. Measures could include:

- Exhaust systems on equipment will be in good working order and equipment will be maintained on a regular basis;
- Properly designed engine enclosures and intake silencers will be used where appropriate;
- New equipment will be subject to new product noise emission standards; and
- Most construction will be conducted during daytime hours that are least disturbing to adjacent and nearby residents and businesses. There will generally be no construction activities between the hours of 10 p.m. and 7 a.m., until the building is enclosed and work can be conducted inside.

Given the fact that operational noise from the hospital and transit station/TOD, as well as noise from additional traffic, would not have major impacts, mitigation is not required.

Appropriate measures will be taken to reduce impacts from helicopter vibrations to buildings with sensitive equipment (e.g., Buildings 95 and 810). This could include siting the helicopter pads in locations far enough away from such buildings so that natural attenuation of the vibrations reduces the potential for adverse impacts.

## **VISUAL RESOURCES**

### **AFFECTED ENVIRONMENT**

Visual resources in the study area are a combination of open spaces, developed properties, and roads. The study area generally consists of vacant land, prairie dog colonies, a military bunker, and roads, with several small buildings scattered throughout. Historically, many additional buildings and bunkers existed in the study area and to the north and northeast of the study area. The majority of these buildings were demolished in the past several years, and many of the existing buildings are slated for demolition in the next year.

Center Street and McIntyre Gulch, both aligned east to west, transect the study area. McIntyre Gulch, in the southern portion of the study area, consists of native vegetation in a riparian setting, and provides visual relief from the buildings in the surrounding area. Large cottonwoods, shrubs, and tall grasses comprise this area near the gulch. The land south of McIntyre Gulch is slightly higher in elevation than the area to its north, which allows for widespread views in all directions when standing in this area. An unnamed drainage ditch, located along the western boundary of the DFC, supports another riparian area with numerous trees and shrubs, which block the view to the north of the DFC. Overall, the study area is generally flat; therefore the viewshed of the surrounding area is extensive.

The view of the study area from the south along Alameda Avenue consists of foreground views of cottonwood trees and shrubs along the western boundary and grasses in the remainder of the area. Views to the north from the southern portion of the DFC encompass fore- to mid-ground vistas of the entire western portion of the DFC, including the vegetation along McIntyre Gulch, and scattered buildings. The view of the study area from the north is comprised primarily of clear fore-, mid-ground, and background views of open areas including vegetation, prairie dog colonies, scattered buildings, roads and the vegetation associated with McIntyre Gulch.

Large trees line the entire western boundary of the study area. Views from the western boundary, including from the multistory businesses fronting Union Boulevard, consist of fore-ground views of the trees and shrubs, mid-ground vistas of the open areas, roads, prairie dog colonies, and buildings on the DFC, and background views of downtown Denver and the plains to the east. Views of the study area to the west consist of clear fore- to mid-ground views of the open areas, prairie dog colonies, scattered buildings and roads of the DFC property, trees along the western boundary, and some high rise and one-story commercial buildings along Union Boulevard, followed by background vistas of Green Mountain and the Rocky Mountain foothills to the west.

## **STANDARDS OF SIGNIFICANCE**

The proposed project would result in an adverse impact if the project were to substantially degrade the scenic quality of the site or the immediately surrounding area.

## **IMPACTS**

The extent to which the proposed project may affect the visual resource depends on the amount of visual contrast created between the proposed new facilities and the visual characteristics of the surrounding area. Impacts would occur if the project resulted in visual contrasts that had a negative impact on the visual setting of the site or surrounding area, or impacted the viewshed from any nearby sensitive land uses.

### **Alternative 1**

Alternative 1 consists of conveying DFC land to the city of Lakewood for hospital and transit-related facilities. A new security fence would be constructed to separate the public use areas from the remainder of the DFC, and would meet the requirements of the Department of Homeland Security. The fence would be similar in appearance to the existing 6-foot chain-link fence.

The proposed hospital and associated health care support facilities, parking, and landscaping would encompass the entire footprint of the Phase I Hospital Site. The hospital would generally be oriented in the direction of Union Boulevard, with emergency access on the southern portion of the building. Access to the hospital would be provided along Center Avenue, an existing alignment that serves the DFC. A southern access point from Alameda Avenue would also be developed.

The RTD intermodal transit facility/TOD would include the phased development of 18 bus bays, 750 to 1000 parking spaces, an at-grade light-rail station, and potential ancillary commercial space and TOD. The first phase consists of the relocation of the park-n-Ride, while the LRT and TOD would be completed as part of the second phase. The DFC LRT would consist of parking and architecture that complements the buildings within the new development. The light-rail alignment would also be visually tied to the development. The development of the transit station/TOD would not constitute a major visual change.

The proposed hospital building would consist of a 900,000-square-foot building with approximately 380 beds, an annex building, and medical office buildings. The architecture of the proposed hospital would complement the buildings within the DFC and along Union Boulevard. The building would project a professional and aesthetically pleasing appearance, including an attractive well-defined main entrance. The hospital itself would be eight to twelve stories high, which is no taller than the existing buildings on the DFC and along Union Boulevard.

Construction of the proposed buildings would create visual features in the project area consistent with the scenic character of the surrounding area. Historically, many small buildings and bunkers existed in the study area. The visual characteristics of the proposed project buildings would not differ greatly from the

historical uses of the study area, except that the proposed project is a larger-scale development. Furthermore, GSA is working with the city of Lakewood and Centura Health on architectural guidelines for the redevelopment, and GSA would approve the final architectural design of any buildings.

The presence of the transit facility/TOD, hospital, and health care support facilities would result in minor view obstructions of the downtown Denver skyline, the plains, and the mountains from certain vantage points. The addition of several large-scale buildings would result in a minor adverse impact on visual resources in the area.

Construction activities associated with the proposed project include the construction of the new proposed transit facility/TOD, hospital building, and other health care support facilities. Construction activities would result in short-term impacts to the aesthetics of the area, due to noise and other general construction disturbances.

Conclusion. The visual characteristics of the proposed project buildings would not differ greatly from the historical uses of the study area, except that the proposed project is a larger-scale development. The buildings would be compatible with those in the surrounding area, and GSA would approve the final architectural design of the buildings. The proposed project would result in a minor adverse impact on visual resources in the project area.

## **Alternative 2**

Under Alternative 2, GSA would convey land along the western boundary of the DFC to the city of Lakewood, which would be developed with an intermodal transit facility/ TOD and other unknown uses. Impacts from the intermodal transit facility/TOD would be the same as the impacts to this parcel of land under Alternative 1. The architecture of the intermodal transit facility/TOD would complement the buildings in the surrounding area. The light-rail alignment would also be visually tied to the development. The facility would be constructed in phases, reflecting transit needs and development potential. The relocation and expansion of the Cold Spring park-n-Ride would not constitute a major visual change. The presence of the transit facility would result in minor view obstructions of the downtown Denver skyline, the plains, and the mountains from certain vantage points, which would result in a minor adverse impact on visual resources in the area. The extent of impacts from the unknown developments under this alternative would be dependent on the nature and location of the development ultimately proposed by the city of Lakewood. As a result, the effects of constructing the unknown developments under this alternative could be less than, equivalent to, or greater than the impacts of constructing the hospital and its related facilities under Alternative 1. As stated previously, these impacts would be determined through a separate NEPA analysis to be conducted at the time the unknown uses are identified.

Conclusion. There would be a minor adverse impact on visual resources in the project area from construction of the intermodal transit facility/TOD. The extent of impacts from the unknown developments under this alternative would be dependent on the nature and location of the development ultimately proposed by the city of Lakewood.

## **Alternative 3 (No Action)**

Under the No Action Alternative, GSA would continue to own and manage the land within the project area for potential limited development and open space, in accordance with existing plans for the DFC (GSA 1997). The extent of impacts from the potential limited developments under this alternative would be dependent on the nature and location of the development ultimately proposed by the GSA.

## MITIGATION MEASURES

GSA is working with the city of Lakewood and Centura Health on architectural guidelines for the redevelopment of the project area, and GSA would approve the final architectural design of any buildings. GSA would also require landscaping surrounding the buildings to be aesthetically pleasing.

## CULTURAL RESOURCES

### AFFECTED ENVIRONMENT

The National Historic Preservation Act (NHPA), as amended (16 USC 470 *et seq.*), NEPA, and GSA Order ADM 1095.1F (October 19, 1999) require the consideration of impacts on historic properties. The term “historic property” is defined in the NHPA (16 USC §470(w)(5)) as “any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on the National Register [of Historic Places].” Section 101(b)(4) of NEPA stresses the importance of preserving “important historic, cultural, and natural aspects of our national heritage...” (emphasis added). Section 106 of the NHPA stipulates that:

*The head of any federal agency having direct or indirect jurisdiction over a proposed federal or federally assisted undertaking in any state and the head of any federal department or independent agency having authority to license any undertaking shall, prior to the approval of the expenditure of any federal funds on the undertaking or prior to the issuance of any licenses, as the case may be, take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register.*

The regulations implementing the NHPA (36 CFR 800) encourage federal agencies to consider their Section 106 responsibilities as early as possible in the NEPA process, and to plan their public participation, analysis, and review in such a way that they can meet the purposes and requirements of both statutes in a timely and efficient manner.

Thus, GSA is obliged to consider the effects of construction for the proposed new building on any historic properties. In doing so, GSA must first define the Area of Potential Effects (APE). According to 36 CFR 800.16(d), the APE is defined as:

*The geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of the undertaking and may be different for different kinds of effects caused by the undertaking.*

The APE for this project, as determined by GSA, is the proposed project area, as depicted in Figure 2.

### Archeological Resources

The proposed project is located in a suburban setting and has been subjected to previous disturbances in the form of filling, grading, and construction activities. Archeological surveys have been conducted at the DFC and no archaeological sites have been located within the APE.

### Historic Resources

Extensive architectural and general cultural resources inventories of the DFC have been conducted, particularly in conjunction with the 1997 Master Plan for the site (GSA 1997). Two buildings at the

DFC, Building 710 and the Office of Civil Defense Emergency Operations Center, are listed on the National Register of Historic Places, but are located outside of the APE. One historic site has been recorded within the APE. This is a segment of the Welch Agricultural Ditch (5JF.848.2), which has been determined by the SHPO to be noncontributing element to a site that, on the whole, is considered eligible for listing in the National Register.

## **STANDARDS OF SIGNIFICANCE**

Cultural resources are evaluated for nomination to the National Register according to the Criteria for Evaluation shown at 36 CFR 60.4, as summarized below:

*The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and*

- a) that are associated with events that have made a significant contribution to the broad patterns of our history; or*
- b) that are associated with the lives of persons significant in our past; or*
- c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or*
- d) that have yielded, or may be likely to yield, information important in prehistory or history.*

Integrity is the “ability of a property to convey its significance.” In order to retain historic integrity, a property will always possess several, and usually most, of the seven aspects. Eligible sites are those that satisfy one or more of the aforementioned criteria and retain integrity. Non-eligible sites are those that do not satisfy any of the evaluation criteria and/or lack integrity.

## **IMPACTS**

### **Alternative 1**

This alternative would have no impact on any historic properties. The Welch Agricultural Ditch segment has been determined to be a noncontributing element to a site that, on the whole, is considered eligible for listing on the National Register, and is not a historic property.

### **Alternative 2**

This alternative would have no impact on any historic properties. The Welch Agricultural Ditch segment has been determined to be a noncontributing element to a site that, on the whole, is considered eligible for listing on the National Register, and is not a historic property.

### **Alternative 3 (No Action Alternative)**

The No Action Alternative would have no impact on any historic properties.

## **MITIGATION MEASURES**

Since historic properties will not be affected by either of the action alternatives, mitigation measures for cultural resources are not needed.

## **HAZARDOUS MATERIALS AND WASTE**

### **AFFECTED ENVIRONMENT**

An environmental contamination assessment was conducted to evaluate potential environmental contamination impacts within 1.5 miles of the western portion of DFC. The assessment was completed by identifying, compiling, and reviewing available information on past and present activities of hazardous material significance within the study area. This included obtaining information about present and former land use of the site and surrounding properties, and information about any prior environmental contamination investigations that may have been conducted.

Multiple previously prepared documents on the status of potential contamination at the DFC were reviewed as part of the assessment. The Pre-RCRA Facility Investigation (RFI) Historical Data Report prepared in December 1997 summarizes the available information about known or suspected sources of contamination at the DFC (Balloffet and Associates 1997). This document was updated and expanded and a Pre-RFI Historical Data Addendum was prepared in September 1998 (Woodward-Clyde 1998). These documents provided the basis for the Southern RTD Expansion Area facility investigation and remediation process and the Northern RTD Expansion Area investigation and remediation process being implemented at the DFC to comply with the Federal Resource Conservation and Recovery Act (RCRA). Other documents reviewed include the Northern RTD Expansion Area RFI Report (Foothill Engineering Company 2002), the Southern RTD Expansion Area RFI Report (CH2M HILL, Inc. 2003), the Southern RTD Expansion Area Corrective Measures Work Plan (CH2M HILL, Inc. 2005) the Phase I RFI Workplan, Investigation Area 01 (ERO Resources Corporation 2005) and the DFC Site-Wide Groundwater Long-Term Monitoring Sampling Event (Tetra Tech 2005).

A site reconnaissance was conducted on August 3, 2005. The study area was walked and driven to observe and document the present conditions. In addition, a drive-by survey of the vicinity was conducted to observe and document the nature of neighboring properties.

An environmental database search report was completed by Environmental Data Resources (EDR) on July 20, 2005, which includes a search of public databases, that maintain a range of information regarding land use activities, Superfund sites, reported tank spills or leaks, and licensed users and generators of hazardous materials and wastes. A copy of the database search result is presented in Appendix B.

As part of the EDR database report, the center of the study area was used as the center point for the search radii for each database searched. An additional search radius of 0.5 mile was added to each standard search radius, resulting in a search distance of 1.5 miles from the subject property used for National Priority List (NPL) (Superfund) sites and Resource Conservation and Recovery Act (RCRA) Corrective Action sites (CORRACTS). A 1.0-mile search distance was used for Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) sites; RCRA Treatment, Storage, and Disposal (TSD) sites; leaking underground storage tank (LUST) sites; state Voluntary Cleanup Program (VCUP) sites; and landfills. A 0.75-mile search distance was used for underground storage tank (UST) sites and listed RCRA hazardous waste generators. A 0.5-mile search distance was used for EPA's Emergency Response Notification System (ERNS) and Colorado ERNS sites, and aboveground storage tanks (ASTs).

Commercial and industrial properties within the search distances were evaluated to identify potential impacts to project construction activities through the release of hazardous substances in contaminated soil, surface water, sediment, and groundwater. This was accomplished through a records search of federal, state, and local databases; field reconnaissance; and historical records review.

The records search identified a number of sites within the specified search distances. These sites include the immediate study area in addition to any potential groundwater contamination that has migrated onto the site. The sites were evaluated to determine whether they could potentially be impacted by construction activities. The sites were evaluated based on:

- The nature of the documented or potential contamination;
- The media/pathway impacted by the documented or potential contamination;
- The hydraulic relationship of the site to the proposed construction impact area (i.e., up or downgradient with respect to surface water and groundwater flow direction); and
- Proximity to the proposed construction impact area.

### **Historical Use of the Entire DFC**

In the 1940's, the U.S. Government-owned Denver Ordnance Plant (DOP), which consisted of the land in the current DFC, along with the surrounding properties, produced small arms ammunition. During the period the DOP was in operation, it is known that toxic wastes were discharged into McIntyre Gulch and the Agricultural Ditch. During World War II, the DOP used a variety of chemicals including solvents, acids, and cyanide solutions. It appears that it was common practice to flush wastes that spilled or leaked into the storm drain system, resulting in a release into McIntyre Gulch. Many of the buildings had sumps or dry wells that received effluent from floor drains, which may have resulted in a release to the environment. Lead was also used extensively in the operations, and test-firing ranges contained spent bullets. The Army, through its contractors, also brought onto the DOP other materials that are suspected of being released, including polychlorinated biphenals (PCBs), explosive materials, and various petroleum products and solvents (Baloffet and Associates 1997).

Following the war, several federal agencies became tenants of the DFC and established laboratory facilities. Most of these agencies have operated research, testing, and experimentation laboratories. Handling and disposal of wastes has been inconsistent and releases have occurred (Baloffet and Associates 1997).

### **Study Area**

#### Proposed RTD Transit-Related Facilities

The northern half of this area, and the adjacent area to the north, was used for munitions powder canning and storage during the DOP era. Former buildings housed empty powder cases, services magazines, powder canning, canned powder magazines, offices, and lockers. Following the DOP era, this area has been used for a variety of purposes, including grounds equipment maintenance and storage, hazardous waste storage, hazardous chemical storage, storage of chemicals used in animal research, laboratories and equipment testing, storage, and maintenance, and strategic mineral storage. A stockpile of acid-grade fluorspar, a commercial form of fluorite, was stored in a concrete basin with a concrete cover on the western portion of the study area. The fluorspar pile has been removed, although residual dust and sediment containing fluorspar is currently present in the concrete basin and on surrounding soil.

Potentially hazardous materials include former drums of unknown contents, PAHs, pesticides, herbicides, and asbestos in the soil; semivolatile organic compounds (SVOC) such as 2,4-Dinitrotoluene, metals such

as chromium, copper and lead, PAHs such as benzo(a)pyrene in sediment; and PAHs, in groundwater (Foothill Engineering Company 2002 and URS 2005). Locations of contaminated soil and groundwater wells and boreholes are shown on Figure 13.

Activities conducted following the DOP era include animal and plant research and testing, laboratory analyses, equipment and materials storage (including explosives, hazardous materials, pesticides, nitrate film, and radionuclides). Soil contamination exists in various locations throughout this area. Potential Chemicals of Concern (PCOCs) in soil include herbicides and pesticides, PAHs, and arsenic (CH2M HILL 2003 and URS 2005).

Soil, coal and construction debris have been disposed of in the area south of Center Avenue on the western edge of the DFC. Some coal that was used at the DFC was treated with waste oil for dust suppression.

The portion of the study area directly north of McIntyre Gulch has historically been used for general storage, including radioactive rocks, as a landfill area, and a firing range. It is expected that soil around the firing range has the potential for lead contamination related to lead bullets. Unexploded ordnance associated with unspent bullets may also be present (CH2M HILL 2003). Soil samples in this area indicate elevated levels of lead, PAHs and pesticides (CH2M HILL 2003 and URS 2005). All contaminated soil and sediment is planned for removal under the RCRA Corrective Measures Work Plan approved by the CDPHE.

Preliminary results of the groundwater investigation indicate that uranium was found in groundwater. The source of this PCOC in overlying soils would be removed as part of the Southern RTD Corrective Measures program; therefore no new impacts to groundwater are anticipated. If any further soil or groundwater contamination is discovered during the investigation, it will be addressed during the remediation activities of Southern RTD Corrective Measures program.

#### Proposed St. Anthony Central Hospital Site Phase II

This portion of the study area has been subject to substantial land surface disturbance and recontouring as a result of landfill activities, excavation associated with the construction of Building 810 directly east, and construction of surface water diversions. No structures or buildings have been located in this area, except for a former small guard tower near the southwest corner (ERO 2005). Currently, the area consists of open spaces that are mostly vegetated with grasses, shrubs, and trees. Large cobbles, concrete, and asphalt debris are common throughout much of the area.

Groundwater wells in this area have been monitored as part of the long-term monitoring program at the DFC. This portion of the study area is also currently undergoing further investigation to determine the contents and volume of the landfill material, in addition to further assess potential soil and groundwater contamination. Past groundwater samples were analyzed for metals, explosives, anions, volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), polynuclear aromatic hydrocarbons (PAHs,) pesticides and herbicides. Nearly all of the chemicals that exceeded the corresponding screening level criteria (SLC) are not considered to be PCOCs because the reported concentrations are within the range of normal background values.

One spring or seep in the northeast corner and one monitoring well in the southeast corner had detections of several PAH compounds above the groundwater SLC. However, these compounds were not observed in subsequent sampling events. The sampling result from one downgradient groundwater well suggested that the landfill debris, such as asphalt, may have impacted localized areas. There were no other



**Figure 13: Potential Contamination Sites**

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groundwater results that indicate the landfill has impacted groundwater downgradient of the landfill (ERO 2005); however, groundwater investigation is ongoing.

Soil samples collected from a series of boreholes drilled in 2002 were analyzed for VOCs, SVOCs, metals, PAHs, pesticides, and herbicides. Arsenic was the only constituent detected at a concentration above the residential soil remediation objectives (SRO), but this level was less than the established background concentration. No other historical samples exhibited chemical concentrations that exceeded the soil SLCs (ERO 2005).

### **Surrounding Properties**

Ten LUST sites are listed in the EDR database report as being located within one mile hydrogeologically upgradient (west) of the property; however, seven of these sites are described as “closed,” and the sites have received “No Further Action” status from the state. Only three of these LUST sites are described as being “open” with ongoing remediation occurring.

Circle K #3867, 12015 W. Cedar Drive, is located approximately 0.25 mile west of the western DFC boundary. A file review was conducted at Colorado Department of Labor and Employment, Oil and Public Safety (OPS) to determine the extent of contamination resulting from the LUST. According to information reviewed in the files, 26-150 gallons of gasoline were released in February 1996. The site is currently being remediated. Groundwater contamination exists underneath and east of the Circle K facility, but does not extend to the western boundary of the DFC. Therefore, this LUST site would not impact the DFC or the proposed project area.

Sinclair #5016, 198 S. Union Boulevard, is located less than 0.25 mile west of the western DFC boundary. According to OPS, a release was confirmed on October 12, 2004, and a site characterization report (SCR) was received on July 11, 2005. According to information in the SCR, four USTs leaked unleaded gasoline into surrounding soils, which contaminated on-site soils and groundwater. Contaminated soils were removed, but remediation of groundwater has not begun. The extent of downgradient groundwater contamination is not known because offsite downgradient access for the installation of groundwater wells has not been granted. Groundwater flows to the east-southeast from this facility, onto the DFC. This LUST site has the potential to impact the DFC and proposed project area.

Propp Realty, Inc. at 12157 W. Cedar Drive, is located approximately 0.33 mile west of the western DFC boundary. According to OPS, a release from this facility was confirmed February 10, 2005. A “No Further Action” letter was submitted by OPS to Propp Realty on March 18, 2005. Therefore, this LUST site would not impact the DFC or the proposed project area.

No other facilities listed on the EDR database report were determined to potentially impact the project area.

### **STANDARDS OF SIGNIFICANCE**

The proposed project would cause adverse hazardous substances impacts if it were not compatible with current site hazardous materials conditions or solutions, or violated federal, state, or local regulations with respect to hazardous materials or waste. In addition, the impact would be considered adverse if development of the proposed project posed an unacceptable threat to human health or private property.

## **IMPACTS**

### **Alternative 1**

#### Site

Multiple hazardous materials sites are in the vicinity of the proposed project. However, all contaminated sites in the intermodal transit facility/TOD and Hospital Site Phase I project areas would be remediated prior to construction of any buildings in these areas. The CDPHE would grant a No Further Action determination to the GSA for these parcels after they are remediated to the Residential Risk scenario for soils.

Uranium has been detected in one well above the Federal Safe Drinking Water Act (SDWA) MCL and background (GSA-166). Groundwater is not used as a drinking water source, and water rights are held by the city of Lakewood. There is no indication of a source in this area. In addition, the soil near this well is planned to be removed as part of the Southern RTD Corrective Measures. Other contaminated soils that are the source of groundwater contamination would be removed as part of the corrective measures program; therefore no further groundwater contamination is expected.

Investigation of hazardous materials in the Hospital Site Phase II project area is in the beginning stages. Following the investigation of the landfill, a limited feasibility study will be prepared to evaluate remediation alternatives. Alternatives include leaving the landfill material in place, capping the landfill, or removing the landfill material and disposing of it in an appropriate off-site disposal facility. The corrective measures alternative will consider future land use.

Sources of hazardous materials from hospital-related activities are primarily associated with radiology labs, dental clinics, and waste from chemotherapy drugs. Most small dental clinics and radiology labs are classified as Conditionally Exempt Small Quantity Generators (CESQG) of hazardous waste, meaning they generate less than 100 kilograms of hazardous waste per calendar month. CESQGs are responsible for identifying all hazardous wastes that they generate, and may either treat their own hazardous wastes or ensure delivery to a facility that is authorized to accept hazardous waste.

Radiology labs and dental clinics produce small quantities of several types of hazardous wastes, including fixer, undiluted developer, lead foil, dental bitewings, discarded lead shields, amalgam, dental trap filter wastes, developer system cleaners, and old X-ray equipment. Some of this waste, such as silver, lead, and mercury, can be recycled. Hazardous wastes that cannot be recycled have to be disposed of as hazardous wastes. Some wastes, such as unused developer, may be neutralized and disposed of down the drain with prior approval of the waste treatment authority. X-ray equipment frequently contains small amounts of cooling oil that may contain PCBs, and must be disposed of properly.

Infectious wastes, such as blood on dressings and used sharps, are considered a non-hazardous solid waste, and require special handling prior to disposal. Properly labeled and packaged infectious waste can be disposed of in a permitted solid waste disposal facility without treatment (CDPHE 2002a).

#### Surrounding Properties

Although a LUST site (Sinclair facility #5016) has been identified upgradient of the DFC, groundwater downgradient of this LUST on the DFC has been monitored, sampled, and analyzed for VOCs and SVOCs. Detections of methyl tertiary butyl ether (MTBE) were found in the DFC wells. MTBE is not a hazardous waste and there is no State groundwater standard for it. EPA has established a risk based range of 20 to 40 micrograms per liter. Groundwater appears to be sourced from offsite and in the most recent sample event groundwater from all but one well was below the lower risk based number established by

EPA and has never been detected in groundwater in this area above the upper value. No other hazardous materials sites would be impacted by the proposed project.

Conclusion. The proposed action would impact hazardous materials at various on-site locations. If these hazardous materials were remediated prior to construction activities, this alternative would have no adverse impact on hazardous materials.

## **Alternative 2**

### Site

Under this alternative, impacts of constructing the intermodal transit facility/TOD would be the same as the impacts identified for Alternative 1. Multiple hazardous materials sites are in the vicinity of the proposed project. However, all contaminated sites would be remediated prior to construction of the RTD intermodal transit facility/TOD. CDPHE would grant a No Further Action determination to the GSA for these parcels after they are remediated to the Residential Risk scenario for soils. Contaminated soils that are the source of groundwater contamination would be removed as part of the corrective measures program; therefore no further groundwater contamination is expected. The extent of impacts from the unknown developments under this alternative would be dependent on the nature and location of the development ultimately proposed by the city of Lakewood. As a result, the effects of constructing the unknown developments under this alternative could be less than, equivalent to, or greater than the impacts of constructing the hospital and its related facilities under Alternative 1. As stated previously, these impacts would be determined through a separate NEPA analysis to be conducted at the time the unknown uses are identified.

### Surrounding Properties

The proposed RTD intermodal transit facility/TOD would not impact any hazardous materials sites on surrounding properties. The Sinclair LUST facility is far enough south of the proposed RTD facility that potentially contaminated groundwater would not flow under this facility. The extent of impacts from the unknown developments under this alternative would be dependent on the nature and location of the development ultimately proposed by the city of Lakewood. As a result, the effects of constructing the unknown developments under this alternative could be less than, equivalent to, or greater than the impacts of constructing the hospital and its related facilities under Alternative 1. As stated previously, these impacts would be determined through a separate NEPA analysis to be conducted at the time the unknown uses are identified.

Conclusion. The proposed intermodal transit facility/TOD would not impact on- or off-site hazardous materials. The extent of impacts from the unknown developments under this alternative would be dependent on the nature and location of the development ultimately proposed by the city of Lakewood.

## **Alternative 3 (No Action)**

The No Action Alternative would not impact any potential hazardous materials sites. Hazardous materials located on the DFC would remain on site and would continue to be cleaned up under the RCRA Corrective Action Consent Order. The potential groundwater contamination from the upgradient LUST (Sinclair #5016) would continue to be remediated.

## **MITIGATION MEASURES**

It is recommended that groundwater disturbed by proposed construction activities be assumed to be potentially contaminated and that proper safety precautions be taken to minimize exposure. Potential

contaminants of concern in groundwater include PAHs and metals. Any groundwater impacted by construction activities will be containerized and analyzed for the constituents of concern. Based on the analytical results, containerized groundwater will be disposed of in accordance with applicable regulations.

All contaminated soils will be removed prior to construction activities. Asbestos-containing soils will be abated. According to the CDPHE Air Pollution Control Division Regulation Number 8, Part B, a written project design will be developed prior to the start of any asbestos abatement. A written Notice of Intent to conduct asbestos abatement will be delivered at least 10 working days before commencing the project (CDPHE 2004a). Any other hazardous materials located on site will be removed and disposed of in an appropriate off-site disposal facility.

## **CUMULATIVE IMPACTS**

The CEQ regulations require assessment of cumulative impacts in the decision-making process for federal projects. Cumulative impacts are defined as “the impact on the environment which results result from the incremental impact of the action, when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such actions” (40 CFR 1508.7). Cumulative impacts can result from individually minor, but collectively substantial, actions undertaken over a period of time by various agencies or individuals. Informed decision-making is served by consideration of cumulative impacts resulting from projects that are proposed, under construction, recently completed, or anticipated to be implemented in the reasonably foreseeable future.

Projects evaluated in the cumulative impact analysis include currently ongoing, planned, or reasonably foreseeable projects on DFC property and in the surrounding area within one mile of the DFC boundaries that were determined to be relevant to the study area. Planned or reasonably foreseeable projects were identified through a review of public documents and coordination with multiple agencies, and include both on- and off-site activities. Further information about projects in the western portion of the Denver metro area can be found in the RTD *Final West Corridor EIS* dated October 2003. The locations of these projects in relation to the proposed action are shown in Figure 14.

## **IMPACT ANALYSIS**

### **DENVER FEDERAL CENTER ACTIVITIES**

The DFC is composed primarily of office and laboratory buildings. The majority of the DFC consists of developed land, although some vacant parcels remain. Past projects, and relevant projects that are proposed for the reasonably foreseeable future or are already under construction at the DFC are included below.

#### **Past Projects**

Historically, the DFC has had many uses. Before the 1940s the property was used for ranching and farming. Between 1941 until after World War II, the DFC and surrounding properties were part of the Denver Ordnance Plant (DOP), and were used for the production of small arms ammunition. Since World War II, federal agencies have become tenants of the DFC and have established office and laboratory facilities. Numerous buildings have been constructed or demolished over the years. Other infrastructure improvements have also been made, including new roads and sewer systems.

**Figure 14: Current and Proposed Projects Near the Denver Federal Center**

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Under Construction or Approved Projects (number in parentheses corresponds to number on Figure 14):

- Additional groundwater wells and trenching for piping near Buildings 52 and 53 as part of an investigation project related to the FHWA groundwater plume and treatment plant (1).
- Repair or replace Center Avenue bridge over the Agricultural Ditch (2).
- Replacement of storm drain system and associated street repaving along 5<sup>th</sup> Street between Center Avenue and North Avenue (3).
- Slope stability project near building 810 along McIntyre Gulch (4).
- Install a pilot groundwater treatment system using chemical oxidation for the treatment of TCE-contaminated groundwater in the northeast corner of the DFC (5).
- Continue with groundwater and soil sampling and remediation in the western portion of the DFC (6).
- Continue investigation and remediation activities in the central-western portion of the DFC (7).
- Finish sediment and surface water sampling along the Agriculture Ditch and McIntyre Gulch (8).
- Further investigation and remediation of the landfill in the southwest corner of the DFC, including sampling of soil, waste materials, sediment, and groundwater at locations where contaminants are most likely to be present. The type of remediation will be dependent upon the level of contamination present (9).
- Buildings slated for demolition (10). A total of 25 buildings on the DFC will be demolished over the next several years (various locations).
- Interim Groundwater Measure # 1, which captures and passively treats shallow groundwater contaminated with chlorinated solvents (11).

**Proposed Projects**

- The extension of the Quail Street alignment through the western portion of the DFC (12).
- Landscape projects around the DFC if money is available (various locations).
- Substantial site-wide infrastructure project that will provide water system upgrades; firewater protection and domestic water systems replacements; and sanitary sewer, storm sewer, electrical, and communications systems alterations. Design of this project is expected to occur during Fiscal Year 2006, with implementation in the next three to five years.

**SURROUNDING ACTIVITIES**

The land adjacent to the DFC is a combination of residential housing, office space, hotels, schools and commercial and industrial facilities. The land in the surrounding area is primarily in-filled, and planned or proposed projects generally consist of redeveloping or improving areas that have previously been developed. Past projects, and relevant projects that are proposed for the reasonably foreseeable future or are already under construction in the area surrounding the DFC are included below.

**Past Projects**

The area surrounding the DFC was historically used for ranching and farming, until the federal government purchased some of this land for the DOP, as described above. Since World War II, the surrounding area has been developed with residential housing, office buildings, schools, hotels, and commercial establishments such as restaurants, retail stores, banks, and gas stations. The surrounding area was almost completely developed by the 1980's.

Under Construction or Approved:

- Commercial development at West Alameda Parkway and Youngfield Court. Tenants include Sonic Restaurant, Advanced Auto Parts, two banks, and a carwash (13).
- Lakewood High School, located north of 6<sup>th</sup> Avenue and east of Kipling Street. A new school is under construction on the property of the existing school (14).
- Jefferson County Stadium, east of Kipling, is undergoing renovations (15).
- Miller School, east of Kipling, is undergoing renovations (16).
- Kipling Street and West Alameda Avenue intersection interchange reconstruction with bike path connections (17).
- LRT alignment, which is part of the West Corridor LRT system (18).
- Lakewood Ford Land on the northeast corner of Simms Street and 6<sup>th</sup> Avenue in the current location of the Mile High Inn and Suites hotel (19).

**Proposed**

- Hotel on VanGordon Street in the Union Square Shopping Center. The hotel would consist of 150 rooms (20).
- Apartment complex on the southeast corner of Alameda Avenue and Kipling Street. Complex would include 260 high-end apartments in ten- two to three story buildings. Some of these units would be live/work office-type units (21).
- Commercial shopping center on the west side of Union Boulevard near Bayaud Avenue. The development would involve demolishing an existing shopping center and rebuilding it to accommodate different retail tenants such as a restaurant and a hair salon (22).

Table 11 summarizes potential cumulative effects on resources from the Proposed Action to dispose of 60 to 65 ac of land on the western portion of the DFC to construct a hospital and an intermodal transit facility/TOD, when combined with other past, present and future activities. As indicated in Table 11, major impacts to resources are not expected from the proposed projects.

**TABLE 11: CUMULATIVE IMPACTS ON RESOURCES**

<b>Resource</b>	<b>Past Actions</b>	<b>Current Background Activities</b>	<b>Proposed Actions</b>	<b>Known Future Actions</b>	<b>Cumulative Effects</b>
Land Use	Development of the DFC and surrounding properties has extensively modified land use.	Continued use of the DFC as office, laboratory, storage, and warehouse facilities for multiple Federal agencies, and commercial, office, residential and light industrial uses in the surrounding area.	Projects are compatible with DFC and community land use plans, and would result in a beneficial long-term impact.	Continued development and redevelopment of small parcels of land on and near the DFC.	Changes to existing land use would have a beneficial long-term impact on DFC and surrounding lands.
Socioeconomics	The Federal tenants of the DFC contribute to local economic community.	Continued support of local economic community.	Development of additional jobs in the area. Minor contribution to local construction industry.	Continued property redevelopment on and near the DFC would have beneficial impacts.	Minor stimulation of local economy.
Environmental Justice	Not applicable	Not applicable	Proposed projects do not displace low-income or minority populations.	Proposed projects do not displace low-income or minority populations.	No disproportionate adverse impacts are anticipated to low-income or minority populations. Projects may afford additional employment opportunities.
Air Quality	All Colorado communities are currently in attainment with all NAAQS.	Emissions from vehicles, buildings, and helicopters.	Potential dust emissions during construction activities, and increased vehicle traffic.	Minor growth in the area would result in increased traffic and emissions.	Adverse impacts to air quality, but these would not be major.
Noise and Vibrations	Vehicular traffic and construction/ demolition activities are the dominant sources of noise and vibrations.	Vehicular traffic, construction/ demolition, and remediation activities are the dominant sources of noise and vibrations.	Noise and vibrations would occur from construction activities, vehicular traffic, building operations, and helicopters.	Noise and vibrations would occur from construction, demolition and remediation activities, and vehicular traffic.	Increased noise and vibrations impacts, but these would not be major.
Geology and Soils	Past urban and DFC development has modified soils and surficial geology.	Removal of contaminated soils.	Grading, excavating, and soil recontouring would result in further soil and surficial geology disturbances.	Continued remediation projects at the DFC and in surrounding area would locally impact soils.	Impacts would be permanent but localized. Some beneficial impacts due to remediation. No major impacts.

**TABLE 11: CUMULATIVE IMPACTS ON RESOURCES**

<b>Resource</b>	<b>Past Actions</b>	<b>Current Background Activities</b>	<b>Proposed Actions</b>	<b>Known Future Actions</b>	<b>Cumulative Effects</b>
Water Resources	Surface water and groundwater quality impacted by development and past disposal practices and waterway realignments.	Surface water and groundwater quality impacted by development.	Potential sedimentation from construction and minor increase in impervious surface area.	Continued development would result in sedimentation from construction and increase in impervious surface areas.	Increased impervious area would have adverse impacts on storm water discharges and water quality, but impacts would not be major. Some beneficial impacts due to remediation.
Wetlands	Wetlands impacted by development and past disposal practices.	Ongoing remediation projects and associated revegetation would have a beneficial impact on wetlands.	Small amount of wetlands would be lost, but would be mitigated per the USACE. Increased sediment and stormwater discharges into wetlands.	Ongoing remediation projects and associated revegetation would have a beneficial impact on wetlands.	Small amount of wetlands loss, and increased sediment and stormwater discharges into wetlands, but no major impacts. Some beneficial impacts due to remediation.
Biological Resources	Degraded historic habitat of sensitive and common wildlife species.	The demolition of buildings and revegetation of areas would have a beneficial impact on biological resources.	Disturbance of vegetation by construction activities. Permanent loss of black-tailed prairie dog habitat.	Ongoing remediation projects and associated revegetation would have a beneficial impact on biological resources.	Permanent loss of vegetation and low-quality wildlife habitat. Permanent loss of black-tailed prairie dogs and their habitat. Impacts would not be major.
Hazardous Materials and Waste	Hazardous materials and wastes present in soil and groundwater from historical activities at the DFC and in surrounding areas.	Ongoing investigation and remediation of hazardous waste sites at the DFC and in surrounding areas.	Contaminated soil at the DFC would be remediated prior to construction activities. On-going remediation of contaminated sites in the area. Hospital would generate small amounts of hazardous waste, which would be disposed of according to applicable regulations.	Continued soil and groundwater remediation projects at the DFC and in surrounding areas.	Continued remediation in area. All hazardous materials and wastes used or generated during project implementation would be used and disposed of according to applicable regulations. No major impacts.

**TABLE 11: CUMULATIVE IMPACTS ON RESOURCES**

<b>Resource</b>	<b>Past Actions</b>	<b>Current Background Activities</b>	<b>Proposed Actions</b>	<b>Known Future Actions</b>	<b>Cumulative Effects</b>
Transportation	Infrastructure has been added to serve the DFC and surrounding areas.	Ongoing maintenance of transportation infrastructure.	Quail Street extension will provide better internal circulation for the DFC and additional access points for park-n-Ride users.	Continued development of DFC and Lakewood would result in increased traffic.	Increased traffic would have an impact on transportation network, but impacts would not be major.
Utilities	Infrastructure has been added to serve the DFC and surrounding areas.	Ongoing utility upgrades.	New utility lines would be connected to existing infrastructure. No adverse impacts are anticipated on utilities.	Ongoing utility upgrades at the DFC, including substantial site-wide infrastructure upgrade. Development of the surrounding area would result in a continued increase in utility demands.	Increased demand for public utility services would not outstrip current supply capabilities and would not be a major impact to regional or local energy supplies.
Visual Resources	Development of DFC and surrounding area. Changed visual character from rural to industrial, commercial, and residential.	Ongoing building demolition, construction, and remediation activities.	Construction of large-scale buildings would have an adverse impact on visual resources, although buildings would be compatible with those in the surrounding area.	Continued visual landscape modifications are in character with the existing landscape.	Adverse impact on visual resources, although this would not be major. Continued visual landscape modifications are in character with the existing landscape.
Cultural Resources	Initial development of DFC and surrounding area impacted unknown cultural resources.	No impact to significant cultural resources.	No impact to significant cultural resources.	No impact to significant cultural resources.	Historic development impacted unknown archeological resources.

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## **CONSULTATION AND COORDINATION**

### **AGENCIES AND ORGANIZATIONS**

Agencies and organizations contacted for information, or that assisted in identifying important issues, developing alternatives, or analyzing impacts, or that will review and comment upon the EA include:

#### **FEDERAL AGENCIES**

U.S. Army Corps of Engineers  
U.S. Environmental Protection Agency  
U.S. Fish and Wildlife Service  
U.S. General Services Administration

#### **STATE AGENCIES**

Colorado Department of Public Health and Environment  
Colorado Department of Labor and Employment, Division of Oil and Public Safety  
Colorado State Historic Preservation Officer  
Colorado Department of Transportation  
Colorado Historical Society, Office of Archaeology and Historic Preservation

#### **CITY AGENCIES**

City of Lakewood  
City and County of Denver  
Jefferson County  
Green Mountain Water and Sanitation District

#### **OTHER ORGANIZATIONS**

RTD

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## **LIST OF PREPARERS**

Shelly Clubb, U.S. General Services Administration, Public Buildings Service, Regional Environmental Manager

Lisa Morpurgo, U.S. General Services Administration, Business Center Manager, Denver Federal Center Service Center

Sharon Malloy, U.S. General Services Administration, Property Development, Regional NEPA Coordinator

Janet Preisser, U.S. General Services Administration, Property Development, Special Programs Coordinator

Elaine Adams, U.S. General Services Administration, Property Development, Regional Historic Preservation Officer

Andrea Kramer, U.S. General Services Administration, Property Development, Assistant Regional Historic Preservation Officer

Jim Denier, URS Group, Inc. Project Manager and Contributing Author

Dan Niosi, URS Group, inc. Contributing Author

Pamela Roszell, URS Group, Inc. Contributing Author

Kelsey Johnston, URS Group, Inc. Contributing Author

Jim Crawford, URS Group, Inc. GIS and Graphics

Rich Lane, URS Group, Inc. Technical Editor

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## **APPENDIX A: CONSULTATION**

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Letter 1

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## **APPENDIX B: ENVIRONMENTAL DATA RESOURCES**

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