



Anschutz Medical Campus, Fitzsimons Redevelopment Authority, Veterans Affairs Medical Center, and Associated Areas

SITE-WIDE COORDINATED MASTER PLAN - PHASE II

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This map, which depicts the former Fitzsimons Army Medical Garrison and surrounding City of Aurora property, indicates the extent of the Site-Wide area.

FIGURE A.1 - STUDY AREA BOUNDARY DEFINITIONS

MASTER PLAN TERMS AND DEFINITIONS

Site-Wide

A term used to describe the 578-acre former Fitzsimons Army Medical Garrison site, also referred to as the square mile. This area encompasses the seven major stakeholder entities that participated in this planning effort: Anschutz Medical Campus (which includes Children's Hospital Colorado, University of Colorado Hospital, and University of Colorado Anschutz Medical Campus), University Physicians, Inc., Veterans Affairs Medical Center, Fitzsimons Redevelopment Authority, and City of Aurora. In addition to the major stakeholders, a diversity of over 40 businesses, schools, hospitals, banks, restaurants, and other agencies participate in and contribute to the Site-Wide community.

Square Mile

The former Fitzsimons Army Medical Garrison site is not exactly square; approximately one mile of Colfax Avenue and Peoria Street form its southern and western boundaries, respectively. Fitzsimons Parkway rounds the corner around the northern and eastern edges. However, "square mile" is meant to delineate this roughly square parcel of land that contains the former U.S. Army property.

Fitzsimons Army Medical Garrison (FAMG)

The former 578-acre ("square mile") Department of Defense facility in Aurora, Colorado, also known as the Fitzsimons Army Medical Center, was closed in 1994 by U.S. Congress. The University of Colorado system is currently comprised of three institutions with distinct campuses at four locations: Boulder, Colorado Springs, Denver, and Aurora. The University of Colorado's official abbreviation is CU.

Colorado.

University of Colorado

University of Colorado Anschutz Medical Campus

The University of Colorado Anschutz Medical Campus in Aurora is home to the university's health professions–related schools, college, and centers. Approved short-form names are:

CU Anschutz Medical Campus CU Anschutz the university



Fitzsimons Redevelopment Authority (FRA)

The FRA directs the commercial developments in the Fitzsimons Life Science District. The land for development by the FRA is located primarily north of Montview Boulevard.

Anschutz Medical Campus

The official name of the 230-acre area owned by the University of Colorado on which are located the CU Anschutz Medical Campus core facilities and the independent University of Colorado Hospital and Children's Hospital

University of Colorado Denver | Anschutz Medical Campus

The rebranded name of the University of Colorado's consolidated Denver Campus and Anschutz Medical Campus

University of Colorado Health Sciences Center (UCHSC)

Prior to 2004, the name of what is now referred to as the University of Colorado Anschutz Medical Campus.

Form-Based Planning

Communities are traditionally planned around the type of uses—i.e. residential, retail/ commercial, civic—allowed in a defined zone. This traditional planning model is called Euclidean zoning or land-use planning and classifies a particular area on the map based on what activity occurs there. Euclidean zoning could indicate that a particular area is intended for single-family residential use or commercial use, for example.

Form-based planning is the method for development proposed by this master plan and is a departure from Euclidean zoning. Instead of defining areas by building type, form-based planning proposes a unique character for an area's buildings and public realm, which unifies different coexisting land uses with a consistent language of scale, massing, and form.

Character District

To encourage a mix of all space types across the Site-Wide area, this master plan defines specific zones, called Character Districts, in terms of the character of its built environment, rather than by which activities occur there. Criteria that differentiate the Character Districts and elevators). Rentable square feet (RSF) is a include the scale, massing, and form of buildings and open space.

There are five Character Districts in the Site-Wide area, and each is defined by the regular and predictable physical gualities of its buildings and public realm (the space between each building that includes open space, sidewalks, roadways, and street landscaping). The five Character Districts are:

- C1 | Academic Village
- C2 | Urban Campus
- C3 | Hospital District
- C4 | Special
- C5 | Natural

Enterprise Zone

The Colorado Enterprise Zone Program creates business-friendly environments in distressed areas by offering incentives to businesses and projects in such areas. Location in an Enterprise Zone alone does not earn an incentive; taxpayers must earn their incentive by performing specific economic development opportunities that encourage job creation and investment in the Enterprise Zone.

There are 16 Enterprise Zones and two sub-zones in Colorado as designated by the Colorado Economic Development Commission. The Site-Wide area falls in the Adams County Enterprise Zone. Businesses located in the Site-Wide area could qualify for up to nine Enterprise Zone Tax Credits. (Source: www. adamscountyed.com)

Assignable Square Feet (ASF)

A term used to describe the space in a building that occurs within a room-from interior wall to interior wall-that can be assigned to an occupant. Excluded are building spaces such as restrooms and circulation (corridors, stairs, similar measure related to space leasing, and the difference is it includes a percentage of the building's common areas per tenant.

Gross Square Feet (GSF)

Gross square feet includes the total area of all floors of a building, including all areas within the outside faces of exterior walls and floor penetrations. GSF also includes all space above and below grade and building structural, mechanical, and infrastructure systems, including building circulation, restrooms, and support spaces.

Transit-Oriented Development (TOD)

that are centered around train systems.

TOD includes high-density, high-quality

development within a short walking radius

around a train station. TOD and the creation

of compact, walkable communities make it

dependence on a car for mobility. Factors driving the trend towards TOD include growing

traffic congestion, and the desire for quality

urban, walkable lifestyles. (Source: www.

transitorienteddevelopment.org)

possible to eat, sleep, work, and play without

Transit-oriented development is a fast-growing

trend in creating vibrant, livable communities

R 17

ASSIGNABLE SQUARE FOOTAGE

- BUILDING COMMON AREAS, SUPPORT SPACES, WALL THICKNESS AND SHAFTS
- + GROSS SQUARE FOOTAGE

FIGURE A.2 - ASF VERSUS GSF

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Aerial view of the Site-Wide area looking northwest from Colfax Avenue (bottom left).

I. EXECUTIVE SUMMARY

The Site-Wide Coordinated Master Plan is the culmination of an extensive, collaborative planning process for a unique and rapidly developing 578-acre area within the City of Aurora (CoA, city) that involved numerous stakeholders from the various public institutions, government agencies, non- and for-profit entities, and community associations and organizations that are part of the roughly square-mile site. Although broad-based, the comprehensive planning effort was initiated by seven Site-Wide stakeholder entities that as a group own and/or occupy most of the site and generate the largest number of employees and visitors. As a result, they significantly influence the character and functionality of the site, as well as its social and economic impact on the community, city and region.

The seven primary stakeholders include Children's Hospital Colorado (CHCO), CoA, Denver Veterans Affairs Medical Center (VAMC), Fitzsimons Redevelopment Authority (FRA), University of Colorado Anschutz Medical Campus (CU Anschutz), University of Colorado Hospital (UCH), and University Physicians, Inc. (UPI).

In a brief span of 16 years, the Site-Wide area has become a world-class center for all things related to the health sciences. The university and hospitals within the area serve the region, state, and nation through nationally ranked health science research, education, and clinical Development and population growth within the care delivery. Through its redevelopment authority, the FRA has enabled the private development of housing, retail, restaurants, and businesses, as well as several innovative companies that advance the commercial and clinical potential of health science research discoveries. Today, the Site-Wide area is an enormous economic engine for CoA, the region, and the state of Colorado.

CONTEXT

In 1995, the U.S. Army's Base Realignment and Closure Commission (BRAC) announced the planned closure of the Fitzsimons Army Medical Garrison (FAMG) located in the City of Aurora, Colorado. In response, CoA and the University of Colorado Health Sciences Center (UCHSC, university) partnered to pursue conveyance of the 578-acre Garrison site. Anticipating the collaborative effort would be a success, UCHSC and CoA created the FRA to serve as the property conveyance and development oversight body required by the BRAC property acquisition process.

The FRA and university prepared coordinated General Development Plans that together proposed a health and biosciences campus that would include nationally ranked hospitals, an academic health center, innovative bioscience and technology park, office and commercial facilities, and a limited amount of housing, retail, and restaurants that would primarily serve the employees, students, and visitors of the campus. The initial request for land conveyance was a 217-acre parcel for UCHSC. Over the next few years, the remaining FAMG lands were acquired, through conveyance and/or purchase, as distinct parcels by different institutions and entities through several U.S. agencies, which included the Departments of Defense (DOD), Education (DOE), Justice (DOJ), and Interior (DOI).

Site-Wide area since 1998 has been explosive: As of 2001, there were approximately 1.2 million GSF of original, generally outdated buildings that have been renovated or replaced with new state-of-the-art facilities, resulting in a current facility total of over 8.4 million GSF. The Site-Wide area currently has a population greater than 22,000, which is projected to increase by nearly 50% to over 32,000 people in 2022.

PROCESS

The foundation for this report, the 2011 Site-Wide Coordinated Master Plan - Phase I. captured a wide range of issues, concerns, and opportunities that were specific to each individual stakeholder, as well as issues applicable to all. Through discussion and progress made since Phase I was completed, some issues have been resolved, some have been rendered no longer relevant, and others are still points of active discussion that will be engaged beyond this Phase II report. Those issues that are still points of discussion will continue to be reviewed through ongoing collaboration between the stakeholders.

The purpose of this effort is to create a framework for continued communication and collaborative planning that will enable the Site-Wide stakeholders to deal with the critical issues and significant opportunities of today and tomorrow. The overarching success of the master planning process has been the renewed integration of planning efforts by all Site-Wide stakeholders. The new Bioscience 2 building, a collaborative effort between the FRA and CU Anschutz, is a testament to the power of the ideas and inter-stakeholder support that have been shared throughout this process. The project has revealed opportunities to engage with the community surrounding the Site-Wide area like capitalizing on Adams County Enterprise Zone development opportunities and engaging with urban renewal areas in CoA's "Opportunity Triangle."

This document is one step in a proposed long-range collaborative planning continuum. As a planning framework, it will be necessary to periodically update key data on population, space, and utility needs, as these items directly influence decision-making developments. By early 2015, the FRA will complete an update to its master plan, and the CoA's Station Area Plan for the Fitzsimons light rail station should be completed and in the longer term, the Anschutz Medical Campus Facilities Master Plan will be updated in 2022. The Site-Wide plan should be revised concurrently for the sake of collaboration and efficiency.

PLANNING

A summary of development updates to the Phase I plan in 2011 is a testament to the growing and changing opportunities in the Site-Wide area. While the proposed planning elements identified in this document are important and will positively impact development of the health sciences district, significant planning paradigm shifts arose through this collaborative effort. These include the transition from a land-use to form-based planning model and the relocation of the onsite light rail station and track line from Montview Boulevard, within the site's core, to Fitzsimons Parkway along the site's northern perimeter.

Form-based planning will encourage urban. mixed-use development that will result in a more vibrant, transit-oriented community. The light rail station relocation to a largely undeveloped area of the site will provide greater opportunities for transit-oriented, mixed-use development that will support not only the health sciences district, but also the surrounding community, city, and region. The importance of these decisions cannot be overstated, as they will transform a previouslyplanned health and biosciences campus into a new and dynamic live-work-play community of choice within Colorado.

Acknowledging that all entities will benefit from working together to capitalize on assets like the light rail in the Site-Wide area, the stakeholders have shared information and ideas for the Site-Wide area as an integrated, urban community. Planning progressed through rounds of brainstorming and review. Strategies and schemes were developed with task forces dedicated to several planning areas of focus before being vetted by steering- and executivelevel committees. These planning committees worked through Site-Wide data and issues. established a physical vision and principles for the site, explored concepts to support those principles, and developed strategies and a preliminary implementation plan to help these plans become reality.

In a collaborative effort to determine principles and criteria that will guide the resolution of Site-Wide issues and provide consistency to future development, Site-Wide stakeholders came together for a visioning exercise, the results of which are documented in this report. A unique and tailored vision was crafted for the Site-Wide area to emphasize the need to attract top talent to the university and hospitals, support collaboration between stakeholder entities, and support the development of housing, retail, hotels, and other community amenities on FRA property and adjacent to the Anschutz Medical Campus.

Three major goals-innovation, connectivity, and stewardship—support the Site-Wide vision.

- Innovation can drive the success of all endeavors within the Site-Wide area, and innovation should advance new clinical protocols and entrepreneurial businesses. among other initiatives.
- Collaboration between people from different fields should foster creative innovation, which is one of the main catalysts of the second goal: connectivity. One of the current challenges facing the Site-Wide area is breaking down the "silos" of the entities and disciplines. This plan is intended to support greater connectivity at all levels, including virtual connectivity, and to foster interaction that helps lead to collaborative innovation and findings.
- The third goal for the Site-Wide Coordinated Master Plan – Phase II is stewardship, which includes economic, social, and environmental sustainability for all the Site-Wide entities.

Each of the three goals-innovation, connectivity, and stewardship-is broken out into specific principles that propose priorities for the community and its development. A list of criteria also accompanies each goal, which can be used to help evaluate the progress and success of various Site-Wide initiatives.

Stakeholders developed a planning framework that outlines how the Site-Wide area should grow. This framework is based on form-based planning, in which traditional zoning-by-use planning, with separate designated areas for research, retail, residential, or academic uses is discarded. Form-based planning allows these uses to be juxtaposed and mixed throughout the whole Site-Wide area, which is organized by the look, feel, and scale of different areas. Five types of Character Districts arose from this method: Academic District, Urban District, Hospital District, Special District, and Natural District

Planning within each district type is broken down into "fixed" and "flexible" systems. Fixed systems are comprised of the necessary infrastructure to support the development of buildings, parking lots, structures, and landscape elements. These fixed systems include roadways, open space, public transportation networks, and underground utilities, which must meet certain fixed minimum requirements to support the Site-Wide area. Flexible systems, on the other hand, are located within individual building sites and can include individual site landscape, parking, and buildings. The character of these flexible spaces varies depending on the needs of each individual project.

In addition to assessing fixed and flexible systems, this Site-Wide plan also looks at specific areas recommended for further study in Phase II. These critical areas, including around the Fitzsimons Parkway LRT station, Montview Boulevard, 17th Avenue, Colfax Avenue, and Peoria Street, warrant further review and study to ensure that each area can develop to benefit the Site-Wide area as a whole

IMPLEMENTATION

To provide a rough outline of what project needs may be over the next ten years, each stakeholder, if applicable, submitted a list of planned and proposed projects for their specific entity.

Projects proposed to occur in Phase I of the planning period (2012-2017) include the Bioscience 2 building, a collaboration between FRA and CU Anschutz; completion of the VAMC by 2015-2016; UCH's expansion of the Rocky Mountain Lions Eye Institute; and the Interdisciplinary Building Phase I and Data Center and Colorado Translational Research Imaging Center (CTRIC) at CU Anschutz.

This Site-Wide plan also proposes several infrastructure improvements in Phase I, which include wayfinding enhancements, expansion of the Central Utility Plant (CUP), and various circulation and roadway improvements.

Additionally, collaborative projects resulting from efforts between multiple stakeholders are increasing. Examples of such programs include Aurora Health Access, a local health advocacy group staffed by students at the Colorado School of Public Health at CU Anschutz; the campus-community partnership created out of the CU School of Medicine (SOM) Department of Family Medicine; the Statewide Umbilical Cord Blood Collection program, initiated by ClinImmune Labs located in the FRA at Bioscience Park Center; and CHCO's Children's Health Advocacy Institute whose mission is to positively impact the health and safety of children by working with public and community partners.

Each entity has a unique development plan, and UCH, CHCO, FRA, and CU Anschutz have specific design guidelines, as well. Design guidelines can speak to how different elements—such as urban design elements like walkways, lighting, and public art, as well as building design elements like materials and parking structures-should be implemented. Guidelines for the Anschutz Medical Campus were built upon the FRA's in the spirit of collaboration, and while coordination of design guidelines is desirable to a degree, each entity should be allowed to maintain a distinct identity through tailored guidelines.

Recognizing the need to have a high-level decision-making body oversee Site-Wide initiatives and development plans, the stakeholder entities have proposed that overview of the Site-Wide master plan be delegated to the existing Anschutz Executive Committee (AEC), which has representation from each of the stakeholder entities. This group should be tasked with ensuring that all future development is implemented consistently with the community's vision, goals, principles, and criteria as described in this master plan. A great benefit of this plan has been that stakeholders are working together, and the AEC can support a framework in which these conversations can be continued.



Aerial view of he Site-Wide area looking west-northwest from Colfax Avenue (left) and Fitzsimons Parkway (bottom right) to downtown Denver and the mountains beyond.

A. PLANNING CONTINUUM

Home to a community of vibrant public and private entities, the Site-Wide area has experienced dramatic transformational growth over the past 16 years. Recognizing that sustained success will require constant reassessment and adjustment of its physical environment, key stakeholder entities initiated this first joint Site-Wide planning effort to establish the foundation for collaborative planning and development.

To achieve this, the Site-Wide Coordinated Master Plan – Phase II report was conceived as a living document that can be easily revised to accommodate the changing priorities of the area's various stakeholders. As such, this report is not designed as a rigid blueprint that prescribes all future site-wide development, but rather as an adaptable "framework" within which new planning and development scenarios can be easily integrated. Consistent with this goal, all document narratives and graphics are propositional in nature and are not meant to be implemented literally.

Given the rapid pace of change within the study area and the set timeframe to complete the study, this planning document captures only a specific "moment in time" that is informed by a given set of existing conditions, identified issues and opportunities, and defined aspirational goals. As a result, many significant projects, studies, and planning efforts initiated during the planning process are not incorporated into this document. The expectation is that periodic updates of this document will capture and integrate these new endeavors, which will keep the Site-Wide plan a relevant, living document.

Near the end of the planning process, in June of 2013, RTD's Board of Directors approved the relocation of its Montview Boulevard light rail station within the Site-Wide core to Fitzsimons Parkway, on the area's northern boundary. At the time of this writing, the final location of the proposed Fitzsimons Parkway station is between the proposed alignment of Scranton Street and Revere Court, and the associated rail will run on the north side of Fitzsimons Parkway.

The new alignment to the northern periphery of the Site-Wide area significantly changed future planning and development opportunities within the FRA. The new location will promote transit-oriented development within the FRA. Subsequently, FRA and CoA both identified a need to undertake new planning efforts to address this change, which will include an update to the FRA Master Plan and associated Urban Design Guidelines, as well as a CoA-led station area plan for the Fitzsimons Parkway Station Area. Both are scheduled to begin in 2014, and a broad overview of the efforts is described below:

The Fitzsimons Redevelopment Authority Master Plan Update

The purpose of the FRA master plan is to reassess and modify, as appropriate, land use, infrastructure and utilities, circulation, and public realm and site development design guidelines. The findings of this study may result in major changes to the current Master Plan's proposed roadways, open spaces, and development densities and typologies. As a result, much of what is depicted and described within FRA in this document may soon be outdated.

Fitzsimons Parkway Station Area Plan

The Station Area Plan will focus on developing a scenario that encourages and facilitates transit-oriented development, especially within a half-mile radius of the proposed station. Station area plans typically result in realistic plans and implementation strategies that lead to development of mixed-use communities that are vibrant, livable, compact, and centered on transit hubs (light rail, buses, etc.). Key outcomes of the study may look to accomplish the following:

- Create a sense of place.
- Increase "location efficiency," so people can walk, bike, and utilize public transit.
- Boost transit ridership and minimize transportation congestion.
- Provide a good mix of housing, retail, commercial, and transportation choices.
- Generate revenue for the public and private sectors and provide value.

The holistic nature of station area plans suggests that the outcome of the CoA's effort will inform the FRA Master Plan Update and result in modifications to this Site-Wide document.

II. OVERVIEW

A. PURPOSE

The Site-Wide Coordinated Master Plan – Phase I, completed at the end of 2011, combined information about existing conditions and known future projects and improvements from the seven primary Site-Wide stakeholders into a single document. It identified a number of outstanding issues and future studies that needed to be addressed in future planning efforts. This Phase II document continues the important process of moving the discussion forward on a broad range of issues identified in Phase I.

The planning process was a forum for stakeholders from the seven major entities to come together at all levels and discuss the issues facing the participants individually and collectively. The issues are complex, and ultimately each entity will proceed on projects within their borders independently, but the team identified areas of overlap such as coordinated efforts on parking and transportation in which collaboration will benefit all the participating stakeholders. This Site-Wide plan has been borne out of the spirit of collaboration, and issues of all major stakeholders were recorded during the planning process. The purpose of this plan is to document the progress made on joint issues and provide the dimension of issues that will need to be addressed in the future.



The Anschutz Medical Campus looking northeast from Colfax Avenue and Peoria Street (2003).



B. STUDY AREA

SITE CONTEXT: LOCAL AND REGIONAL

The Site-Wide study area is located in northwestern Aurora, Colorado, nine miles east of downtown Denver along East Colfax Avenue on the site of the former 578-acre Fitzsimons Army Medical Garrison (FAMG). The site is bounded to the north and east by Fitzsimons Parkway, and to the south and west by major thoroughfares Colfax Avenue and Peoria Street, respectively.

The site is linked to the metropolitan region via Peoria Street, Colfax Avenue, and U.S. Interstates 225 and 70. With completion of RTD's I-225 light rail line in 2016, two consecutive light rail stations will link the site to all regional transportation destinations, including Union Station in downtown Denver and Denver International Airport.

FIGURE II.1 - REGIONAL CONTEXT



Over \$4 billion have been invested in the Anschutz Medical Campus.



The Shops at Fitzsimons, a commercial development at Colfax Avenue and Potomac Street.



Residences and retail at Fitzsimons 21.

ADAMS COUNTY ENTERPRISE ZONE

Colorado's Enterprise Zone program provides tax incentives to encourage businesses to locate and expand in designated economically distressed areas of the state. There are 16 Enterprise Zones in Colorado, one of which is in western Adams County and includes the Site-Wide area, as shown in Figure II.2. Areas with high unemployment rates, low per capita income, and/or slow population growth may be approved as an Enterprise Zone by the Economic Development Commission.

The Site-Wide area's designation as part of an Enterprise Zone impacts its development, and the program provides tax incentives to businesses and projects to encourage job creation and investment in the Adams County Enterprise Zone, which includes the Site-Wide community.

The community is growing quickly, and businesses and other enterprises can take advantage of the development benefits afforded by the square mile's location in the Adams County Enterprise Zone. A testament to its economic impact and fast growth, the Site-Wide area's development is one of four projects impacting the county with a budget of over \$1 billion, and on the Anschutz Medical Campus alone, more than \$4 billion has been invested in new facilities and infrastructure.



FIGURE II.2 - ADAMS COUNTY ENTERPRISE ZONE





CITY OF AURORA CONTEXT

CoA has 10 urban renewal areas, where the city works in partnerships with property owners, developers, investors, other stakeholders, and the community to promote and coordinate development and redevelopment projects. Two CoA urban renewal areas cover the Site-Wide area: The Colorado Science + Technology Park and Fitzsimons Urban Renewal Areas, as shown in Figure II.3. The Anschutz Medical Campus comprises the bulk of the Fitzsimons Urban Renewal area, where development supports educational, research, and clinical missions. Outside the area bounded by Colfax Avenue, Peoria Street, and Montview Boulevard is the Fitzsimons Boundary Area District (FBAD), where CoA encourages a variety of mixed-use, retail, residential, and transitoriented uses.

CoA sees that development at the Site-Wide area complements projects at Lowry and Stapleton. These areas, the former Stapleton International Airport and Lowry Air Force Base, respectively, have also seen rapid development and urban renewal. The area encapsulated by these three redevelopment areas is referred to as the "opportunity triangle." This triangular zone is strengthened by several other development projects; the Aurora Cultural Arts District along Colfax Avenue is the historic center of Original Aurora, and Westerly Creek Village is envisioned to be a thriving residential neighborhood and community that will serve Lowry, Stapleton, and the Site-Wide area.

The centers, study areas, and redevelopment being envisioned and implemented by CoA will strengthen the Site-Wide community and supplement it with desirable places for Site-Wide employees and visitors to eat, sleep, work, and play.

FIGURE II.3 - CITY OF AURORA CONTEXT

AURORA NEIGHBORHOOD ORGANIZATIONS

Northwestern Aurora was once the city's government and commercial center, with Colfax Avenue as its main street. As a result, the area has medium-density neighborhoods with a traditional network of streets and pedestrianscaled residential blocks. The area is home to long-standing neighborhood organizations and associations, which are mapped in Figure II.4.



Aurora Neighborhood Organizations (campus-adjacent neighborhoods in BOLD)

- 01 Northwest Aurora Neighborhood Organization
- **02** Hoffman Heights/Jewell Heights Neighborhood Organization
- **03** Del Mar Parkway Neighborhood Organization
- 04 Morris Heights Improvement Association
- 05 Sable/Altura/Chambers Neighborhood
- 06 Hillcrest Village Homeowners Association
- 07 The Meadows

FIGURE II.4 - CITY OF AURORA NEIGHBORHOOD ORGANIZATIONS

- 08 Summerfield Villas Townhome Association
- 09 Chambers Heights Homeowners Association
- 10 Veronica Acres Homeowners Association
- 11 Lynn Knoll Neighborhood Association
- 12 Macon-Moline Partnership
- 13 The Aurora Arts District
- 14 Highland Park East Neighborhood Association





C. SITE-WIDE ENTITIES

The Site-Wide area is shared by the following seven major stakeholder entities who participated in this coordinated master planning effort:

 Anschutz Medical Campus, comprised of: - CU Anschutz

- CHCO
- VAMC
- FRA and its development partners
- UPI
- CoA

Other entities located in the square mile include the Colorado Veterans Nursing Home, U.S. Army Reserve facilities, Fitzsimons Credit Union, and over 40 organizations and businesses that function, to varying degrees, in collaborative partnerships.

Portions of the Site-Wide area have undergone tremendous change since 1998 when parcels of the FAMG began to be conveyed to CU, FRA, CoA, and other entities. As of 2012, the Site-Wide area has grown to over 8.4 million gross square feet (GSF) of existing and new facilities for the seven major stakeholders alone. During that 14-year period of robust development, most of the army's buildings were razed to accommodate newer, more specialized facilities.

A few notable on-campus structures were retained, including the Post Chapel, Colonel's Row (four former officers' residences), and the former Army Hospital, known as Building 500.

Ranging in scale from an administrative support entity housed in one building, to a Colorado municipality, to three state-of-the-art hospitals, the Site-Wide entities boast both breadth and depth of interest to create a dynamic and vibrant community.

CITY OF AURORA

Founded in 1891 and incorporated in 1907, the City of Aurora spans three counties in Colorado: Adams, Arapahoe, and Douglas Counties. Aurora is the 56th largest city in the United States with a population of 325,078, according to the 2010 U.S. Census. The Site-Wide area is located in northwestern Aurora in Adams County, approximately nine miles east of Denver's central business district.

Within the Site-Wide community, CoA owns several facilities, including the police training facility at Montview Boulevard and Wheeling Street, the Sand and Toll Gate Creek Greenways, and General's Park. As the Site-Wide area connects to CoA parks, roadways, water, and other utility systems, several CoA departments-like Public Works; Water; Parks, Recreation, and Open Space; and Planning and Development Services—help plan and maintain the Site-Wide community.

CoA has a vested interest in the success and development of the Site-Wide area, as one of its long-range goals is for this northwest part of the city to become an urban, central hub of business, education, and health care. The Site-Wide area is located in two urban renewal areas-the Fitzsimons and Colorado Science + Technology Park Urban Renewal Areas. The city is dedicated to working in partnership with property owners, developers, investors, other stakeholders, and the community to plan, promote, and coordinate development and redevelopment projects in these areas.

FITZSIMONS REDEVELOPMENT AUTHORITY

In 1995, the U.S. Congress passed a bill that included closure of the FAMG, a 578-acre site in Aurora. The FRA was established to conform to the Department of the Army's Base Realignment and Closure Commission (BRAC) property acquisition process, which requires a body be established to organize and oversee the transition and redevelopment of former military properties.

In 1995, the FRA was established by CoA and CU as a quasi-governmental entity with the single mission to envision and govern the evolution of a historic army medical center into one of the world's most forward-

FIGURE II.5 - SITE-WIDE ENTITIES BY OCCUPANCY

looking bioscience districts. The FRA directs commercial development in the northern half of the Site-Wide area to foster a functioning community that directly supports the health and well-being of life science companies.

FRA is home to over 40 different entrepreneurial and bioscience entities, many of which are housed in the Bioscience Park Center at Montview Boulevard and Scranton Street or Bioscience East at Fitzsimons Parkway and Montview. Today, the Fitzsimons Golf Course largely occupies the western portion of FRA property, but conference facilities, restaurants, apartments, parks, a hotel, offices, and other mixed-use development—specific plans for which will be determined in the transit-oriented development (TOD) study—are expected to energize this portion of the site.

There exist opportunities in the FRA for CU Anschutz and the hospitals to expand and take advantage of the potential for bioscienceshealth partnerships within the Site-Wide area. An example of such a collaborative endeavor is the Bioscience 2 building, which will serve and benefit both CU Anschutz and the FRA. The FRA encourages this type of relationship with CU Anschutz, and the three hospitals.

CU ANSCHUTZ

CU Anschutz is one of the nation's newest and most dynamic educational, health care, and biomedical research facilities in the world. CU Anschutz is home to six schools and colleges. In 2012, the 12,860 people at CU Anschutz included 3,836 faculty, 2,549 staff, 1,336 professional research assistants, 1,010 medical residents, and 4,129 students. The university's 33 buildings, parking structures, and leased facilities total over 3.7 million GSF.

Though located on separate campuses, CU Anschutz and CU Denver form a single, consolidated institution, University of Colorado Denver | Anschutz Medical Campus. The university's mission statement is "The University of Colorado Denver | Anschutz Medical Campus is a diverse teaching and learning community that creates, discovers, and applies knowledge to improve the health and wellbeing of Colorado and the world."

⁻ UCH

UNIVERSITY OF COLORADO HOSPITAL

UCH is the primary teaching hospital for CU and includes primary care and specialty clinics around the state, as well as central facilities at the Anschutz Medical Campus. All providers treating patients at UCH are also faculty members at CU School of Medicine (SOM) and therefore keep up with—and often lead—the latest research and medical treatments. Along with CHCO and VAMC, UCH is an affiliate of CU SOM, which is critical for training future physicians and nurses. UCH is dedicated to advancing health care for its patients and their families through healing, discovery, and education.

UCH's facilities at the Anschutz Medical Campus include:

- The Anschutz Inpatient Pavilion, UCH's main 400-bed hospital
- The Anschutz Outpatient Pavilion, home to many clinics
- The Anschutz Cancer Pavilion, home to clinical services of the University of Colorado Cancer Center
- Opthalmology practices at the Rocky Mountain Lions Eye Institute (RMLEI)
- Center for Dependency, Addiction and Rehabilitation (CeDAR), a residential and treatment center for adults and families afflicted with alcoholism, gambling, and substance dependencies

CHILDREN'S HOSPITAL COLORADO

CHCO's mission statement is "to improve the health of children through the provision of high-quality, coordinated programs of patient care, education, research, and advocacy." The hospital sees, treats, and heals more children than all other Colorado hospitals combined. Founded in 1908 in Denver, CHCO's main hospital is located on the Anschutz Medical Campus, and it offers pediatric care at 15 regional locations. CHCO employs more than 1,000 pediatric specialists and more than 3,000 engage in the practice of medicine. Because of full-time employees. Most CHCO physicians are part of the CU som faculty.

CHCO's facilities include:

- Main Hospital, CHCO's 500-bed hospital
- Administrative Pavilion • Outpatient Pavilion, which houses multiple
- physician outpatient clinics
- The Gary Pavilion, home to an inpatient child psychiatry program and The Kempe Foundation for the Prevention and Treatment of Child Abuse and Neglect
- CHCO Dental Center, home to the Healthy Smiles Clinic, which ensures all kids can see a dentist even if uninsured

DENVER VETERANS AFFAIRS MEDICAL CENTER

The VAMC is part of the VA Eastern Colorado Health Care System and an affiliate of CU SOM, dedicated to providing quality care to veterans of eastern Colorado and surrounding areas. The Veterans Health Administration mission statement reads, "Honor America's Veterans by providing exceptional health care that improves their health and well-being."

Denver's operational VAMC is located at 9th Avenue and Colorado Boulevard in Denver. After considering sharing a facility with UCH, the VA decided to construct a standalone facility, which began construction in 2012.

1,240,546 GSF of construction and 994,275 GSF in three parking structures is planned for the VAMC replacement facility in the southeast corner of the Site-Wide area. The building is organized as a series of nine buildings, most of which spur off of a central spine-like concourse (159,610 GSF).

UNIVERSITY PHYSICIANS, INC.

UPI is the multi-specialty group practice of faculty physicians and ancillary health care providers at CU SOM. UPI provides business operations and administrative support, including billing and contracting, to SOM's 1,800 providers. UPI represents SOM physicians, and UCH and CHCO are partnersin-care. However, UPI remains a separate legal entity that does not employ physicians or any other healthcare providers and does not the interrelatedness of CU SOM faculty and the three hospitals, the majority of physicians at all three hospitals have a relationship with UPI.

In March of 2004, UPI moved to the Site-Wide area to a facility they built at Colfax Avenue and Wheeling Street, which was subsequently sold to the VA in 2006. UPI built and now owns a new building north of Montview Boulevard that is six stories, has 184,700 rentable square feet that are able to be leased and occupied by tenants (RSF), and is one-third larger than the original building. UPI occupies 86,000 RSF, leases much of the remaining space to the university, and some space remains vacant for lease by future tenants. The adjacent parking structure has four levels and a total of 650 stalls.

- 1 General's Park, City of Aurora
- 2 Bioscience Park Center, Fitzsimons Redevelopment Authority
- 3 Building 500, University of Colorado Anschutz Medical Campus
- 4 University of Colorado Hospital
- 5 Children's Hospital Colorado
- 6 Denver Veterans Affairs Medical Center
- 7 University Physicians, Inc.
- 8 The Site-Wide area









II OVERVIEW











FIGURE II.6 - CONTROLLING INTERESTS AND DEVELOPMENT RESTRICTIONS

D. CONVEYANCE

When the U.S. Congress passed the bill in 1995 that included the planned closure of the FAMG, the University of Colorado Health Sciences Center (UCHSC) (the name of the Anschutz Medical Campus prior to rebranding in 2004) and CoA actively pursued adaptive reuse of this property. This included property conveyance at no cost to either entity from the Department of Education (DOE), Department of Justice (DOJ), and Department of Interior (DOI). The CU Board of Regents (BOR) quickly approved a study of the Fitzsimons site that confirmed its feasibility for university programs, and the BOR subsequently initiated the acquisition process.

Once the FRA was created to oversee the redevelopment of the former military property, UCHSC worked with FRA to prepare coordinated development plans and to request 217 acres of land for the university. The remainder of the original 578 acres was conveyed to, and/or purchased by, various entities through the U.S. Army and DOE, DOJ, and DOI, and in 1999, the army officially closed the Fitzsimons facility.

The UCHSC first moved to the Fitzsimons site in May of 1997, when it leased space in the main hospital, Building 500, for administrative uses. Within months. CU also submitted an Application for Public Benefit Transfer of Surplus-Federal Real Property for Educational Purposes to the United States to the DOE for 192.9 acres of land and buildings located on the property. As a public higher-education entity, the university could acquire the land at no cost if its use would be to further an educational mission for the good and benefit of Colorado citizens. The DOE approved CU's request, and 87.56 acres of the 192.9-acre total were made available for early conveyance.

Buildings on university property must promote an educational mission, which limits the type of development that can occur on property owned by CU, as indicated in Figure II.6. Site-Wide property that is not owned by the state and has no other development restrictions is subject to CoA land use authority; CU property is not subject to city overview.

In 2000, the DOE approved an additional 105.31-acre conveyance as a part of a Lease in Furtherance of Public Benefit Conveyance, which now houses CeDAR and the majority of CU Anschutz. In 2001, the DOE conveyed an additional 2.97-acre outparcel located in the northern portion of the site, near the U.S. Army Reserve Center, for the university's Perinatal Research Facility.

Other smaller property conveyances included the Red Cross and Aurora Public Schools (APS) Parcels. The 1.43-acre Red Cross Parcel, identified as parcel 2 in Figure II.6,v was originally sold to the FRA by the U.S. Army as a part of a federal economic development conveyance. The FRA conveyed this property to CU in 2004 through a quitclaim deed. The U.S. Army transferred land referred to as the APS Parcel to the DOE, which was then conveyed to APS. The APS Parcel was in turn purchased by CHCO. CHCO subsequently conveyed 16th Place from Victor Street to Wheeling Street and 2.23 acres of APS property north of 16th Place to CU to facilitate the realignment of Wheeling Street. The FRA conveyed an additional 30.93 acres of land to CU in 2004 and 2005. Similar to the Red Cross Parcel, the FRA purchased this property from the U.S. Army under a federal economic development conveyance.

E. NATURAL SYSTEMS

As a follow-up to the information on natural systems presented in the December 2011 Phase I study (topography, climate, solar, and wind patterns), a more thorough investigation was undertaken to give a more complete picture of the natural systems underlying the site.

SOILS

The soil map for the Site-Wide area shows the regions's soil series. A soil series consists of soils that have similar profiles but different textures in the surface layer. Soils of one series have similar horizons in thickness and arrangement but can differ in surface texture, slope, and stoniness. A soil series is divided into phases that indicate features such as percent slope.

A general survey of soils can suggest an area's suitable land uses and guide management of watersheds and wildlife areas as well as plans for recreation and development.

Per the USDA Natural Resources Conservation Service Web Soil Survey, the Site-Wide area consists of the following soil series (1 percent or greater):

- 21.0 percent Ascalon sandy loam
- 1.8 percent Loamy alluvial land
- 14.2 percent Truckton loamy sand
- 61.7 percent Weld loam
- 1.3 percent Weld silt loam

These soils largely fall into the Hydrologic Soil Groups B and C and feature well-drained soils and depth to water table of more than 80 inches.

Soil Series

Ascalon series is well-drained in nearly level to moderately sloping soil on uplands. These soils were formed in loamy material containing sand and gravel with moderate permeability. Characteristics of Ascalon sandy loam (AsB) at 1–3 percent slopes:

- Slow to medium surface runoff; slight to moderate water erosion hazard
- Severe hazard of soil blowing in unprotected areas
- Suitability as a source of:
- Topsoil: fair to poor
- Sand and gravel: poor
- Road fill: good to fair
- Irrigation: moderate to high water capacity
- Foundation limitations: slight to moderate, low to moderate shrink/swell potential

Loamy alluvial land is generally well-drained in moderately sloping drainageways subject to flooding. These soils formed in areas of silty deposits containing layers of loam, clay loam, and silt loam deposited unevenly on the surface by floodwaters. This series has low to moderate permeability on slopes of 0–3 percent. Characteristics of loamy alluvial land (Lu) at 0–3 percent slopes:

- Medium surface runoff; severe water erosion hazard
- Suitability as a source of:
 - Topsoil: fair to poor (upper 10 inches)Sand and gravel stratified with silt:
 - poor
 - Road fill: fair to poor
- Irrigation: moderate water capacity
 Foundation limitations: severe, subject to flooding, low to moderate shrink/swell potential

Truckton loamy sand is generally well-drained to excessively drained in nearly level to moderately sloping soils on uplands and stream channels. These soils formed in windworked sandy material containing loamy sand with rapid permeability. Characteristics of truckton (TtB) at 0–3 percent and 3–9 percent slopes:

- Slow surface runoff; slight water erosion hazard
- Severe hazard of soil blowing in unprotected areas
- Suitability as a source of:
- Topsoil: poor to fair
- Sand and gravel: fair source for sand, no gravel
- Road fill: good
- Irrigation: low to moderate water capacity
- Foundation limitations: slight

Weld loam is generally well-drained in nearly level uplands. These soils formed in windworked loamy materials with slow permeability. Characteristics of weld loam series (WmB) at 0–3 percent slopes:

- Medium surface runoff; moderate to severe water erosion hazard
- Severe hazard of soil blowing in unprotected areas with below normal rainfall
- Suitability as a source of:
- Topsoil: generally poor (top 6 inches good)
- Sand and gravel: unsuited
- Road Fill: poor to fair
- Irrigation: moderate intake rate with
- good available water capacityFoundation limitations: slight
 - dation inflitations. Silght



Map Unit Symbol	ap Unit Symbol Map Unit Name	
AsB	Ascalon sandy loam, 1 to 3 percent slopes	122.6
Lu	Loamy alluvial land	10.3
Sm	Sandy alluvial land	0.4
Tc	Terrace escarpments	0.1
TtB	Truckton loamy sand, 0 to 3 percent slopes	4.5
TtD	Truckton loamy sand, 3 to 9 percent slopes	78.7
WmB	Weld loam, 1 to 3 percent slopes	360.8
WeB	Weld silt loam, 0 to 3 percent slopes	7.7
Totals for Area of Interest		585.0

FIGURE II.7 - SOILS





I OVERVIEW



Areas of 0.2% chance of annual flood; areas of 1% annual chance of flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levee from 1% annual chance floods.

FEMA

500' ()

Per the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps Numbers 08005C0038K and 08005C0039K, revised March 10, 2011, the identified flood hazards impede only the northernmost portion of the Site-Wide area, including the Sand Creek Park area and extending south across Fitzsimons Parkway. Other areas identified as having a chance of flooding include surrounding Toll Gate Creek to the east of the square mile. This flood boundary reaches but does not extend westward beyond Fitzsimons Parkway between Montview Boulevard and Colfax Avenue.

In September 2013, Aurora received more than 15 inches of rain in a 500-year category event flood. The Site-Wide area was affected by this flood event; emergency vehicles could not access hospitals, and hospitals could not discharge patients. Sand and Toll Gate Creeks overflowed their banks, and parts of Peoria Street and Colfax Avenue were also impassible. Floodwater management has become a public safety issue for the Site-Wide area, as it can affect the operations of its major hospitals.

FIGURE II.8 - FLOOD MAP (FEMA - 2011)



Sand Creek Park is part of FEMA's flood hazard area.



Regional Pond 374 outfall.



Retention pond north of CUP looking west from Campus Services.



Retention pond at Quentin Street and Colfax Avenue.

HYDROLOGY

Storm runoff from the Site-Wide area is divided into five master drainage basins, with water flowing generally to the north and east, and ultimately into Sand Creek and Toll Gate Creek.

Runoff within Master Basin A (southwestern and northern-central portion of the Site-Wide area) is collected in the existing underground storm sewer system, routed north to Regional Pond 374 for detention and water-quality treatment, and ultimately discharged into Sand Creek north of Fitzsimons Parkway.

Runoff within Master Basin B (eastern portion of the Site-Wide area, comprised mostly of VA property) will be collected in a storm water system that is currently under construction. It will be treated for water quality and will ultimately outfall through the existing Toll Gate Creek outfall to the east.

Runoff within Master Basin C (southeastern portion of the Site-Wide area, excluding Master Basin B) is collected in the existing underground storm sewer system, routed northeast to the Pond 8 Water Quality Structure, and is ultimately discharged into Toll Gate Creek without detention.

Runoff within Master Basin D (northwestern portion of the Site-Wide area, mostly comprised of the existing golf course) is collected in the existing underground storm sewer system and routed north to Sand Creek north of Fitzsimons Parkway.

Runoff within Master Basin E (northeastern portion of the Site-Wide area) is collected in the existing underground storm sewer system and is discharged, undetained, to the northeast across Fitzsimons Parkway.

See Section V - Storm Water for more information on storm water systems.



FIGURE II.9 - MAJOR DRAINAGE BASINS



F. PHASE I STUDY SUMMARY

The purpose of the Site-Wide Coordinated Master Plan - Phase I was to define, document, and analyze existing Site-Wide conditions and to identify and prioritize key stakeholder issues. Completed in December 2011, the document formed the basis for Phase II in terms of reprioritizing key issues, concerns, and opportunities developed through stakeholder collaboration and consensus building.

Overview

The Phase I document is organized in the following manner:

- Section I Executive Summary
- Section II Site Overview records some of the historical and ecological contextual issues pertinent to the site
- Section III Development Timeline is based on an aggregate of the Site-Wide stakeholders' known projects to date.
- Section IV Master Plan Diagrams is based on the 2011 build-out of the site and on a future configuration consisting of the aggregate of the stakeholders' individual plans. Diagrams illustrate various site planning issues, and narratives describe specific topics to be explored in Phase II.
- Section V Site-Wide Issues is based on individual interviews and joint meetings with the stakeholders. Narratives describe common themes for the stakeholders and the perceived degree to which the original 1998 Planning and Design Principles were consistent with priorities in 2011.
- Section VI Phase II Studies for Consideration indicates recommendations for specific studies to be undertaken in Phase II. Diagrams illustrate the zones for a series of micromaster plans which, if developed in Phase II, could serve as a framework for scenarios that would address the issues raised in this report.

The composite plan in Figure II.10 reflects the official planning of each major stakeholder entity at the time the Phase I document was prepared. Differences between this image and the Phase II Illustrative Plan demonstrate the rapid growth and change in plans and priorities in the Site-Wide area.

FIGURE II.10 - SUMMARY OF PRIOR PLANNING INITIATIVES (2011)

PHASE I AND PHASE II

The goal of this Phase II document is to establish a consensus-driven framework for Site-Wide infrastructure and utility development that accommodates short- and long-term growth needs consistent with the newly established Site-Wide physical vision, goals, and principles.

An investigation of the Site-Wide context was undertaken in Phase II to complement the Phase I assessment. Broader connections to CoA open-space and development projects are documented, as is additional ecological context and property conveyance information.

The Development Update on the following page provides a summary of construction progress and planning priorities known at the time of this writing. This update informs the existing condition diagrams that populate Chapter V of this report. Stemming from an up-to-date analysis of existing conditions that supplements the Phase I master plan diagrams, the planning team developed proposals for various Site-Wide systems that include roadways, open space, bicycles, pedestrians, site service access, gateways, and utilities, as well as a flexible framework for site development projects that include new construction and parking.

The Phase II master plan incorporates responses to Phase I issues throughout the document. Some issues have been resolved and are documented in the physical plan proposals. Others have been determined by stakeholders to be no longer relevant Site-Wide priorities. Lastly, some issues remain active points of discussion; the in-depth study of some of these issues is recommended in Section VI.E Proposed Future Studies. To address the remaining outstanding issues, it will be important for the stakeholders to maintain an open dialogue about their shared site and its desired character.

Finally, the Site-Wide Coordinated Master Plan – Phase II responds directly to the studies recommended for consideration. These microplans are recorded in Section V.F Project Study Areas.

G. DEVELOPMENT UPDATE

Since adoption of the Phase I plan in January 2012 by Site-Wide stakeholders, several building projects underway at that time have been completed, including UCH's Anschutz Cancer Pavilion and Staff Garage, the Pauls Development Phase 2-A, and the university's Health and Wellness Center. The construction of the VAMC has begun in earnest, with an anticipated completion date of 2015.

The biggest changes to occur between the completion of the Phase I study and the publishing of this report relate to the I-225 light rail line. At the time the Phase I plan was published, the I-225 line was anticipated to be complete by 2043. The explosive growth of the Site-Wide area expedited that process, and RTD had planned two stations adjacent to the Site-Wide area, on Colfax Avenue and Montview Boulevard to be completed by 2016.

Since early 2012, not only has the original timeline been greatly expedited, but RTD has also decided to relocate the LRT line to the northern edge of the site, bypassing Montview Boulevard with a planned station along Fitzsimons Parkway to the north. The station on Fitzsimons Parkway is proposed to be located between Revere Court and Scranton Street on the north side of the parkway. CU requested the relocation in a formal letter to RTD, which was approved by leadership of all seven major Site-Wide stakeholder entities.

The realignment should allow the FRA to develop a major transit-oriented development at the northern edge of the Site-Wide area, in order to take advantage of the adjacent planned LRT station. The relocation will also allow CU Anschutz and the FRA to develop a more interconnected urban fabric along Montview Boulevard, since the light rail will no longer create a barrier there. Because of these factors, the street network indicated north of Montview Boulevard is conceptual and subject to revision by the FRA.

The illustrative master plan drawing to the right is a result of the efforts undertaken during this phase of the master planning process. Chapter V of this report details the rationale for the creation of a robust network of fixed infrastructure and utility systems. This includes a roadway system that ties into the surrounding urban street network, while defining a series of blocks that allow for the flexibility for future development by all Site-Wide stakeholders. This drawing will serve as the base map for the diagrams in this document that illustrate future propositions. It is meant to capture current buildings, those under construction, potential planned buildings over the next 10 years, and potential long-term building sites.



FIGURE II.11 - PHASE II ILLUSTRATIVE PLAN





Aerial view of the Site-Wide area looking northwest from Colfax Avenue and Fitzsimons Parkway

UPDATED DEVELOPMENT TIMELINE

Part of the Phase II planning effort was to update the Phase I development timeline to give a more accurate picture of potential facility and infrastructure/utility development on the site over the next 10 years and beyond. Some projects have come into clearer focus while others require further phasing assessment. Through the university's own concurrent master planning process, a list of potential 10-year projects have been identified and included on this timeline. In addition, projects for UCH and CHCO have been refined to varying degrees.

For this Phase II document, the development projections and phasing outlined in the current FRA master plan (2007) will be used as placeholders, as shown in Figure II.12, until a new master plan is undertaken. Potentially the biggest change that the FRA master plan update must incorporate involves the development slated for FRA property north of Montview Boulevard. With the move of the light rail to the northern edge of the FRA, the type and density of future development there will be defined by the Station Area Plan that will be undertaken by CoA and engage all stakeholders.



FIGURE II.12 - FRA DEVELOPMENT DISTRICT

	2013 GROSS AREA (SF)	2013 PARKING SPACES	FUTURE ADDITIONAL GROSS AREA (SF)	FUTURE ADDITIONAL PARKING SPACES	2013	2014	2015	2016	2017	2018	2019	2020	
UNIVERSITY OF COLORADO ANSCHUTZ MEDICAL CAMPUS	3,729,406	5,110	_ , , ,										
FUTURE PROJECTS												l	
1 Bioscience 2 Building			120,000									ł	
2 Interdisciplinary Building Phase I			72,600									ł	
3 CTRIC Imaging			48,000									1	
4 Interdisciplinary Building Phase II			308,786									1	
5 Education 3 Academic Building			150,000									ł	
6 Vivarium Expansion			27,342									ł	
7 Parking Garage 2				1,500								ł	
8 Interprofessional Commons (Student Center)			80,000									ł	
UNIVERSITY OF COLORADO HOSPITAL	1,790,854	5,230										1	
FUTURE PROJECTS												1	
1 Rocky Mountain Lions Eye Institute Expansion			87,792										
2 Marion Downs Hearing Institute			100,000										
3 Cancer Pavilion Expansion			35,000										
4 Inpatient Tower Expansion (East)			250,000										
5 Inpatient Tower Expansion (West)			400,000										
6 Outpatient Expansion (South of 16th Avenue)			250.000										
7 Visitor Parking Garage				699								ł	
	1 069 099	4 200										ł	
	1,900,900	4,390										ł	
1 Dontal/Outpationt Building			180.000									ł	
Dental/Outpatient Building			180,000										
2 Maternal Fetal Medicine Building/North Tower			267,000										
3 Underground Parking Below North Tower			100.000	600								ł	
4 Phase II of North Tower			180,000									ł	
5 Expansion of Staff Parking Garage				2,595								ł	
VA MEDICAL CENTER	0	0										ł	
FUTURE PROJECTS												1	
1 Base Project Hospital			1,100,000										
2 Base Project Parking				2,250								1	
UNIVERSITY PHYSICIANS, INC.	184,700	652										1	
FRA AND AFFILIATES (SEE FIG. II.12)	633.133	1.247										ł	
FUTURE PROJECTS		,										1	
1 District A			96.200	467								ł	
2 Pauls, 21 Fitzsimons Phase 2-B			200.000	231		-							
3 District C			615,900	2.058				-					
4 District B			309,700	848									
5 District D			548 400	1 094								ł	
6 District E First Half			622 525	1 237								ł	
7 District F Second Half			622 525	1,207								ł	
			022,020	1,207								ł	
	80,000	381										ł	
TRANSPORTATION PROJECTS: VARIOUS OWNERS													
FUTURE PROJECTS							-					ł	
1 Colfax Bridge Replacement at Toll Gate Creek								_					
2 Peoria Grade Separation at Smith Road													
3 RTD East Corridor Commuter Rail													
4 RTD Light Rail I-225 Iliff to Smith Road													
5 Peoria/Sand Creek Bridge Replacement and Widening													
6 Improvements to E. Montview Blvd.													
7 Martin Luther King Extension/Fitzsimons Parkway Connection													
SUBTOTAL GSF:	8,387,081		6,671,770		C	Cumulati	ve GSF:	10,	291,673	(Cumulati	ve GS	
SUBTOTAL PARKING:		17,010		14,816	Cun	nulative	Spaces:		17,708	Cur	nulative	Space	
									1				
									20				
				PARKING									
				SPACES		G	ROWTH	BASED	ON KNO	OWN FU	TURE P	ROJE	
			20M	42,300									
			16M	37,600									

12M

8M

28,200

18.80

FIGURE II.13 - UPDATED DEVELOPMENT TIMELINE

2017











A variety of conceptual development strategies were explored and tested during the planning process.

III. PROCESS

This Site-Wide plan does not follow a planning model that focuses on each entity as fixed and clearly delineated, set apart from its neighbors. The Site-Wide area-with many collaborative partners and affiliates that include housing, retail, and community entitiescannot incorporate its major planning goal for connectivity through planning in isolation.

The 1998 CU Health Sciences Center Facilities Master Plan indicated the public/nonprofit development of the university and the hospitals should occur independently from growth on FRA property. The FRA's plan for the property north of Montview Boulevard was seen as a compatible, yet separate, endeavor. This strategy allowed UCHSC to become fully operational as quickly as possible, in order to focus on serving students and patients who demand and deserve high-quality education and care. The FRA was seen as an ideal location for entrepreneurial translational research startups associated with UCHSC.

Although previous master plans considered integration and cooperation, they prioritized independent development of each Site-Wide entity. Now, after fourteen years of rapid Site-Wide development, over 8.4 million GSF of facilities have been developed for the seven major stakeholders alone, and this number is expected to grow to over 13 million GSF by 2022. Further, over 22,000 people work, live, and visit the Site-Wide area, and this number is projected to increase by nearly 50% to over 32,000 people in 2022.

Therefore, with a robust academic health center up and running, the 2012 Site-Wide plan can afford to focus attention on furthering the goals of connectivity, innovation, and stewardship. Recognizing the need for a comprehensive, integrated process, the major Site-Wide entities came together to share plans and visions for the Site-Wide area.

As a result, Phase II of the Site-Wide plan presents a new development paradigm. The campus on the prairie should instead become an integrated urban community in which public/private partnerships are pursued not only across Montview Boulevard and Colfax Avenue, but also beyond the boundaries of the Site-Wide area to connect to the greater Front Range region.

Acknowledging this new planning paradigm, the Site-Wide partners, affiliates, and neighbors engaged in a collaborative and integrative master planning process. This process was designed to allow for joint Site-Wide planning of a shared public realm along with associated utilities and infrastructure.

To best accommodate a complex and lengthy planning process and to best serve all stakeholders, the comprehensive effort was split into two distinct parts. Data gathering and analysis took place in Phase I, and this Phase Il report focuses on physical planning and implementation.

The Site-Wide plans included all stakeholders and a separate, additional Anschutz Medical Campus 2012 Facilities Master Plan effort supplements this document with planning focused within the CU property boundary. The stakeholders within that boundary include CU Anschutz, UCH, and CHCO. The facilities master plan provides more in-depth contextual information about the campus, as well as university education plans and program information.

The complementary planning efforts of the Site-Wide plans and the 2012 Facilities Master Plan ensured efficiency in planning and collaboration between the campus and the Site-Wide stakeholders. The two related efforts unfolded as such:

SITE-WIDE COORDINATED MASTER PLAN -PHASE I AND PHASE II

Site-Wide Coordinated Master Plan - Phase I

The purpose of this document was to define, document, and analyze existing Site-Wide conditions and to identify and prioritize key stakeholder issues. Completed in December 2011 and adopted in January 2012, this document formed the basis for Phase II in terms of reprioritizing key issues, concerns, and opportunities developed through stakeholder collaboration and consensus-building.

Site-Wide Coordinated Master Plan - Phase II

The goal of this document is to establish a consensus-driven framework for Site-Wide infrastructure and utility development that can adaptively accommodate short- and long-term growth, when needed, within the framework of the newly established Site-Wide physical vision, goals, and principles. This document should provide a flexible framework that can accommodate the changing needs and growth of the Site-Wide entities.

ANSCHUTZ MEDICAL CAMPUS 2012 FACILITIES MASTER PLAN

This supplemental effort provides a more in-depth assessment of the Anschutz Medical Campus stakeholders: CU Anschutz, UCH, and CHCO.



FIGURE III.1 - PROCESS DIAGRAM

ENGAGEMENT

engagement is reflected in their involvement in the inclusive, responsive, and communicative approach implemented in master planning that ensured their needs were heard and addressed.

An essential element in the successful development of the Site-Wide plan was developing a comprehensive engagement strategy. This strategy was designed to clarify the planning process and manage stakeholder expectations by conducting workshops and disseminating information pertinent to the formulation and execution of a viable site development framework.

The engagement strategy used various types of communication, including a website and social media, which were implemented at milestones in the project schedule, as well as regular, ongoing contact with all stakeholders. Phases I and II of the Site-Wide plan included the seven major stakeholders, as well as neighborhood and community associations.



Stakeholders' commitment to Site-Wide

As with all complex planning efforts, a successful process requires the organization of stakeholders into distinct groups with defined expectations and outcomes. To this end, stakeholders were organized into three comprehensive categories, which include:

- Core Participants
- Advisory/Consultative Participants
- Statutory Review/Approval

Core Participants

Core participants were active contributors in all aspects of the planning process and had representation on one or more of the following master planning committees:

- Site-Wide Executive Committee
- Site-Wide Steering Committee
- Site-Wide Planning Committee

Task Force(s)

Planning strategies, concepts, and schemes were vetted at each level: from task force brainstorms, to feedback and direction from the Steering Committee, to decision making from the Executive Committee. Ideas, expertise, and concepts originated at the task force level, which was organized around seven planning areas of focus: academics, research, clinical, urban design, circulation, parking, and utilities/ infrastructure. Experts in each Task Force discipline, administrators, and staff met in four workshops linked with critical project milestones over the course of Phase II.

After each workshop, points of consensus and issues requiring further study were reviewed by the Planning Committee, which was charged with assessing and identifying the proposals that would then be recommended to the Steering Committee for review, refinement, and direction. The resulting proposals were submitted regularly to the Executive Committee for further refinement and approval.

This process resulted in a constructive feedback loop, with proposals returned to the task forces for either improvement or further development, beginning the next iteration of the decision-making cycle.

Advisory/Consultative Participants

Embedded within this iterative process were continuous meetings with a variety of advisory/ consultative groups that helped inform and shape the master plan. These entities included the CU Anschutz Student Senate and Faculty and Staff Assemblies; CU Design Review Board (DRB); FRA Board; RTD; CoA Neighborhood Organizations/Associations; and CoA Planning and Development Services, Parks, Recreation and Open Space, and Public Works Departments. A full list of participants can be found in Appendix VII.1.

Statutory Review/Approval

This document does not require statutory approval; it is intended to be a resource for all the Site-Wide stakeholders. Therefore, the final document will incorporate all comments and edits received from various participating stakeholders and is intended to provide information to unify different entities' planning efforts. The Site-Wide plan will be submitted to the AEC for review.

ORGANIZATION

The engagement strategy also established an organizational framework that identified the makeup and defined the roles of the various committees, working groups, focus groups, and community forums. The framework also established ongoing client and consultant team meetings for review and feedback of work in progress. The organization framework and flow of process decision making is depicted in Figure III.2.

METHODOLOGY

The focus of Phase II for the Site-Wide plan process and product are the seven stakeholder entities. However, to avoid planning in isolation, broader CoA issues are discussed as needed to clarify planning strategies, solutions, and recommendations. Also, as the 2012 Facilities Master Plan delved into more depth about the Anschutz Medical Campus, future plans for that area of the Site-Wide area may include more detail

Phase II planning methodology identified six distinct tasks that occurred over a 16-month period. Some were performed sequentially, others concurrently. The tasks and the defined primary purpose of each are described below:

I. Context and Issue Assessment

Validate and confirm Site-Wide Coordinated Master Plan - Phase I data and issues.

II. Visioning Framework

Establish the physical vision, goals, principles, and criteria that will guide conceptual development and decision making in planning the Site-Wide study area over the next 10 years.

III. Concept Exploration

Create and evaluate conceptual development strategies for Site-Wide circulation, facilities, urban design, open space, infrastructure, and utilities that meet short- and long-term growth needs and support the missions, visions, and strategic plans of the Site-Wide stakeholder entities.

IV. Plan Refinement

Refine, enhance, and strengthen the community's consensus-based preferred conceptual development strategy and develop a preliminary implementation plan that includes phasing, costing, financial strategies, and design guidelines.

V. Draft Master Plan

Prepare a DRAFT coordinated master plan narrative report, with associated support diagrams, illustrations, tables, and imagery.

VI. Final Master Plan

Prepare a FINAL coordinated master plan narrative report, with associated support diagrams, illustrations, tables, and imagery. This document will be submitted to AEC for review.

recommended by steering-level groups

management; issue



FIGURE III.2 - ORGANIZATIONAL FRAMEWORK AND DECISION-MAKING PROCESS

IV. PLANNING FRAMEWORK

A. OVERVIEW

A **vision** is a clear and succinct description of what a community should look like after it successfully implements its goals and achieves Medical Campus. Though each study area has its full potential. It must be the people's expression of what they want their community to be-a preferred future.

The visioning stage in this master planning process allowed participants to think broadly about the future of their entity's environment and its relationship to its partners, neighbors, and the larger metropolitan region. Visioning occurred in a series of workshops, meetings, and open forums that culminated in the creation and adoption of the Site-Wide Visioning Framework. Interwoven in the framework are ideas for a comprehensive live, learn, work, play environment for the square-mile community.

The visioning process occurred concurrently for both the Site-Wide area and Anschutz a unique and specific vision statement, the Site-Wide area and campus share development principles, goals, and criteria.

Extensive stakeholder engagement and consensus-building have established these ambitious goals and principles that support a shared physical vision for the Site-Wide area, which will allow each of the seven major stakeholders to realize their respective strategic plans.

The Visioning Framework of the Site-Wide plan is intended to guide, influence, and clarify all physical planning and design decision making within the Site-Wide area.

To that end, the following Visioning Framework establishes an overarching physical vision for 2022 and beyond, which includes:

- Aspirational **goals** that are broad concepts to which one aims and are by definition difficult to achieve. They serve as beacons for direction.
- Guiding *planning principles* that direct us toward achieving our goals. Principles state clear intent and values to be embraced in planning and development.
- Assessment *criteria* that are metrics by which planning and development strategies and solutions are evaluated relative to realizing goals and remaining consistent with our planning principles.



A world-class health science center needs strong public and private partners and affiliates and a healthy and vibrant host community to attract and retain the best and brightest health science students, academics, and professionals. The stakeholders worked together to create a vision for their Site-Wide community:

In 2022, the "Health Sciences District" is one of the region's most exciting, vibrant, and successful cultural, business, and residential areas—a destination of first choice for Coloradans. Anchoring the community is the state's largest and most prestigious academic, research, and clinical health center, with nationally ranked hospitals and the prominent University of Colorado Anschutz Medical Campus. The successful collaboration of the area's many stakeholders has been leveraged to create jobs, attract businesses that serve the neighborhood and region, foster bioscience and biotechnology entrepreneurship, and enhance the health and wellness of the community's residents, workers, students, and visitors.



FIGURE IV.1 - PROJECT PROCESS DIAGRAM

C. GOALS, PRINCIPLES, AND CRITERIA

GOAL: INNOVATION

Our distinguished identity is founded on our acclaimed collaborative culture of creativity, originality, innovation, and entrepreneurship. We will enhance and build upon our unique physical environment to strengthen our identity and support a global health care destination of first choice that offers premier clinical programs; highly ranked professional schools, colleges, and centers; a vibrant, dynamic, and productive biomedical research enterprise; and an exciting, flourishing, and engaged host community.

Principles

- Create enhanced campus and Site-Wide opportunities—both indoor and outdoor for integration, convergence, and collaboration between entities, schools, colleges, community and business partners, and their missions.
- Create hybrid, multiuse facilities that enable interdisciplinary, interprofessional, and interinstitutional teamwork, cooperation, and advancement.
- Create a campus physical environment that is attractive, memorable, sustainable, and embodies our innovative identity.
- Create an exciting and lively community through a wide variety of activities and amenities—available 24/7—that enhance the quality of life of Site-Wide and campus users and visitors.
- Create first-rate infrastructure, utility, information technology, and support services that enable continuous innovation within the planning horizon and beyond.

- Criteria
- Develop dense building clusters that encourage interaction, collaboration, and shared resources though physical proximity and easy access.
- Land-use "districts" should minimize or eliminate single-function silos and encourage mixed-use, multifunction development.
- Develop amenities that facilitate collaboration—cafes, atriums, commons, and restaurants—in key campus and Site-Wide locations to maximize planned and impromptu meeting opportunities.
- Plan and design the Site-Wide public realm to function as an integrated and attractive system that reinforces identity and facilitates wayfinding.
- Identify open spaces—both green and hardscaped— that will serve as individual precinct gathering spaces and support the Site-Wide open-space system.
- Plan, configure, and develop the Site-Wide public realm to incorporate smart, innovative, and high-performance sustainability elements.
- Provide and manage campus and Site-Wide parking through a collaborative and inventive system that reduces parking demand and private auto trips within the core environment.



Innovative research fac environment.



iC42 Clinical Research & Development, located in Bioscience East in the FRA, uses this best-in-class instrument for quantification of peptides and proteins.

Innovative research facilities like this neurology lab support the growth of a premier academic and clinical





The Site-Wide area is intended to integrate with its community and larger city, region, and state.



Physical connectivity as typified in the research complex will support a collaborative and engaged community.

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GOAL: CONNECTIVITY

Our advanced, shared infrastructure, resources, and services will give rise to a highly efficient and integrated physical environment that supports and adds connectivity to the missions and strategic plans of all stakeholder entities. Through development of safe, intuitive, and universal access into and throughout the site, we will enhance user experience and promote a collaborative, engaged community of learners, educators, researchers, entrepreneurs, and health care providers.

Principles

- Create an environment "without borders" that is physically and symbolically integrated Site-Wide, with its host community, and with the larger city, region, and state.
 - Create roadway, pedestrian, bike, trail, and transportation networks that interconnect the campus, Site-Wide area, and surrounding community.
 - Create campus and Site-Wide connectivity through a cohesive network of memorable, multifunctional open spaces that orient users to the campus and facilitate interaction.
 - Create a comprehensive, advanced information technology system that maximizes opportunities for interaction and connectivity between Site-Wide academic, research, and clinical practitioners and their state, national, and global peers.
 - Create a campus and Site-Wide area association that funds, implements, and manages shared resources where possible.
 - Create a patient- and visitor-friendly environment that is welcoming, understandable, and memorable.

Criteria

- Locate patient and visitor parking and shuttle stops adjacent to key destinations such as clinics and support functions.
- Enhance existing roadways and develop new roadways into and throughout the campus and Site-Wide area to maximize access and reduce congestion.
- Redesign "roadways-as-barriers" (Colfax Avenue, Peoria Street, and Montview Boulevard) into streets that facilitate safe pedestrian movement.
- Design streets to accommodate and balance the needs of all modes of movement and also serve as attractive, essential, landscaped, green corridors.
- Physically and symbolically connect university and hospital facilities to enhance interaction and ease of movement.
- Develop public realm open space to integrate the environment and create a variety of activities and interactions in memorable landscapes.
- Develop parking facilities that can be shared by different stakeholders to increase inter-entity collaboration and parking efficiency.

GOAL: STEWARDSHIP

We will successfully collaborate with local, regional, state, and national public, private, and nonprofit partners to improve the health, wellness, and quality of life of our students, faculty, staff, patients, and community partners. Our enduring commitment to good stewardship will result in a more economically, socially, and environmentally sustainable community.

Principles

Criteria

- Create smart growth strategies to ensure that the campus and Site-Wide area stakeholders have sufficient land to accommodate their missions and strategic plans for short- and long-term expansion.
- Create strategies to ensure that the environmental, social, and economic sustainability commitments of the campus and Site-Wide area stakeholders can be realized.
- Create a high-performance built environment-landscapes, roadways, parking, and buildings-that will reduce energy use and storm water outflow from the campus and Site-Wide area.
- Collaborate to create a transportation system that best meets individual and collective stakeholder needs and encourages use of alternative modes of transportation to campus, reduces intra-campus personal auto trips, and encourages use of satellite parking.
- Create more opportunities in which campus and Site-Wide area services can be provided to the host community.
- Create a parking management strategy that promotes a "right-sized" campus and Site-Wide satellite surface and structured parking options that are environmentally, financially, and socially sustainable.

- The built environment—existing and new should incorporate universal accessibility.
- Open spaces should be developed to provide passive or active recreation and serve as components of a comprehensive storm water management system.
- The comprehensive public realm openspace system should incorporate health and wellness amenities.
- Avoid or minimize negative environmental impacts within the existing and new built environment.
- Incorporate information technology into infrastructure, utilities, and parking management systems to achieve greater efficiency.
- Design streets to reduce vehicle speeds and increase pedestrian safety.
- Where possible, develop alternative renewable energy resources.
- Explore ways to utilize land banks for short-term uses







The VAMC plans to create intimate courtyard open spaces that take advantage of native Colorado foliage and support environmental sustainability.

CU Anschutz students provide community services through wellness programs like Colorado SmileMakers.





Aerial view of the Site-Wide area looking northwest from Colfax Avenue and Fitzsimons Parkway to Morris Heights, Stapleton, and beyond.

V. PHYSICAL PLAN

A. OVERVIEW

To create an adaptive plan that could accommodate the unexpected and changing conditions and priorities of the Site-Wide area, the process explored a variety of planning scenario options that dealt with issues both big and small. Scenario planning became popular as a means for entities to think about the future in a structured way. Traditionally, plans for the future were made by extrapolating events from the past, but scenario planning proposed a more flexible solution for that increasingly dissatisfactory method.

Planning through scenario exploration allows for learning about the future by understanding the nature and impact of the most uncertain and important driving forces affecting the site. Through an iterative group process that encouraged knowledge exchange, stakeholders developed a deeper understanding of the central issues facing all of the representative entities. Specific needs and criteria changed; some became less important, and others became more so.

A logical outgrowth of this scenario exploration process was the decision to discard traditional land-use planning that emphasizes distinct use zones and to create instead a focused framework for development based on achieving a desired Site-Wide character, quality, and form regardless of use. The framework emphasized the following relationships: buildings in relation to each other; form, scale, and mass of block development; and the types and scale of the streets and open spaces that comprise the public realm.

Four distinct concepts emerged from the planning process:

• **Connectivity** to the larger urban context: Develop streets as the primary expression of the public realm, make them pedestrian-friendly, ensure they accommodate public transit, internal shuttles, and bicycles and connect to city streets at the perimeter. Make strong connections across Montview Boulevard to visually and symbolically unify the university and the FRA. Make the Site-Wide area a part of the city rather than an enclave within the city. The goal of connectivity translates easily to the realm of planning—physical connections help create connections between stakeholder entities, individuals, and the community that promote innovative health care practices and collaborative partnerships.

- An understanding of the development patterns unique to established districts across the site: Identify existing development typologies that give different areas within the square mile a particular feel or character. These typologies range from hospital "superblocks" to academic buildings surrounding quadrangles, and they define the unique form and character of areas across the site. Scenario planning helped identify the desired character for undeveloped areas of the site, including FRA property and the area between 19th Avenue and Montview Boulevard.
- Density goals in relation to each of these districts: Develop a recommended target percentage of building footprint, paved area, and landscape area for each part of the square mile. In addition to supporting the goal of connectivity, increased density promotes stewardship in a couple of important ways: It preserves land for further future expansion and helps strengthen the pedestrian environment, reducing the amount of vehicle transportation needed within the site. This idea of increasing density and creating a more urban environment is consistent with CoA's vision of northwest Aurora as a hub of business, education, and health care, and as an economic engine of the city.
- Defining the framework as a set of **fixed** and flexible systems: The plan works to preserve flexibility to accommodate rapidly changing programs within existing and future buildings sites while laying out a framework of fixed infrastructure to support future development. The fixed framework includes the streets and circulation, utilities (water, sewer, etc.), and the system of green spaces that stakeholders must consider and maintain.

The flexible elements include developable areas for future building and parking sites. By differentiating between fixed and flexible systems, this plan can propose fixed infrastructure improvements to accommodate growth, as well as preserve flexibility to develop innovative responses to future opportunities.

All the propositions in this plan communicate intended character, scale, and nature of areas of the physical Site-Wide area. However, they have been developed to encourage individual and unique future solutions that respond to the needs of projects, priorities, and programs at the time of development.

Physical planning for FRA property north of Montview Boulevard has been left open to the flexibility of future growth and planning, as it will be developed as part of the upcoming FRA Master Plan Update and Station Area Plan efforts.

The Site-Wide plan makes strong recommendations for a denser, more urban, and walkable environment. The plan recognizes that the Site-Wide area has a finite development capacity and could not support a uniformly dense, urban setting. Instead, density is encouraged in key areas to support a hierarchical network of buildings, streets, and pedestrian facilities in order to better connect all the stakeholders in the Site-Wide area.

The primary conceptual departure of this plan from the previous plans is recognition that the participants in the Site-Wide community do not exist in isolation, but they are embedded within a larger urban context. This plan recognizes, and builds upon, the urban conditions and cross-entity collaboration that will envelop and shape the Site-Wide area.

Proposals herein have resulted from a broad, inclusive process that enlisted the input of Site-Wide area stakeholders, neighborhood community members, and the university Office of Institutional Planning. All elements of the physical plan have been developed and vetted in multiple workshops with the input noted above.



FIGURE V.1 - ILLUSTRATIVE PLAN



B. ORGANIZATION FRAMEWORK

FORM-BASED PLANNING

Traditional community planning is largely based on defining the types of uses-i.e., residential, retail/commercial, civic-allowed within specifically defined zones. The Site-Wide area has a need for building a vibrant and interconnected mixed-use community, which makes use-based planning an outdated model for this dynamic environment. As a result, an alternative model based on form and character was adopted. This form-based planning model defines Site-Wide areas not by use or ownership, but rather by the physical character and form of distinctly different parts of the square mile. This master plan organizes the site within the context of these distinct areas, comprising five Site-Wide Character Districts.

Form-based planning is restrictive neither in terms of land use nor architectural style. In the Academic District, for example, Nighthorse Campbell Native Health Building and Barbara Davis Center for Childhood Diabetes have unique architectural personalities that express each building's use. However, because of their comparable scale and relationship to open space, they help create a consistent and recognizable identity for the Academic District.

Within this framework, less emphasis is put on building and land usage. Instead, planning efforts are devoted to encouraging strong relationships between buildings and their districts. The interaction between streets and buildings in terms of scale, massing, form, and frontage areas attempts to create a predictable character for the public realm. An appropriate mix of uses is encouraged along with the prioritization of civic spaces. By acknowledging the benefits inherent in a variety of organizational frameworks, specific development patterns can be matched with programmatic functions best suited for each other.

CHARACTER DISTRICTS

The framework for future Site-Wide development is predicated upon an understanding of the physical and operational pragmatics unique to these existing Character Districts and their future developmental goals. There are five Character Districts within the Site-Wide area, and each presents a unique, predictable pattern of the built environment. District-specific guidelines have been developed to help designers build upon existing strengths and established development patterns of each, reflecting the appropriate scale, image, functionality, and integration of buildings and open spaces. The five types of Character Districts, each with its own unique goals, requirements, and organizational structure, are:

C1 | Academic District

The Academic District portion of the site has been organized in accordance with traditional campus planning concepts and is home to some of the square mile's most successful and memorable spaces. It is a fully walkable and sociable environment within a superblock structure. Buildings delineate cohesive civic spaces and are not experienced as isolated objects unto themselves.

C2 | Urban District

With medium- to high-density mixed-use buildings within a hierarchical network of streets and plazas, this zone is characterized by wide sidewalks, steady street tree planting, and buildings set close to the sidewalks. It is a fully walkable environment with a balance of pedestrian and vehicular activity. Buildings in this district are desired to have a minimum building height of four- to six-stories. If a particular area necessitates taller buildings, this high density could be offset with lower building heights in other areas to maintain a consistent capacity across the Site-Wide area.

FIGURE V.2 - SITE-WIDE CHARACTER DISTRICTS

The Urban District presents a unifying framework that ties together developments on the north and south sides of Montview Boulevard as well as with the more urban surrounding community and neighborhoods.

C3 | Hospital District

Much larger than a traditional city block, with greater building setbacks, these districts are typically bounded by widely spaced, highspeed arterial or circulating routes rather than by local streets. They allow for the development of large, interconnected mega-structures, which are focused on internal circulation.

C4 | Special District

The Special Districts constitute unique developments within the Site-Wide area that for a variety of reasons (historic significance, unique ownership, and/or conveyance regulations) do not fit within the other categories. These areas with special typologies include CeDAR and the Colorado State Veterans Home along Peoria Street, and the Xcel Fitzsimons Substation, Regional Pond 374, and the U.S. Army Reserve facility along Fitzsimons Parkway.

C5 | Natural District

Natural Districts are areas consisting of land approximating or reverting to a wilderness condition, including lands that serve storm water function. These areas are unsuitable for settlement due to topography, hydrology, or vegetation.
FIXED AND FLEXIBLE SYSTEMS

During the planning process, the team looked at a variety of strategies to deal with the largely unknown nature of future development within the Site-Wide area. Actual growth on the site has varied from past planning; it has been slower than projected in areas like the FRA and faster than projected at, most notably, the university and hospitals. To allow for such changeability, the plan provides a high degree of flexibility to accommodate a wide range of changing multiple- and mixed-use entities in the Site-Wide area, including retail, commercial research, clinical care, residential, and other uses. In order to foster flexibility, fixed systems need to be in place to support new projects as they come online.

community character.

drives innovation. This flexible future project

site strategy is intended to encourage new

buildings and parking facilities that support

integration, collaboration, and convergence.

also the integration of common spaces such

collaboration and foster a community that

includes places to live, work, and relax.

This includes not only mixed-use facilities, but

as cafes and restaurants that facilitate informal

Design Review Boards for both the FRA and

development of the "flexible" plans within their

the Anschutz Medical Campus will have an

advisory role in the planning, design, and

respective areas of control/oversight.

Through this process, fixed systems can be implemented as they are needed and when funding is available. A "flexible" development project such as the Bioscience 2 building planned for the site west of Ursula Street and north of Montview Boulevard can catalyze the need for fixed systems that support the project. For example, the construction of the new Bioscience 2 building will necessitate implementation of electrical, IT, and storm water infrastructure and the construction of 21st Avenue near the building site. Thus, the master plan is broken down into "fixed" and "flexible" systems.

Fixed systems, which include roadways, pedestrian and bicycle accommodations, utilities, and significant public open spaces, comprise the bones of the site. The fixed systems determine the layout of developable blocks (as shown in Figure V.3), upon which buildings or parking structures can develop in any number of ways to deftly accommodate shifting programmatic needs and funding sources.

C. FIXED SYSTEMS

This plan defines the **flexible** elements The fixed Site-Wide systems provide an armature of infrastructure that will support a wide variety as those occurring within building sites, including buildings, parking, individual project of possible future development scenarios. The fixed systems will not all be built on day one, but landscape, and local storm water components. they are designed to come online as demand Program—the type of use that will occupy warrants. The site's planning to this point has a particular space i.e. academic, clinical, retail-will not determine a project's form; each relied heavily on the superblock structure south of Montview Boulevard, which has limited new development will be guided by the nature through roads. Blocks sized to be consistent with of its Character District to support flexibility, the surrounding urban fabric will be the prime predictable organization, and memorable organizing system moving forward. This makes the roadways the most critical fixed system This flexible strategy evolves from the goal within the Site-Wide area, and they will provide of innovation that guided this master plan. valuable connections to surrounding CoA The Site-Wide stakeholders have found communities. Other fixed systems, including that collaboration across entities and fields

open space, utilities, and service access work within the roadway framework to enhance connectivity of those systems between the seven stakeholder entities.

This master plan indicates a well-connected urban network of streets north of Montview Boulevard. This network forms organized urban blocks and provides a lattice of northsouth and east-west connections, but it can accommodate some curvature and grade transitions as appropriate given the natural conditions of land where roads may be built. The FRA has yet to evaluate the relationship of the specific street patterns illustrated herein with the new opportunity to create a transit-oriented development surrounding the proposed light rail station on Fitzsimons Parkway. Though the intended urban network character will remain, the FRA will undertake further planning that may lead to revisions to specific street and open space pattern proposals.

The fixed systems support two of the primary goals for the master plan: connectivity and stewardship. The plan addresses increased physical connectivity through pedestrian, bicycle, vehicle, and transit systems, as well as virtual connectivity by incorporating future information technology systems. The master plan strives to create stronger physical connections throughout the entire Site-Wide area. The circulation systems are also intended to reduce transportation energy use by improving public transit and human-powered transportation options, which support the goal of stewardship. Good stewardship is also reflected in the preservation of open space and the recognition of the importance of the stakeholders' impact on the natural storm water system.





Fitzsimons Commons.



Courtyard adjacent to the Campus Services building.

LANDSCAPE

Landscape that is part of a specific building project falls under the "flexible" category and can influence a particular building site in any number of ways based on its Character District and the unique variables of each building project.

The public open spaces that organize the community, however, comprise a fixed system that provides clarity and navigability to the Site-Wide environment, as well as opportunities for gathering and recreation. These open spaces form part of the basic organization of the Site-Wide area and will remain the constant anchors of memorable places over time.

The Site-Wide area has several significant open spaces that contribute to place-making. Iconic places such as the Education Commons and General's Park are memorable landmarks that assert the site's identity. These spaces help to organize the Site-Wide area, creating wayfinding landmarks and providing social gathering places as well as venues for important ceremonial occasions like graduation at CU Anschutz. The major open spaces are knit together by green streets and pedestrian walkways that connect the formal open spaces to the broader network of natural landscape and open space.

The Anschutz Medical Campus Design and Development Guidelines and the FRA's Urban Design Guidelines provide detailed recommendations for open spaces, including materials, lighting, and fixtures and furnishings that enhance the character and experience of these spaces.

LANDSCAPE TYPOLOGY

A wide variety of outdoor spaces play different roles in how people move through the Site-Wide area, where they stop to spend time, and how they get to and from the site and connect to the surrounding community. Size, proportion, function, material, and landscape characterize these areas. Below are the definitions for the primary open space types that can be found in each Character District across the Site-Wide area.

Certain open-space types are important for movement, recreation, and relaxation within the Site-Wide area, such as Quadrangles, Promenades, and Gardens. Other types, like Natural and Urban Parks form important connections to the greater open-space network within the CoA.

C1 | Academic Village Landscape Typologies

- Quadrangles
- Promenades
- Commons | Greens
- Plazas
- Forecourts
- Courtyards
- Gardens

C2 | Urban Campus Landscape Typologies

- Plazas
- Courtvards
- Gardens
- Discovered Spaces
- Urban Park

C3 | Hospital District Landscape Typologies

- Commons | Greens
- Gardens
- Discovered Spaces

C5 | Natural Landscape Typologies

Natural Park

Quadrangles

A plaza is an open public space commonly found in the heart of a traditional urban district or town and used for community gatherings. Most plazas are hardscapes suitable for open markets, music concerts, political rallies, and other events that require firm ground. Being centrally located, plazas are usually surrounded by small shops, restaurants, and civic buildings. At their center is often a fountain, well, monument, or statue. A variety of activities can occur within a single plaza if the space is large enough to accommodate them and a hierarchy of uses is well defined. Clear definition of subspaces can be accomplished through plantings, seating, elevation changes, or other landscape elements.

Quadrangles are large-scale courtyards framed by several buildings arranged rectilinearly. They are gathering spaces of heavy and frequent use. The Education and Research Commons stand as the major organizing elements for the Academic Village portion of the site. They constitute a symbolic landscape that clearly states, This is a traditional American educational campus. They often serve as both formal and informal ceremonial spaces in the Academic Village. Quadrangles are the pedestrian crossroads, designed for walking, waiting, playing, and gathering. As such, they express the collegiality of the university portion of the community.

Promenades

Commons or greens are open spaces available for unstructured recreation and civic purposes. They allow for formal outdoor gatherings and can accommodate graduations, presentations/ lectures, dedications, press conferences, etc. A common or green is spatially defined by building frontages. Its landscape consists of paths, lawn, and trees, formally disposed. They are typically located at the intersection of important thoroughfares.

Plazas

As linear gathering spaces that connect a string of formal and informal subspaces, promenades are major pedestrian corridors that link critical destinations within the Academic Village. As such, they constitute a major wayfinding system. They are intended to accommodate quiet activities such as strolling, study, relaxation, and people-watching. Primary building entrances should be oriented toward promenades, with a vocabulary of forecourts, portico, loggias, and arcades providing transition zones between the two.

Forecourts

Forecourts are paved areas-far smaller in scale than a plaza—existing at building entrances or at the intersections of major pathways and providing focus to the pedestrian experience. The design of forecourts should be appropriately scaled for their intended activity and associated structure-sheltering trees or shrubs located close together to provide quiet areas, open areas for larger gatherings, and benches in areas for resting and talking in small groups.

Commons | Greens

Courtvards

Areas wholly or partially surrounded by walls or buildings, courtyards vary in size and character and are integrated with adjacent buildings. Landscaping within courtyards is also intended to complement surrounding buildings and programs. In larger courtyard spaces, formal landscaping might be used around the perimeter of the space to reduce the overall feeling of scale. When buildings do not provide example). adequate enclosure, formal plantings can be used to reinforce a sense of order and provide further definition to the space. Informal landscaping presents the flexibility to respond to programmatic needs.

Courtyards are important places for passive activities such as waiting, resting, studying, and in the 1950s as he recuperated from a heart visiting. They warrant shelter from inclement weather, separation from high pedestrian traffic, unique paving materials, and appropriate site accessories to enhance user comfort.

Gardens

A garden is a planned outdoor space set aside for the display, cultivation, and enjoyment of plants and other forms of nature. They may include patio areas, tables, benches, fountains, etc. Plantings should have seasonal variety and interest with a variety of scales and plant materials. Xeriscape gardens use local native plants that do not require irrigation or extensive use of other resources while still providing the benefits of a garden environment.

The character and image of each garden space is to vary throughout the community, and each should reflect the function of the adjacent buildinas.

Discovered Spaces

Discovered spaces have the potential to be the most intimate and special places in the community. They can be designed, small-scale places or can constitute an unpredictable circumstance that creates a lasting impression (benches overlooking a pond, a small patch of lawn under a magnificent tree, or a warm sun pocket of space on a cold winter's day, for

Urban Park

General's Park is an 8.3-acre urban park on the southwest corner of the Site-Wide area that was frequented by President Dwight D. Eisenhower attack. In 2002, the National Park Service deeded the park to the CoA, and it is now one of the city's finest parks. It features large shade trees, a scenic pond, walking paths, a wheelchair-accessible playground, a public plaza, a commemorative Rotary structure, and shelters that can be reserved for picnics or other large gatherings.

The park is intended for quiet, relaxing activities and as a community gathering space. General's Park has clearly defined edges and boundaries and is designed and landscaped to create a structured space for recreation and relaxation for Site-Wide users and CoA citizens. General's Park is defined as part of the Urban Character District because of its location within the street network, structured design, amount of paved area, and balance of vehicular traffic (in the form of vehicular access and parking) and pedestrian activity.

Natural Park

Sand Creek Park has a more organic character than General's Park. It is part of the Natural Character District and maintains topography and plantings that are more consistent with its natural state. This area approximates a wilderness condition and is reserved for uses that are compatible for park and open space purposes and help maintain ecological functions related to hydrology and topography.

The 85.6 acres of Sand Creek Park connect to the green space surrounding Toll Gate Creek across Fitzsimons Parkway on the east side of the Site-Wide area. This combined Sand Creek Park and Toll Gate Creek green space forms the northern and eastern boundary of the Site-Wide area and features multipurpose recreational trails used frequently for biking, walking, and jogging. The trails wind around three ponds that are incorporated into the storm water system during flood events. This trails system is proposed to connect to surrounding CoA open space facilities and all the way to the Cherry Creek and Quincy Reservoirs via extensions to the Toll Gate Creek Trail.





General's Park.



The Fitzsimons Early Learning Center has a small courtyard adjacent to the entrance.

Green space flanks Aurora Court to preserve the viewshed to Building 500.

The Health Sciences Library and Pharmacy Buildings delineate the boundaries of an open-space plaza.



Streets as Public Realm

The public realm can be defined as the space between building façades. The public realm includes all exterior places, linkages, and built form elements that are physically and/or visually accessible regardless of ownership. These elements can include, but are not limited to, roadways, pedestrian ways, bikeways, bridges, plazas, nodes, squares, transportation hubs, gateways, parks, waterfronts, natural features, view corridors, landmarks, and building interfaces. These features populate the street network and can enhance user experience of the Site-Wide community.

Increased emphasis on the importance of the street network as public realm in the master plan creates the imperative to improve existing streets and ensure future roadways will accommodate multi-modal transit alongside a friendly and active pedestrian environment.

This master plan includes several street character diagrams, and further detail on street treatment is included in the Anschutz Medical Campus Design and Development Guidelines and FRA Urban Design Guidelines. The street sections proposed with this plan are intended to be consistent with FRA standards and to promote a sense of unification across Montview Boulevard. On-street parking not only provides convenience parking for visitors but



Much of the open space north of Montview Boulevard has yet to be fully developed and integrated with the Site-Wide network.

also helps to emphasize the pedestrian nature of the streets both by buffering the sidewalk and slowing vehicle speeds as drivers will enter and exit their cars. A robust bike network is also reflected in the street typologies, with dedicated lanes on most of the major Site-Wide bike routes and all newly constructed or renovated streets.

Consistent street design will promote connectivity and provide a unifying framework throughout the Site-Wide area. Consistent street character will create rhythm and visual impact, highlight areas of significance, and tie all five Character Districts together to form a comprehensive whole.

Site-Wide Edge Connections

This master plan recognizes the importance of the Site-Wide area's internal cohesion as well as its connection to CoA surroundings. City open space amenities create ample opportunity city open spaces. Green connections will be for integrating the Site-Wide area into the surrounding urban fabric. The Sand Creek and Toll Gate Creek Trail Systems north and east of the Site-Wide area warrant special attention. Implementation of the light rail transit along Fitzsimons Parkway will make pedestrian and bicycle crossings from the Site-Wide area to the trails system challenging and of the utmost importance.

CoA has proposed that crossings of Fitzsimons Commons, and Art Walk should be Parkway to access the creeks would be designed as gateways between the creeks and the Site-Wide area. These would include safe, controlled bike and pedestrian access. Although safe, direct connections between the Site-Wide area and the trails system are desirable, crossings of the light rail warrant special attention. Therefore, these connections cannot be guaranteed, as the upcoming transitoriented development study may determine the character of Fitzsimons Parkway along the light rail corridor.

A circular exercise path is planned to run along Colfax Avenue, up the west side of the Site-Wide area to connect to the Health and Wellness Center, and back east and south to Colfax Avenue via the creek trails system. Not only will this proposed route provide a great amenity to Site-Wide users for jogging, biking, and walking, but it will also directly connect the Site-Wide area to the greater CoA trails network and present an image of health and fitness to those who pass by the site.

Additionally, there is a proposal for a series of green spaces that will link the creek trails southwest to General's Park and beyond to accommodated within the urban street network proposed to govern the Site-Wide area. This will take the form of pedestrian promenades, green streets that incorporate storm water management facilities, hardscape plazas, and existing traditional green spaces such as quadrangles.

The proposed University Plaza, 19th Place Promenade, Parade Grounds, Research supplemented by typical tree-lined streets in the formation of this connection.

It is important to note that because the FRA will undertake further planning studies, all proposals regarding the open space on FRA property will be subject to revision. Though specific proposals may change, the goal of connectivity and unity should guide these future planning efforts. The new station area plan should consider linkages between regional trails and acknowledge the potential for the Site-Wide area to develop a regional trail head.



FIGURE V.5 - PROPOSED OPEN SPACE

Scranton Greenway

Uvalda Street Greenway

17

18

Fitzsimons Commons

Confluence Park

80

09

41



Whereas a consistent and predictable public

Gateways and Edges

realm will knit the Site-Wide area together, attention to edge conditions will help to seamlessly connect the Site-Wide area to its surrounding community. Edges of the Site-Wide area are designed to be porous, welcoming, and consistent with goals to reach out to the community and provide services and opportunities.

The identity of the Site-Wide area is reinforced by a consistent language of gateway elements and prominent buildings along the edges. Several sites with potential to become important gateways have been identified at key intersections leading into the site that could, over time, be developed with signature buildings to help signify visitors' arrival to Site-Wide area. Buildings or open spaces at gateway sites could signify entrance to the Site-Wide area and serve as landmarks to assist in wayfinding. Three roadways mark the edges of the heart of Site-Wide area: Colfax Avenue, Peoria Street, and Fitzsimons Parkway. The character of edge conditions varies from the natural condition along Fitzsimons Parkway to the mixed and residential uses along Colfax Avenue and Peoria Street. Moving forward, attention should be paid to the Colfax and Peoria corridors to ensure a balance of efficient traffic flow and ease of pedestrian movement across these busy roadways. As for Fitzsimons Parkway, the TOD could affect the character of the parkway. Porosity of this edge condition should be considered to maintain access to the greenway trails system.

Currently, there is no comprehensive Site-Wide wayfinding strategy, but the stakeholders understand the importance of creating a cohesive site identity. That topic is slated for further clarification and study. The Anschutz Medical Campus is subject to similar wayfinding and signage issues as the Site-Wide area as a whole, but those three entities have already begun to implement monumental signage to cohere the campus. The Anschutz Medical Campus signage will hopefully serve as a model for good wayfinding and unity within the Site-Wide area. Of highest importance, the comprehensive name for the Site-Wide community, the Health Sciences District, will reinforce its integrated physical identity.



The proposed signature gateway into the southern edge of the Anschutz Medical Campus at Aurora Court and Colfax Avenue.

FIGURE V.6 - GATEWAY SITES AND MONUMENTAL SIGNAGE



The entrance to UCH will be marked by a proposed secondary gateway in the median at Tony Ruiz Plaza and Colfax Avenue.



The various Site-Wide edges pose different challenges to porosity: Colfax Avenue could become a barrier because of multiple travel lanes (right), and Fitzsimons Parkway and the light rail must be managed to maintain access to the greenway trails system (center).



TRANSPORTATION

Regional Access

The Site-Wide area lies in the eastern portion of the Denver metropolitan area. I-225 provides regional access to the Site-Wide area along its east side. I-70 is located 1.5 miles north of the square mile, which serves it via a direct connection at Peoria Street. The Peoria Street access from I-70 is slated to be improved soon with the construction of its overpass across the Union Pacific Railroad and East Rail Line, or the Smith-Peoria Crossing, which can currently cause severe congestion when a long freight train passes.

Access to I-225 was recently enhanced with a connection to 17th Place as an extension of the I-225/Colfax Avenue interchange. Until this improvement was complete, Colfax Avenue was the sole source of access to/from I-225, and with a heavy orientation of Site-Wide traffic to/from the south via I-225, Colfax Avenue is regularly congested during peak hours. The 17th Place interchange connection has alleviated some congestion, and more relief is expected once 17th Place west of Fitzsimons Parkway is reopened (VAMC construction has this roadway closed at the time of this writing). In addition to vehicular traffic, six RTD bus routes provide access to the Site-Wide area, as will the I-225 LRT line currently being constructed. The Site-Wide area is becoming increasingly connected to the greater region through the RTD network of light rail, commuter rail lines, and bus services.

Site-Wide Access

The Site-Wide area can be accessed by a myriad of public and private means like motor vehicle, bus, shuttle, bicycle, wheelchair, scooter, skateboard, walking, etc., and light rail service is planned to connect to the square mile in 2016. These transportation modes incorporate streets and trails that form a connective tissue throughout the CoA and around and within the Site-Wide area. Transit,

Although access to/from the west is most bicycle, and pedestrian networks supplement plentiful, this cardinal direction is hardly a major the roadway system, are integral in the pattern for trips to and from the Site-Wide area. reduction of Site-Wide traffic congestion, and Based on collected traffic data counts, the will be discussed later in this document. predominant movement is oriented regionally The Site-Wide area is effectively closed off from around I-225 South. Approximately 15 to 20 the north due to Sand Creek and the adjoining percent of all Site-Wide trips go to or come residential areas beyond. Similarly, access is from I-225 South. The recent completion of the closed off from the east due to Toll Gate Creek; 17th Place interchange connection is critical 17th Place is the only means of heading east, to serving this major movement orientation. Fifteen to 20 percent to/from I-225 is lower but this roadway only provides regional access to I-225 and extends no farther. Other than local than estimates resulting from the interchange's trips oriented up Potomac Street, Site-Wide original study, but this recent adjustment trips with an easterly or northerly orientation resulted from calibration that replicated existing are relegated to use Colfax Avenue or Peoria demands from traffic engineering software. Street, respectively. A 15 to 20 percent distribution assignment resulted in an adequate match and was used in Local access to the south of the Site-Wide area developing long-term projections.

is somewhat better, although it too is limited. Potomac Street is the only roadway extending south from Colfax Avenue that provides more than one mile of continuity. Peoria Street extends only a mile south to 6th Avenue (albeit Del Mar Circle allows one to continue farther south along Peoria). All other roadways that lead south from Colfax Avenue simply end in residential areas and do not provide good access to the square mile.

Roadways most heavily used to access the Site-Wide area are those serving the heavy patterns to/from the southeast (primarily I-225 South). These include Fitzsimons Parkway north of Colfax Avenue, Wheeling Street, Aurora Court (which becomes Ursula Street south of Colfax Avenue), and 17th Place, which provides a direct connection to I-225. These four roadways collectively serve approximately one-half of all traffic that enters and exits the Local access to the west is more plentiful. Site-Wide area on a daily basis. This includes Colfax Avenue, 17th Avenue, and Montview trips delivered via I-225 South, I-225 North, Boulevard provide continuity to Colorado Colfax Avenue East, Potomac Street South, Boulevard in Denver and beyond. Further, other Xanadu Street South, and Ursula Street South.

FIGURE V.7 - REGIONAL ACCESS

roadways (which do not directly penetrate into the Site-Wide area) also extend west from Peoria Street, namely 16th Avenue, 19th Avenue, 23rd Avenue, and 25th Avenue. Future plans include the eventual connection of Martin Luther King Boulevard from the Stapleton area, connecting with Peoria Street directly west of Fitzsimons Parkway.

Internal Roadways

The existing roadway system within the Site-Wide area is focused around the framework of a loop road concept in the southern half of the site. Four roadways comprise the loop road system: Quentin Street, 16th Avenue, Victor Street, and Montview Boulevard. Under this premise, users access primary parking lots and structures from the loop road and reach their final destination on foot. The loop road encircles the Anschutz Medical Campus, and the core of the campus is pedestrian-oriented under this concept. This problematic loop road concept has failed to meet stakeholder needs because of the congestion caused along this common path of travel. Direct east-west connectivity is essential to access, wayfinding, and future progress in the Site-Wide area.

Within this loop, 17th Place, which serves as the center of the Anschutz Medical Campus, is restricted to pedestrian and bicycle activity only. Seventeenth Avenue, one-half block south of 17th Place, is discontinuous for automobile traffic except for authorized vehicles and bicycles. The section of 17th Avenue between the School of Dental Medicine Building and Education 2 was opened to traffic in 2012 across a wide, raised pedestrian crossing. Nineteenth Avenue, one-half block north of 17th Place, is continuous, but it experiences significant pedestrian crossing activity, especially between Quentin and Victor Streets, since parking is north of this road and many destinations are to its south. Several raised crosswalks have been installed along 19th Avenue to help calm traffic given the high level of pedestrian activity.

Victor Street, the east leg of the loop road, also experiences significant pedestrian crossing activity. This is primarily due to the significant amount of CHCO staff parking provided on the east side of Victor Street, while the actual hospital and related medical facilities are located on the west side. Crosswalks may help raise driver awareness of pedestrian presence, but Victor remains one of the worst streets in the Site-Wide because of high vehicle speeds and a confusing right-only turning pattern onto Colfax Avenue. Sixteenth Avenue, running just north of the southern edge of the Site-Wide area, also serves a significant amount of parking, primarily associated with UCH. It too is hampered by pedestrian crossing activity due to parking and facilities located on opposite sides of a busy roadway.

Montview Boulevard is the only east-west roadway that extends the entire width of the Site-Wide area. As a result, this roadway serves Site-Wide-related trips as well as non-Site-Wide trips that simply pass through the site. Many of the latter type are making use of the new 17th Place interchange connection to I-225. At the edges of the Site-Wide area near Fitzsimons Parkway and Peoria Street, Montview Boulevard is wider to include multiple travel lanes. This is consistent with long-term planning of the roadway in which two blocks at both the east and the west ends would be multi-lane, and the section between these two points would be limited to two through lanes and a center left turn lane.

Victor Street is the only internal north-south street that connects from the southern edge of the Site-Wide area north to Fitzsimons Parkway. Circulation in the FRA is supplemented by Ursula Street to provide access to the Pauls Development, a new section of 23rd Avenue east of Victor Street that includes bike lanes, Wheeling Street that extends north to 23rd Avenue, and several smaller roadways and service drives that connect existing facilities. The golf course in the northwestern quadrant of the site limits circulation in that portion of the FRA. General lack of roadway development in the FRA prohibits robust connectivity between the northern and southern halves of the site.



FIGURE V.8 - EXISTING ROADWAY NETWORK



Service Activity

Many of the larger facilities in the Site-Wide area require access for regular service vehicles for maintenance and delivery. Service access and building support elements such as waste handling, electrical transformers, and loading areas should be located off service roads whenever possible. Understanding these locations and the key roadways involved in serving these types of vehicles is important in planning the Site-Wide area's future, as these roadways will continue to serve in this function and accommodate this type of traffic. There are several service areas of note associated with the larger facilities; each is described below.

- UCH has service receiving areas along 17th Avenue. Vehicles access these locations from the Quentin Street/17th Avenue intersection and make use of 17th Avenue to Peoria Street or Quentin Street to Colfax Avenue, depending on their direction.
- CHCO also has a service receiving area along 17th Avenue. These vehicles enter via the 17th Avenue/Victor Street intersection and make use of Victor Street, 16th Avenue, 17th Place, or Wheeling Street, depending on their direction.
- VAMC, under construction, is planned to have a service area with access from Wheeling Street.

If there is no service road access, a service court should be designed in order to screen the back-of-house elements from the building entrances and main pedestrian routes. All main building entrances should face public spaces and pedestrian streets.

Appropriate service access should be accommodated in the design of all new buildings. Service access should typically be consolidated to only one location for each building. The sights, sounds, and possible smells of the service area location should be minimized from pedestrian pathways through the use of landscaping, topography, or other visual barriers.

Emergency Access

Though each hospital currently has suitable access routes to emergency departments, enhancements in the Site-Wide street and roadway network will provide emergency vehicles with more options to reach their respective destinations.

Proposed Roadway Projects

The FRA has yet to reconcile the specific recommendations herein with the new opportunity to create a transit-oriented development surrounding the proposed light rail station on Fitzsimons Parkway. The long-term role of Montview Boulevard, the connection of 23rd Avenue through the future TOD area, and the connection of the existing Fitzsimons Commons to the light rail station may need to be reevaluated. The light rail relocation may lead to a change in the roadway hierarchy within the Site-Wide area that has yet to be determined.

The character of the urban network presented here is desirable, as it will increase the possibility of better north-south and east-west connections, enhance access throughout the site, and offer more development opportunities. Quentin Street should be perceived as an important north-south internal roadway that spans the width of the Site-Wide area and provides important connections to UCH and the Anschutz Medical Campus. Though an urban network of streets will remain, the FRA will undertake further planning that may lead to revisions to specific street proposals, especially regarding the north-south roadways.

Given that caveat, the following reflect the 10year improvements that should be pursued in support of proposed Site-Wide build-out:

FIGURE V.9 - CURRENT PUBLIC BUILDING ENTRIES, SERVICE AREAS, AND CAMPUS LANDMARKS

Montview Boulevard

- Currently a collector roadway, Montview Boulevard is in need of improvement for both vehicle and pedestrian access. The character of Montview Boulevard is proposed to change between Quentin Street to Victor Street, at which points it will become a primary roadway and traffic will peel north and south in a center turn lane. As a CoA street, the funding and implementation of Montview Boulevard's improvements will be up to the city or the FRA's development entity, the Colorado Science + Technology Park at Fitzsimons Metropolitan District. However, it would benefit all Site-Wide entities to provide input in the design of Montview Boulevard to ensure its ultimate configuration meets all stakeholder needs.
- Recommended improvements

 along Montview Boulevard include
 widening the street between Quentin

 Street and Victor Street so that
 there is one through lane in each
 direction plus a dedicated center

 left turn lane. East and west of this
 central section, additional turn lanes
 should be considered to improve
 the performance of the intersections
 at Peoria Street on the west and
 Fitzsimons Parkway on the east.
- Another issue to be considered is softening the jog in Montview Boulevard between Scranton and Ursula Streets. The intersections along Montview Boulevard should have traffic signals added in the future as warranted. In the interim, pedestrian-activated traffic control should be considered at critical crossings to promote easy pedestrian access between the university and the FRA. Sidewalk improvements similar to those described in the design guidelines would be an asset to both the north and south sides of the boulevard

- Seventeenth Place between Wheeling Street and Fitzsimons Parkway will need to be widened to accommodate five lanes of traffic. Associated with this is the need to add lanes along all approaches to the 17th Place/Wheeling Street intersection given the level of parking to be provided in that general vicinity. This is currently under construction as part of the VA Medical Center plan.
- Peoria Street and Colfax Avenue, because it is the intersection of two major arterial roads and has seen more traffic because of the I-225 connection at 17th Place, should be widened to include dual left-turn lanes along all approaches and separate right-turn lanes along all approaches.
- Seventeenth Avenue should be opened to through vehicle traffic between Research 1 South and Academic Office 1, which would provide access and extend connectivity on 17th Avenue across the Site-Wide area from Victor Street to Peoria Street. The majority of the street is proposed to be pedestrian-oriented and without on-street parking. However, there are a few spots where short-term, metered parking may be implemented.
- Aurora Court should be widened slightly along its southbound approach to 16th Avenue. The opening of 17th Avenue will place additional traffic along Aurora Court, and its intersection with 16th Avenue will require two southbound lanes into the intersection.

- · Explore the potential for a "road diet" along Victor Street, given the significant increase in traffic projected and the fact that there are numerous driveways serving heavy traffic-generating uses (such as parking structures). A "road diet" may consist, in one scenario, of converting four through lanes of traffic (two in each direction) to three lanes, where the center lane would be a continuous, dedicated turn lane. This would allow left-turning vehicles to make use of a harbor area without interfering with through traffic. This would also benefit pedestrians crossing the street, as they would then only need to cross three lanes of traffic rather than four. This action to be explored further would likely improve the safety of the roadway, and projected traffic volumes are not projected to exceed the capacity of a three-lane section.
- In order to facilitate safe pedestrian and bicycle crossing, CoA proposes that Fitzsimons Parkway go on a road diet and decrease to fewer than four lanes. The specific cross section of Fitzsimons Parkway is yet to be determined, but note that traffic counts and projections for Fitzsimons Parkway take the existing condition into account.

Other improvements recognized in Figure V.12 include widening Colfax Avenue over Toll Gate Creek, widening Peoria Street over Sand Creek, widening Victor Street north of Montview Boulevard, and the eventual connection of Martin Luther King Boulevard from Stapleton to the Fitzsimons Parkway/Peoria Street intersection. The figure also shows resulting intersection levels of service (LOS) given the building traffic demands and the recommended improvements described. Existing LOS are also provided as point of reference and comparison (to reflect existing traffic levels and existing intersection lane geometries).

The travel demand modeling results for the 10year time period suggest that roadways south of Montview Boulevard could reach the 60 to 80 percent range of their build-out load projections shown in Figure V.11. As such, the 10-year plan should incorporate pursuit of all improvements shown for the Site-Wide area south of and inclusive of Montview Boulevard, some perhaps to be completed in phases as conditions allow.

Frequent spacing of potential future traffic signals is indicated along Montview Boulevard in Figure V.10. Not all of these potential signals are expected to be implemented, but all could be considered for relevant technical warrants. Frequent spacing of signals would create challenges with respect to signal coordination. Quentin Street and Victor Street are the most likely intersections to satisfy warrants and would be logical locations for signalization given their significance for north-south continuity and role with respect to circulation within the square mile. The proximity of Quentin Street to Peoria Street should be further studied with warranting. The final decision on all potential signal locations should be made upon completion of:

- The FRA Master Plan. The location, density, and type of land use ultimately planned for FRA property are major considerations with respect to the logical signalization location.
- Site-Wide shuttle study. There is a potential that shuttle service throughout the square mile area may be provided through shared funding and management by all stakeholders. There are several barriers related to cost and routing that may make a shuttle that serves all Site-Wide entities difficult; however, there remains the need to collaborate to create a desirable system for all stakeholders. Optimal routing of these vehicles ideally would coincide with signal locations, since crossing and/or turning onto Montview Boulevard could be challenging during peak hours once the square mile is built out. These questions should be addressed in a Site-Wide shuttle study.



FIGURE V.10 - PROPOSED ROADWAY NETWORK

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FIGURE V.11 - EXISTING AND ESTIMATED FUTURE DAILY TRAFFIC VOLUME ON SITE-WIDE ROADWAYS

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Traffic Modeling Methodologies

A traffic forecasting model was developed to study current and future traffic levels. It takes into consideration all future land uses planned for the Site-Wide community as of 2012. Please note that this model does not take the future transit-oriented development study or FRA Master Plan Update into account, and these projections are likely to change. Land-use quantities were translated into traffic demands through a series of trip-making assumptions and parameters using TRAFFIX software. The model shows that 22.5 million square feet of development (at full Site-Wide build-out modeled in 2035) would generate approximately 152,000 external trips per day (as compared to the 50,000 to 60,000 that occur today); approximately 70 percent of the trips generated by users within the Site-Wide area would be associated with development south of Montview Boulevard.

Background traffic projected for 2035-that is, all traffic using roadways within the square mile unrelated to Site-Wide development, estimated to be along Montview Boulevard and Fitzsimons Parkway—along with Site-Wide estimated traffic comprise the "future" numbers. Additionally, "future" suggests total traffic, not just that being added from projected development within the Site-Wide area. Existing traffic shown was assembled from available traffic data from the last five years, including inferences to estimate daily demands from peak hour counts. This was an efficient means of compiling an existing traffic snapshot.

To further analyze the impacts of this increase in trips made, the model applied the generated trips to the proposed roadway network by utilizing parameters such as speed, number of lanes, and connectivity that are set by each roadway's classification. The traffic forecasts are a demonstration of the street network that is illustrated, and these projections may change as the TOD study proceeds.

See Appendix VI.C for further explanation of traffic analysis methods.

Traffic Forecasts

Figure V.11 shows the daily traffic projections based on the roadway network previously shown, excluding minor secondary and tertiary roadways. The diagram also shows existing daily traffic where such data are available (or where peak hour traffic data are available and daily traffic inferences applied). Traffic demands are anticipated to increase along all Site-Wide roadways. Noteworthy levels of traffic include

- Montview Boulevard, which will serve 11,000 to 15,000 vehicles per day
- Seventeenth Avenue between Quentin Street and Victor Street, which will serve 5,000 to 7,000 vehicles per day
- Seventeenth Place connecting to Interstate 225, which will serve 35,500 vehicles per day
- Victor Street south of 17th Place, which could serve 13,000 vehicles per day. This roadway currently experiences significant pedestrian crossing activity between the parking areas and CHCO, and the increase in traffic along this roadway is noteworthy. Potentially, this roadway would benefit from a "road diet" in which four through lanes of traffic would be converted into three lanes comprised of one through lane in each direction and a continuous center left-turn lane.

A model run with 10-year development levels suggests that the roadways south of and including Montview Boulevard could reach 60 to 80 percent of the build-out traffic projection, which suggests that these areas are where improvements should first be considered. For example, Quentin Street is the only north-south through roadway on the west side of the Site-Wide area. It already handles large amounts of traffic daily, and these numbers will only grow.

As with most densely populated areas of high employment, the Site-Wide area will remain challenged to balance an urban streetscape with the need for adequate parking and roadway facilities. However, this plan provides some recommendations that may help manage/ address the traffic congestion in the Site-Wide area that should be reevaluated on a regular basis as development continues.

Traffic Operations

Making use of the traffic projections by applying them to the roadway network and its intersections, peak hour intersection LOS were calculated at key intersections to assess functionality and needs to achieve that level of functionality. LOS is a qualitative measure based on the average delay per vehicle at a controlled intersection. LOS are described by a letter ranging from "A" to "F." LOS A represents minimal delay, while LOS F represents excessive congestion and delay. The signalized intersection analysis reports an LOS rating for the entire intersection while the unsignalized analysis reports an LOS for each movement through the intersection.

For this analysis, the LOS was calculated through a summation of critical movements at each intersection, a procedure appropriate for a planning-level assessment of operations. Typically, an LOS D or better is preferred at the busiest traffic hours of the day, but it is also recognized that there may be traffic operations based in part on whether it meets certain traffic around the Site-Wide area that will not meet this volume criteria. criterion.

The resulting LOS (as well as existing LOS at intersections where data were available) are presented in Figure V.12, and these reflect needed improvements that are generally highlighted in the same figure.

CoA plans for Montview Boulevard to remain a two-lane road from Quentin Street to Victor Street, and the FRA desires Montview to have lower traffic levels toward the center of the Site-Wide area. Where there are major north-south connections, though, Montview Boulevard could be widened out for a turn lane. The recommended widening shown along Montview Boulevard in Figure V.12 represents the potential for these turn lanes.

Figure V.10 - Proposed Roadway Network shows potential signalized intersections as well as the proposed roadway network. New signal locations have been identified based on the potential of that intersection to eventually warrant signalization upon build-out of the site. This is determined through the application of future traffic forecasts to the roadway network and its intersections. Actual installation of a signal will be dependent upon each intersection's satisfaction of technical warrants,



FIGURE V.12 - EXISTING AND ESTIMATED LEVELS OF SERVICE AT SITE-WIDE INTERSECTIONS

V PHYSICAL PLAN



Street Section





secondary roadways



Street Section reprinted from the Colorado Science + Technology Park at Fitzsimons Urban Design Guidelines (2008) by Elkus | Manfredi Architects with permission of the FRA

Street Sections

Increased emphasis on the importance of the street network as public realm in the master plan drives the important task of improving the existing streets and defining the nature of future roadways to accommodate multi-modal transit in a friendly and active pedestrian environment. This plan includes the following street character diagrams, and street treatment detail is included in the Anschutz Medical Campus Design and Development Guidelines.

The street character diagrams are intended to propose general design themes rather than proscriptive standards. Future projects will continue to develop streets to meet the needs of specific parts of the square mile within the overall design intent of the master plan. This Site-Wide plan does not intend to propose specific cross-sections for new roadways in the square mile, but it recognizes that streets have various functions and carry different volumes of both vehicles and pedestrians. Therefore, roadways are classified herein to suggest the different look, feel, and function implied by the Character District and traffic volume of each Site-Wide roadway. The street sections for primary, secondary, and tertiary roadways are consistent with the FRA's 2008 Urban Design Guidelines, and these are compatible with university standards.

On-street parking is a desirable amenity for parts of the Site-Wide area. It not only provides convenient parking for visitors but also helps to emphasize the pedestrian nature of the streets both by buffering the sidewalk and slowing vehicle speeds as drivers will enter and exit their cars. The bike network should be reflected in the street typologies, and dedicated lanes should be included on most of the major campus bike routes.

Site-Wide street design will promote connectivity and provide a unifying framework throughout the site. The street sections are intended to be consistent with FRA standards to promote a sense of unification across Montview Boulevard. Consistent street character will create rhythm and visual impact, highlight areas of significance, and tie all five Character Districts together to form a comprehensive whole.

Primary and Secondary Streets

These streets are the primary vehicular pathways throughout the site and provide the major organizational framework for the Urban Campus Character District. They provide onstreet parking and include dedicated bike lanes in some instances.

Road widths should be minimized to encourage reduced speeds while not sacrificing vehicular or pedestrian safety. Traffic speeds should not exceed 15 mph.

Traffic-calming methods should be designed at regular intervals along minor roads, including clearly marked crosswalks, varied paving surfaces near high-use pedestrian areas, neckdowns, and roadside landscaping. These traffic-calming methods should be balanced by the need for efficient transportation movement and other issues such as efficient plowing in the winter and long-term maintenance of the campus road system.

Roadbeds should be separated from pedestrian paths by concrete curbs and elevation changes.

The Street Plan with Planting Bed (Figure V.11) utilizes 5'x10' planting beds spaced 25' on center to soften the urban streetscape. The scoring pattern shall be that which is shown on the plan utilizing a 5' pattern that centers on the planting bed and runs perpendicular to the back of curb. This is a model for the character of the standard streetscape.

The Street Plan with Tree Grates (Figure V.11) is similar to that with planting beds. 5'x5' tree grates are utilized on this concept centered on the location of the tree. 2.5'x5' concrete bands flank either side of the tree grate to account for more pedestrian activity within the streetscape. The Street Plan with Tree Grates is to be utilized in the higher pedestrian active areas such as around parks, plazas, and primary building entries

- A Street lighting fixture.
- **B** Bench to back planting bed. One per building entry.
- **C** Newspaper corral to back curb. Approximately one per block. Final location and quantity to be determined on a case-by-case basis.
- **D** Bike rack embedded, centered in scoring pattern 30" from planting area. Two per building entry.
- **E** Trash receptacle surface mounted at edge of paving. One per building entry.
- F 2' wide cast-in-place concrete curb and gutter.
- G 18" wide concrete band with smooth finish, continue adjacent saw cut scoring.
- H Cast-in-place concrete with medium broom finish, saw cut scoring. Scoring at 5' intervals.
- I Planting Bed: Deciduous tree and 5'x10' tree well with landscape and rock mulch over fabric. Tree Grate: Deciduous tree in a 5'x5' tree grate. Tree spacing at 25' centers.
- Optional: 5'x15' section of colored J Sandcrete. Field color varies per building design
- **K** Special paving at primary building entrance. Pattern and use of materials that are reflective of building entrance are encouraged.

Note: All furnishings to be centered on the tree.

Tertiary Street

A tertiary street is any that functions as a commercial service drive. Service roads should be separated from pedestrian travel. They should feature street tree plantings and light fixtures, but they should not accommodate onstreet parking, bike lanes, or sharrows.

- **A** Street lighting fixture.
- B Bench not included.
- **C** Newspaper corral not included.
- D Bike rack not included.
- E Trash receptacle shall be located at parking garage pedestrian entry and exit and at secondary building entrances.
- **F** 2' wide cast-in-place concrete curb and gutter.
- G 18" concrete band with smooth finish. Continue adjacent saw cut scoring.
- **H** Cast-in-place concrete with medium broom finish. Saw cut scoring as shown.
- Deciduous tree and 5'x5' tree well with landscape and rock mulch over fabric or 5'x5' tree grate. Tree spacing at 25' centers.





FIGURE V.14 - TERTIARY STREET SECTION AND KEY PLAN

Street Section reprinted from the Colorado Science + Technology Park at Fitzsimons Urban Design Guidelines (2008) by Elkus | Manfredi Architects with permission of the FRA.

V PHYSICAL PLAN





Existing Transit System

Six fixed transit routes provide access to the Site-Wide area, all of which are provided by RTD. Some fixed-route services provide peak hour service only. Additionally, CU provides a campus-to-campus bus between the Anschutz Medical Campus and the Denver Campus. An internal-demand response courtesy service is also provided for the Anschutz Medical Campus. A map of existing transit routes that provide service to the Site-Wide area can be found in Figure V.15.

Private Transit Service

The university offers a campus-to-campus bus that provides service between the Anschutz Medical Campus, VAMC at 9th Avenue and Colorado Boulevard, National Jewish Health Center, and downtown Denver. Buses arrive and depart from in front of Building 500 on the Anschutz Medical Campus every hour, and ridership averages 40 to 50 riders per day.

Additionally, CU Anschutz, CHCO, and UCH provide internal demand-response courtesy Campus Circulator Services that transport staff, students, and visitors around the campus. However, the small electric cart vehicles cannot travel on city streets or cross north of Montview Boulevard; they serve only the area bounded by Montview Boulevard, Colfax Avenue, Wheeling Street, and Quentin Street.

Regional Transportation District Service

RTD operates six routes as part of its larger from the site. The routes that currently serve the Site-Wide area are Route 15, Route 15L, Route 20, Route 89, Route 121, and Route DM.

Route 15 - East Colfax Avenue: Route 15 provides service along East Colfax Avenue between the Auraria Higher Education Center (AHEC) in downtown Denver east to 17th Avenue and Chambers Road in Aurora. The major activity centers along the route include AHEC, National Jewish, Anschutz Medical Campus, residential areas, retail, and dining.

The route has 15 major stops, including several that deviate from Colfax Avenue into the Site-Wide area and provide direct access to Building 500. The route operates 24 hours per day, and service is frequent, with headways varying by day of week and time of day. Not all trips travel the route distance, which is important when considering service frequencies to the Site-Wide area. Service along the Route 15 to the Site-Wide area is available on select routes and runs approximately every 30 minutes during AM and PM peak hours.

Route 15L - East Colfax Limited: Route 15L is a limited route that provides service along a more extensive portion of East Colfax Avenue. The route begins at 15th Street and Curtis Street in downtown Denver and travels east to Tower Road and Colfax Avenue in Aurora. The route makes stops at Market Street Station, Civic Center Station, National Jewish, and select trips service the Town Center of Aurora and the Aurora Municipal Center. The 15L operates every 10 to 15 minutes during the day and every 30 minutes during the evening. This route does not deviate from Colfax Avenue to Building 500 but has numerous stops on Colfax that provide access to the Site-Wide area.

FIGURE V.15 - EXISTING BUS NETWORK

Route 20 - 20th Avenue: Route 20 provides transit service network to provide access to and service from the National Renewable Energy Laboratory (NREL) in Golden and runs east along 20th Avenue, 17th Avenue, 23rd Avenue, and Montview Boulevard and terminates at the Site-Wide area. The major activity centers along the route are NREL, Denver West Marriott, AHEC, Union Station, Presbyterian and St. Joseph Hospitals, Denver Zoo, City Park, Denver Museum of Nature and Science, and the Site-Wide area. This route terminates at the square mile and deviates into the Anschutz Medical Campus with a stop at Building 500.

> It runs every 15 minutes during AM and PM peak hours, every 30 minutes early morning, evening, and midday, and hourly from 8:00 PM to 11:00 PM. The extension of the route to NREL only operates on weekdays, and the route modification on weekends provides service from West 17th Avenue and Federal Boulevard east to the Site-Wide area. Saturday service runs from 5:00 AM to 11:00 PM providing 30-minute service all day with hourly service in the early morning hours and late evening hours. Sunday service begins at 6:00 AM and runs until 11:00 PM, with 30-minute service all day until hourly service begins at 8:00 PM.

> Route 89 - Stapleton: Route 89 is relatively new and provides service from the Stapleton Parkn-Ride at East 36th Avenue and Ulster Street to the Site-Wide area, with stops at East 29th Drive and Havana Street as well as at Montview Boulevard and Peoria Street. This route enters the Site-Wide area via Montview Boulevard and provides stops along Quentin Street and 16th Avenue. This route does not provide service to Building 500 via Aurora Court, but rather turns south at 16th Avenue and Aurora Court and then west on Colfax Avenue. Service is only available on weekdays beginning at 5:52 AM and runs every 30 minutes until 10:00 PM.

Route 121 - Peoria Street: Route 121 provides north-south service from the Montbello Park-n-Ride south to Nine Mile Station with service to the Ulster Street and Tufts Avenue Transfer Center in the Denver Tech Center. The route runs south along Peoria Street from the Montbello Park-n-Ride with deviations from Peoria Street onto Smith Road and Sable Boulevard, and onto Quentin Street from Montview Boulevard to Colfax Avenue, providing access to the square mile. The route then continues south on Peoria Street to Nine Mile Station and the Ulster Street and Tufts Avenue Transfer Center. Service is frequent, with headways varying by day of week and time of day.

Route DM - Boulder/Anschutz Campus: Route DM is a regional route that provides service from Boulder to the Anschutz Medical Campus within the Site-Wide area. The DM provides six AM trips and six PM trips to accommodate commuters. The route begins at the Boulder Transit Center, making stops at RTD Park-n-Ride facilities along the route, including Table Mesa Park-n-Ride, U.S. 36 & McCaslin Parkn-Ride, and the U.S. 36 & Westminster Center Park-n-Ride

The DM currently accesses the Site-Wide area utilizing slightly modified routes for the AM and PM peak periods. Peak morning trips run every 30 minutes, with the first bus departing Boulder at 5:21 AM and the last trip departing Boulder at 7:43 AM. Afternoon trips run every 30 minutes, with the first bus departing the Site-Wide area at 3:47 PM and the final trip leaving at 6:12 PM. Major DM stops around the Site-Wide area are located at East Colfax Avenue and Fitzsimons Parkway, Building 500, and at the CU Anschutz Health and Wellness Center at Quentin Street and East 19th Place.

As a way to evaluate existing transit usage within the Site-Wide area, boarding and alighting data were reviewed for stops within the site. Based on current development, it is not surprising that the top three busiest stops are those closest to Building 500 and those that service the existing hospital facilities. Figure V.16 illustrates the top 10 busiest stops, the routes served by each stop, and the associated boarding and alighting data

Proposed Transit System

The planned light rail line serves as a cornerstone for transit service. RTD FasTracks I-225 rail line, projected to begin LRT service in 2016, will run along the eastern and northern perimeter of the Site-Wide area. The RTD bus routes will be subject to future planning, and RTD staff will restructure their bus service plan in conjunction with the light rail service. Two light rail stations are planned to serve the Site-Wide area, one to be elevated over Colfax Avenue just east of Fitzsimons Parkway and the other to be located along Fitzsimons Parkway between Revere Court and Scranton Street. The line is planned to pass along the campus on the north side of Fitzsimons Parkway.

RTD has indicated a desire to connect bus routes with the light rail stations and core of the site in an efficient manner to make use of appropriate roadways. Further discussion and planning will be needed to identify the most appropriate bus routing to meet the desires and needs of the stakeholders. RTD will reevaluate its routes one year prior to the opening of the light rail to determine how best to serve the Site-Wide area and local neighborhoods.

When operational, light rail transit will be a cornerstone of Site-Wide-related transportation. All Site-Wide stakeholders understand the benefits of linking light rail to their facilities via shuttles, and they should work together with RTD to study a shuttle system that benefits all entities

RTD Bus Stop Boarding and Alighting Data May 2013

Bus Stop	Routes Served	Total Daily Boardings	Total Daily Alightings	Total Daily Boardings & Alightings
East 17 th Place & Aurora Court	15, 20, DM	135	195	330
East 16 th Avenue & Aurora Court (Eastbound)	20, 89	150	108	258
Aurora Court & East 17 th Avenue (Northbound)	15, 20, 89	117	110	227
Quentin Street & 17 th Place (Northbound)	20, 89, 121	41	42	83
Colfax Avenue & Aurora Court (Westbound)	15, 15L, 89	66	12	78
Quentin Street & 19 th Place (Northbound)	20, 89, 121, DM	53	23	76
Quentin Street & 16 th Avenue (Southbound)	20, 121	27	48	75
Colfax Avenue & Vaughn Street (Westbound)	15, DM	31	44	75
Quentin Street & 19 th Place (Southbound)	20, 89, 121	26	40	66
Quentin Street & 17 th Place (Southbound)	20, 89, 121	26	36	62
Daily Totals		672	658	1,330

FIGURE V.16 - RTD BUS STOP BOARDING AND ALIGHTING DATA



FIGURE V.17 - TRANSIT PLANNING DIAGRAM

Site-Wide Coordinated Master Plan Phase II AndersonMasonDaleArchitects

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Existing Bicycle Network

Bicycle accommodations along Site-Wide roads are relatively few. The only Site-Wide streets that contains bicycle accommodations are 17th Avenue and short stretches of Uvalda Street and 23rd Avenue in the FRA. Otherwise, bicycles typically ride along unmarked roadways or on sidewalks throughout the Site-Wide area. Multiple bicycle parking racks are provided throughout the site, a majority of which are on the Anschutz Medical Campus. Select parking structures contain bicycle lockers.

Dedicated CoA bicycle facilities that provide Site-Wide connections include:

- Montview Boulevard to the west. Sharedlane marking or "sharrows" have been added to Montview Boulevard to alert motorists that a bicyclist may use the full travel lane. Montview Boulevard west of the Aurora/Denver border features a dedicated bike lane.
- Seventeenth Avenue to the west. CoA has dedicated this roadway as a signed bike route.
- Ursula Street to the south. CoA has dedicated this roadway as a signed bike route that connects to 13th Avenue. At 13th Place, Ursula Street is discontinuous as an automobile roadway, but a trail continues to 13th Avenue, which is also designated as a signed bike route.
- Various connections from the Sand Creek and Toll Gate Creek Trail System at:
- Montview Boulevard/Fitzsimons Parkway intersection
- Victor Street/Fitzsimons Parkway intersection
- Fitzsimons Parkway/future Ursula Street intersection
- Fitzsimons Parkway/future Racine Street intersection



FIGURE V.19 - REGIONAL BICYCLE NETWORK

FIGURE V.18 - EXISTING BICYCLE NETWORK

Proposed Bicycle Network

A Site-Wide plan for major bikeways is shown in Figure V.20. The goal to provide dedicated connections to CoA bicycle facilities along the perimeter of the site at 17th Avenue and Montview Boulevard, to the Sand Creek and Toll Gate Creek Trail System to the north and east, and to Ursula Street and Xanadu Street to the south drives this plan (see Figure V.20). All new roadways and renovated roadways should provide bicycle accommodations. Designated bicycle facilities are planned within the Site-Wide area along Quentin Street, 17th Avenue, 19th Avenue, 23rd Avenue, and Victor Street. In addition, sections of Ursula Street, Aurora Court, Scranton Street, and 17th Place are recommended to provide accommodations for bicycling. This plan also proposes that all new roadways be designed to accommodate bikers, either with designated bike lanes or shared lane markings.

Future studies will need to explore several bicycle accommodation issues. The FRA will work with RTD to identify potential intersections that warrant crossing beacons to guide bikers across Fitzsimons Parkway and the light rail line. Crossings of Fitzsimons Parkway will be particularly important to strengthen connections to the Sand and Toll Gate Creek Trails and other CoA bicycle and park facilities. However, though connectivity is desired, implementation of these connections requires further analysis, and their location will be determined by the TOD and FRA planning studies in coordination with RTD and the Public Utilities Commission (PUC).

In particular, connectivity to the Toll Gate Creek Trail System at 17th Place remains an outstanding issue, and the potential to connect to Toll Gate Creek from the 17th Place/ Fitzsimons Parkway intersection also remains to be assessed. Potentially, Potomac Street (which extends north to the mobile home park between Toll Gate Creek and I-225) could be utilized in accessing the Toll Gate Creek Trail System.

Proposed Improvements

Another concern regarding this issue relates

east of Wheeling Street. As part of the VAMC

construction, 17th Place is not planned to be

equipped with bicycle lanes. The addition of

this amenity at this point could be problematic

as it relates to the planned construction. This

bicycle link may not be easily implemented

given development plans under construction.

However, this master plan recommends a

bike lane on 17th Place east of Victor Street.

Recognizing the difficulty of implementation,

connection to the Toll Gate Creek Trail System

A bicycle facility is shown along Colfax Avenue

and is proposed to be an off-road bike path as

this facility would provide an integral

that would otherwise be absent from the

southeast quadrant of the Site-Wide area.

part of the Colfax Frontage Exercise Trail.

Another set of bicycle connections affecting

the Site-Wide area pertains to tying into the

Accommodations along the north-south

Sand Creek Trail north of Fitzsimons Parkway.

roadways between Fitzsimons Parkway and

Montview Boulevard will be provided as part

of the construction, but the challenge may be

crossing Fitzsimons Parkway to Sand and Toll

Gate Creeks due to the alignment of the light

rail. Bike and pedestrian access to the creeks

will warrant close coordination with RTD and

entities are currently taking place to determine

CoA, and ongoing discussions with these

these best locations.

to the pending construction of 17th Place

With respect to bicycle accommodations, steps should be taken toward realizing the proposed bicycle network as discussed. Some key considerations that should be prioritized include:

- Connecting to the Sand Creek Trail System sooner rather than later, thereby allowing neighborhood bicyclists easier access to the Site-Wide area. These connections will need to be planned and integrated with LRT design. These bicycle connections will need to be coordinated with vehicular median breaks as well as the light rail along Fitzsimons Parkway.
- Design 17th Avenue through the core such that it provides a high level of bicycle accommodation via generous bicycle lanes along both sides of the roadway. This should be extended to Peoria Street so that it connects with CoA's signed bicycle route along 17th Avenue to the west.
- Enhance bicycle accommodations along Aurora Court so as to strengthen the site's connection to 13th Avenue to the south.
 With the potential of 13th Avenue being extended to cross (via underpass) I-225, this connection would be beneficial for bicycle users, particularly those traveling to the opposite side of the interstate.
- Implement bicycle facilities along the west end of Montview Boulevard to properly connect to the bicycle accommodations that exist along Montview Boulevard to the west of Peoria Street today.

Figure V.20 indicates desirable bicycle connections, which may be revised to adapt to the final TOD plan.



FIGURE V.20 - PROPOSED BICYCLE NETWORK



Existing Pedestrian Network

Many Site-Wide roadways provide sidewalk accommodations; some are detached and wide while others are narrower and/or attached. Pedestrian-only zones and plazas have been established along 17th Place. These zones and plazas help establish an urban place-making amenity for Site-Wide users, as do skywalks, which are also provided between several adjacent buildings to enhance pedestrian connectivity. A pedestrian overpass on Colfax Avenue connecting to the Fitzsimons Village development is also provided to the site's users.

The pedestrian network in the FRA largely remains to be built out, but attached sidewalks connect the Pauls Development to Montview Boulevard, and sidewalks along 23rd Avenue and Wheeling Street near the daycare facility and Fitzsimons Credit Union ensure a safe pedestrian environment for visitors and customers there.

Some internal roadways lack sidewalk accommodations. Sections are missing along roadways where construction is currently taking place (such as the VAMC), and some past construction did not replace sidewalk facilities. Roadways along which sections of sidewalk are missing include:

- Montview Boulevard
- Nineteenth Avenue
 - Along the rear of Building 500

- West of Research 2, where pedestrians often walk within the travel lane

• Fitzsimons Parkway north of Montview Boulevard

There are several Site-Wide roadways that experience significant pedestrian crossing activity. Although traffic-calming measures like speed tables, special pavement materials, and bump-outs have been introduced to alleviate pedestrian/automobile conflicts, significant areas remain unsafe for pedestrians. Critical areas include:

Victor Street Between 16th Avenue and 17th

Place: Significant pedestrian activity occurs because parking structures are located on the east side, and associated CHCO is on the west. Signing and pavement marking have been added to alleviate this conflict.

Nineteenth Avenue Between Victor Street and Scranton Street: Because the Henderson Parking Garage is on the north side of the street and many CU Anschutz destinations are

located south of 19th Avenue, there's much pedestrian crossing activity. Raised crosswalks have been installed along 19th Avenue to help alleviate some of this conflict.

Sixteenth Avenue in Front of UCH: Similar to the above two areas, this area of pedestrian/ automobile conflict is due to parking being located on the opposite side of the roadway (south) from the facility it serves (north). Some calming measures have been implemented, including all-way stop intersections and a raised oval-sized median area that forces some curvature along the roadway.

FIGURE V.21 - EXISTING PEDESTRIAN NETWORK

Proposed Pedestrian Network

The Site-Wide stakeholders are committed to providing accessible pedestrian travel and ensuring an inviting pedestrian atmosphere. This master plan proposes that the pedestrian experience be valued in full balance with other transportation modes—cars, bikes, transit, and internal shuttles. The pedestrian experience drives the open-space, roadway, and bicycle network propositions, and confluence of these systems creates a dynamic network of pedestrian-oriented streets, greenways, and promenades that connects to Site-Wide landmarks and open spaces.

Proposed Improvements

Pedestrian accommodations should be improved concurrently with new building and roadway construction and/or renovation.

All future roadways and retrofit projects will include accommodations for pedestrian activity as defined in the street sections presented on the following pages. Design elements to improve pedestrian travel include traffic-calming methods such as well-marked crosswalks, varied paving surfaces for crossings that experience a large volume of pedestrians, bulb-outs, and buffers between pedestrian facilities and the roadway (topography changes, landscaping and greenery, sidewalk furniture, etc.).

To the extent possible, sidewalks should be detached from busier roadways to create a comfortable environment for pedestrians. A wider sidewalk where significant pedestrian activity is anticipated would be appropriate. Such improvements, especially along 19th Avenue around Building 500, could increase safe pedestrian access to facilities within the Site-Wide area. Americans with Disabilities Act (ADA) requirements should be exceeded to promote the Site-Wide's identity as a premier health care center, easily navigable and welcoming. Given the medical nature of many of the stakeholder entities, providing for pedestrian accommodations that exceed these requirements would be appropriate, especially where patient activity is anticipated. Potentially, some areas may be developed such that pedestrian plazas are incorporated and placemaking implemented such as in the area north of Building 500.

Pedestrian Hierarchy

The pedestrian experience drives the open-space, roadway, and bicycle network propositions. Scranton Street and Uvalda Street will become primary north-south pedestrian connections through the Site-Wide area. There is current north-south connectivity from the hospitals to Montview Boulevard via the Research and Education Commons. The new Scranton Street and Uvalda Street greenways will pick up this movement pattern and carry it from Montview Boulevard to the proposed light rail station on Fitzsimons Parkway, consequently connecting the hospitals to the LRT and beyond to the creek trails.

The 17th Place Art Walk complements these primary north-south pedestrian boulevards. This is the major east-west pedestrian access, and 19th Place takes on a secondary, but still critical role in wayfinding and pedestrian place-making. The Art Walk should connect the Parade Grounds to the eastern threshold of the university. Seventeenth Avenue should develop as an equally important pedestrian link across the site and west to CoA neighborhoods. It should become a true multi-modal street when it becomes open to vehicles and buses. Since it borders on all three hospitals as well as the southern edge of the university, 17th Avenue is well-placed to support active ground-floor uses that draw pedestrian traffic, such as those already found in the Leprino Building. New interdisciplinary projects could well find sites here, and future density will make this a vibrant and busy pedestrian corridor.

With the proposal for the LRT station on Fitzsimons Parkway west of Scranton Street, north-south streets like Scranton Street, Revere Court, or Ursula Street could enhance the cross-axial relationships of pedestrian pathways with other north-south connections. From Colfax Avenue to 17th Place, pedestrians can enjoy the 300-foot landscape buffer and the historic viewshed to Building 500. The intersection at 17th Place is a major pedestrian node with options to connect east or west along the Art Walk, or continue through or around Building 500. At 19th Avenue and Ursula Street, pedestrians encounter the University Plaza, a vibrant civic center. They may continue through the Pauls Development and its ground-level retail shops to the future light rail station at Fitzsimons Parkway.

The hierarchical system of pedestrian-oriented pathways should provide students, employees, and visitors a regular, organized means of navigating the Site-Wide area. These roadways and promenades are punctuated by important landmarks that assist in the pedestrian wayfinding experience. For example, the hospital towers will be visible from Scranton and Uvalda Streets, and the prominent Building 500 will mark a major confluence of this pedestrian network.



FIGURE V.22 - PROPOSED PEDESTRIAN NETWORK



FIGURE V.23 - EXISTING UTILITIES - WATER

UTILITIES

Water

The existing potable water network located on the former FAMG site is part of a larger interconnected network that extends beyond the Site-Wide boundary. This network of water mains serves the entire Site-Wide area as well as all the surrounding stakeholders. It is primarily owned and operated by Aurora Water. Aurora Water has access to these facilities through easements granted by the property owners. The interconnected nature of the water lines provides for better redundancy and water quality. The Site-Wide area depends on water lines outside of its boundary, and, likewise, the surrounding stakeholders rely on water lines within the Site-Wide area.

The existing Site-Wide water infrastructure consists of the following, based on CoA utility records, discussions with university facilities personnel, and Site-Wide utility plans by Borstad Consulting Services, LLC dated April 2009:

- A 30-inch steel main in Fitzsimons Parkway from East Colfax Avenue to East 17th Place and 24- and 16-inch mains that continue in Fitzsimons Parkway from East 17th Place to Peoria Street provide adequate water service to the Site-Wide area from the north and east.
- A 24-inch main in Peoria Street from Colfax Avenue to Fitzsimons Parkway provides adequate water service to the Site-Wide area from the west.
- A 16-inch water main connects to the 24-inch water main at the intersection of Peoria Street and East 17th Avenue and extends east along East 17th Avenue to Wheeling Street. Another 16-inch main connects to the existing 24-inch water main at the intersection of Peoria Street and Montview Boulevard. These mains feed numerous fire hydrant laterals and facilities, and additional water loops with sizes ranging from 6 inches to 16 inches serve additional facilities and hydrants throughout the southern portion of the Site-Wide area.

- A 24-inch water main connects to the 16-inch main at the intersection of East Montview Boulevard and Fitzsimons Parkway. A separate 12-inch main connects to the 16-inch main at the intersection of Victor Street and Fitzsimons Parkway. These mains feed numerous additional water loops with sizes ranging from 6 inches to 24 inches that serve the facilities and hydrants throughout the eastern portion of Site-Wide area.
- The 12-inch PVC main in 17th Place from Wheeling Street to Fitzsimons Parkway is being replaced with a 16-inch main with the current VAMC construction. The 12inch main within East 17th Place is being replaced with a 16-inch main with the within East Montview Boulevard is fed from the 30-inch main in Fitzsimons Parkway to the east and also provides water service to the Site-Wide area from the east.
- A 12-inch CIP main runs along Wheeling Street from East 17th Place to Montview Boulevard. There are mains located outside the existing Wheeling Street roadway that are being relocated to accommodate the proposed roadway cross section and utility layout with the current VAMC construction.

Per the Infrastructure Utility Assessment Report dated May 17, 2006, many of these mains are undersized and constructed with outdated materials that were not considered for the longterm redevelopment of the site, and the existing water system is not sized to facilitate the needs of future development and cannot support the increased demands for future development.

Per discussions with CU Anschutz facilities staff, the water line infrastructure has been upgraded and reconstructed since the May 17, 2006 Infrastructure Utility Assessment Report to be adequately sized and provide capacity to support the facilities' needs. Future development will require further water analysis on a case-by-case basis, and CoA will additionally encourage that Site-Wide demands current VA construction, and a 24-inch line be considered as a whole to ensure that all users are adequately served.

Water Proposals

The following upgrades to the water infrastructure are necessary to support the ultimate build-out of the Site-Wide area:

- Replace the existing 6-inch line with a 16-inch PVC main in East Montview Boulevard, connecting to the existing 16-inch main at the approximate midpoint between Quentin Street and Racine Street, to Scranton Court.
- Replace the existing 6- and 8-inch lines with a 24-inch PVC main in East Montview Boulevard from Wheeling Street and connect to the existing 24-inch main northeast of the Health Sciences Library.
- Install a 12-inch PVC main in Ursula Street from 23rd Avenue to Fitzsimons Parkway.
- Replace the existing 10-inch line with a 12-inch PVC main in Victor Street from East 19th Avenue to East 23rd Avenue.
- Replace the existing 12-inch line with a 16-inch PVC main in East 16th Place from Victor Street to Wheeling Street.
- Add PVC mains as required per the master plan as the existing golf course area develops.

Future development will require phasing new water lines into the existing system to support building loads.

Per the Infrastructure Master Plan, dated October 11, 2001, the Site-Wide water demands at full build-out are shown in Figure V.24.

Water Demands at Full Build-Out in Millions of Gallons Per Day (MGD) Site-Wide Study Area October 2001

Average Daily Demand	Maximum Daily Demand	Peak Hourly Demand	
(MGD)	(MGD) (1)	(MGD) (2)	
3.88	10.86	17.45	

(1) The Maximum Daily Demand is 2.8 times the average daily demand per discussions with the City of Aurora.

(2) The Peak Hourly Demand is approximately 4.5 times the average daily demand per discussions with the City of Aurora.

FIGURE V.24 - SITE-WIDE WATER DEMANDS AT FULL BUILD-OUT



FIGURE V.25 - WATER MASTER PLAN





Electrical

Medium-Voltage Electrical Distribution System Evaluation

A review of the Site-Wide study area mediumvoltage electrical distribution system was conducted to identify the general extent of existing medium-voltage distribution systems and to discuss general requirements for modifications to accommodate future site growth.

CU Anschutz and UCH derive power from the CU Anschutz Campus Switchgear. CHCO, FRA buildings, VAMC, CoA (Police and Police Academy buildings), CeDAR, and the Colorado Veterans Nursing Home derive power directly from Xcel's distribution system through separate services.

Xcel Energy Substations

Xcel Energy owns and maintains two separate substations in the vicinity of the Site-Wide study area. Fitzsimons Substation is located in the northeast sector of the site. East Substation is located off-site to the south and east of the study area (see Figure V.26).

Fitzsimons Substation has a current capacity of CU Anschutz Feeders over 30 megawatts and is equipped with space Feeder circuit 1515 originates at the Fitzsimons for additional transformers to increase capacity. Substation Bank 2 and routes to Automatic East Substation has over 30 megawatts of Throwover Switch (ATO) Bus 1A (CU Anschutz). capacity. Each of the substations is capable This feeder also feeds UCH loads. of providing all of the power required for the entire site as presently configured, and with Xcel Feeder circuit 1577 originates at the East considerable excess capacity to accommodate Substation Bank 1 and routes to ATO Bus 1A future growth.

A series of Xcel Energy feeders brings power to the site and also feeds other facilities in the general area of the site. Some of the feeders are dedicated to facilities on the Site-Wide study area and some provide power for other users. Typically these feeders are 1000 MCM copper conductors with a capacity of approximately 15 megawatts. Some of the feeders provide power to multiple facilities on the Anschutz Medical Campus as well as on FRA property.

CU Anschutz and UCH Systems

The CU Anschutz and UCH electrical systems are currently fed by Xcel Energy through the Fitzsimons Substation Banks 1 and 2 as well as the East Substation Bank 1. The service is conveyed through multiple independent feeder paths. Each feeder path consists of Xcel Energy's off-site infrastructure as well as switches and feeder components on campus.

FIGURE V.26 - EXISTING UTILITIES - ELECTRICAL (ANSCHUTZ MEDICAL CAMPUS)

(CU Anschutz). This feeder also feeds other loads in the area, including the Colorado Veterans Nursing Home.

ATO Bus 1A (fed from Xcel 1515 and 1577) provides power for the following campus buildings:

- Building 500
- Research
- Nighthorse Campbell Native Health Building
- Preservation and Access Service Center for Colorado Academic Libraries (PASCAL)
- Environmental Health and Safety
- School of Dental Medicine Building
- Education 1
- Barbara Davis Center

Xcel Feeder circuit 1510 originates at the Fitzsimons Substation Bank 1 and routes to non-ATO Bus B (CU Anschutz). This feeder also feeds other loads in the area.

Xcel Feeder circuit 1519 originates at the Fitzsimons Substation Bank 2 and routes to non-ATO Bus B (CU Anschutz).

Non-ATO Bus B (fed from Xcel 1510 and 1519) CHCO Systems provides power for the following campus buildings:

• Central Utility Plant (CUP)

- Building 400 (multiple)
- Building 500
- Education 1 and 2
- Fulginiti Center for Bioethics and Humanities
- Health Sciences Library
- Academic Office 1
- Parking structures

UCH Feeders

Xcel feeder circuit 1513 originates at the Fitzsimons Substation Bank 1 and routes to ATO Bus 2A (UCH).

Feeder circuit 1515 originates at the Fitzsimons Substation bank 2 and routes to ATO Bus 2A (UCH). This feeder also feeds CU Anschutz loads.

ATO Bus 2A (fed from Xcel 1513 and 1515) provides power for UCH buildings.

Xcel Feeder Capacity

At present, Xcel feeders are capable of providing sufficient power for CU Anschutz and UCH for the near future. In approximately 10 years, feeders to the CU Anschutz CUP will need to be upgraded to accommodate CUP growth.

CHCO systems are fed directly from Xcel Energy's distribution system.

CHCO Feeders

Xcel feeder circuit 1517 originates at the Fitzsimons Substation Bank 2 and routes to the CHCO distribution system. According to Xcel Energy, there is approximately 15.5 megawatts of extra capacity in this feeder.

Xcel feeder circuit 1573 originates at the East Substation Bank 2 and routes to the CHCO distribution system. According to Xcel Energy, there are approximately 5.2 megawatts of extra capacity in this feeder. This feeder also feeds other loads in the area.

The two feeders listed above feed CHCO's ATO. Thus, the capacity available for expansion is limited to the lowest extra capacity of the feeders feeding the ATO. Thus, 5.2 megawatts is currently available. Assuming hospital loads of 8 watts per square foot, this would allow the addition of approximately 650,000 GSF of space before feeders will need to be upgraded.



FIGURE V.27 - ANSCHUTZ MEDICAL CAMPUS ELECTRICAL ONE-LINE DIAGRAM



Xcel Energy Fitzsimons Substation.



15kV main distribution outdoor switchgear.

FRA Systems

Existing buildings in the FRA area are fed directly from Xcel Energy feeder 1512, which originates from the Fitzsimons Substation. According to Xcel Energy, there are approximately 1.3 megawatts of extra capacity in this feeder. Assuming laboratory and research loads of 6 watts per square foot, this would allow the addition of approximately 216,000 GSF of buildings before the Xcel feeder would need to be upgraded. If a significant portion of development on FRA property is to become residential, this number would increase.

Buildings currently fed from Xcel Energy feeder 1512 through separate individual meters include, but are not limited to, the following:

- Bioscience Park Center
- Fitzsimons Commons
- Post Chapel
- Fitzsimons Golf Course
- University Physicians, Inc.
- William T. Fitzsimons U.S. Army Reserve Center
- Perinatal Research Facility
- Comitis Crisis Center
- Fitzsimons Credit Union
- Fitzsimons Early Learning Center
- Bioscience East
- CeDAR
- Fisher House
- Other minor structures
- Other off-site buildings

VAMC Systems

Xcel feeder circuit 1517 originates at the Fitzsimons Substation and will route to the VAMC distribution system. Xcel feeder circuit 1517 currently feeds CHCO.

Xcel feeder circuit 1513 originates at the Fitzsimons Substation and will route to the VAMC distribution system. Xcel feeder circuit 1513 currently feeds UCH.

The two feeders listed above will feed the VAMC's ATO. No information is yet available on the additional capacity available in the VAMC feeders.

Xcel Feeder Capacity Site-Wide Study Area 2012

Xcel Feeder Number	Size	Feeder Capacity Remaining	Substation	Load
1510	1000 MCM CU	9.5 MW	Fitz Bank 1	Non-ATO Bus B & Other Loads
1519	1000 MCM CU	9.5 MW	Fitz Bank 2	Non-ATO Bus B (New Feed)
1515	1000 MCM CU	14 MW	Fitz Bank 2	ATO Bus 1A and ATO Bus 2A
1577	1000 MCM CU	9 MW	East Sub Bank 1	ATO Bus 1A & Other Loads
1517	1000 MCM CU	15.5 MW	Fitz Bank 2	CHCO & Future VAMC
1573	1000 MCM CU	5.2 MW	East Sub Bank 2	CHCO
1513	1000 MCM CU	9 MW	Fitz Bank 1	ATO Bus 2A & Future VAMC
1512	1000 MCM CU	1.3 MW	Fitz Substation	FRA Buildings and Others

(1) Based on NEC Table 310,60(c)(77) for MV-105, 15kV cable in duct bank.

FIGURE V.28 - XCEL FEEDER CAPACITY

CoA Systems

CoA buildings, including the Police Station and Police Academy are fed directly from Xcel Energy feeder 1512, which originates from the Fitzsimons Substation.

All CoA buildings are separately metered.

Xcel Site Feeder Capacity

Feeders to each of the site distribution systems go through Xcel PMH switches.

The Xcel Energy feeders between Xcel service switchgear and campus switchgear systems have remaining capacity as described in Figure V.28.



High-voltage area north of Building 500.

Steam

Steam is distributed only on the Anschutz Medical Campus. It is generated at the CU Anschutz CUP.

The current steam and associated condensate piping network consists of buried piping connecting a series of vaults (see Figure V.29). The piping network forms a rectangular loop beginning and ending at the CUP and routed approximately along North Victor Street, East 17th Avenue, North Racine Street, and East 19th Avenue. There is a branch running east of Research 1 North and Research 1 South that connects the two major east-west runs. The piping along the entire loop consists of a 20inch high pressure steam main and an 8-inch low pressure condensate pipe. Smaller pipes branch off the main pipes to connect buildings.

Based on the projected growth during the planning period, the current steam and condensate campus distribution system piping can adequately handle the projected steam and condensate flows, both in terms of carrying capacity and location relative to planned construction.

Chilled Water

Chilled water is distributed only on the Anschutz Medical Campus. It is generated at the CU Anschutz CUP.

The current chilled water piping network follows the same route and passes through the same vaults as the steam piping system (see Figure V.29). There are two chilled water piping loops originating at the CUP, called the inner (eastern) and outer (western) loops. Along the entire route for each loop, there is a 20-inch supply pipe and a 20-inch return pipe. Where the outer loop overlaps the inner loop, on the east side of campus, there are four chilled water pipes running alongside one another. Smaller pipes branch off the main pipes to connect buildings.

Based on the projected growth during the planning period, the current chilled water campus distribution system can adequately handle the projected chilled water flows, both in terms of carrying capacity and location relative to planned construction.



FIGURE V.29 - STEAM AND CHILLED WATER - EXISTING





Sanitary Sewer - Existing

The existing sanitary sewer network serves the entire Site-Wide area as well as all the surrounding stakeholders. It is primarily owned and operated by Aurora Water. Aurora Water has access to these facilities through easements granted by the property owners. The sanitary sewer network generally flows from the south to the north, where it crosses Fitzsimons Parkway.

In accordance with the Infrastructure Utility Assessment Report dated May 17, 2006, the Site-Wide area is split into 18 sanitary sewer basins labeled A through Q, as delineated by the Fitzsimons Infrastructure Master Plan (FIMP) by Matrix Design Group, dated March 2004.

Historically, the existing sanitary sewer system conveyed all Site-Wide sanitary sewer flows to a wastewater treatment plant in the northern portion of the site, now owned by the U.S. Army Figure V.31 identifies several areas from the Reserve. The U.S. Army Corps of Engineers decommissioned the wastewater treatment plant in 1998. Currently, a majority of the Site-Wide flows are conveyed through a series of 8to 30-inch sanitary mains that cross Fitzsimons Parkway and connect to the 42-inch interceptor line, which runs east-west along the north side of Sand Creek and outfalls to the Metro Wastewater Reclamation District Treatment Plant.

In order to support the ongoing development at CU Anschutz, the university constructed sanitary sewer mains ranging from 10 to 24 inches in diameter in Victor Street and Ursula Street in accordance with the FIMP. The flows from these mains combine at a flow equalization structure in East 23rd Avenue east of Ursula Street.

Per the Colorado Science + Technology Park at Fitzsimons Infrastructure Master Plan dated August 2007, the park's full build-out wastewater flow is 4.12 millions of gallons per day (MGD). Per the FIMP dated March 2004, the Site-Wide full build-out wastewater flow is 14.47 MGD.

Through discussions with CoA and CU Anschutz, it is understood that the improvements to the sanitary sewer system on Anschutz Medical Campus are adequate for most of the master planned development. Any new developments elsewhere in the Site-Wide area will require improvements to the sanitary sewer system as outlined in the FIMP. All new developments within the Site-Wide area that tie into the system must be analyzed and approved by CoA prior to connection.

2004 master plan by Matrix that still need improvement across the Site-Wide area. Most sanitary mains within the Site-Wide area are owned and operated by Aurora Water.

FIGURE V.30 - EXISTING UTILITIES - SANITARY SEWER

Sanitary Sewer - Proposals

The following upgrades to the sanitary sewer infrastructure are necessary to support the ultimate build-out of the Site-Wide area based on CoA's master sanitary sewer record drawings dated July 1, 2012, and the master plan build-out conditions identified in the FIMP prepared by Matrix Design Group, Inc., dated March 2004:

- Install an 8-inch PVC main in East Montview Boulevard from the midpoint of Peoria Street and Quentin Street to Quentin Street.
- Replace the existing 18-inch sewer with a 21-inch PVC main in East Montview Boulevard from Quentin Street to the midpoint of Quentin Street and Racine Street.
- Boulevard from Racine Street to Revere Court.
- Install a 15-inch PVC main in Racine Street from East 19th Ave to East Montview Boulevard.
- Install a 12-inch PVC main in East 19th Avenue from Racine Street to Revere Court.
- Install an 8-inch PVC main in East 19th Avenue from Revere Court to the existing manhole just west of Research 2.
- Replace the existing 12-inch PVC main with a 15-inch PVC main just north of East 19th Avenue from the approximate midpoint of Fulginiti Center for Bioethics and Humanities to the drive just east of the Health Sciences Library.
- Replace the existing 21-inch PVC main in Uvalda Street from East Montview Boulevard to the connection with the existing 24-inch sewer main south of East 22nd Avenue.

- Replace the existing 18-inch sewer main with a 21-inch PVC main in Victor Street from East 19th Place and East Montview Boulevard.
- Add PVC mains as required per the master plan as the existing golf course area develops.

Per the Colorado Science + Technology Park at Fitzsimons Infrastructure Master Plan dated August 2007, the park's full build-out wastewater flow is 4.12 MGD. Per the FIMP dated March 2004, the Site-Wide full build-out wastewater flow is 14.47 MGD.

Future sanitary improvements should be conveyed to the main trunk line system as improvements are made across the site. The existing sanitary lines will require improvements • Install a 8-inch PVC main in East Montview as future phases of the master plan progress.



FIGURE V.31 - SANITARY SEWER MASTER PLAN



Storm Water - Existing

The existing storm sewer network located on the former FAMG site is part of a larger network that extends beyond the Site-Wide area boundary. This storm sewer network serves the entire Site-Wide area as well as all the surrounding stakeholders. It is primarily owned and operated by Aurora Water. Aurora Water has access to these facilities through easements granted by the property owners. The storm sewer network generally flows from the south to the north and east, where it crosses Fitzsimons Parkway. The Site-Wide area shares storm sewer infrastructure, and all stakeholders rely on the sewer mains and downstream treatment facilities.

The existing storm sewer infrastructure within the Site-Wide area consists of the following, based on discussions with university facilities personnel and Site-Wide utility plans by Borstad Consulting Services, LLC dated April 2009:

- A series of storm sewer mains, ranging in size from 72 inches to 84 inches and including larger box culverts, carries storm water runoff south to northeast, beginning at the intersection of East 17th Place and Racine Street, continuing in Racine Street and stepping north and east until the final outfall point in the existing detention and water-quality pond for Basin A, known as Regional Pond 374.
- A 30-inch sewer in Ursula Street at Montview Boulevard collects runoff from the Red Cross facility and nearby surroundings, flowing south to north and connecting with a 42-inch main in Ursula Street north of Montview Boulevard that collects runoff from the various surface inlets in the Fitzsimons Commons area. The runoff ultimately discharges into Regional Pond 374.
- A 48-inch main in Uvalda Street runs from Montview Boulevard to East 23rd Avenue and collects runoff from the Health Sciences Library and Evergreen parking lot, ultimately discharging into Regional Pond 374.

- A 78-inch main in Victor Street runs through the site from the south, collecting runoff from Building 500, Nighthorse Campbell Native Health Building, School of Dental Medicine, Education 1, Education 2 North, Education 2 South, Fulginiti Center for Bioethics and Humanities, PASCAL, Environmental Health and Safety, CUP, Building 610, and Campus Services facilities, as well as the Frisco, Leadville, Durango, Georgetown, Julesburg, and Kiowa parking lots and surrounding roadways and open space. A portion of the runoff is treated in the Master Basin C underground water-quality detention facility, and all runoff is ultimately discharged into Toll Gate Creek near the intersection of Victor Street and Fitzsimons Parkway.
- A 60-inch main in 17th Place collects runoff from the VAMC and nearby surroundings, ultimately discharging into Toll Gate Creek east of Fitzsimons Parkway.

The existing drainage system consists of the following:

Storm water runoff from the Site-Wide area is divided between five basins: Master Basins A, B, C, D, and E (see Figure V.34). Runoff within Master Basin A (southwestern and northern-central portion of the Site-Wide area) is collected in the existing underground storm sewer system, routed north to Regional Pond 374 for detention and water-quality treatment, and is ultimately discharged into Sand Creek north of Fitzsimons Parkway.

Interim Regional Detention
Site-Wide Study Area
October 2001

100-Year Volume Provided (ac-ft)	WQ Volume Required (ac-ft)	100-Year Volume Req uired (ac-ft)	WQ Volume Available (ac-ft)	100-Year Volume Available (ac-ft)
10.30	5.62	6.19	0.35	4.11
	100-Year Volume Provided (ac-ft) 10.30	100-YearWQ VolumeVolumeRequiredProvided(ac-ft)10.305.62	100-Year VolumeWQ Volume Required (ac-ft)100-Year Volume Required (ac-ft)10.305.626.19	100-Year Volume Provided (ac-ft)WQ Volume Required (ac-ft)100-Year Volume Required (ac-ft)WQ Volume Available (ac-ft)10.305.626.190.35

Runoff within Master Basin B (eastern portion of the Site-Wide area, comprised mostly of VA property) will be collected in a storm water system that is currently under construction. It will be treated for water quality and will ultimately outfall through the existing Toll Gate Creek outfall to the east.

Runoff within Master Basin C (southeastern portion of the Site-Wide area, excluding Master Basin B) is collected in the existing underground storm sewer system, routed northeast to the Pond 8 Water Quality Structure, and is ultimately discharged into Toll Gate Creek without detention.

Runoff within Master Basin D (northwestern portion of the Site-Wide area, mostly comprised of the existing golf course) is collected in the existing underground storm sewer system and routed north to Sand Creek north of Fitzsimons Parkway.

Runoff within Master Basin E (northeastern portion of the Site-Wide area) is collected in the existing underground storm sewer system and is discharged, undetained, to the northeast across Fitzsimons Parkway.

Master Basin A

Pond 374 is currently constructed to the interim condition outlined in Figure V.33 below.

• The ultimate condition of Pond 374, as detailed in the Ursula Street Drainage Outfall plans and report (CoA #204193), is designed to manage water-quality volume

Pond 374 Summary

FIGURE V.33 - INTERIM REGIONAL DETENTION POND 374 SUMMARY

and 100-year runoff rates for the entire tributary area in build-out condition. Any future developments within Master Basin A that exceed the capacity of existing Pond 374 will require the expansion of the pond. Eliminating the detention ponds south of Montview Boulevard—most notably, the pond at Quentin Street and 16th Avenue that's proposed to be a UCH building site—would also have an impact on the sizing and available capacity of Pond 374.

- The Basin A existing drainage outfall north of Montview Boulevard is designed to provide adequate capacity for the full 100-year storm event in anticipation of the master plan developments, but it has not yet been constructed to its ultimate configuration. Localized storm drainage infrastructure, along with regional detention and water-quality improvements, is required to support the planned building developments. Each new building must control its own storm water runoff and treat the water quality of the runoff, regardless of the previous land use and site imperviousness.
- The calculated 100-year flow for Master Basin A given master plan conditions is 477 cubic feet per second (cfs).



FIGURE V.34 - MASTER BASINS

Master Basin B

- Mechanical filtration devices are under construction as part of the VAMC project for treatment of Wheeling Street between Montview Boulevard and Colfax Avenue.
- A 60-inch storm sewer outfalls runoff from Master Basin B to Toll Gate Creek near the intersection of 17th Place and Fitzsimons Parkway.
- No detention is provided for Master Basin B.

Master Basin C

- A regional underground water-quality facility sometimes referred to as Pond 8 Water Quality Structure (CoA #207161) treats runoff from Basin C at the corner of Victor Street and Fitzsimons Parkway.
 Pond 8 has a water-quality control volume of 4.13 acre-feet.
- Runoff from Master Basin C is ultimately discharged through a 78-inch outfall into Toll Gate Creek.
- Detention has been waived for Master Basin C. The underground system provides water-quality treatment only.
- The calculated 100-year flow for Master Basin C given master plan conditions is 477 cfs.

Master Basin D

- A 72-inch storm sewer outfalls runoff from Master Basin D to Sand Creek to the north.
- Master Basin E
- A 48-inch storm sewer with riprap outfalls runoff from Master Basin E to Toll Gate Creek. Low flows are routed into a waterquality pond in Sand Creek Park.
- The basin is governed by the U.S. Army Reserve, and no detention is provided or proposed.

As development occurs in the Site-Wide area, detention and water quality should be addressed with a basin-wide approach. Such issues will be addressed in the proposed Site-Wide storm water master plan. The following upgrades to the storm sewer infrastructure are necessary to support the ultimate build-out of the Site-Wide area based on CoA's master sanitary sewer record drawings dated July 1, 2012, and the master plan build-out conditions identified in the FIMP prepared by Matrix Design Group, Inc. dated March 2004:

- In its existing condition and the current state of the tributary area, Pond 374 has approximately 4.11 acre-feet available for 100-year storm runoff storage and 0.35 acre-feet available for water-quality treatment. Any future developments in the Site-Wide that exceed the current capacity of existing Pond 374 will require the expansion of the pond to the ultimate condition, as detailed in the Ursula Street Drainage Outfall plans (CoA #204193), or an interim condition.
- Add storm sewer mains and ponds as required per the master plan as the existing golf course area develops.

Expansion of the existing Pond 374 can be minimized or eliminated by utilizing storm water best management practices (BMPs) for new developments. Acceptable BMPs are outlined in the *Urban Storm Drainage Criteria Manual, Volume 3* (USDCM) and include grass swales, grass buffers, rain gardens, green roofs, sand filter basins, and permeable pavement systems.

Per the USDCM, "The functions provided by BMPs may include volume reduction, treatment and slow release of the water quality capture volume (WQCV), and combined water quality/ flood detention. Ideally, site designs will include a variety of source control and treatment BMPs combined in a treatment train that controls pollutants at their sources, reduces runoff volumes, and treats pollutants in runoff." If the full WQCV and 100-year detention volumes can be captured and treated on site for new developments, expansion of Pond 374 can be

avoided.



FIGURE V.35 - STORM WATER MASTER PLAN

Storm Water - Proposals



D. FLEXIBLE SYSTEMS

INDIVIDUAL BUILDING SITES

Future building sites should be defined in relationship to the roadways. New buildings are encouraged to extend out to the edges of the site to help define the street and bring public ground-floor functions close to the sidewalk to reinforce a vibrant pedestrian environment. Primary building entrances and lobbies should face onto significant pedestrian streets and acknowledge programmatic desire lines that connect new buildings to existing facilities. Although the character of the street network will be maintained in the FRA, specific block alignments will be revised according to the final transit-oriented development (TOD) study, and proposals herein are subject to change.

Buildings within the site are expected to be medium- to high-density with a minimum of four to six stories, which provides an efficient use of available land while keeping the construction cost below the high-rise code definition. Height exceptions will be studied by future design teams in conjunction with the appropriate client entity, recognizing that certain programs such as research may require structures greater than six stories in height.

A building's land use will not be determined by traditional functional zoning, but by logical programmatic adjacencies to existing facilities and parcel ownership. Future projects are increasingly likely to be joint ventures among various Site-Wide stakeholders, capitalizing on opportunities for collaboration; a far greater mixture of uses is envisioned in the programming of all future developments.

Similar to future building needs, future parking will be accommodated within the armature of the roadway and utility networks. Flexible building sites can be used for parking lots and structures within the limitations illustrated in Figure V.3 on page 37. These limitations are intended to preserve the character and livability of the Site-Wide core by thoughtfully locating parking that is accessible without being intrusive.

FIGURE V.36 - POTENTIAL 10-YEAR DEVELOPMENT SITES

INDIVIDUAL SITE LANDSCAPES

Public open spaces that help organize the Site-Wide area are presented as fixed projects in Section V.B, but within each individual building site, landscape is part of the flexible system.

Public, organizing open spaces include promenades, parks, gardens, quadrangles, etc. They span the Site-Wide area and connect to the greater network of CoA facilities. Flexible site landscapes, by contrast, are developed with a specific building project and generally fit Plazas, forecourts, and courtyards may all be within the overall building parcel.

For example, the plaza on the west side of Education 2 North was designed with the building and provides an outdoor place for people to eat, rest, study, or wait. Adjacent to both the Education Commons—a fixed open space—and the classroom building, it provides semi-private outdoor space, an intermediary condition between the classrooms and the quad. Interspersion of open space with this character throughout the Site-Wide area provides important linkages between indoors and outdoors as well as between the major, organizing public open spaces that unify the public realm.

The Anschutz Medical Campus Design and Development Guidelines offer direction on frontage, setbacks, and percentage of site coverage of permeable landscape in each Character District.

How these guidelines are fulfilled and how they are adopted by other Site-Wide stakeholders will vary substantially depending on specific programmatic drivers and site opportunities. incorporated depending on the proposed uses for the building, orientation, and connection to related parts of the Site-Wide area.

Environmental sustainability will be a consideration in the landscape design within individual sites, and incorporating best storm water management practices will help disperse the load on the storm water system. Solar orientation will need to be addressed to provide outdoor spaces that can be warmed by the sun in the winter and shaded during the warmest parts of the summer.













The Education Commons incorporates plentiful individual site landscapes.



Outdoor plaza and seating area adjacent to Education 2 North.



EXISTING PARKING

Type, Ownership, and Capacity

Parking analysis of the Site-Wide planning area was conducted for the various stakeholders including CU Anschutz, UCH, CHCO, VAMC (under construction), FRA, Fitzsimons Golf Course, Fitzsimons Commons (Pauls Development), UPI, U.S. Army Reserve facility, Colorado State Veterans Home, CoA Police Department, and several other commercial businesses such as the credit union and private parking without gates or controls. office buildings.

In total, the Site-Wide area is supported by over and parking pricing levels mean there is little 16,000 parking spaces, including the following:

- Roughly 14,730 parking spaces in lots and garages at the Anschutz Medical Campus
- Roughly 650 spaces available in the UPI garage
- Roughly 430 resident-only spaces at Fitzsimons Commons
- Approximately 300 to 400 additional surface lot spaces for the FRA golf course, private bank and office buildings, CoA Police Department, etc.

In addition to existing parking supplies, the VAMC is in the process of building 2,232 parking spaces for the new hospital, located in three garages and a small surface lot. CU Anschutz is exploring and implementing shortand long-term parking solutions that include temporary surface lots. These projects include a gravel lot south of 23rd Avenue and west of Victor Street that has been approved for two years, as well as a 126-space lot to be built with the Bioscience 2 project north of 21st Avenue and east of Scranton Street. The master plan for the FRA property also includes a large amount of future parking infrastructure development, which may total as much as 12,000+ parking spaces at full build-out of the site.

Currently, the various stakeholders within the Site-Wide area are primarily concerned with developing their own parking resources and meeting their own parking needs for each entity. Similarly, parking rates and policies are set separately by the individual entities. These policies cover a range of options, including kiosk pay parking, gated parking, and free

Various policies related to parking management coordinated effort to address parking demand through alternative approaches, such as reducing single-occupancy vehicle trips to and from the Site-Wide area. One of the goals of this master plan is to explore options to address future parking infrastructure need in a more sustainable and coordinated manner.

A transportation management association (TMA) is envisioned as a possible tool to allow for more sustainable development of future parking resources within the Site-Wide area. While each entity is in charge of its own parking, they should collaborate and coordinate through the TMA. A TMA currently exists but lacks a strategic direction, goals, and desired outcome. This Site-Wide plan recommends that the existing TMA be revived to advance transportation and parking solutions that benefit all.

FIGURE V.37 - EXISTING PARKING

Future Role of the Transportation Management Association

During the master planning process, several workshops were held with Site-Wide stakeholders to discuss future parking demand projections and possible strategies to address this demand. Site-Wide parking management options were evaluated ranging from no policy changes to the implementation of a full Site-Wide parking authority. A summary of the discussion points is shown on Figure V.39.

Based on input received from the stakeholders, the consensus was to pursue a Site-Wide transportation management association rather than an autonomous authority. This option includes an expanded role for the TMA in managing future Site-Wide parking resources.

It is envisioned that the TMA (if supported by the various Site-Wide entities) could become an effective organization for addressing future parking and transportation issues for the university and for the Site-Wide area as a whole. Some of the more important functions for the TMA would be as follows:

- Operate as an exchange where surplus parking capacity at one entity can be leased to other
- Potentially address mid-range parking needs through shared-use agreements for off-site parking options (including future facilities at the FRA, RTD Park-n-Rides, future CoA garage(s),and/or other potential sites)
 - The construction of new surface parking lots north of Montview
 Boulevard is discouraged, but if needed, they can be designed to meet temporary need.
- Actively promote transportation alternatives, such as RTD's EcoPass, ride share, and bicycle and pedestrian transit for the Site-Wide area in order to reduce single-occupancy vehicular trips
- Manage and promote a parking shuttle to make the best use of existing and future parking resources
- As much as possible, discuss with various entities the possibility of setting uniform parking permit policies and fees based on a zone-based pricing model





Future Parking Development Framing Concepts

Based on analysis of potential future Site-Wide parking needs and input received from the stakeholders, the following core concepts might be applied to future parking management and new development scenarios.

- The TMA may take on an increased role in coordinating parking resources across the Site-Wide area. The TMA should be involved in the implementation and management of a new shuttle systemwhich remains to be studied-between Anschutz Medical Campus and more remote resources (at the FRA or other sites). This would allow for better utilization of the light rail stations at Colfax Avenue and at Fitzsimons Parkway, and also provide better access to existing and future parking resources.
- The VAMC plans to provide parking free of charge for patients and employees. It is assumed that the VA will seek out lease arrangements if their on-site parking is not sufficient to address their demand.
- As much as possible, other Site-Wide stakeholders should consider marketbased solutions to help address parking demand. This may include zone-based pricing for the Anschutz Medical Campus and demand-based pricing for other development areas.
 - Fees for remote surface parking should be set lower than lots or structured parking nearest Site-Wide demand-generating facilities.
 - On-street parking within destination areas should be managed using either time limits or pay parking in order to encourage visitor turnover of on-street parking spaces. Pricing policies should be established to provide an incentive to use remote parking alternatives as well as the light rail to access the Site-Wide area.

FIGURE V.39 - PARKING DEVELOPMENT OPTIONS

- The CoA is considering forming a new mobility enterprise program to coordinate the usage of future city garage(s), publicprivate garages along the RTD corridor, and/or on-street permit zones. It would be beneficial for the Site-Wide TMA and the city's enterprise to work together to identify mid- and long-term parking solutions.
- FRA parking resources and other possible Site-Wide non-state-owned commercial areas would be developed based on CoA planning/zoning code requirements, or the modified code requirements outlined in the city's TOD zone district, which allows and actually encourages shared parking. All non-state and non-federal property needs to meet CoA codes. Alternatively, the FRA may want to consider a shared parking analysis as part of their revised master plan to look at parking needs for FRA sites.
E. SUSTAINABILITY

In its broadest sense, the word "sustainability" refers to socially, economically, and environmentally sustainable systems. Without all three components, no community can be truly sustainable over the long term. This section of the Site-Wide plan focuses on environmental sustainability. The Site-Wide stakeholders are each committed to environmental preservation. Though the stakeholders subscribe to a variety of metrics to measure their sustainability initiatives, certain key concepts remain constant. Many of these entities have long planning horizons, which create the opportunity to embrace solutions with longer paybacks.

SITE PLANNING

Although the 578-acre Site-Wide area has numerous undeveloped building sites, the magnitude of anticipated long-term development-from 8.4 million GSF of facilities today to 22.5 million GSF at full build-out-will require a careful steward of the finite land resources. The most-sustainable building is one that will serve its users for many years to come, amortizing the energy embodied in the construction of the building over a long period. Designing for the future density of the site rather than the current density is a key point of consensus. Flexible building design will allow for multiple remodels of projects over the building's life span to accommodate the inevitable changing needs of the Site-Wide entities.

Site design should also address storm water concerns, improving the quality of runoff water as well as controlling the volume as it flows into the natural creek system. Maintaining a percentage of permeable area within each of the building sites is one recommendation of the plan that will help both storm water quality and quantity.

The proposed Site-Wide storm water and sustainability planning studies will review these issues, which the CoA will undertake in collaboration with the FRA.

ENERGY

The buildings within the square mile area represent a staggering amount of energy use, both in the initial construction (embodied energy) as well as the ongoing use of energy to operate the buildings. New projects within the Site-Wide area have been very successful at incorporating energy-efficient design principles. Though relatively new, some buildings have already seen energy efficiency improvement projects that have greatly reduced the operating costs and energy use of those buildings.

The stakeholders remain committed to pragmatic, energy-efficient design strategies. Recognizing the impact of energy consumption on carbon output and of the carbon output of various energy sources should be considered as well as the quantity of energy consumed. Renewable energy sources should be a part of the equation both on- and off-site; most renewable sources such as solar and wind are also low-carbon sources. Building commissioning of mechanical and electrical systems has become common practice, as it helps to ensure that the efficiencies designed into new projects are fully realized in the field.

TRANSPORTATION

Almost 30 percent of the energy used in the United States is spent on transportation. Finding ways to reduce single-occupancy vehicle use within the Site-Wide area is a high priority and will benefit both energyuse reduction goals as well as control traffic congestion. The Site-Wide area will have exceptional public transportation options when the current bus system is joined by the light rail currently in development. The plan calls for significant expansion of bicycle access across the Site-Wide area, with connections to CoA's network at the edges wherever possible. Improving the pedestrian environment and increasing the density of development will help to increase the number of trips taken by foot.

MATERIALS

Sustainable criteria such as recycled content, non-toxicity, low embodied energy, durability, and local sources should be considered in the selection of materials used in new construction projects

WASTE

Reduction of waste and increased recycling are measures that have been undertaken by entities across the Site-Wide area. Continuing to find ways to improve waste management will be an ongoing future effort as well.

WATER

Water use is a critical issue in Colorado and the arid West, especially during periods of drought and rapid population growth. Looking for waterefficient fixtures in both new and renovation projects has become standard procedure. Continuing to reduce water use in landscape areas through both improved irrigation techniques and lower-water landscape material is an ongoing effort. In support of these efforts, a Colorado law passed in May 2013 that allows graywater-the wastewater from laundry, baths, sinks, and showers-to be recaptured to fill toilets and irrigate outdoor systems.

STAKEHOLDER SUSTAINABILITY

Each Site-Wide entity has established sustainablility goals to varying degrees, and the following initiatives represent official protocols by stakeholder.

Governor's Greening of Government Executive Orders, 2007

- Requires reductions in the use of energy, water, waste, vehicle fuel consumption, and a zero-waste goal in construction projects

SUSTAINABILITY AT CU ANSCHUTZ

The university recognizes the importance of sustainable practices and has committed to reducing natural resource use, reducing greenhouse gas emissions, and constructing superior facilities built for the long term. For this reason, the university has adopted green building design policy, establishing a basis for incorporating the principles of environmental stewardship, energy efficiency, and resource conservation into the design of new buildings and major renovation projects. Its goal is to pursue holistic, integrative, and collaborative design and construction practices that significantly reduce or eliminate the negative impact of buildings on the environment and occupants.

The following is a list of protocols guiding sustainability at University of Colorado Anschutz Medical Campus.

American College and University Presidents Climate Commitment (ACUPCC), 2007

- 2007
- · Requires bi-annual inventory of greenhouse gas (GHG) emissions and development of a comprehensive plan to reduce GHG emissions
- Climate Action Plan completed in 2010, with goals to significantly reduce GHG emissions in incremental periods over 40 years—20 percent by 2020, 50 percent by 2030, 80 percent by 2050

• Signed by the university Chancellor in

• Created by Governor Ritter to enact resource efficiency programs at state agencies and higher-education institutions

High-Performance Certification Program, 2007

- The program requires construction projects achieve the highest possible Leadership in Energy and Environmental Design (LEED) certification, with the goal being LEED Gold.
- A new facility, addition, or renovation project must contain 5,000 or more building square feet.
- Each project should include a heating, ventilation, and air conditioning (HVAC) system.
- In the case of a renovation project, the cost of the renovation must exceed 25 percent of the current value of the property.

University of Colorado Board of Regents Sustainability Resolution, 2010

- Recognizes that the regents support system-wide sustainability efforts
- Directs incorporation of LEED standards in university buildings
- Supports ACUPCC commitments for climate action planning and GHG reductions
- Supports Greening of Government goals

Sustainability Tracking, Assessment and Rating System, 2012

- A transparent, self-reporting framework for colleges and universities to measure their sustainability performance
- Rating looks at sustainability in academics and research, operations, administrative and community engagement
- CU Denver/Anschutz received a Silver rating in 2012
- · Marketing opportunities to have rating showcased in the Princeton Review

SUSTAINABILITY IN THE HEALTH SCIENCES DISTRICT

The built environment has profound impact on our natural environment, economy, health, and productivity. Sustainable design, construction, and operation are fundamental objectives of the Colorado Science + Technology Park at Fitzsimons. The Urban Design Guidelines call for all real estate development to address broad, sustainable design and construction principles and practices. A sustainable design and construction checklist has been prepared to indicate how these broad principles can and should be implemented in specific development projects within the park.

The intent of adopting the sustainable design checklist is to assist teams in the creation of high-performance, healthful, durable, affordable, and environmentally sound buildings, which achieve the following goals:

High-Performance Building Guidelines Goals the implementation of the park's master plan

- Define expectations for the facility's performance among the various participants.
- Ensure that capital budgeting design and construction practices result in investments that make economic and environmental sense.
- Create partnerships in the design and construction process around environmental and economic performance goals.
- Save tenants money through reduced energy and material expenditures, waste disposal costs, and utility bills.
- Improve the comfort, health, and wellbeing of building occupants and public visitors.
- Design buildings with improved performance, which can be operated and maintained within the limits of existing resources.
- Stimulate markets for sustainable technologies and projects.

Financial Assistance

Building owners and developers located in the park may be eligible for participation in Xcel Energy's Energy Design Assistance (EDA) program. The EDA program provides free energy modeling to evaluate the energy and economic performance of energy-efficiency improvements. Additionally, based on the energy savings achieved in the final design, a financial incentive is provided to the building owner to partially offset the first cost of the energy-efficiency improvements. Building owners and developers are encouraged to contact Xcel Energy to determine whether their project meets eligibility requirements for participation in the EDA program.

Enforcement

The checklist will be primarily used by the FRA Design Review Board (DRB), which oversees the implementation of the park's master plan and approval of specific project development plans.

The checklist is organized by various topics such as site development, construction waste management, storm water management, energy efficiency, etc., and whether implementation of the sustainable strategy is mandatory, recommended, or optional. Some of the topics on the list have synergies with the popular LEED rating system in case the developers or individual project managers wish to pursue the appropriate LEED certification. In addition, the checklist clearly identifies the credits a project will achieve by choosing to build at the Colorado Science + Technology Park at Fitzsimons due to smart planning and good urban design initiatives undertaken during its master planning and development.

The sustainable design checklist for Colorado Science + Technology Park at Fitzsimons is a tool to be used by the developers, design teams, and the FRA DRB throughout the design process.

F. FUTURE PROJECT STUDY AREAS

OVERVIEW

These studies would examine specific areas of the site that are critical for future success. Possible boundaries for these studies have been suggested, but these will likely evolve as the studies progress. Some of the boundaries include areas that have recently undergone planning efforts, notably in the FRA. These specific zones warrant further review and study to establish how modification to planning there could benefit the site as a whole. In 2014, FRA and CoA will be developing a master plan and Fitzsimons Station Area Plan, respectively, in collaboration with the Site-Wide stakeholders.

TRANSIT-ORIENTED DEVELOPMENT (TOD) AT FITZSIMONS PARKWAY

The relocation of the LRT station to Fitzsimons Parkway between Revere Court and Scranton Street opens up enormous possibilities for TOD. TOD projects incorporate a transit hub into the urban or suburban fabric of a community with office, retail, restaurant, and residential components. Passengers using the LRT station generate income for the businesses and create a vibrant community atmosphere. This dovetails nicely with the increased density/active groundfloor uses strategy proposed elsewhere in the Site-Wide area.

Connections to the neighborhoods surrounding the Site-Wide area on the north, west, and south should support TOD projects and enhance the Site-Wide community. CoA and Colorado Department of Transportation (CDOT) should work together to ensure that synergy between the TOD, Site-Wide entities, and surrounding neighborhoods is used to catalyze community relationships. A potential transit hub associated with the light rail stop on Fitzsimons Parkway would be an example of the opportunity for community growth.

The new station will draw passengers who live in the area and work elsewhere as well as people commuting to the Site-Wide area. The demand for parking at this station has not yet been determined, but the intent will be that the station will cater primarily to pedestrian and bicycle traffic. The pedestrian environment should be supported by complete streets, with logical and clearly delineated crosswalks such as those proposed in the design guidelines of both the FRA and the university. This station would also be an ideal node on a future bikesharing network. The exact alignment of the LRT and design of the station remain to be determined.

The FRA sites south of Fitzsimons Parkway and west of Ursula Street are natural locations for higher-density development incorporating public services, and with these priorities in mind, the FRA will revisit its overall development plan. TODs often contain a plaza or park element to serve as both a focal point and a public amenity. The storm water pond to the east of Ursula Street could be redesigned as such an amenity. If the value of that site for development rises to the cost of finding an alternate storm water solution, this site could also be developed with new buildings.

The U.S. Army Reserve property east of the storm water pond has seen substantial recent investment, but in the long term its proximity to the LRT station could make it too valuable to remain low density. North of Fitzsimons Parkway is Sand Creek Park with its regional trail system. The TOD should take advantage of this fantastic amenity by making easy crossing points for pedestrian and bikes to connect to the trails. Addressing the opportunities presented by the relocation of the LRT station may be the most important issue for the future update of the FRA master plan.

The north-south leg of Fitzsimons Parkway that connects to Colfax Avenue has a different nature: Anchored by the VAMC on the west side at Colfax Avenue and bounded by I-225 on the east side of Toll Gate Creek, the area has moreestablished users and limits on development. The south end, at Colfax Avenue, will have the second LRT station within the Site-Wide area. It will serve the VAMC as well as Colfax travelers and possibly CHCO patients, visitors, and employees. The Fitzsimons Boundary Area District identifies potential future development in this area as Subarea 5, identifies commercial uses serving the high-traffic intersection, and emphasizes the need for high-quality design for this gateway site.

North of the VAMC there is a mix of ownership, and current users include the CoA, FRA, and the Xcel electrical substation. If the CoA begins to move some of its functions to new facilities off-site, that will generate new opportunities in this area. The FRA is currently working with the university to develop the site east of Bioscience Park Center into the new Bioscience 2 building.



FIGURE V.40 - TOD AT FITZSIMONS PARKWAY

MONTVIEW BOULEVARD

Montview Boulevard, as the only east-west roadway that transects the Site-Wide area, unfortunately creates a physical and symbolic boundary between the Anschutz Medical Campus to the south and the FRA to the north. Improvements to Montview Boulevard should maximize north-south connectivity across the Site-Wide area to encourage cross-entity collaboration. The east and west ends of this mile of Montview Boulevard are major gateways and entrances to the area, and may be clearly identified as such with future monumental signage and architectural elements.

The major change to Montview Boulevard during the master plan study period was the decision to relocate the LRT alignment and station from Montview Boulevard to Fitzsimons Parkway. A combination of technical and financial challenges drove this decision, and the result creates an opportunity to make Montview a seam that unites, rather than divides, the whole Site-Wide area. Though Montview Boulevard's cross-section should be designed to meet the needs of all stakeholders, CoA and the FRA will be responsible for the funding and implementation of this roadway.

Though the LRT station on Montview Boulevard would have created great access to transit in the center of the square mile, the tracks would have formed a barrier that would have been very challenging to cross. Without sufficient mitigation, vibration and electromagnetic sensitivity would likely have hampered development along the corridor. With LRT relocated, there is no hurdle to extending internal streets northward across Montview Boulevard. This plan recommends crossings every eighth of a mile along this stretch. This frequency supports a pedestrian scale and, supported by well-identified pedestrian crossings, will calm traffic through the core zone.

The original spire of the Red Cross Building at the Ursula Street intersection marks the geographic center of the Site-Wide area. To the north, Ursula Street splits and forms an open green space at the heart of the Fitzsimons Commons. This horseshoe is defined at the edges by active ground-floor retail and restaurant uses. To the south, the university is proposing to remove the Red Cross Building and to connect the two legs of Ursula Street across Montview Boulevard into a restricted access roadway for a potential shuttle turnaround/drop-off at the Student Life Commons. If the turnaround is used only for shuttle and/or service uses, there should not be any technical traffic issues. The concept here is to complete the joint open space across Montview Boulevard and create a vibrant urban place shared by both private and academic facilities. These specifics may be revised as part of the TOD study.

Other major cross streets in the core area include Uvalda and Scranton Streets, which have the potential to be designed as green streets. These streets could incorporate more connective landscape areas that can be integrated into low-impact storm water management practices. Because of the offset alignment of Scranton Street at Montview Boulevard, the southern portion on the Anschutz Medical Campus should be pedestrian only, a linear, park-like element that could connect the green open spaces south of Montview Boulevard up to the FRA via a vehicular green street to the LRT station at Fitzsimons Parkway and the park to the north.



FIGURE V.41 - MONTVIEW BOULEVARD

The character of Montview Boulevard may vary from the edges of the Site-Wide area to the center near Fitzsimons Commons. Montview Boulevard should include bike lanes between Fitzsimons Parkway and Victor Street to connect to the Toll Gate Creek Trail and from Quentin Street to Peoria Street to connect to CoA bike facilities.

As part of the Urban Campus Character District, Montview is intended to develop a more urban character with four- to six-story buildings built out to the Montview property lines. The boulevard will become increasingly pedestrian-friendly as the sidewalks and streetscape are incorporated over time as new projects come on line. Building entrances and public ground-floor uses are encouraged to front onto Montview to support a vibrant pedestrian environment.

SEVENTEENTH AVENUE

The most important area of future development is along 17th Avenue between Quentin Street and Victor Street. There is great interest among stakeholder entities in making 17th Avenue a fluid connection path for all three hospitals (including VAMC) and the university. Of all of the many desirable locations for collaboration and connection, 17th Avenue has the most powerful center of gravity for the three Anschutz Medical Campus stakeholders, in particular. There is a daily need for many of the faculty, physicians, staff, and students to travel between the different Site-Wide entities.

In addition to establishing a dedicated, frequent shuttle route along 17th Avenue, the road will also be open to private vehicles from Victor Street all the way west to Peoria Street. Pedestrian crossings will be enhanced at the quadrangles, and on-street parking will be added for short-term use. Traffic will be controlled at a slow speed to promote a pedestrian-first environment along this stretch of the Site-Wide area. Development of new projects along this corridor should engage the opportunity for multidisciplinary collaboration spaces with active, public ground-level functions that activate the pedestrian environment. Recent projects such as the Leprino Building typify the desired character along 17th Avenue and include on-street parking, wide sidewalks, outdoor eating areas, and ground-floor restaurants.

Proposed 17th Avenue Character

Seventeenth Avenue will be enhanced to strengthen the connection between the hospitals and the university. These fixed infrastructure improvements will include opening the road to through traffic, accommodating buses, enhancing crosswalks at the commons, and adding additional onstreet parking. The roadway will be opened to a careful and safe balance of vehicular traffic and on-street parking, which will coexist within a primarily pedestrian- and bicycle-friendly environment. The infrastructure will support additional building sites along 17th Avenue, which will help to increase the desired density to spur interaction and collaboration among the various participant entities. Locating public and visible program functions along the street will help 17th Avenue become a vibrant internal main street for the Anschutz Medical Campus.

Improved east-west connectivity will culminate in a new "translational corridor" along 17th Avenue that will form the primary gathering space for the exchange of knowledge, ideas, goods, and services. It is envisioned to be a connected ribbon of mixed-use development between the academic and patient district zones, encouraging and facilitating the migration of expertise, researching findings, and clinical knowledge between entities and across disciplines. The desire to increase collaboration and crossentity interaction needs to be balanced with appropriate design decisions that can address the fact that opening 17th Avenue to through traffic may increase vehicular traffic and create conflicts with service, parking, and pedestrian uses.



FIGURE V.42 - SEVENTEENTH AVENUE

V PHYSICAL PLAN



FIGURE V.43 - PEORIA STREET

PEORIA STREET

Peoria Street is a major roadway that provides continuity for vehicular traffic moving from as far north as I-70 to as far south as Parker Road. Peoria Street from Colfax Avenue to Fitzsimons Parkway forms the western edge of the Site-Wide area. Along the west side, uses include city schools (Paris Elementary and North Middle School) and residential and retail development. The east side includes a wide variety of uses from General's Park to medical facilities to the Colorado State Veterans Home to the Fitzsimons Golf Course. The east side of Peoria Street is characterized by open, green landscape spaces that are either parks or landscapes associated with stakeholder entities.

Peoria's character will change substantially based on the relocation of the light rail. This new opportunity will allow for more connectivity and the opening of the Site-Wide area to its neighbors. This is the one place in which the inward orientation of the Site-Wide area can be redirected to an external street with buildings fronting the street, and roadways can be aligned with those to the west of Peoria Street.

The intersection of Peoria Street and Fitzsimons Parkway marks an important entrance into the district and, in particular, is the current connection point to the rapidly developing Stapleton neighborhood in adjacent Denver.

The Fitzsimons Boundary Area Zoning District identifies the area along the west side of Peoria as a location for small-scale commercial development due to the shallow lot depths, while the major intersection of Colfax Avenue and Peoria Street is identified as a key community commercial location given the combination of lot size and prominence.

Peoria is a wide street, with six lanes of through traffic plus turn lanes, and traffic moves quickly along this major collector since there are only four signals along the mile of Peoria. The sidewalks are limited, and there is little or no buffer between pedestrian and vehicular traffic. This master plan recommends an increased number of through streets from the Site-Wide area west to the adjacent northwest Aurora neighborhood. Signals should be added where warranted, and crosswalks for pedestrians and bikes should be incorporated in future roadwork projects.

Montview Boulevard is the central crossing of Peoria Street, marking the half-mile point. The intersection here has already been improved, and the crossing of Peoria Street at Montview should be planned to accommodate connections to the bike sharrow system to the west of Peoria. This connection will increase bicycle access to the Site-Wide area from the west.

COLFAX AVENUE CORRIDOR

Colfax Avenue is a major arterial roadway for the Denver metropolitan area; from Golden, CO through Civic Center Park downtown, Colfax extends west to the foothills and east until it joins I-70 at Highway 470. Along the way it touches a wide variety of civic, institutional, and commercial destinations, including both campuses of the University of Colorado Denver, the Aurora Cultural Arts District, and a number of hospitals, including the three major hospitals within the Site-Wide area. The mile of Colfax adjacent to the Site-Wide area from Peoria Street on the west to Fitzsimons Parkway/ Potomac Street on the east is defined by the three hospitals on the north and the commercial buildings and sites on the south side.

The hospital buildings along Colfax Avenue have deep landscape buffers that create a foreground, which could house the southern leg of the exercise loop trail. The exception to this pattern is the VAMC, which fronts directly on the Colfax sidewalk where it has incorporated the previous UPI building. Entrances to the Site-Wide area start with the intersection at Aurora Court, which marks the half-mile point of this stretch of Colfax. Aurora Court is centered on the original army hospital building, Building 500, and the view of that building from Colfax will be preserved by a wide landscape swath.

Access points to UCH and CHCO flank Aurora Court, and the view of these two hospitals from Colfax remains important to maintain the identity and presence of these entities in the city. Care should be taken when developing new projects on the sites between Colfax and UCH and CHCO, so that the visibility of the hospitals' signature buildings is maintained. Easy access and wayfinding for patients and visitors to the hospitals is of paramount importance.

On the south side of the street, the CoA has a vision for Colfax Avenue that includes a mix of large and small commercial projects as well as residential development and hotels. The center section is part of Subarea 4 in CoA's Fitzsimons Boundary Area District and provides an opportunity for new housing that can serve the Site-Wide area market.

Within this subarea, the Fitzsimons Village project, which contains medical offices and clinics, has begun the pattern of urban density with active public uses on the ground level, office space above, and structured parking set behind the Colfax frontage site. Similarly, the Springhill Suites next door fronts the building on the street and tucks parking behind to reinforce the urban street. The Shops at Fitzsimons, a one-story retail center at the southeast corner of Colfax and Potomac, provides a number of restaurant options to the hospital population, the neighborhood residents, as well as travelers from I-225.

These three projects all establish a strong, welcoming pedestrian environment along the street and integrate landscape elements. Improvements to the pedestrian crossings of Colfax are already in the works and are critical to the success of drawing customers from the hospitals across Colfax to retail businesses. The importance of this crossing is underscored by the Fitzsimons Village's willingness to invest in a pedestrian bridge that sees constant traffic during the lunch hour. Providing safe and welcoming pedestrian crossings is a critical component of development along this stretch of Colfax but must be balanced against the street's role as a regional traffic conduit and connection point to I-225.



FIGURE V.44 - COLFAX AVENUE CORRIDOR

V PHYSICAL PLAN



VI. IMPLEMENTATION

A. OVERVIEW

CU Anschutz, the three hospitals, and UPI have programmatic needs based on specific areas of institutional growth. Demand for new or renovated facilities supports that growth at a calculated and sustainable rate with available funding sources. Therefore, these entities are able to make specific plans for the future, demonstrate why expansion is needed, and make funding requests that each entity's budget can accommodate and donors can supplement.

CoA and the FRA have different project planning and implementation programs than the other stakeholders. Though the city can build or fund projects or partake in publicprivate partnerships, both entities rely most heavily on private developers to enrich their property. Both entities understand the desired character of the Site-Wide area, but specific project implementation usually depends on the initiative of a particular developer, its project proposals, and its available funding. Ten-year plans that include specific projects for these two entities are impractical due to the unknown and flexible nature of their development.

Therefore, planned and proposed projects are only listed for UPI, CU Anschutz, VAMC, UCH, and CHCO; specific 10-year build-out plans remain yet to be determined by market factors for CoA and FRA. Currently, the FRA identifies infrastructure improvements by area that would allow any portion of the site to be developed, maintaining flexibility for future growth in the FRA.

B. PLANNED AND PROPOSED PROJECTS

VAMC

The VAMC has been under construction since 2012, and since then, over 6,431 tons of structural steel have been placed, over 40,000 truckloads of excavated material have been hauled, and 95 percent of the structural steel for the central concourse spine has been erected. Construction approached 42 percent completion in March 2014, and the builder predicts the facility will be completed sometime in 2015 or 2016, depending on the construction schedule and budget negotiations. The facilities included in this construction phase are, from north to south:

- Community Living Center
- Energy Center
- Concourse
- Inpatient Buildings
- Clinic Buildings • Diagnostic and Treatment
- Research

These projects are indicated as D1 in Figure VI.1, and staff and visitor parking garages that accompany the medical center are marked as DP1. The Clinics and Administration Building on the southwestern corner of the site is the old UPI building, not a new construction project.

Beyond the 10-year planning horizon, the VA plans to add two small buildings east of the Community Living Center for program expansions.

UPI

UPI does not plan to expand in the next 10 years. UPI occupies 86,000 GSF of its building, leases 77,000 RSF to CU Anschutz, and still has 20,000 RSF remaining for lease to future tenants. Additionally, UPI occupies only about 340 of 650 (52 percent) parking spots in their garage. Because UPI is not nearing its capacity, the practice does not plan to expand in the next 10 years.

FIGURE VI.1 - POTENTIAL 10-YEAR PROJECTS AND LONG-TERM BUILDING SITES

UCH

UCH's expansion of RMLEI (B1) is slated to be completed in Phase I and add 87,792 GSF to the existing facility.

The following projects are slated to be completed in Phase II, for a total of 2,019,000 GSF of new UCH construction in Years 6–10 of the planning period.

- B2 New Inpatient Tower: 734,000 GSF
- B3 Cancer Pavilion Expansion: 35,000 GSF
- B4 Marion Downs Hearing Center: 100.000 GSF
- B5 Inpatient Tower Expansion (East): 250.000 GSF
- B6 Inpatient Tower Expansion (West): 400.000 GSF
- B7 Outpatient Expansion: 250,000 GSF
- BP8 Visitors Parking Garage: 250,000 GSF

UCH has identified projects that will be constructed during this period of time and weighted them toward design, construction, and delivery in the later third of the facilities master plan period, Years 7 to 10 (2018-2022) or beyond.

снсо

CHCO projects have been identified and scheduled by their Facilities Operations Department

C1 - CHCO Dental/Outpatient Building: The site of CHCO's current Dental Pavilion/ Healthy Smiles Clinic will be repurposed as a multistory outpatient medical office building. The dental practices will likely relocate into this medical office building, and other specialties will relocate, expand, or build practices in the space depending on patient needs and volumes. Size and occupancies are to be determined depending on financial resources and growth opportunities.

C2 - CHCO Maternal Fetal Medicine: CHCO has planned for a multistory addition to the northwest side of the main hospital to accommodate its growing intensive care unit needs. The addition will also house the expansion of the Colorado Institute for Maternal and Fetal Health. The size and timeline for this expansion are yet to be determined.

CU ANSCHUTZ

CU Anschutz has determined modifications and additions to its campus that are planned to occur over the next decade. Each of these building projects has been generally described, programmed, and assigned a date of anticipated completion. Based on these assumptions, these projects have been modeled for cost and schedule of delivery.

CU Anschutz's Office of Institutional Planning (OIP), in collaboration with colleges and schools at the university, developed a list of future project proposals distributed over 10 years based on anticipated program need and/ or availability of funding.

Much growth is planned for CU Anschutz over the coming 10 years. The projects have been organized into two five-year windows: Phase I (2012–2013 to 2016–2017) and Phase II (2017-2018 to 2021-2022). The projects have also been organized into three categories: new construction, renovation, and infrastructure. The chronological order in which the projects are presented is based upon a unique and flexible set of parameters that will continue to evolve over time. These include anticipated funding sources and priorities for individual projects, program needs, new offerings coming to the university, and the ability to renovate existing spaces only after current occupants have vacated or moved to other spaces.

Below, the relevant issues regarding phasing are noted for each university project.

New Construction Phase I: (Years 1-5)

A1 - Bioscience 2 Building: Courses for thirdand fourth-year students in the university's new bioengineering program will begin at CU Anschutz starting in August 2015. The academic and student space needs for this new program as well as space for two university partners, ClinImmune and iC42, will be constructed in the 112,000 GSF Bioscience 2 building. The building will accommodate classrooms, teaching labs, student support space, faculty offices, research labs, and private company office/laboratory development space. Approximately 40,000 GSF of the building will be developed by the FRA for leasing to future biotech companies who wish to be in close proximity to the university, hospitals, and other surrounding biomedical companies located in the Site-Wide area.

A2 - Interdisciplinary Building Phase I and Data Center: The existing university data center's deficiencies are significant, and it will become unable to grow over time. This limitation will soon have an impact on the ability of departments to grow their computing capabilities, which the new data center will accommodate. The project also is planned to include clinical faculty offices, which are currently in great need among all three Anschutz Medical Campus entities. For these reasons, this project has been scheduled early in Phase I (2012-2017). It is presently scheduled for occupancy by the fall term, 2017.

A3 - Colorado Translational Research Imaging Center (CTRIC): CTRIC will develop primarily in Phase I (Years 3–5), and become occupied in early Phase II (Year 6). The project is dependent upon the availability of funding. The imaging that will occur there is critical for programs across the campus, and thus makes it a high-priority project. This building would become the center for all imaging research, which is currently spread across campus in various locations.



FIGURE VI.2 - NEW CONSTRUCTION AND RENOVATION PHASE I: 2013–2017



FIGURE VI.3 - NEW CONSTRUCTION AND RENOVATION PHASE II: 2018–2022

New Construction Phase II: (Years 6–10)

Projects below are projected to meet future campus demands and may occur if a number of essential and critical factors align.

A4 - Interdisciplinary Building Phase II: Growth in research is projected to require additional space in Year 8 of the master plan. Interdisciplinary Building Phase II will accommodate this growth. Design for this space will begin in Year 5 at the end of Phase I. This space will be available for use in Year 8 for the fall term of 2020. Like the CTRIC project, this facility is scheduled due to the projected program needs, but it is dependent on available funding. This building will also accommodate future clinical space, creating a dynamic crossroads for academics, research, and clinical functions.

A5 - Education Building 3: Increased student enrollment, space utilization, and the need for a centralized simulation center drive the programmatic need and phasing of this project. Education Building 3 is scheduled for programming and design beginning in Year 7 of the master plan and occupancy in fall of 2022 to address the need for more classroom and teaching lab space at CU Anschutz.

A6 - Vivarium Expansion (Underground): The need for new research space will drive the vivarium expansion. It is presently scheduled to be available for use two years after the construction of Interdisciplinary Building Phase 2, or for the fall term of 2022 (Year 10).

A7 - Auxiliary Services Building: The predominate program users in the Auxiliary Services Building will be the University Police and Parking Services offices, and the building is envisioned as a wraparound or addition onto the existing Henderson Parking Garage's north side, facing Montview Boulevard. Both programs utilize a fair number of vehicles and require adjacent covered/protected parking available in the Henderson Garage to park and store vehicles. Given the narrow site dimension, the building will be multi-storied with pedestrian

access bridges aligned with the existing parking levels of the Henderson Garage. Although this project is currently planned along the north side of the Henderson Parking Garage, it may be considered a component of the Parking Structure 2 (AP8) project scope depending upon the site location selected, the program space needs, parking space needs, and alignment of the project timelines.

AP8 - Parking Structure 2: A new multilevel parking structure of 490,000 GSF to accommodate 1,540 vehicles will be constructed toward the end of the 10-year planning period. The building is planned as a seven-level parking garage similar to the existing Henderson Parking Garage constructed in 2007, which is located immediately west of the Skaggs School of Pharmacy Building.

It is envisioned that the new Parking Structure 2 will be located near or directly adjacent to the Health and Wellness Center, located on the northwest corner of the university campus. Although the Auxiliary Services Building is planned along the north side of the Henderson Parking Garage, it may be considered a component of the Parking Structure 2 project scope depending upon the site location selected, the program space needs, parking space needs, and alignment of the project timelines.

A9 - Interprofessional Commons: This project is programmed to accommodate the growing need for a central location for a bookstore, food service, student organization, open computer/study lounge, and open collaborative meeting space for faculty, students, and other professionals on the university campus. The proposed building site location directly north of Building 500 is equidistant to the education, research, and administrative functions that occur on the campus. A project that combines select student services similar to those of a student center will be a much needed amenity for students, faculty, researchers, and other professionals as the CU Anschutz population continues to grow during the planning period.

Renovation

RN1 - Phase I Renovations: Research 1 and Research 2: The renovations identified for Aquatics, Cage Fit, Security, RFID, and the fitting out of shelled space in Research 1, Research 2, and the ABSL3 Core do not require the relocation of existing programs. These renovations are shown to occur in Years 2 and 3 of the phasing plan accordingly to help increase capacity and operational efficiencies.

RN2 - Phase II Renovations: Coordination with CTRIC: When the new CTRIC facility is completed (fall of 2018), a series of moves and small renovations will become necessary. These include School of Medicine programs moving to CTRIC, imagers moving to CTRIC, and small classroom renovations. These renovations are presently scheduled to begin in the fall of 2018, once existing spaces are vacated and all moved into the new CTRIC building.

RN3 - Phase III Renovations: Building 500: Occupancy of the new Interdisciplinary Building Phase I and Data Center in 2017 will allow space occupied by the old data center and offices in Building 500 to be renovated. Occupancy of the renovated space is proposed for the fall of Year 6 (2017).

RN4 - Phase IV Renovations: Education 2, Education 1B, School of Dental Medicine Building: Occupancy of the new Education Building 3 in the summer of Year 10 (2022) will make space in Education 2, Education 1B, and the School of Dental Medicine Building (primarily existing simulation labs) available for construction renovation. Occupancy is proposed for the renovated space in the summer of Year 11 (2023). Renovation of these spaces allows existing departments to grow in their current locations.

Utilities/Infrastructure

IF1 – Wayfinding Improvements: Development of monumental campus signage and other campus wayfinding improvements is presently underway. The full scope of this work is anticipated to be complete by Year 3, end of summer 2015.

IF2 - CUP Boiler and Generator Expansion: CUP expansion will be required for the construction of Interdisciplinary Building Phase II. The work is presently scheduled for completion at the end of Phase I of the facilities master plan phasing, in late 2017. This project is also scheduled assuming that the 10-year master plan projects for UCH and CHCO do not 16th Avenue and Montview Boulevard. move forward ahead of schedule. If they do so, the CUP expansion will need to move ahead accordingly. Planned and proposed building projects will be consumed and thus unavailable for Interdisciplinary Building Phase I and II.

IF3 - Circulation/Roadway Improvements: Roadway improvements along 17th Avenue, 19th Avenue, Uvalda Street, Revere Street south, and other minor projects (recommended through traffic analysis in this master plan) are proposed to occur in Years 4 and 5 (2016 and 2017), primarily due to proposed availability of funding. Additionally, a shuttle could access the light rail station along Fitzsimons Parkway and provide service to university facilities.

IF4 - CUP Expansion to Support Vivarium -Emergency Chilled Water Capacity: Vivarium expansion (construction to begin in Year 9) may require utility expansion of the emergency chilled water that is available for the vivarium, but this will depend on UCH and CHCO expansion project timetables. This expansion would need to be designed, constructed, and ready for use by the end of 2021 (Year 9), when the vivarium is expanded.

IF5 - Landscaping Improvements: Various landscaping improvements are planned between 2014 and 2018. These include redesign of the Research Commons, demolition of the Red Cross and development of University Plaza, improvements to the green space south of Building 500, and Art Walk extensions to be coordinated with the Interdisciplinary Building Phases I and II.

IF6 - Utility Improvements: Updates to the utility infrastructure are anticipated late in the 10-year planning period and should improve storm sewer infrastructure on Quentin Street between

IF7 - Circulation/Roadway Improvements: Assorted roadway improvements are shown in the phasing plan as occurring late in the 10-year master plan window due to assumed competing needs for capital funding. These improvements are separate from those identified in IF4 but may complement or be a continuation of those developments.



FIGURE VI.4 - INFRASTRUCTURE AND UTILITIES PHASES I AND II: 2013–2022

Site-Wide Coordinated Master Plan Phase II AndersonMasonDaleArchitects 83



The AEC could help ensure planning across the Site-Wide catalyzes unified development and connections to the surrounding community.

C. KEEPING THE VISION

The highly participatory Site-Wide Coordinated Master Plan – Phase II process resulted in broad consensus on an exciting physical vision for the 21st-century Site-Wide community—supported by commendable goals and realistic principles—that together informed the creation of plan propositions and recommendations. However, a worthy vision without a clear strategy for implementation oversight may never be realized. Success requires stakeholders put forth a concerted effort to ensure that the vision is sustained and subsequent actions stay the course recommended in the plan. Implementation should maintain the spirit of stakeholder collaboration and consensus that guided the master planning process.

Fortunately, the seven Site-Wide stakeholder entities share a vision for the future. They desire to capitalize on their close proximity to foster connectivity and collaboration. Together, they acknowledge that they share the site and its fate: The character and quality of their buildings and grounds affect the "fabric" of the larger environment. Each entity must understand its stake in and responsibility for the positive appearance and successful functionality of the Site-Wide area.

To that end, the plan recommends that the collective Anschutz Executive Committee (AEC) be upheld, and that oversight of the Site-Wide plan become one of the committee's responsibilities. The AEC's role as a site planning, project review, and advisory body should be advocated to assure implementation of the Site-Wide plan. The AEC would be assigned this oversight role on behalf of the seven stakeholder entities to advise institutional AEC. and community leadership on planning and design issues and initiatives.

The committee would be meant to augment, not replace, the leadership of each individual entity, other oversight bodies like the FRA Board, or existing Site-Wide committees such as the TMA. AEC should maintain its structure that represents a cross section of the Site-Wide community.

The primary function of the committee would be to:

- Review proposed planning and design relative to the vision, goals, and principles as defined in the Site-Wide Coordinated Master Plan – Phase II
- Evaluate projects to ensure they promote the programmatic needs of users
- Review each project relative to its Character District, proposed sites, adjacent buildings, open spaces, and its contribution to the quality and civic structure of the Site-Wide area
- · Review plans and studies that will have a significant impact on the Site-Wide area's physical environment and/or operations

Whereas the AEC could be the reviewer of Site-Wide planning and projects, this plan also proposes a Site-Wide Planning Committee that would be a working committee to coordinate, assess, and make recommendations on planning and projects on a monthly basis. The Site-Wide Planning Committee will work with stakeholders to refine their design guidelines, so that there is general compatibility across the Site-Wide area, while each entity can retain individual identity. This body will report to the

Ultimately, funding or land use restrictions may dictate uneven project phasing across the Site-Wide area, and each entity is responsible for its own development. However, the complex physical and institutional organization of the Site-Wide area's built and natural environment necessitates collaboration by the Site-Wide Planning Committee and oversight by the AEC.

Synergy in development of bike accommodations, for example, will ensure that cyclists ride on safe and uninterrupted paths throughout the square mile and that Site-Wide bike lanes and sharrows connect to CoA facilities and regional routes and open space. Coordinated decision-making could help minimize potential conflict. The Site-Wide's storm water system, too, would be better managed comprehensively, as the network of storm drainage basins flows across the square mile independently of property ownership.

Inter-stakeholder coordination can minimize parking deficits, maintain a consistent Site-Wide character, and provide infrastructure cost-sharing opportunities. The AEC can ensure that planning across the Site-Wide area catalyzes unified development within the site and connections to the surrounding community. Even though each entity may develop independently, the AEC must advise the stakeholders to keep a keen eye on the big picture.

D. DESIGN GUIDELINES

INTRODUCTION

Though the Site-Wide entities have a unified vision for the future, each has its own design and development process. Design guidelines can encourage consistent application of concepts and ensure that the site develops into a cohesive whole. Both the Anschutz Medical Campus and the FRA have design guidelines that were developed with each entity's facilities master plan. The Anschutz Medical Campus Design and Development Guidelines were built upon the FRA's, with some modifications, in the spirit of unity, and UCH and CHCO also have their own guidelines. FRA guidelines were approved by the CoA for adoption, and CU Anschutz has led an effort to coordinate design guidelines among the different stakeholders. While coordination of design guidelines is desirable to a degree, each entity should be allowed to maintain a distinct identity through tailored guidelines.

Because the master plans and design guidelines are companion documents, the guidelines can ensure that each entity's vision, goals, and principles carry through to building design and are implemented across the Site-Wide area.

ANSCHUTZ MEDICAL CAMPUS DESIGN AND DEVELOPMENT GUIDELINES

Purpose

The University of Colorado Anschutz Medical Campus 2012 Facilities Master Plan Design and Development Guidelines (2013) have been prepared to help direct the planning and design of future site development and building construction on the Anschutz Medical Campus. The guidelines are a part of the Anschutz Medical Campus 2012 Facilities Master Plan and serve as a companion document to the 2013 CU Design and Construction Standards document that can be accessed on the CU Anschutz Office of Institutional Planning (OIP) website at http://www.ucdenver.edu/about/ departments/InstitutionalPlanning.

CHCO and UCH also follow the CU Anschutz guidelines, which emphasize the consistent application of concepts, materials, and details. They are intended to provide standardized design requirements and recommendations to assist in implementing the university's developmental goals and principles as established in the 2012 Facilities Master Plan.

Used in concert with principles of good design, applicable jurisdictional regulations, and with input and guidance from CU Anschutz OIP staff and the CU DRB, the guidelines will expedite the approval process and facilitate the development of quality environments throughout the campus.

The CU DRB, as advisory to the president of CU, is responsible for reviewing and consulting at the time of pre-design, conceptual design, schematic design, and design development phases of each project. All capital projects are reviewed to determine their compliance with the 2012 Facilities Master Plan and the Design and Development Guidelines.

The guidelines are intended to assist in improving the overall aesthetic character and visual unity of the whole Anschutz Medical Campus. Each new project will contribute to this goal through an integrated design approach that creates a desirable sense of place and reflects the appropriate scale, image, functionality, and integration of building and open space within the context of identified Character Districts. These design guidelines represent the university's commitment for future projects to create a more vibrant and

collaborative campus environment.

COLORADO SCIENCE + TECHNOLOGY PARK AT FITZSIMONS URBAN DESIGN **GUIDELINES**

Purpose

The purpose and intent of the Urban Design Guidelines (2008) is to shape the growth and evolution of the Colorado Science + Technology Park throughout its development. These guidelines will provide assurances to city officials, university planners, neighbors, and other stakeholders that the infrastructure, parks, and buildings will be of a consistently high quality from the commencement of development through the full build-out of the park. The buildings will support the technological requirements, flexibility, and growth of the tenants to ensure that the park becomes the life sciences hub for the Rocky Mountain region.

Authority

The guidelines govern the Anschutz Medical Campus planning and design process. They were developed as part of a collaborative process of engagement with the university and its affiliates, partners, and neighbors and constitute a consensus-driven framework for future development.

The guidelines are to be used primarily by staff, consultants, and the CU DRB. They must be complied with for all physical additions, improvements, expansions, and renovations to buildings on CU property, including UCH and CHCO facilities (with the exception of development on outparcels owned outright by the hospitals).

In order to meet unforeseen situations in either the master plan or the Anschutz Medical Campus Design and Development Guidelines, it may be necessary for the university administration to consider variances pertaining to certain requirements. Any variance granted is considered to not be precedent-setting. In addition, the university administration may find it necessary to amend the guidelines to respond to changing factors in the university or marketplace.

Authority

These guidelines also serve as a reference document for the FRA. This document will facilitate the review of all structures and landscape improvements proposed for the park, to ensure that the design intent and quality will be consistent with the objectives of the master plan.

In order to facilitate the review of all building and landscape improvements proposed for the park and to ensure that the design intent and quality will be consistent with the objectives of the master plan, all property buyers, renters, and lessors are required to comply with the established design guidelines and to submit design documents, including sketch plans, schematic designs, design development, and final designs to the Colorado Science + Technology Park at Fitzsimons DRB.

If the FRA DRB requires changes, the applicant must revise plans and resubmit a complete package. After the FRA DRB's approval of the final plans, no changes will be made without the prior approval of the FRA DRB. In the course of construction, applicants may make such changes in, on, or about the building as may be required as a result of normal construction changes, provided they are approved in advance and in writing by the FRA DRB. However, approval by the FRA DRB does not constitute a building permit. The applicant is required to receive a building permit from the City of Aurora.

The FRA plans to revise its master plan and may consequently decide to update its Urban Design Guidelines.

E. PROPOSED FUTURE STUDIES

During the planning process, a number of future efforts were identified to develop specific encompasses the entire square mile of the systems in greater detail. These studies will be done within the context of the master plan framework, which will serve as a consistent basis for coordination among the studies.

Certain plans are specific to individual entities, but others are intended to affect and benefit all Site-Wide stakeholders. These plans will look at and improve the Site-Wide area as a whole and will require collaboration and cost-sharing from the appropriate stakeholder entities. Plans in both categories are summarized below.

SITE-WIDE PLANS

Fitzsimons Parkway Station Area Plan

The Station Area Plan will focus on developing a scenario that encourages and facilitates transit-oriented development, especially within a half-mile radius of the proposed station on Fitzsimons Parkway. Station area plans typically result in realistic plans and implementation strategies that lead to development of mixeduse communities that are vibrant, livable, compact, and centered on transit hubs (light rail, buses, etc.).

Site-Wide Wayfinding and Signage Plan

Creating a single identity for the Site-Wide area, starting with a name, will benefit all of the participating entities. The complexity of the site and the number and variety of entities within the square mile creates challenges for visitors and patients. The wayfinding and signage plan will address the need to create a consistent strategy that coordinates access to parking as well as pedestrian access to buildings and public transit options.

Site-Wide Storm Water Master Plan

The storm water drainage system

original FAMG. The five major drainage basins within the Site-Wide area have a natural drainage pattern, which traverses the site independently of property ownership. This encourages a coordinated approach to storm water management, as several entities can share one drainage basin, and one stakeholder can spread across several basins.

Drainage flows to the two adjacent creeks, and as the Site-Wide area gets closer to the site capacity and water quality standards rise, the Site-Wide stakeholders will need to work together to develop appropriate storm water strategies. Among those strategies, the team should consider integrated, sustainable methods for treating and retaining storm water.

Fitzsimons Infrastructure Master Plan Update North of Montview Boulevard

As new land uses are proposed for FRA property, changes will need to be reconciled with the Fitzsimons Infrastructure Master Plan. Where land uses are proposed to change, the infrastructure systems there- sanitary sewer, storm drainage, electrical, and others-will need to be reassessed.

STAKEHOLDER-SPECIFIC PLANS Campus Landscape Master Plan

This master plan addresses landscape in the broad context of identifying major open spaces and connections within the Anschutz Medical Campus. A future in-depth study of materials, water use, trees, and plants will be pursued.

The study will coordinate with the Anschutz Medical Campus Design and Development Guidelines.

FRA Master Plan Update

The FRA is going to update the master plan for its property north of Montview Boulevard. The FRA has recognized that the overall scale of the property is too big for solely research park functions, and the updated plan will consider more mixed-use development and capitalize on the transit-orient development opportunity afforded by the accelerated RTD light rail schedule. The FRA Master Plan Update should include traffic impact analyses that reflect accurate proposed conditions in the FRA, as well as a financial analyses to verify market

Lighting Study

realities.

The university will undertake a lighting survey and improvements study of all exterior lighting on the Anschutz Medical Campus. The objectives of the study are to enhance campus safety and wayfinding at night for both pedestrians and motorists through improved illumination, and to develop guidelines to govern future exterior lighting projects, including lighting for landscapes, art, memorials, and signage.

Campus Sustainability Master Plan

Issues and discussions relating to sustainability were woven through the master plan process, but a concerted effort to examine options, set goals, and develop strategies warrants a separate, extended effort. Sustainable site strategies should coordinate with the landscape master plan. The campus will examine a wide range of topics including energy use, lowimpact materials, healthy buildings, and water use reduction. CU Anschutz's core mission includes research and teaching, so the arenas of innovation and public education about sustainability are a natural fit.

CoA Parks Study

CoA will undertake a study to assess their parks and open spaces, especially as they relate to the Station Area Plan and Site-Wide area.

VII. APPENDICES

A. ACRONYM INDEX

Site-Wide Coordinated Master Plan – Phase II Acronym Index 2013

Full Name	Subsequent U se
American College and University Presidents Climate Commitment	ACUPCC
Americans with Disabilities Act	ADA
Anschutz Executive Committee	AEC
Auraria Higher Education Center	AHEC
Aurora Public Schools	APS
assignable square feet	ASF
Automatic Throwover Switch	ATO
best management practice	BMP
Base Realignment and Closure Commission	BRAC
Colorado Department of Transportation	CDOT
Center for Dependency, Addiction and Rehabilitation	CeDAR
cubic feet per second	cfs
Children's Hospital Colorado	CHCO
City of Aurora	СоА
Colorado Translational Research Imaging Center	CTRIC
University of Colorado	CU
CU Anschutz Medical Campus	CU Anschutz
CU Board of Regents	CU BOR
CU Design Review Board	CU DRB
Central Utility Plant	CUP
U.S. Department of Education	DOE
U.S. Department of Interior	DOI
U.S. Department of Justice	DOJ
Energy Design Assistance	EDA
Fitzsimons Army Medical Garrison	FAMG
Fitzsimons Boundary Area District	FBAD
Federal Emergency Management Agency	FEMA
Fitzsimons Infrastructure Master Plan	FIMP
Fitzsimons Redevelopment Authority	FRA
FRA Design Review Board	FRA DRB
greenhouse gas	GHG
gross square feet	GSF
heating, ventilation, and air conditioning	HVAC
Leadership in Energy and Environmental Design	LEED

Full Name level of service light rail transit millions of gallons per day National Renewable Energy Labo Office of Institutional Planning Preservation and Access Service Public Utilities Commission Rocky Mountain Lions Eye Institut rentable square feet Regional Transportation District School of Medicine transportation management assoc transit-oriented development University of Colorado Hospital University of Colorado Health Scie University Physicians, Inc. Urban Storm Drainage Criteria Ma Denver Veterans Affairs Medical water quality capture volume

	Subsequent
	Use
	LOS
	LRT
	MGD
oratory	NREL
	OIP
Center for Colorado Academic Libraries	PASCAL
	PUC
te	RMLEI
	RSF
	RTD
	SOM
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	TOD
	UCH
ences Center	UCHSC
	UPI
anual	USDCM
Center	VAMC
	WQCV

B. STAKE	OLDER ENGAGEM	ENI		Committees					Focus Groups				Focus Sub-Groups		
	Name	Title	Executive	Site-Wide Steering	Anscnutz Steering Planning	Parking	Traffic & Roadways	Urban Design	Utilities & Infrastructure	Hesearch	Clinical	Education Derbing Management	Green Parking Facilities	Storm Water	Open Forums
Children's	Hospital Colorado														
Selina	Burridae					X	X						K		Invited
Paula	Davison													Х	Invited
Beth	Gaffney			Х											Invited
Scot	Garcia								Х						Invited
Mark	Grimes														
Joe	Hartenberger														
Jena	Hausmann	Senior VP/COO									Х				Invited
Dave	Heaton														
John	Hudgens			Х	X	X	Х						<		Invited
Kathy E.	Hurley			Х	X	X		Х	Х			-	-		Invited
Todd	Koechlein					-		Х							Invited
Rob	Reid	Director Facilities Operations						Х	Х						Invited
Rhonda	Skallan				X	(Х	Х						Invited
Fred	Touchy									Х					Invited
Sunand	Yaqnik								Х						Invited
City of Au	ora		1		1	1	1	l	1 1	1	1	1	1		
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Tom	Barrott	Director Parka Roa & Open Space		×				~	^						Invited
	Batcholor	Einenee Director		×		`									Invited
Curtis	Bich	Finance Director		~											Invited
Anna	Bunco						V								Invited
Mac	Callison	Conjer Transportation Dlappor							V						Invited
Margoo	Cannon	Senior transportation Flanner					^		^						Invited
David	Chambors	Director of Bublic Works		Y	×	,									Invited
Cindy		Director of Fublic Works		~		`	V								Invited
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Huiliana	Liu					\sim	V	-		_	+	-	_		Invited
Rill	McCormick								Y	+	-		+		Invited
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	Name	Title
Danny	Montoya	
Mindy	Parnes	
Melissa	Rogers	
Jim	Sayre	
Nancy	Sheffield	Director Neighborhood Services
Cliff	Stephens	
Pieter	Van Ry	
Terry	von Clausburg	
Bob	Watkins	
Kevin	Wegener	Engineer
Tracy	Young	
Denver Vete	erans Affairs Medica	l Center
Judy	Guy	Senior Project Coordinator
Thomas	Hayden	Senior Resident Engineer
Peggy	Kearns	COO Associate Director
Ray	Marsh	
Timothy	Pogany	
Fitzsimons	Redevelopment Auth	nority
Lyle	Artz	
Denise	Brown	Interium Executive Director
Kelly	Davis	FRA Design Review Board Member
Steve	Van Nurden	President and CEO
University o	of Colorado Anschutz	z Medical Campus
Doug	Abraham	Chief of Police
Ralph	Altiere	Dean, SOP
Matt	Artley	
Mike	Barden	Director Facilities Projects
Jack	Barnette	Colorado School of Public Health - Admin.
Amy	Barton	CON Assoc. Dean of Clinical Affairs
Kerrie	Bathje	
Mark	Berthold	Senior Planner, OIP
Mike	Boroviak	
Jonathan	Bowser	SOM, Inter. Dir. Child Health Assoc.
Don	Brandes	Design Review Board Member
Kay	Carpenter	Director of Financial Planning

		Committone	CONTINUE					Focus Groups					Focus Sub-Groups		
	Executive	Site-Wide Steering	Anschutz Steering	Planning	Parking	Traffic & Roadways	Urban Design	Utilities & Infrastructure	Research	Clinical	Education	Parking Management	Green Parking Facilities	Storm Water	Open Forums
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				Committees			Focus Groups			Focus Sub-Groups				
	Name	Title	Executive Site Wilde Cheering	Site-wide Steering Anschutz Steering	Planning Parking	Traffic & Roadways	Urban Design Utilities & Infrastructure Research	Clinical	Parking Management	Green Parking Facilities	Open Forums		Name	Title
Betty	Charles	Assoc. Dir. Education Support Services							<		Invited	Gina	Moore	SOP - Director of Clinical A
Leanna	Clark	VC Commuications & Marketing		Х							Invited	Roderick	Nairn	Provost
Paul	Cook	Director - Center for Nursing Research		X	Х		Х		<		Invited	Ken	Neeper	Manager Infrastructure Dev
Noel	Copeland	OIP Architect			Х	Х	ХХ				Invited	Victor	Olgyay	Design Review Board Mem
Brian	Davison	SODM			Х						Invited	Teresa	Osborne	CU Systems - Dir. Budget a
Michael	Del Giudice	Director - Institutional Planning			ХХ	Х	ХХХ	XX	ΚХ	X>	Invited	Fran	Osterberg	Graduate School, Assist. D
Lisa	Douglas											Beth	Otis	Academic Resources & Se
Don	Elliman	Chancellor	Х	Х							Invited	Jeff	Parker	VC for Finance & Administr
Rick	Epstein	Design Review Board Member										Jerry	Perry	Director - Health Science L
Danny	Felipe-Morales	Exempt Professional Assembly - President			Х						Invited	Mackenzie	Pett	Office of Institutional Plann
Kari	Franson	SOP Assoc. Dean for Professional Education)	<		Invited	Heather	Ponicsan	Student Senate
Catherine	Freeland	SODM Dir. of Communication & Advancement					Х				Invited	Russ	Poole	Asst. VC IT Services
Don	Galarowicz	IT Services, Director of Operations					Х				Invited	David	Port	Faculty Assembly Chair
Nicole	Ganley	Exempt Professional Assembly - Secretary									Invited	Anthony	Pozzuoli	CU Student
David	Goff	Dean, Colorado School of Public Health		Х							Invited	John	Prosser	Professor Emeritus
Richard	Hamman	Colorado School of Public Health					X				Invited	Del	Quiel	
Galen	Hartenberger	Student Senate - VP of Diversity									Invited	Chad	Reiling	Communications
Kim	Huber	Asst. VC Budget and Finance			X						Invited	E. Chester	Ridgeway	Senior Associate Dean, SC
Cathy	Jarvis	SOP Assistant Dean Student Services		_					<		Invited	Candy	Roberts	Design Review Board Merr
Lonnie	Johnson	SODM, Assoc. Dean of Clinical Operations			X			X			Invited	David	Ross	SOP
Shauna	Jones	SOM Peds, Student Representative							<		Invited	Cathy	Ruff	SOM, Child Health Assoc.
Doug	Jones	SOM, Sr. Assoc. Dean for Clinical Affairs			~			Х			Invited	Jerry	Scezney	Planning Consultant
Henri	Jupille	Student Senate - VP of Legislative Affairs			X						Invited	Margaret	Schenkman	SOM, Asst. Dean Allied He
Denise	Kassebaum	Dean, School of Dental Medicine		Х					,		Invited	Amy	Schlueter	CON, Assistant Dean
Celia	Kaye	SOM Senior Assoc. Dean for Education							<		Invited	Leah	Schulz	Student Senate - VP of Fina
Nicole	Keenan	Student Senate - VP of Legislative Affairs							,		Invited	Jane	Schumaker	SOM, Senior Assoc. Dean
Regina	Kilkenny	Assoc. VC Academic Resources & Services							< (Invited	Veronica	Searles	CU Student
Randy	Kluender	SODM Assoc. Dean Advanced Dental			~				< /		Invited	Michael	Sherman	Building Maintenance & Op
	Krauss	Director of Administration Exec. VC Office		X	X		XX	X	< _		Invited	Barry	Shur	Dean, Graduate School
HICHARD	Krugman	Dean, School of Medicine		X		$\left \right $,			Invited	Bradtord	SIISDY	Senior Planner, OIP
JOII	Leszcynski	Director of Vivarium Services		+		$\left \right $		· ,				Stephen	Smiat	ADM AVCBO University Po
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	IVIAIKS	Exec. VC Anschutz Medical Campus	X	X		\parallel					Invited	HUII	SUKUI	SUM
Kothi	MaNally			+	~	\parallel	VV				A Invited	Darcy	Solianyk	SOM, Child Health Assoc,
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raula	IVIEEK	Faculty Assembly Vice Chair									mvited	Jenry W.	Stanspury	SODM

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Board Member															
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I, Assist. Dean											Х				Invited
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Administration	Х		Х												Invited
Science Library											Х				Invited
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Gregory	Stiegmann	SOM, Surgery Div. Head, Chair										Х					Invited
Ajay	Thomas	Student Senate															Invited
David	Thompson	School of Pharmacy				Х											Invited
Sarah	Thompson	Dean, College of Nursing			Х												Invited
Byers	Tim	SCPH, Assoc. Dean Public Health Practices										Х					Invited
Richard	Traystman	VC for Research			Х						Х						Invited
David	Turnquist	Assoc. VC Facilities Management		Х		Х	Х		Х	Х				Х			Invited
Andre	Vite	Campus Architect				Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Invited
Margo	Waite	Office of Institutional Planning				Х											Invited
Christophe	Walker	Student Senate - VP of Student Life															Invited
Cary	Weatherford	Senior Planner, OIP				Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Invited
Jack	Westfall	SOM, Dir. Area Health Education Center											Х				Invited
Malaika	White	Exempt Professional Assembly - Vice President															Invited
Mollie	Young	SOM									Х						Invited
University of	of Colorado Hospital																
Mark	Ernest	Assoc. Professor University Medicine								Х			Х				Invited
Sean	Menogan			Х		Х			Х								Invited
Keith	Peterson	Director of Guest Services					Х	Х			Х						Invited
Steve	Ringel	VP Clinical Effectiveness							Х			Х					Invited
Tony	Ruiz	Project Executive, Facilities Management		Х					Х	Х							Invited
John	White								Х								Invited
University F	Physicians, Inc.																
Jane	Schumaker	Executive Director															
Stefannie	Emerson	Sr. Director Business Development & Planning		Х								I	I		ĺ		Invited
Augie	Trujillo	Property Manager															
RTD																	
Lacy	Bell	Senior Transportation Planner						Х							[Invited
Charles	Culig	Project Manager, I-225 Rail Line															Invited
John C.	Shonsey	Senior Manager, Engineering/Chief Engineer															Invited
Danielle	Smith	Design Manager, I-225 Rail Line															Invited
Community	Members											1	1				
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Gloria	Arguillo																Х
Aleida	Beazer																Х
Gloria	Blanchard																Х
Cathy	Bouska																Х

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				Committees						Focus Groups					Focus Sub-Groups		
	Name	Title	Executive	Site-Wide Steering	Anschutz Steering	Planning	Parking	Traffic & Roadways	Urban Design	Utilities & Infrastructure	Research	Clinical	Education	Parking Management	Green Parking Facilities	Storm Water	Open Forums
Brad	Pierce										ĺ						Х
Karen	Schneider																Х
Judy	Stobel																Х
Stephanie	Takis																Х
Isabel	Theriot																Х
Cindy	Vaegan																Х
Norma	Vette																Х
Mark	Wessley																Х
Randy	Winter																Х

Site-Wide Coordinated Master Plan | Phase II | AndersonMasonDaleArchitects | 91

VII APPENDICES

C. TRAFFIC MODELING

Anschutz Campus and Fitzsimons Square Mile Modeling White Paper Prepared by Felsburg Holt & Ullevig January 7, 2014

INTRODUCTION

This white paper provides some detail and results of the TRAFFIX travel demand model that was created in support of the Anschutz Master plan as well as for the entire Square Mile. Daily traffic projections for the square mile campus were developed from PM peak hour modeling runs along with daily-PM peak hour relationship inferences) and the summation of estimated background traffic through the campus (that is all traffic using roadways within the square mile unrelated to development in the square mile, estimated to be along Montview Boulevard and along Fitzsimons Parkway.

CALIBRATION

As a first step, existing traffic was compiled from available recent studies including in and around the square mile area. These included efforts such as the Anschutz Inpatient Pavilion Expansion traffic study, 16th Avenue/Aurora Court intersection study, and the Children's Hospital Tower Expansion traffic study. Supplemental turning movement counts were collected at the intersections of Fitzsimons Parkway/17th Place, Fitzsimons Parkway/Colfax Avenue, Wheeling Street/Colfax Avenue, and Peoria Street/Fitzsimons Parkway. These supplemental counts were collected at a time in when the new 17th Place interchange was only partially open. It should be noted that resources for this project did not allow for an extensive traffic data collection program, and that available data, as described, were assembled (along with the supplemental counts) in estimating existing conditions. Figure 1 shows the raw turning movement data that were assembled for this study.

The peak hour counts were then used to help calibrate a travel demand model developed for the purposes of this master plan. Specifically, a model using the software platform TRAFFIX was developed. TRAFFIX allows one to code in a roadway network and then enter zones, zonal traffic loading points, trips developed by each zone, and their assignment through the network. A TRAFFIX model replicating existing conditions was produced using land uses for a variety of types. Figure 2 shows the roadway network and the zone system including the zonal centroid connectors. Existing land uses were entered into the model and ITE trip generation rates were used, but reduced per that described below.

Results of the TRAFFIX model for existing conditions were compared with the existing traffic estimates (given only partial movements at the 17th Place interchange) with respect to peak hour link flows. Adjustments were then made to the modeling parameters with respect to trip generation rates, assignment percentages, and roadway segment speeds until modeling results (in combination with estimated background traffic which was estimated from the Fitzsimons Multi-modal study TransCADd model) closely matched the existing traffic. At this point, FHU staff felt the TRAFFIX model was emulating traffic conditions along internal roadways in a reasonable fashion and that it was a good tool to apply to future conditions.

FUTURE CONDTIONS

Subsequent steps then entailed adjusting the input to the model to reflect best estimates for the build out of the square mile and to reflect other anticipated improvements. These included:

• The light rail line. With light rail transit passing serving the area, vehicle trip-generation rates were reduced slightly.

- Full operation of the new 17th Place interchange. The counts did not account for all movements of the interchange (as only a portion of them were open when the supplemental data were collected). This affected the assignment process as fewer trips were assigned to the Colfax Avenue interchange with I-225 as well as up Peoria Street to I-70 given full use of the 17th Place interchange.
- Extension of Martin Luther King Boulevard to Peoria. This too affected the distribution percentages as trips generated by development within the square mile would be expected to make use of this new roadway connection planned to/from the Stapleton area rather than Montview Boulevard and to a lesser degree Peoria Street to/from the north. Also, this new connection places more background traffic onto Fitzsimons Parkway which was also incorporated into the projections

Other key assumptions entered in the model are listed here:

- 1. Trip generation formulas were used for General Office Building, Research and Development, and Apartment and were based off the total square footage of that use in the one square-mile area.
- 2. Clinical and Hospital used a special trip generation rate for a research hospital complex; the VA was represented with Hospital use.
- 3. Trip reductions per land use based on the Fitzsimons Site-Wide Traffic & Transportation Study (Fehr & Peers), adjusted to calibrate towards the counts. ITE trip generation rates and equations were used, but reduced to reflect internal capture and the unique urban environment of the square mile. Trip generation reductions from ITE were as follows:
 - \circ Office 20% existing condition, 25% at build out conditions
 - Medical / Clinic 25% existing, 30% at build out
 - Industrial 10% existing, 10% at build out
 - Education 50% existing, 55% at build out
 - Library 75% existing, 75% at build out
 - Hospital 25% existing, 30% at build out
 - Research / Biotech 25% existing, 30% at build out
 - Residential 20% existing, 20% at build out
 - Gym 65% existing, 65% at build out
 - Retail 65% existing, 65% at build out
 - Hotel 25% existing, 30% at build out
 - Day Care 45% existing, 55% at build out
 - Nursing Home 30% existing, 30% at build out
- 4. The TRAFFIX model utilized a stochastic assignment process to assign traffic onto the network.

Figure 3 shows a table containing building square footage information and corresponding PM peak hour trip generation estimates. The trip estimates are based on the modified ITE trip generation rates/equations applied to the specific uses contains within each zone (which is more detailed data that can be provided upon request).

Figure 4 shows the trip distribution percentages used in the TRAFFIX traffic assignment. The percentage shown to/from I-225 south is 17 percent (largest percentage value in that table, and this is a little less than what other previous studies have found. However, the combined percentages to the south (via Xanadu Street, Ursula Street, and Peoria Street) sums to 16 percent, and it is believed that some of these trips are actually en route to I-225 south and make use of Sixth Avenue to avoid congestion. The distribution percentages were based on previous studies for the area, but tempered by the calibration process of the TRAFFIX model.

While the model contains and produces a significant amount of detail, the modeling results were generalized into daily traffic projections using typical inference relationships between PM peak hour and daily traffic. Further, professional judgment entered into developing the final set of daily traffic projections for the internal roadways. For this effort, the model was used to analyze various roadway network schemes. Figure 5 shows the raw PM peak hour model results for one of the networks assessed. Results from the model were then used in conjunction with professional judgment to develop daily traffic volume projections which are shown in Figure 6 along with existing estimated daily traffic

This is an overview to some of the modeling that occurred in support of the Anschutz Master Plan. It is understood that land uses, particularly uses north of Montview Boulevard, could change relative to those shown here. Updated land use planning could result in significant changes to transportation demands. Ideally, the model can be used as a tool in assessing changes as they occur.





Build-Out w/ LTR on Fitzsimons & Added Residential - Square Feet & Trip Generation														
Name	ΤΔ7	Building Square Feet	et PM Peak Hour											
Name	174	Building Square reet	In	Out	Total									
FRA 1	1	648,450	43	245	288									
FRA 3	2	277,680	17	104	121									
FRA 4	3	656,630	222	153	375									
FRA 5	4	648,450	43	245	288									
FRA 7	5	416,520	30	159	189									
FRA 8	6	373,000	26	141	167									
Army	7	33,610	4	22	26									
UC-FRA	8	28,645	13	29	42									
FRA 14	9	23,300	0	9	9									
FRA 9	10	686,050	45	260	305									
FRA 10	11	595,880	39	226	265									
P2b	12	384,250	86	170	256									
P2a	13	235,600	63	63	126									
FRA 13	14	154,000	22	113	135									
FRA 11	15	686,050	45	260	305									
FRA 12	16	989,920	65	378	443									
P1b	17	311,237	71	165	236									
P1a	18	257,715	74	135	209									
UPI	19	307,200	45	226	271									
CH-FCU-P	20	151,278	156	214	370									
CSV	21	125,000	22	29	51									
UC 5	22	1,889,500	130	714	844									
UCH 4	23	276,660	42	200	242									
UC 1	24	2,585,015	371	1,357	1,728									
UC 2	25	1,805,235	539	1,545	2,084									
UC 3	26	1,393,799	467	1,213	1,680									
Training	27	25,900	0	10	10									
VA 1	28	475,018	104	300	404									
CEDAR	29	52,000	5	17	22									
UCH 1	30	2,171,000	253	714	967									
UCH 3	31	508,604	60	165	225									
UCH 2	32	639,382	74	211	285									
CH 1	33	742,885	89	286	375									
CH 2	34	1,665,771	200	630	830									
VA 2	35	712,528	157	447	604									
TOTAL		22,933,762	3,622	11,155	14,777									

Figure 3

NORTH

Build Out Square Footage and Trip Generation by Zone

Site-Wide Coordinated Master Plan Phase II AndersonMasonDaleArchitects 95

Fitzsimons TRAFFIX Model Distribution

I-225 N:	7%
I-225 S:	17%
Colfax E:	14%
Colfax W:	13%
Peoria N:	13%
Peoria S:	9%
Montview W:	2%
17th W:	8%
Fitzsimons S:	5%
Ursula S:	1%
Xanadu S:	6%
Childrens S:	0%
Quentin S:	0%
Fitzsimons W / MLK:	3%
23rd W:	2%
	100%





Figure 4

NORTH

TRAFFIX Trip Distribution Percentage

FELSBURG HOLT & ULLEVIG

s Tran Plan White Paper, 13-010, 01/07/14



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