



STUDY SESSION MEMORANDUM

TO: Members of Boulder City Council

FROM: Jane S. Brautigam, City Manager
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DATE: September 23, 2014

SUBJECT: Study Session: Facilities and Asset Management (FAM) Master Plan Update

I. PURPOSE AND SUMMARY

This memorandum is intended to provide City Council with an update about the Facilities and Asset Management (FAM) Master Plan. Staff is developing a 2015 update to the [2005 FAM Master Plan](#), which will include the following key components to guide facilities and asset management through 2025:

- an investment and strategy program in accordance to the city's business plan;
- goals, objectives and performance measures; and
- integration with the city's Sustainability Framework, Climate Commitment, other approved department and area master plans

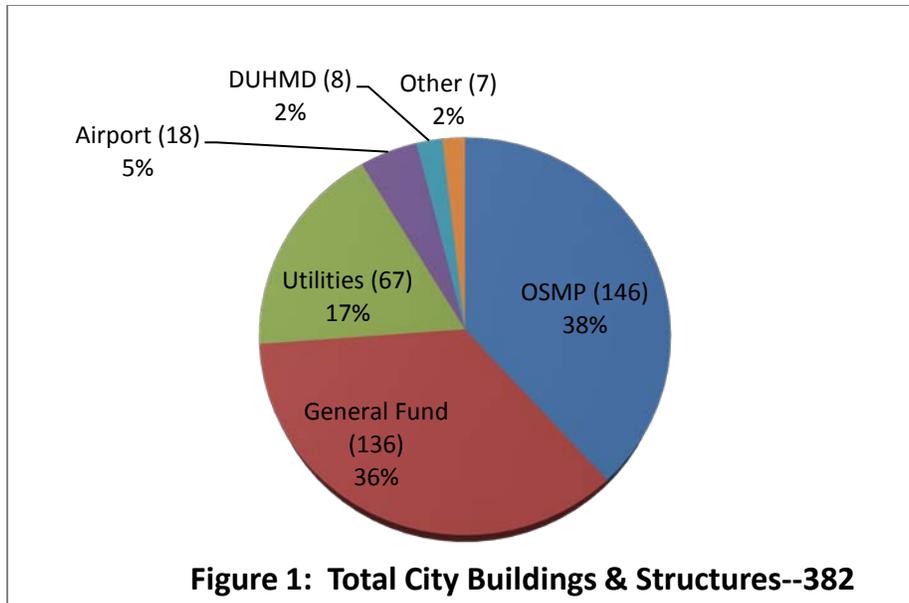
A few issues require City Council feedback at this time to guide the 2015 FAM Master Plan update: energy management, projected climate change impacts to city facilities, operations and office space studies, and environmental remediation. Following this discussion and direction from council, staff will complete the 2015 FAM Master Plan Update and schedule its review with related city boards and commissions in the fourth quarter of 2014.

II. QUESTIONS FOR COUNCIL

1. Does council have any questions regarding the projected climate change impacts to city facilities?
2. Does council have any questions about the operations and office space studies, or the capital projects being planned and evaluated?
3. Does council support staff scheduling for council consideration the proposed annexation of the Valmont Butte property (as Area III of the Boulder Valley Comprehensive Plan), with the intent to landmark the historic mill buildings, preserve previously undisturbed areas in their natural state, and make the remaining areas of the property available for low-impact municipal uses such as material stockpiling, storage and renewable energy generation?
4. Does council have any other questions involving the management of the city's facilities?

III. BACKGROUND

Initially adopted in 1996, the [FAM Master Plan](#) focuses on major challenges related to General Fund facilities, with the goal of establishing proven methods of facility management. The second update to the master plan was in 2005. The Facilities and Asset Management workgroup, part of the Development & Support Services Division of the Public Works Department, was formed in 1994 to support the management of city facilities. In 2003, the Facility Manager position was expanded to include the management of Fleet Services. Of the city's total 382 buildings and structures, FAM directly maintains 135 General Fund buildings and structures with a current replacement value (CRV) of more than \$105 million. **Figure 1** shows the breakdown of city buildings and structures by fund. FAM also assists other departments with facility management practices, facility construction, energy management, leases, and project management services, serving as a model for other departments. A full listing of city buildings and structures is at [Attachment A](#).



IV. ISSUES

A. Energy Management

FAM manages the citywide Energy Performance Contract, which had projected annual energy cost savings of approximately \$670,000 (from the city’s \$3 million total energy costs), a 24 percent reduction (8,216 metric tons) of greenhouse gas emissions, and 2.8 million gallons of water saved. **Table 1** shows the greenhouse gas emissions from the 2008 baseline for city facilities compared to actual inventories using the International Council for Local Environmental Initiatives (ICLEI) protocol. More information is available on the city’s [Energy Efficiency Upgrades at City Facilities](#) Web page. Climate Commitment discussions during the Nov. 12, 2014 Study Session will further guide city actions to improve energy efficiency and expand renewable energy.

Table 1: Greenhouse Gas Emissions – City Operations

| Buildings and Facilities | 2008 Baseline | 2011 | 2012 |
|---------------------------------|----------------------|---------------|---------------|
| Metric Tons (mtons) of CO2 | 16,128 | 12,978 | 10,679 |
| Percent Reduction from 2008 | -- | 20% | 34% |
| All Electricity (mtons) | 29,530 | 22,530 | 20,540 |
| Percent Reduction from 2008 | -- | 24% | 30% |

Centralized management of the city's facilities and fleet also has its advantages with supporting an electrical vehicle program. The city currently has 16 Level 2 (220-volt) charging stations and five electric vehicles, with nine of the charging stations and one electric vehicle available for public use. All but three of the charging stations are connected to solar photovoltaic (PV) systems, with two stations operating completely off-grid and one with a battery storage system.

B. Climate Change Impacts to Facilities

In July 2014, staff hired the Institute of Climate and Civil Systems (iCliCS) to identify climate change impacts to city facilities. iCliCS was founded by University of Colorado Boulder researchers based on 10 years of research on risk analysis and climate change. Their for-profit firm, [Resilient Analytics](#), is based in Boulder and described as follows:

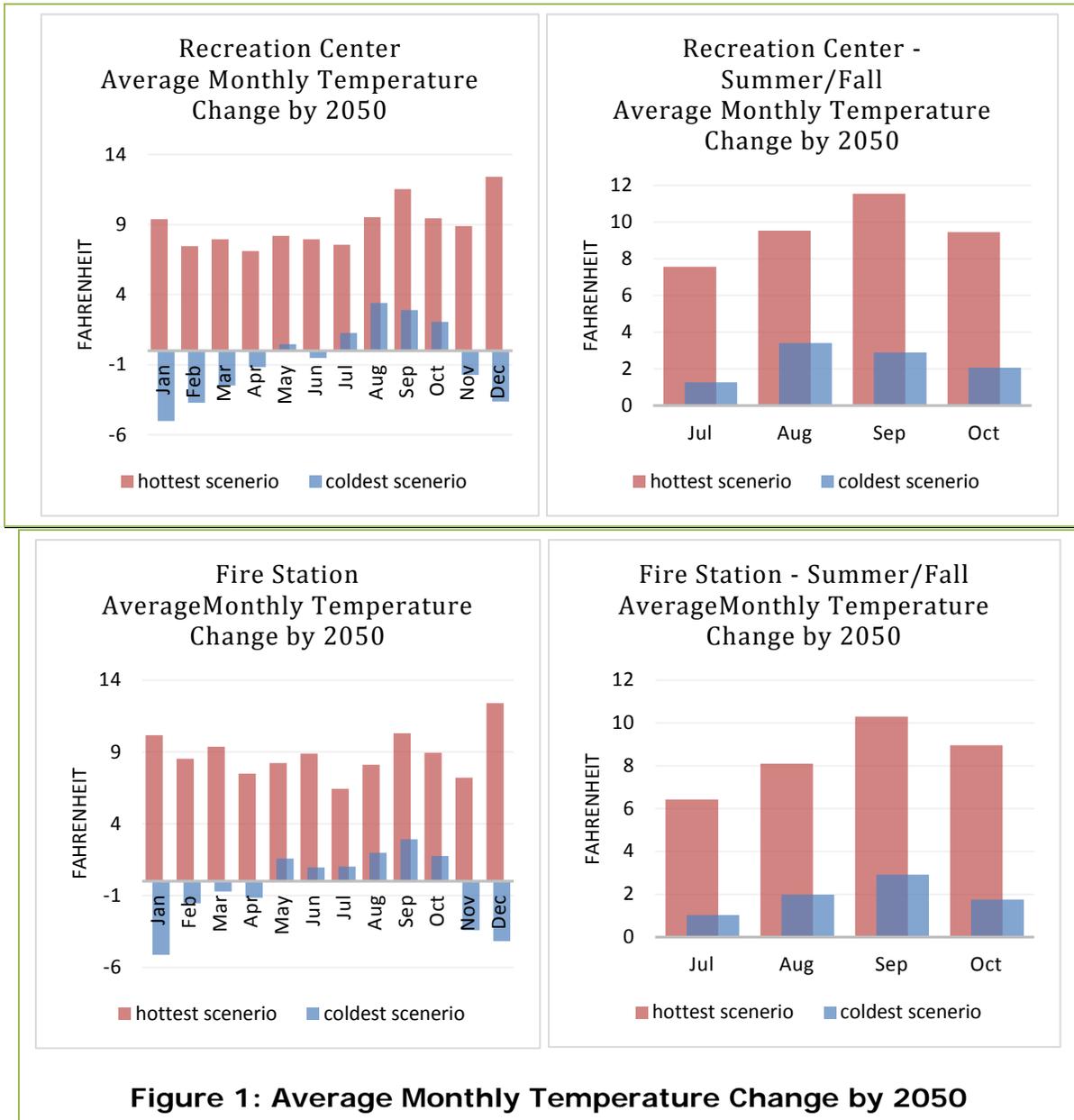
Resilient Analytics is the creator of the Infrastructure Planning Support System (IPSS), the most advanced and detailed climate and infrastructure risk analysis system available. Climate change is a global challenge that affects all regions, all economic levels and all aspects of life. At the core of this impact is the potential effect on civil infrastructure systems - the foundation on which modern society operates. From transportation, buildings and water systems to power and communications systems, civil infrastructure is the foundation on which daily activities are dependent. IPSS provides policy makers with the information required to plan for the resiliency and long-term health of these systems.

The IPSS-produced climate change projections for the City of Boulder were developed using data from General Circulation Models (GCMs). The 22 GCMs are approved by the Intergovernmental Panel on Climate Change (IPCC) and provide data for future climate change scenarios through the year 2100. The data used in this analysis include the available A2, A1B and B1 scenarios for each GCM, which represent different scenarios of future development based on the accepted definitions of the IPCC's Fourth Assessment Report. In total, 54 GCMs are used in the IPSS analysis. Each of these climate models contains predictions for precipitation, humidity and temperature.

Temperature Projections

The City of Boulder is divided into two climate zones from north to south, roughly along Baseline Road at the 40th parallel. For the study, iCliCS selected two city facilities – the East Boulder Community Center in the south zone and the new Wildland Fire Station in the north zone. By 2050, the 54 GCMs predict that monthly average temperatures will increase by a maximum of 20 degrees, while the minimum predicted values are similar to historic data, meaning that no climate models predict lower average temperatures by 2050. As shown in **Figure 2**, the year-round monthly average temperatures in 2050 (as estimated by the hottest and coldest model predictions), show a potential increase of more than 6 degrees Fahrenheit throughout the year. The coldest scenario predicts colder winter months, but predicts more than a 2-degree increase in the summer months.

The rainfall models in this study have also been reviewed by Public Works/Utilities staff. The Sept. 30, 2014 Study Session on Flood Management will address issues involving climate change and flood protection.



The highlights of the iCliCS climate study, [Attachment B](#), are summarized below.

- Climate adaptation of windows by 2020 would significantly reduce energy costs for both facilities.

East Boulder Community Center

- By 2050, energy costs will increase between 3 and 18 percent above current costs, depending on the model used.
- By 2075, energy costs will increase by 6 to 26 percent above current costs.

- Increases in humidity will necessitate heating, ventilation and air conditioning (HVAC) updates as early as 2040.

Wildland Fire Station

- By 2050, energy costs will increase between 2 to 16 percent above current costs.
- By 2075, energy costs will increase between 3 to 20 percent above current costs.
- Increases in humidity will necessitate HVAC updates as early as 2025.

In the [2005 FAM Master Plan](#), the Action Plan goal for annual funding is 2.5 percent of each facility’s current replacement value (CRV) for operations and maintenance (O&M), which includes energy costs. For replacement and renovation (R&R), the goal is annual funding for 2 percent of the CRV. For the 2014 budget, the funding levels are 1.83 percent for O&M and 2.49 percent for R&R.

With the iCliCS climate change predictions, staff will be determining other city facilities to be studied for modeling increased energy costs and then identify risk-based changes to the current funding model to account for potentially higher energy costs and earlier replacement and upgrades of HVAC systems and other building systems. Information about those impacts will be presented to council in 2015 as part of the FAM Master Plan Update.

B. City Operations and Office Space

FAM has performed various office space studies to identify standards and needs for city facilities. In terms of total square feet of a facility, there is a deficiency between what the city has available and what the International Facility Managers Association (IFMA) nationwide averages and other local area governments provide, as shown in **Table 2**. Total square feet accounts for all interior space and includes common areas such as restrooms, hallways, meeting rooms and mechanical rooms.

Table 2: Total Square Feet Comparisons and Guidelines

| Agency | City & County Total Square Feet Per Person |
|---|---|
| International Facility Managers Association | 434 |
| Local Area Governments | 360 (average) |
| - Denver Webb Building (2002 construction) | 349 |
| - Aurora Municipal Center (2003 construction) | 356 |
| - Lakewood Municipal Center (2000 construction) | 471 |
| | (Use 360 square feet per person for planning) |
| City of Boulder Downtown (January 2013) | 238 |
| With Leased 31,000 Square Feet (October 2014) | 299 |

Along with having adequate floor area to provide city services, amenities should facilitate excellent customer service by presenting a welcoming and professional reception for both internal and external customers. Some of the items to support these goals are listed below.

- *Signage and wayfinding.*
- *Surface finishes* – the FAM Action Plan provides refinishes every 10 years, whereas the Vision Plan includes refinishes at seven-year intervals. When refinishing and refurbishing, FAM will use light colors for better illumination at lower lighting levels.
- *Full Americans with Disabilities Act (ADA) accommodations* – accessible parking, elevators, restrooms and wider corridors.
- *Safety and security* – security enhancements, lighting and keycards.
- *Energy efficiency* – set temperature controls, reduce/eliminate plug loads, and day-lighting tactics, including minimizing the height of systems furniture and partitions.
- *Alternate mode accommodations* – secure bike parking, showers and lockers.
- *Wellness* – accessible cardio and resistance training facilities.
- *Alternative vehicles* – increase availability of electric vehicles and charging stations.
- *Hotel offices* – provide offices for temporary use.
- *Informal gathering locations.*
- *Food* – preparation areas, refrigeration, coffee and vending machines.
- *Art component* – the percentage of construction costs dedicated to public art will be identified as part of the Community Cultural Plan update.

1. Downtown City Office Spaces

With the space guidelines established, the first space analysis was accomplished in 2013 in support of the Civic Area Master Plan. Through this planning effort, the city identified a shortfall of 30,000 square feet for city services in the downtown area. Along with the shortfall was the determination that city facilities in the high-hazard flood zone should be removed, which includes the Park Central and New Britain buildings (a total of 35,000 square feet), along with 377 parking spots at the Main Boulder Public Library, Municipal Building, Park Central and New Britain. A Municipal Center Technical Analysis and Space Study is planned in 2015 as part of the Civic Area implementation.

2. Police Department Space Study

The 2013 [Police Master Plan](#) identified a Vision Plan initiative to conduct a study to evaluate the size and design of police facilities for effectiveness and efficiency. That study began in May 2014 with Trestle Strategy Group and is expected to be completed in December 2014. Preliminary results are shown in [Attachment C](#) and summarized below:

- ❖ The Public Safety Building is currently operating beyond its functional capacity, with deficiencies in property and evidence storage, special equipment storage, vehicle parking, office and meeting spaces, and locker and gym accommodations.

- ❖ The total space deficiency is 25,000 square feet, with the current facility size at 71,000 square feet.
- ❖ Parking demand is 263 spaces, which is 50 short of the current available parking.
- ❖ The most operationally efficient and cost-effective option is to construct an addition to the facility with a new parking structure.

Future growth also needs have to be factored in, along with preliminary planning review of an addition to the site in order to complete the study. The goal is to have a concept design and costs prepared for a major capital bond initiative in either 2016 or 2017.

3. Fire-Rescue Department Space Needs

The Fire-Rescue Department overview section in the [Draft 2015-2020 Capital Improvement Program \(CIP\)](#) lists unfunded capital needs relating to the replacement or remodel of all seven fire stations. The [Fire-Rescue Master Plan](#), accepted by council in June 2012, calls for the evaluation of space needs for current fire stations. The city anticipates conducting a full evaluation of all fire stations in the future, as called for in this plan.

Moving Fire Station #3 out of the 100-year flood plain has been identified as the top priority related to the city's fire station replacement and remodel needs. The city has evaluated several potential sites for relocation of Fire Station #3 and has completed preliminary cost estimates for relocation. These are included in the Fire-Rescue Department overview section of the Draft 2015-2020 CIP. As a major capital bond initiative is evaluated, potentially for 2016 or 2017, the relocation of Fire Station #3 can be included in a proposed list of capital bond projects for council consideration. A space needs and concept design is being initiated in support of this evaluation.

4. Municipal Service Center (MSC) Plan

In the [2005 FAM Master Plan](#), the Municipal Service Center (MSC) plan showed the timing and impacts of Pollard Friendly Motor Company moving to a portion of the MSC. With the construction of Boulder Junction, Pollard has until the end of October 2014 to exercise its option for 6.6 acres of land at the southern end of the MSC, adjacent to Pearl Parkway, in July 2014 (see [Attachment D](#)). Prior to Pollard's move, the city sold 1.9 acres of adjacent property in 2012 and Eco-Cycle vacated 2.2 acres in January 2014 and moved to 6400 Arapahoe Ave. The western parcel, which is currently leased by the city for container and vehicle storage, will be vacated in January 2015. Planning is underway to identify where Public Works operational needs will be located on the site. Future needs for Park Operations and Forestry are also being considered.

C. Environmental Remediation

1. Valmont Butte Voluntary Clean Up Program (VCUP)

The city has been working in a responsible manner with previous property owners at its Valmont Butte property to remediate the hazardous materials left on the site from historic operations, at a cost of \$6.4 million. Activities at the Valmont Butte site include remediation of the site under the State of Colorado's Voluntary Cleanup Program (VCUP) and revision by the Colorado Department of Public Health and Environment (CDPHE) of the existing environmental covenants to assure future land use is protective of the remedy. The city's [Valmont Butte](#) website has the history and numerous documents for the VCUP.

The Valmont Butte VCUP is complete, with a No Action Determination (NAD) approval received from the CDPHE on Feb. 24, 2014. Amended environmental covenants were signed on May 12, 2014, for the residual contaminant levels on the property at the consolidated tailings pile and the historic mill buildings (see [Attachment E](#)). Use of these areas has been restricted by the following conditions:

- No habitable structures are allowed within the tailings pile;
- Preparation of a management plan prior to work on the tailings pile or mill buildings;
- Preserving the overall integrity of the tailings pile; and
- Compliance with radon guidelines and exposure limits.

As required by the August 2011 Boulder County Limited Impact Land Use Review, within four months after the CDPHE's revisions to the environmental covenants, the city will submit the mill site for landmark designation, with exclusions of specific areas deemed not to meet the Land Use Code's criteria for historic landmark designation. The balance of the property will be submitted within a year. City staff will also be discussing an extension and annexation proposal with Boulder County land use staff.

At this time, the city is examining annexation of the Valmont Butte property with a redesignation of land use from "commercial/light industrial" to "public." Staff's intent is continue the historical designation of the mill buildings under the city's process, expand the open space to include the 12 acres of undisturbed historic areas, and keep the remaining 25 acres available for a future, low-impact city use such as material/equipment storage and renewable energy production, as well as the existing radio communications use (see [Attachment F](#)).

2. 13th Street Plaza Voluntary Clean Up Program (VCUP)

The 13th Street Plaza, Dushanbe Teahouse, and parking lot behind the teahouse are located at the site of a former manufactured gas plant (MGP), which was developed in 1902 to generate electric power for residents and businesses in Boulder. The MGP was first owned or operated by the Boulder Gaslight and Fuel Company, then the Federal Gas Company and, finally, by the Public Service Company of Colorado (PSCo). Operation of the MGP was discontinued sometime between 1952 and 1954, and PSCo demolished all

above-grade features associated with the MGP in 1962. Site ownership changed hands multiple times from 1962 to 1975, and the site was vacant or used as a parking lot during this time. The city purchased the site, which is proximate to the Municipal Building and other city amenities, in two transactions in 1975.

Since 2010, the city has performed various record and site investigations to support a Voluntary Clean Up Program application to the Colorado Department of Health and Environment (CDPHE), which was approved on Oct. 22, 2013. Remediation activities were initiated on Jan. 28, 2014 and continued through the completion of backfilling efforts on April 17, 2014. Remediation activities included: shallow and deep excavation, transportation and disposal of impacted soil, removal of hazardous non-aqueous phase liquids (NAPL), removal of impacted groundwater, and removal of the remaining MGP infrastructure (including two oil tanks, the reservoir, the relief holder, and the main holder foundation and associated pipe containment). This historic MGP infrastructure is illustrated on [Attachment G](#). Concrete, bricks, surface paving, and various pipes were also removed during excavation activities and disposed of as non-hazardous solid waste. The interim report is available on the city's [13th Street Plaza](#) Web page. The city is continuing with pilot studies to determine the effectiveness of in-situ remediation and is seeking reimbursement from other responsible parties.

CONCLUSION / NEXT STEPS

After receiving feedback from council regarding this update, city staff will complete the studies and analyses. Climate Commitment discussions with council on Nov. 12, 2014 will also guide the 2015 FAM Master Plan Update.

The anticipated schedule for future actions involving the 2015 FAM Master Plan Update is provided below.

- **Fourth Quarter 2014** - Boards and commissions: Parks and Recreation Advisory Board, Library Commission, Arts Commission, and Environmental Advisory Board
- **Second Quarter 2015** - Planning Board Consideration
- **Second Quarter 2015** - City Council Consideration

ATTACHMENTS

[A: City Facilities Listing](#)

[B: Institute of Climate and Civil Systems Study – The Impact of Climate Change: Vulnerability, Adaptation and Risk Analysis Two Buildings in Boulder, Colorado](#)

[C: Preliminary Public Safety Building Space Needs Assessment](#)

[D: Municipal Service Center Master Plan](#)

[E: Valmont Butte Mill Buildings](#)

[F: Valmont Butte Area Map](#)

[G: 13th Street Plaza Map](#)