

**CITY OF BOULDER
TRANSPORTATION ADVISORY BOARD
AGENDA ITEM**

MEETING DATE: April 11, 2016

Staff briefing and TAB discussion regarding the Downtown/CAGID access projections, including parking and TDM programs

<p>PRESENTERS: Michael Gardner-Sweeney, Director of Public Works for Transportation Molly Winter, Director, Department of Community Vitality Kathleen Bracke, GO Boulder Manager Chris Hagelin, Senior Transportation Planner</p>

I. EXECUTIVE SUMMARY

The purpose of this item is to share the latest information with the Transportation Advisory Board (TAB) regarding the Downtown/Central Area General Improvement District (CAGID) access projections, including parking and Transportation Demand Management (TDM) programs.

This analysis is an example of the city's Access Management and Parking Strategy (AMPS), a multi-departmental initiative including the city's Transportation Division and Community Vitality Department to focus on all modes of travel, including walking, biking, transit, and driving.

Please see the attached memo regarding the Downtown Development and Access Projections addressed to the Downtown Management Commission (DMC) and accompanying technical reports for details.

II. QUESTIONS FOR TAB

1. Does TAB have questions and/or feedback regarding the Downtown/CAGID access projections, including parking and TDM programs?

III. PUBLIC PROCESS

This information is being shared with the DMC, TAB, and Planning Board to seek input on the analysis and parking/TDM projections. This feedback will help shape future steps in the analysis process and provide guidance for future policy considerations and action items.

VI. NEXT STEPS

Next steps will include further analysis of the potential programs and actions items including budgetary and policy impacts, as well as understanding which programs are within the control of the city and CAGID, and which need participation of partners, either public or private.

ATTACHMENTS

Attachment A: Downtown Development and Access Projections Memo to Downtown Management Commission, March 31, 2016

Attachment B: RRC Report

Attachment C: Fox Tuttle Hernandez Report, including TDM projections



CITY OF BOULDER

Department of Community Vitality

Parking Services, Economic Vitality, District Management

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Memorandum

TO: Downtown Management Commission

FROM: Molly Winter, Director, Community Vitality

RE: Downtown Development and Access Projections

DATE: March 31, 2016

Background

In the mid-19970's, a general improvement district was established in the historic downtown called Central Area General Improvement District (CAGID) for the sole purpose of creating and maintaining parking and parking related improvements. An additional property tax mill levy is assessed on properties in the downtown and those proceeds are used to construct and maintain parking facilities as well as support programs that reduce parking demand. Within CAGID, there is not a parking requirement for commercial uses. The CAGID parking facilities provide paid, shared and unbundled parking for use by employees, visitors and customers to the downtown.

In the early 1990's, the city of Boulder launched the pilot employee Eco Pass program in downtown, funded by parking revenues. In alignment with the city sustainability framework and Transportation Master Plan, the downtown offers a variety of multi-modal options and is proud to have the highest alternative mode share within the city.

In the late 1990's, the Downtown Alliance planning process created a vision and strategy for the growth and evolution of the downtown into a mixed-use, multi-modal center. One of the outcomes of the Alliance was the creation of a planning tool to project future development in phases to the ultimate build-out under current zoning. The downtown development projections enable the CAGID district to plan for the future access needs of downtown, including the construction of additional district parking and TDM programs to reduce parking demand. In approximately five year increments, those projections, both development and access, have been updated. The development and access projection is an invaluable tool to keep pace with the evolution of downtown and provide the essential multi-modal access that is vital to the ongoing economic, environmental and social sustainability of the downtown. This report represents the sixth update.

The Development and Access Projections are comprised of three components:

- 1) Development and employee projections that are developed by RRC Associates based on parcel by parcel analysis and development potential based on current FAR and zoning regulations. For the

2015 update, the Projections also include the Civic Parking Area both as a separate calculation as well as combined with the CAGID downtown area. The development projections are made by types of uses (commercial, retail, residential, etc.), by zoning district and then employment is based on employees per square foot by different uses. The RRC report is Attachment A.

- 2) Assessment of the current parking utilization which is included in the Fox Tuttle Hernandez report, Attachment B.
- 3) The third component is a four step process:
 - a. Future multi-modal access demand is projected based on future development patterns and employment density;
 - b. Factors to reduce CAGID parking demand are estimated such as non-SOV modes (Eco Pass) and remote, satellite parking;
 - c. Future private parking supply is estimated, reducing the parking demand on CAGID; and
 - d. Finally, the CAGID parking space supply demand is the result.

This analysis provides the basis for planning for future multi-modal access and provision of a reduced amount of parking supply for the downtown to continue to thrive and be the city center for commerce, the arts and culture, and social interaction. The city and downtown will need to continue to seek out innovative and practical solutions to the evolving needs of our community.

Next steps will include further analysis of the potential programs and action items including budgetary and policy impacts, as well as understanding which programs are within the control of the city and CAGID and which need participation of partners, either public or private.

This information will be shared with the Transportation Advisory Board, Planning Board and City Council.

Attachment A: RRC Report

Attachment B: Fox Tuttle Hernandez Report, including Transportation Department's TDM projections

MEMORANDUM

To: Molly Winter

From: Bill Fox

Date: March 30, 2016

Subject: Summary of CAGID Area Access and Parking Projections – Year 2016 to Buildout

We have completed an update of the CAGID access and parking model for downtown Boulder. This update has utilized existing conditions in 2015 to recalibrate the model and project future parking needs for Year 2021, 2026 and buildout conditions. The updated model incorporates:

- current land use projections developed by RRC with 5-year planning horizons of existing, 2021, 2026 and buildout;
- a range of future employee density (low, midpoint, and high) developed by RRC;
- current CAGID parking supply and utilization information (2015 data);
- current private parking supply and utilization information in downtown Boulder (2015 data);
- updated parking supply and demand rates for the CAGID area using 2015 information;
- current CAGID permit waiting list information and its effect on parking demand rates;
- a range of specific transportation demand management strategies and tools, and their effect on reducing the demand for parking;
- the effect of increased CAGID parking supply utilization on reducing the future need for parking;
- the effect of increased private parking supply utilization on reducing the future need for parking;
- projections on the utilization of satellite parking and its effect on reducing downtown parking demand;
- new development and its impact on displacing existing parking supply;
- projections on the additional non-residential or commercial parking supply provided by new development; and



Summary of CAGID Area Access and Parking Projections – Year 2016 to Buildout

March 30, 2016

Page 2

- a range of additional options for CAGID to increase the available parking supply in downtown Boulder, including a new structure, a joint venture with a developer, or leasing existing underutilized parking during the business day (such as a church lot).

The net result of incorporating all of these factors is a projected range of parking surplus or deficit in the future for each planning horizon. This information is then available to assist CAGID in strategic planning to accommodate future multimodal access to downtown Boulder as land use progresses toward buildout conditions.

This memorandum summarizes the model update process and highlights the key variables that must be considered when considering future parking supply and demand in the CAGID area.

Attached to this memorandum are the following four tabulations:

- Table 1. CAGID Public Parking Supply and Typical Weekday Utilization
- Table 2. Boulder CAGID Private Parking – Weekday Supply & Utilization by Block
- Table 3. Total Public and Private Parking Supply in Downtown Boulder
- Table 4. Net Parking Surplus or Deficit in CAGID for Various Employment Density, TDM, and New Parking Construction Scenarios

The components of the parking model are discussed by topic as follows:

1.0 Land Use in the CAGID Area

It is our understanding based on a report from RRC (2/29/16) that at present in the CAGID area there are:

- 3,182,291 sq. ft. of non-residential floor area
- 260 dwelling units
- 8,956 employees (full and part time)

Projections for buildout of the downtown include:

- 1,252,591 additional sq. ft. of non-residential floor area
- 174 additional dwelling units
- Between 3,036 and 3,847 additional employees, depending on employment density within the developed space

This land use information provides the basis for projecting additional parking supply and demand.

2.0 Existing Parking Supply and Demand in CAGID

The attached Tables 1-3 provide a detailed summary of existing parking supply and demand in the CAGID area as updated in 2015. It can be seen that:

- CAGID currently manages 3,652 parking spaces, including 293 spaces in six surface lots, 2,209 spaces in five parking structures, 810 on-street metered spaces, and 340 commuter spaces in the NPP zones around the downtown area.
- During normal weekday peak periods, the CAGID spaces are approximately 80% occupied. (Note that this average occupancy has increased from 74% in 2011). The current occupancy of each category of parking spaces can be seen in Table 1.
- In 2011 there was no waiting list for permit spaces in the CAGID parking lots or structures. Since then the demand for permit parking in the downtown has grown significantly and there is currently a waiting list of over 1,700 parking permit requests. While some of these permit requests may be speculative in nature, it was estimated by CAGID staff that at least 75% of the waiting list demand (approximately 1,300) would purchase a parking permit today if available.
- There are approximately 3,190 private parking spaces in the CAGID area. These include surface lots, structures, and spaces off of the alleys.
- When surveyed during a normal weekday peak period, these private parking spaces were observed to be approximately 66% occupied. See Table 2. (Note that this observed occupancy was 61% in 2011).
- Residential parking supply information suggests that there are approximately 1.6 parking spaces per residential unit in the CAGID area. On this basis it is estimated that approximately 400 of the existing private parking spaces serve residential units.
- In aggregate, the CAGID area includes a total of 6,843 parking spaces, of which approximately 74% were observed to be occupied during a normal weekday mid-day peak period.
- While this analysis focuses on the weekday mid-day peak parking demand time, it should be noted that there are



Summary of CAGID Area Access and Parking Projections – Year 2016 to Buildout

March 30, 2016

Page 4

other times during the week and year when there are localized peak parking demands that exceed the average weekday CAGID-wide demand described above. For example, on most Friday evenings the three parking structures west of Broadway are full or nearly full. There are also times during weekend days, when the two structures east of Broadway are also completely full. During these time periods, the on-street parking demand on roadways in the CAGID area and in the surrounding residential neighborhoods is high as well.

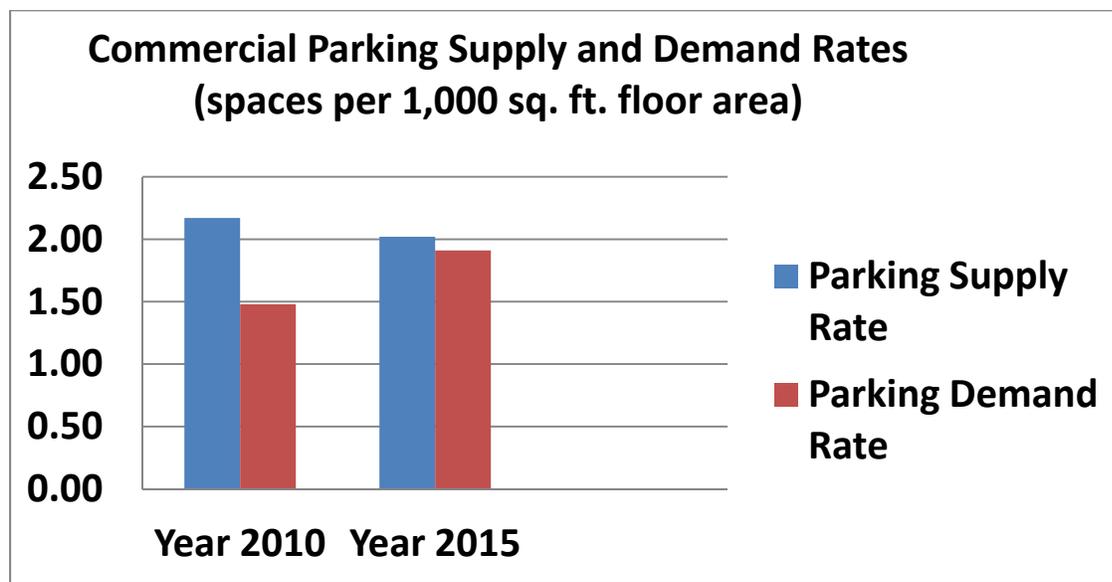
- It should also be noted that there is a significant amount of “shared parking” that occurs in the CAGID area on a regular basis. Spaces that serve downtown employees also serve double duty by serving the influx of downtown visitors that occurs on weekday evenings and on weekends.

3.0 Existing CAGID Commercial Parking Supply and Demand Rates

Using the existing land use and parking supply and demand information described above, the following existing parking supply and demand rates have been developed for the CAGID area. Comparable average ITE parking supply and demand rates have been listed as a benchmark:

- **CAGID commercial parking supply:** 2.02 spaces per 1,000 sq.ft. floor area
- **CAGID commercial parking demand¹:** 1.91 spaces per 1,000 sq. ft. floor area (includes waiting list demand)

Compared to 2010, the parking supply rate has gone down slightly while the parking demand rate has increased significantly as indicated in the chart below:



¹ It should be noted that the commercial parking demand rates include the parking demand for both downtown employees and downtown visitors.

Summary of CAGID Area Access and Parking Projections – Year 2016 to Buildout

March 30, 2016

4.0 Projected Increase in Parking Demand At Buildout With Existing Parking Demand Rates

Using the projected buildout land use changes described above, and the existing CAGID commercial parking demand rates (with existing travel mode patterns for downtown access), the following additional parking demand is projected for each level of employee density:

Existing or Midpoint Employee Density:

- commercial parking space demand increase 2,392 spaces
- existing parking spaces displaced by new development 218 spaces *(includes 107 spaces in the Wells Fargo lot, 61 spaces at Broadway/Spruce, and an estimated 50 additional spaces in smaller surface lots)*
- net commercial parking space demand increase 2,610 spaces

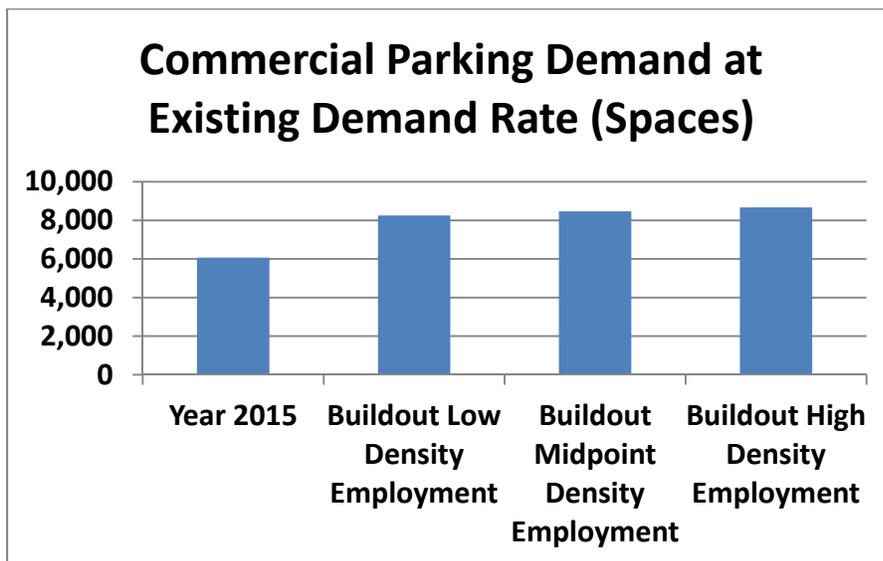
High Employee Density:

- commercial parking space demand increase 2,603 spaces
- existing parking spaces displaced by new development 218 spaces
- net commercial parking space demand increase 2,821 spaces

Low Employee Density:

- commercial parking space demand increase 2,181 spaces
- existing parking spaces displaced by new development 218 spaces
- net commercial parking space demand increase 2,399 spaces

The impact of the employee density on parking demand is calculated using employee travel mode share information to estimate what percentage of the employees would demand a parking space in the area. It can be seen that at buildout, the employee density range results in the projected demand for parking varying by over 420 spaces.



Summary of CAGID Area Access and Parking Projections – Year 2016 to Buildout

March 30, 2016

5.0 Measures to Reduce the Need for Future Parking Spaces

The parking model incorporates a number of measures that will help reduce the need for future parking in the CAGID area. They are discussed below:

5.1 Transportation Demand Management (TDM)

Downtown Boulder has been very successful in achieving a high non-SOV (single occupant vehicle) mode share for downtown access. Recent surveys indicate that less than half of the downtown employees and visitors arrive as automobile drivers needing a place to park². It is the goal of the City to continue this trend, both in the downtown and city-wide.



As part of this downtown parking update, City staff has identified a set of specific TDM measures that could be implemented in the CAGID area, and then utilized a TDM model to estimate the peak hour automobile trip generation decrease (and associated reduction in the future need for parking spaces) for each TDM measure. The TDM measures were combined into two likely packages, and range (low and high) of effectiveness was estimated for each five year planning horizon. **The details of this TDM analysis are summarized in an attached report.** The effective reduction in parking space demand is summarized as follows:

Potential Reduction in Parking Space Need Due to TDM Measures

TDM Strategy/ Planning Horizon	2020 Low	2020 High	2025 Low	2025 High	Buildout Low	Buildout High
A. Parking Cash Out Plus Parking Price Increase	244	251	344	360	680	726
B. Parking Price Increase Plus Expanded Eco Pass Program	460	474	492	515	720	769

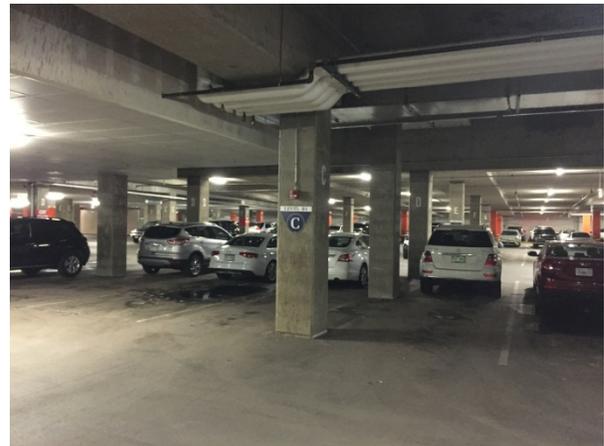
² The 2014 Downtown User Survey indicated that 56% of visitors arrive in a private vehicle. Given that visitors often arrive with more than one person in a vehicle, it is estimated that less than half of the downtown visitors are drivers needing a space to park. The 2014 Downtown Employee Survey indicated that 43% of employees drove alone to work and less than 4% were drivers with at least one other person in their car. Therefore, less than half of downtown employees and visitors needed a place to park their car.

5.2 Increasing the Utilization of Existing Parking Supply

Increasing the utilization of the existing parking supply downtown will reduce the need to add more parking in the future. As noted above, the peak period utilization or occupancy of spaces managed by CAGID has increased from 74% to 80% over the past 5 years. During that same period, observations indicate that the peak utilization of private spaces in the downtown has increased from 61% to 66%.

While there are limitations to CAGID's ability to increase occupancy due to the need to provide both short term and permit parking in the parking structures, this analysis has tested the impact of CAGID being able to increase the utilization of its structures by another 5% with technological advancements over time. If successful, the need for additional structured parking could be reduced by 140 spaces over time.

Increased demand for parking will also likely result in increased peak utilization of the private parking supply in the downtown over time. This analysis has projected an additional 2% utilization of the private spaces, which represents a 67 space reduction in the need for additional parking.



5.3 Use of Satellite Parking to Reduce Downtown Parking Demand

As part of the ongoing AMPS process, Boulder is evaluating the potential to provide a series of satellite parking lots around the perimeter of Boulder in commuter corridors with high frequency transit service and/or direct access to Boulder's network of bicycle facilities. These lots could then be used by downtown employees as an alternative to parking downtown. Conceivably some of the parking reduction in the downtown area predicted above by the TDM model could be shifted to satellite parking lots, but the model is not that precise. It is also likely that a significant portion of the parking reductions predicted by the TDM model will be shifted to non-auto modes such as transit with an Eco Pass, or access by bike or as a pedestrian. For this analysis it has been projected that the need for up to 300 additional parking spaces could be mitigated by those who park in a satellite lot and then travel downtown by an alternative to the automobile (in addition to the TDM model parking reduction predicted above).

6.0 Alternatives for Increasing the Supply of Parking in the CAGID Area

After considering the various methods of reducing the demand for parking in downtown Boulder, the parking model then considers the impact of various methods of adding to the available commercial parking supply. Considerations include:

- Known locations where development proposes to add parking, such as the Pearl West project;
- Locations where existing surface parking may be replaced by development that includes a net increase in commercial parking supply, such as a development on the Wells Fargo lot;
- CAGID leases surface parking from adjacent sites where the weekday parking demand is low, such as a church parking lot;
- CAGID builds a new parking structure at the existing Broadway/Spruce surface lot;
- CAGID procures additional commercial parking as part of a joint venture with a private developer;
- The City of Boulder constructs a parking structure on the east end of the Civic area that includes a net increase in parking spaces available to CAGID.

7.0 Using the Access and Parking Model to Project Future Parking Demand Increases

The existing parking supply, demand, and alternative mode use information summarized above, coupled with the projected land use changes over time, form the basis for projecting the increase in parking demand in the CAGID area. The parking model then allows the user to test the impact of various parking demand reduction and supply increase strategies to provide the necessary balance between parking supply and demand in the downtown area.

As noted above, the following key variables and/or assumptions are used in this parking model process:

- Land use increases by type and five year planning horizon (to an assumed buildout year of 2030 or beyond, per RRC projections)
- Parking demand adjustment based on a range of employee density assumptions provided by RRC
- Existing parking that is displaced by new development
- Parking demand increases using existing parking demand rates
- Parking demand reductions (or parking space equivalents (PSEs)) resulting from TDM measures
- Additional PSEs generated by increasing the utilization percentage of spaces in CAGID parking structures.

Summary of CAGID Area Access and Parking Projections – Year 2016 to Buildout

March 30, 2016

Page 9

- Additional PSEs generated by increasing the utilization percentage of spaces in private lots and structures. Achieving this goal may involve CAGID management of private parking spaces.
- Utilization of satellite parking lots as an alternative to parking downtown.
- Additional parking spaces constructed by CAGID, private developers, or some CAGID/private developer joint venture.

The attached Table 5A illustrates the factors considered in the parking and access model.

The bottom line in this analysis is an estimation of an aggregate parking surplus or deficit in the downtown area for each 5 year increment and at area buildout. The surplus (positive) or deficit (negative) for a range of assumptions on the many variables listed above is illustrated in Table 4. The twelve rows in Table 4 illustrate the impact of three employment density ranges and four TDM scenarios, while holding the assumptions on all the other variables constant. Clearly there could be any number of additional scenarios tested using different planning assumptions for the range of variables considered in the parking model. Below is one example calculation:

Year 2030 or Buildout Example Projection:

- Future demand for parking or PSEs using existing employment density: 2,392
- Existing parking spaces displaced by new development: 218
(Wells Fargo lot, Broadway/Spruce lot, other smaller lots)
- Net increased demand for PSEs: 2,610
(ranges from 2,400 to 2,822 depending on empl. Density)
- Parking demand reduced by TDM measures (with parking pricing and eco pass): -726
(ranges from 680 to 769 PSEs)
- Increased utilization of CAGID and Private spaces (140 + 67): -207
- Utilization of Satellite Parking by downtown employees: -300
- Remaining unmet demand for downtown parking spaces: 1,377
- Construction of additional parking spaces: -1,233
(ex. 579 private spaces [including 388 spaces at Pearl West, 100 spaces at the Wells Fargo lot, 16 spaces at 14th/Walnut, and an estimated 75 additional spaces in small lots around downtown], 200 CAGID structure, 200 CAGID joint venture, 54 leased by CAGID, 200 additional for CAGID in new civic area structure)
- Remaining parking deficit in CAGID area: (144)

Considering these same assumptions phased over the 5 year increments until buildout results in:

Year 2021: 87 space deficit
 Year 2026: 101 space deficit
 Year 2031: 144 space deficit
 (see row A2 in attached Table 4)

Summary of CAGID Area Access and Parking Projections – Year 2016 to Buildout

March 30, 2016

Page

10



I hope this preliminary summary is helpful. Please do not hesitate to call with any questions.

BF/

2016 Downtown Boulder Parking Update



Table 1. CAGID Public Parking Supply and Typical Weekday Utilization

Parking Facility	Quadrant ⁽¹⁾	Total Parking Spaces Available	Long Term Parking Spaces (includes punch cards) ⁽⁴⁾	Short Term Parking Spaces	Permits Sold	Waiting List for Permits	Typical Peak Hour % of Permits Being Utilized ⁽³⁾	Typical Peak Hour Number of Permit Users On-site	Typical Peak Hour Number of Punch Card Users On-site	Typical Peak Hour Short-Term Users On-Site ⁽²⁾	Typical Peak Hour Total Space Utilization ⁽³⁾	Typical Total Peak Hour Parking Demand ⁽⁵⁾
Surface Lots												
1336 Canyon	SE	66	66	0	85	74	90%	59			90%	59
1775 14th	SE	52	52	0	62	74	90%	47			90%	47
1745 14th	SE	85	85	0	106	103	90%	77			90%	77
Broadway/Spruce	NW	61	0	61	n.a.					52	85%	52
13th St. Conference	SE	6	6	0			90%	5			90%	5
Atrium	SE	23	23	0			90%	21			90%	21
Surface Lot Subtotal:		293	232	61	253	251					89%	261
Parking Structures												
1000 Walnut - CAGID	SW	556	232	324	510	213	44%	224	8	112	62%	345
1500 Pearl	NE	686	473	214	725	348	50%	363	110	179	95%	652
1100 Spruce	NW	392	189	203	341	160	51%	174	15	172	92%	361
1100 Walnut	SW	273	159	114	258	170	52%	134	25	78	87%	238
1400 Walnut	SE	302	168	134	317	295	45%	143	25	35	67%	202
Parking Structure Subtotal:		2,209	1,221	988	2,151	1186					81%	1,797
Off-Street Subtotal:		2,502										
On-Street Metered Parking												
Northwest Quadrant	NW	235	0	235	n.a.						85%	200
Southwest Quadrant	SW	105	0	105	n.a.						85%	89
Southeast Quadrant	SE	154	0	154	n.a.						85%	131
Northeast Quadrant	NE	316	0	316	n.a.						85%	269
On-Street Subtotal:		810	0	810							85%	689
Commuter Permits in NPP Zones												
Goss/Grove (northern 1/3)	SE	10	10	0	10	0	80%	8			80%	8
Mapleton	NW	75	75	0	78	0	80%	62			83%	62
High/Sunset	NE	43	43	0	12	0	80%	10			22%	10
Whittier	NE	174	174	0	100	0	80%	80			46%	80
West Pearl	NW	38	38	0	39	0	80%	31			82%	31
NPP Commuter Permit Subtotal:		340	340	0	239	0	80%	191			56%	191
Total - All Public Spaces:		3,652	1,793	1,859	2,643	1,437					80%	2,937
Total Parking Supply (All Types) By Quadrant:												
Northwest Quadrant		801	302	499							88%	706
Southwest Quadrant		934	392	542							72%	671
Southeast Quadrant		698	410	288							79%	550
Northeast Quadrant		1,219	690	530							83%	1,010
		3,652	1,793	1,859							80%	2,937

Notes:

- Downtown quadrants are divided by Walnut Streets and 13th Streets
- Peak parking meter space utilization estimated at 85% occupancy
- Peak employee parking in CAGID surface lots estimated at 90% occupancy. Peak occupancy of NPP commuter spaces estimated at 80% of permits sold.
- In parking structures, the long term parking space count equals the number of permit users plus punch card users on-site. The balance of the spaces in the structure are considered to be available for short term utilization.
- It should also be noted that there are other peak times, such as Friday evenings, when the occupancy of parking structures is higher than during typical weekday mid-day peak periods. For example, the 1100 Walnut and 1100 Spruce structures are often full on Friday evenings and the CAGID portion of the 1000 Walnut structure is often over 90% full. There are also times on Saturdays, such as during the Farmers Market, that the RTD structure and the 1500 Pearl structure are completely full.
- In addition to automobile parking, there are approximately x,xxx bicycle racks in the CAGID area that provide parking space for approximately x,xxx bicycles. Annual peak bike parking observations on a warm summer Saturday have indicated a steady increase in bicycle parking over time, with 2,800 parked bicycles observed in 2007 and over 4,000 bicycles observed in 2009.

2016 Downtown Boulder Parking Update

Table 2. Boulder CAGID Private Parking - Weekday Supply & Utilization by Block



Block	Description	Surface/Driveway Parking		Structure/Garage Parking		Alley Parking		Total Parking		
		Supply	Demand	Supply	Demand	Supply	Demand	Supply	Demand	% Occupied
1	11th/Spruce NW corner (building only)	1	1	9	9	0	0	10	10	100%
2	Broadway/Spruce NW corner (to alley)	6	4	0	0	2	0	8	4	50%
2N	Broadway/Spruce NW corner (church)	30	8	0	0	0	0	30	8	27%
3	13th/Spruce NW corner (To Pine)	32	26	67	17	9	5	108	48	44%
3N	13th/Pine NW corner (church)	100	82	0	0	0	0	100	82	82%
4	14th/Spruce NW corner (to alley)	12	9	0	0	16	11	28	20	71%
4N	14th/Spruce NW corner N. of alley (hotel, County)	111	49	0	0	0	0	111	49	44%
4E	14th/Spruce NE corner (church)	62	53	0	0	0	0	62	53	85%
5	18th/Pearl NW corner (to alley)	22	12	0	0	19	13	41	25	61%
6	17th/Pearl NW corner (to alley)	3	3	7	4	21	18	31	25	81%
7	16th/Pearl NW corner	19	7	55	39	33	19	107	65	61%
8	15th/Pearl NW corner	0	0	305	284	3	3	308	287	93%
9	14th/Pearl NW corner	67	45	0	0	0	0	67	45	67%
10	13th/Pearl NW corner	10	7	0	0	12	9	22	16	73%
11	Broadway/Pearl NW corner	0	0	0	0	12	9	12	9	75%
12	11th/Pearl NW corner	11	7	16	6	9	4	36	17	47%
13	10th/Pearl NW corner (to alley)	5	4	22	11	6	6	33	21	64%
14	10th/Walnut NW corner	28	17	113	71	18	11	159	99	62%
15	11th/Walnut NW corner	0	0	16	9	2	1	18	10	56%
16	Broadway/Walnut NW corner	28	15	0	0	26	16	54	31	57%
17	13th/Walnut NW corner	107	53	0	0	0	0	107	53	50%
18	14th/Walnut NW corner	0	0	0	0	20	15	20	15	75%
19	15th/Walnut NW corner	24	6	0	0	8	1	32	7	22%
20	16th/Walnut NW corner	15	8	0	0	0	0	15	8	53%
21	17th/Walnut NW corner	18	15	100	63	20	13	138	91	66%
22	18th/Walnut NW corner	12	12	52	30	15	7	79	49	62%
23	17th/Walnut SW corner (to alley)	8	6	10	4	22	11	40	21	53%
24	16th/Canyon NW corner	38	19	0	0	0	0	38	19	50%
25	15th/Canyon NW corner	21	11	82	58	0	0	103	69	67%
26	14th/Canyon NW corner	5	2	240	230	12	9	257	241	94%
27	13th/Canyon NW corner	0	0	184	137	0	0	184	137	74%
28	Broadway/Canyon NW corner	0	0	111	60	0	0	111	60	54%
29	11th/Canyon NW corner	0	0	195	97	5	3	200	100	50%
30	10th/Canyon NW corner (Saint Julien private only)	0	0	100	46	0	0	100	46	46%
31	Library lot south of Canyon	0	0	0	0	0	0	0	0	#DIV/0!
32	14th/Canyon SW corner (to ditch)	22	12	0	0	0	0	22	12	55%
33	15th/Canyon SW corner (to ditch)	115	76	0	0	0	0	115	76	66%
34	16th/Canyon SW corner (to ditch)	99	36	0	0	0	0	99	36	36%
35	15th/Arapahoe NW corner (to ditch)	102	70	26	24	0	0	128	94	73%
36	14th/Arapahoe NW corner (to ditch)	20	12	0	0	24	16	44	28	64%
37	15th/Arapahoe NE corner (to Grove, half block)	2	1	0	0	12	7	14	8	57%
Subtotal - (excluding Boulder High School Parking Lot)		1,155	688	1,710	1,199	326	207	3,191	2,094	66%
38	Boulder High School lot south of Arapahoe	220	211	0	0	0	0	220	211	96%
Total (including Boulder High Lot)		1,375	899	1,710	1,199	326	207	3,411	2,305	68%

2016 Downtown Boulder Parking Update



Table 3. Total Public and Private Parking Supply in Downtown Boulder⁽¹⁾

	Public Parking Spaces				Private Parking Spaces				All Public and Private Parking Spaces
	Long Term	Short Term	NPP Commuter	Total Public	Surface Lots	Parking Structures	Alleys	Total Private	
Total	1,453	1,859	340	3,652	1,155	1,710	326	3,191	6,843

Notes:

- 1. Includes CAGID area and private lots at the edge of CAGID (church, Boulderado, Boulder County). Does not include Civic Campus outside of CAGID or Boulder High School Lot.

Table 4

Net Parking Surplus or Deficit in CAGID Area for Various Employment Density, TDM, and New Parking Construction Scenarios

Scenario	Land Use Increase	Employee Density	TDM Package	CAGID Structure Space Utilization	Private Parking Space Utilization	Private Parking Spaces Added By Buildout	CAGID Structured Spaces Added By 2026	CAGID / Private Joint Venture Spaces Added By Buildout	Potential Spaces in New Civic Area Parking Structure Available to CAGID By Buildout	Satellite Parking Spaces Utilized by Buildout	Year 2021 Surplus or Deficit	Year 2026 Surplus or Deficit	Buildout Surplus or Deficit
				Increase by Buildout	Increase By Buildout	Added By Buildout	Added By Buildout	Added By Buildout	Added By Buildout	Added By Buildout			
A1	Yes	Existing / Midpoint	A Low	5%	2%	579	200	200	200	300	-94	-117	-190
A2	Yes	Existing / Midpoint	A High	5%	2%	579	200	200	200	300	-87	-101	-144
A3	Yes	Existing / Midpoint	B Low	5%	2%	579	200	200	200	300	122	31	-151
A4	Yes	Existing / Midpoint	B High	5%	2%	579	200	200	200	300	136	54	-101
B1	Yes	High	A Low	5%	2%	579	200	200	200	300	-231	-303	-402
B2	Yes	High	A High	5%	2%	579	200	200	200	300	-224	-287	-356
B3	Yes	High	B Low	5%	2%	579	200	200	200	300	-15	-155	-362
B4	Yes	High	B High	5%	2%	579	200	200	200	300	-1	-132	-313
C1	Yes	Low	A Low	5%	2%	579	200	200	200	300	-72	-47	20
C2	Yes	Low	A High	5%	2%	579	200	200	200	300	-65	-31	66
C3	Yes	Low	B Low	5%	2%	579	200	200	200	300	144	101	60
C4	Yes	Low	B High	5%	2%	579	200	200	200	300	158	124	109

Notes:

- 1 Using latest development projections from RRC for CAGID area
- 2 Using a range of employment density based on information from RRC
- 3 Using various TDM packages and expected results from TDM model prepared by GO Boulder staff
- 4 Assume CAGID parking structure utilization increased by 5 % by buildout
- 5 Assume private parking utilization increased by 2% by buildout
- 6 Assume some private developments or redevelopments provide parking for non-residential uses, Including Pearl West, Wells Fargo lot, etc.
- 7 Assume CAGID enters into a joint venture with a private development and provides a net of 200 additional spaces for use by CAGID
- 8 Assume CAGID builds a 200 space parking garage on the Broadway/Spruce surface lot
- 9 Assume City constructs structured parking spaces on the Civic campus of which a net increase of 200 spaces are available to CAGID
- 10 Assume satellite parking utilization increases to 300 spaces by downtown employees by buildout

Table 5A
2016 Downtown Boulder Parking Supply and Demand Model⁽⁸⁾

Last Updated: 3/4/2016



Key Assumptions in this Scenario:

- *** Weekday Mid-day Peak Period Evaluation⁽¹⁰⁾
- *** With Revised Zoning in the DT5 District
- *** With 75% of current permit waiting list treated as existing parking demand (1300 space demand equiv.)
- *** With CAGID parking structure space utilization increasing by 5% over time
- *** With downtown employee non-SOV mode use decreasing due to a range of TDM options
- *** With employee density at existing (Midpoint) range
- *** With Satellite parking utilization increasing to 300 spaces by 2026
- *** With private parking space utilization increasing by 2% over time

Existing Downtown Boulder Parking Supply and Demand Rates	
Current Commercial Parking SUPPLY Rate in CAGID Area:	2.02 spaces per 1,000 sq. ft.
Current Commercial DEMAND Rate in CAGID (incl. wait list):	1.91 spaces per 1,000 sq. ft.
Current Residential Parking SUPPLY Rate In CAGID Area:	1.6 spaces per DU
Current Residential Parking DEMAND Rate In CAGID Area:	0.97 spaces per DU
Aggregate non-driver mode share for downtown access:	48%
Aggregate SOV or MOV driver mode share for downtown access:	52%
(this includes long term (employees) and short term visitors of downtown based on latest survey information)	
Existing employee density	2.81 emp. per 1,000 sq. ft.
Incremental employee density - Low estimate	2.42 emp. per 1,000 sq. ft.
Incremental employee density - Midpoint estimate	2.75 emp. per 1,000 sq. ft.
Incremental employee density - High estimate	3.07 emp. per 1,000 sq. ft.
Buildout employee density - Low estimate	2.70 emp. per 1,000 sq. ft.
Buildout employee density - Midpoint estimate	2.80 emp. per 1,000 sq. ft.
Buildout employee density - High estimate	2.89 emp. per 1,000 sq. ft.

	Planning Horizon				Subtotal 2016 - 2026+	Buildout Total
	Existing	2016 - 2020	2021 - 2025	2026 +		
Downtown Boulder Development By Planning Horizon⁽¹⁾						
Residential Units (DUs)	260	34	49	91	174	434
Commercial Floor Area (sq. ft.), includes current RRC info. N&S of Canyon + CAP East High Only	3,182,291	490,510	288,262	473,819	1,252,591	4,434,882
Employees - Low	8,956	1,127	698	1,211	3,036	11,992
Employees - Midpoint	8,956	1,279	792	1,370	3,441	12,397
Employees - High	8,956	1,432	885	1,530	3,847	12,803
Parking Supply and Demand Increases And Supply Reductions⁽²⁾						
Residential Parking Supply ⁽⁴⁾	400	54	78	146	278	678
Residential Parking Demand ⁽⁵⁾	252	33	48	88	169	421
Commercial Parking Supply at 2015 supply rate ⁽⁴⁾	6,443	991	582	957	2,530	8,973
Commercial Parking Demand at 2015 demand rate plus waiting list demand ⁽⁵⁾	6,071	937	551	905	2,392	8,463
Total Parking Supply - residential and commercial	6,843	1,045	661	1,103	2,809	9,652
Total Parking Demand - residential and commercial	6,331	970	598	993	2,561	8,892
Existing parking space supply displaced by new development ⁽³⁾		50	61	107	218	218
Incremental parking supply increase due to development at existing supply rates:		1,095	722	1,210	3,027	3,027
Cumulative parking supply increase due to new development at existing supply rates:		1,095	1,817	3,027	3,027	3,027
Adjustment for increased or decreased employee density: ⁽¹²⁾		0	0	0	0	0
Incremental COMMERCIAL parking demand increase due to new development at existing rates		937	551	905	2,392	2,392
Cumulative COMMERCIAL parking demand increase due to new development at existing rates		937	1,487	2,392	2,392	2,392
Commercial Parking Space Demand Reductions: Parking Space Equivalents Resulting from TDM efforts (PSEs)⁽⁶⁾⁽⁷⁾						
PSEs reduced by TDM Package A LOW range:		(244)	(344)	(680)	(680)	(680)
PSEs reduced by TDM Package A HIGH range:		(251)	(360)	(726)	(726)	(726)
PSEs reduced by TDM Package B LOW range:		(460)	(492)	(720)	(720)	(720)
PSEs reduced by TDM Package B HIGH range:		(474)	(515)	(769)	(769)	(769)
Total Cumulative Parking Demand Increase (with TDM A LOW Scenario):		693	1,143	1,712	1712	1712
Total Cumulative Parking Demand Increase (with TDM A HIGH Scenario):		686	1,127	1,666	1666	1666
Total Cumulative Parking Demand Increase (with TDM B LOW Scenario):		477	995	1,672	1672	1672
Total Cumulative Parking Demand Increase (with TDM B HIGH Scenario):		463	972	1,623	1623	1623
Parking Space Equivalents by Increasing CAGID "Parking Structure" Space Utilization⁽⁹⁾						
Percent increase in existing parking space utilization:		3%	4%	5%	5%	5%
CAGID structured parking spaces available	2209	2209	2409	2809	2,809	2809
PSEs realized from increased space utilization:		(66)	(96)	(140)	(140)	(140)
Parking Space Equivalents by Increasing PRIVATE Parking Space Utilization⁽¹⁰⁾						
Percent increase in existing parking space utilization:		0%	1%	2%	2%	2%
Private spaces available in lots and structures (excludes alley spaces)	2865	3244	3308	3333	3,333	3333
PSEs realized from increased space utilization:		0	(33)	(67)	(67)	(67)
Parking Space Equivalents by use of Satellite Parking in interceptor lots outside of CAGID area						
Downtown employees who utilize satellite parking lots and bus or bike to CAGID area		(100)	(200)	(300)	(300)	(300)
Potential Physical Parking Space Supply Increases:						
Developer built commercial parking at Daily Camera building		388	0	0	388	388
Large lot developer built parking (such as Colorado Building or the Wells Fargo lots)		16	100	0	116	116
Small lot developer built parking supply		25	25	25	75	75
CAGID leases parking in vicinity to downtown (such as church lots)		54	0	0	54	54
CAGID / Private joint venture parking structure		0	0	200	200	200
CAP East End Parking: Net supply increase of 200 spaces for office uses plus CAGID lots replaced ⁽¹¹⁾		0	0	200	200	200
New CAGID parking structure (possibly at the Broadway/Spruce lot)		0	200	0	200	200
Subtotal: Physical Parking Space Supply Increase		483	325	425	1,233	1,233
Cumulative Physical Parking Space Supply Increase:		483	808	1,233	1,233	1,233
Cumulative Unmet Commercial Parking Demand: (positive = deficit, negative = surplus) TDM A LOW						
		94	117	190	190	190
Cumulative Unmet Commercial Parking Demand: (positive = deficit, negative = surplus) TDM A HIGH						
		87	101	144	144	144
Cumulative Unmet Commercial Parking Demand: (positive = deficit, negative = surplus) TDM B LOW						
		-122	-31	150	150	150
Cumulative Unmet Commercial Parking Demand: (positive = deficit, negative = surplus) TDM B HIGH						
		-136	-54	101	101	101
Total Cumulative Non-Residential Parking Supply:	6,443	6,876	7,140	7,458	7,458	7,458

- Notes:
- All land use and development projections provided by RRC and/or CAGID
 - Parking supply and demand rates based on existing parking supply and demand inventory
 - Assumes that the Daily Camera structure and Colorado Building lot is consumed by construction by 2016 and the Wells Fargo lot is consumed by construction by buildout
 - Existing Parking Supply based on 2015 inventory (6843 spaces minus estimated 400 residential spaces). Future parking supply based on current parking supply rates in the CAGID area
 - Future parking demand based on current parking demand rates in the CAGID area (including 75% of current waiting list as equivalent existing demand)
 - City TDM staff have prepared a range of possible TDM plans that should reduce SOV access to the downtown above and beyond today's current Non-SOV access.
 - A parking space equivalent (PSE) is a parking space that is not physically needed due to access to the downtown area by an alternative to the single occupant or multi-occupant automobile driver that would otherwise have needed to park in the downtown area. This includes the use of Satellite parking lots.
 - This parking model analyzes the weekday mid-day parking supply and demand in the CAGID area of downtown Boulder. This weekday mid-day peak likely has the highest CAGID-wide parking demand, but it should be noted that there are other peak times where there are even higher localized parking demands in the downtown area, such as on Friday evening when the parking structures and on-street spaces west of Broadway are full, or on weekend days when the parking structures east of Broadway can become full.
 - Assumes that the existing 81% utilization rate of CAGID parking structures is increased over time. Note that the structure utilization has been increased from 73% in 2011.
 - Assumes that the existing 66% utilization rate of PRIVATE parking is increased over time. Note that the private utilization rate has increased from 61% in 2011.
 - This model includes current RRC land use for CAGID north and south of Canyon Plus Civic Area Plan East End Only which includes office uses, etc. The CAP East analysis assumes CAGID lots are replaced and 200 net new spaces are added specifically for the office type uses in this east end area. Other special event uses and their associated parking is not addressed in this scenario for either the east or west ends of the civic area.
 - This adjustment in commercial parking demand is based on RRC employment density low and high range estimates coupled with existing car driver mode share information (employee difference from midpoint X 0.52)

CAGID and Civic Area Plan (CAP) Development Projections

February 29, 2016

Prepared for:

*City of Boulder – Downtown and
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Table of Contents

INTRODUCTION	1
CAGID DEVELOPMENT PROJECTIONS (EXCLUDING CAPS)....	4
Summary of projections.....	4
Existing and projected square footage by location and zoning district.....	5
Existing and projected development relative to FAR zoned capacity	7
Projections methodology	8
Step 1: Prepare land and building inventory	8
Step 2: Project future incremental floor area	9
Step 3: Project future incremental development by time period.....	12
Step 4: Project future incremental development by type of use.....	12
Step 5: Project future incremental employment	14
Step 6: Project future incremental residential units	16
Additional background: development and employment data and trends	16
Projects built or under construction in CAGID since 2013 analysis	16
Long-term historic development patterns in CAGID.....	17
Employment trends by sector	20
Additional employment characteristics by sector.....	21
CAP DEVELOPMENT PROJECTIONS.....	22
Projected built square footage	23
Projected timing of development.....	24
Projected employment and residential units	26
COMBINED CAGID/CAP DEVELOPMENT PROJECTIONS	27
Summary of development projections	27
Comparison of 2015 and 2013 development projections	29

INTRODUCTION

This report summarizes development projections for the City of Boulder Central Area General Improvement District (CAGID) and the Civic Area Plan areas (CAPs), as prepared by RRC Associates. The projections are intended to provide a base of information which can be used for a variety of general planning purposes, and most specifically as an input for transportation and parking studies that are currently being conducted for the CAGID area (excluding the CAPs).

The development projections contained in this report are the latest in a series of periodic efforts by the Downtown and University Hill Management Division & Parking Services (DUHMD & PS) to assess downtown development patterns and projections, building upon prior analyses conducted by RRC in 2013, 2011, 2006, 2001, and 1997 (when initially conducted as part of the Downtown Alliance effort).

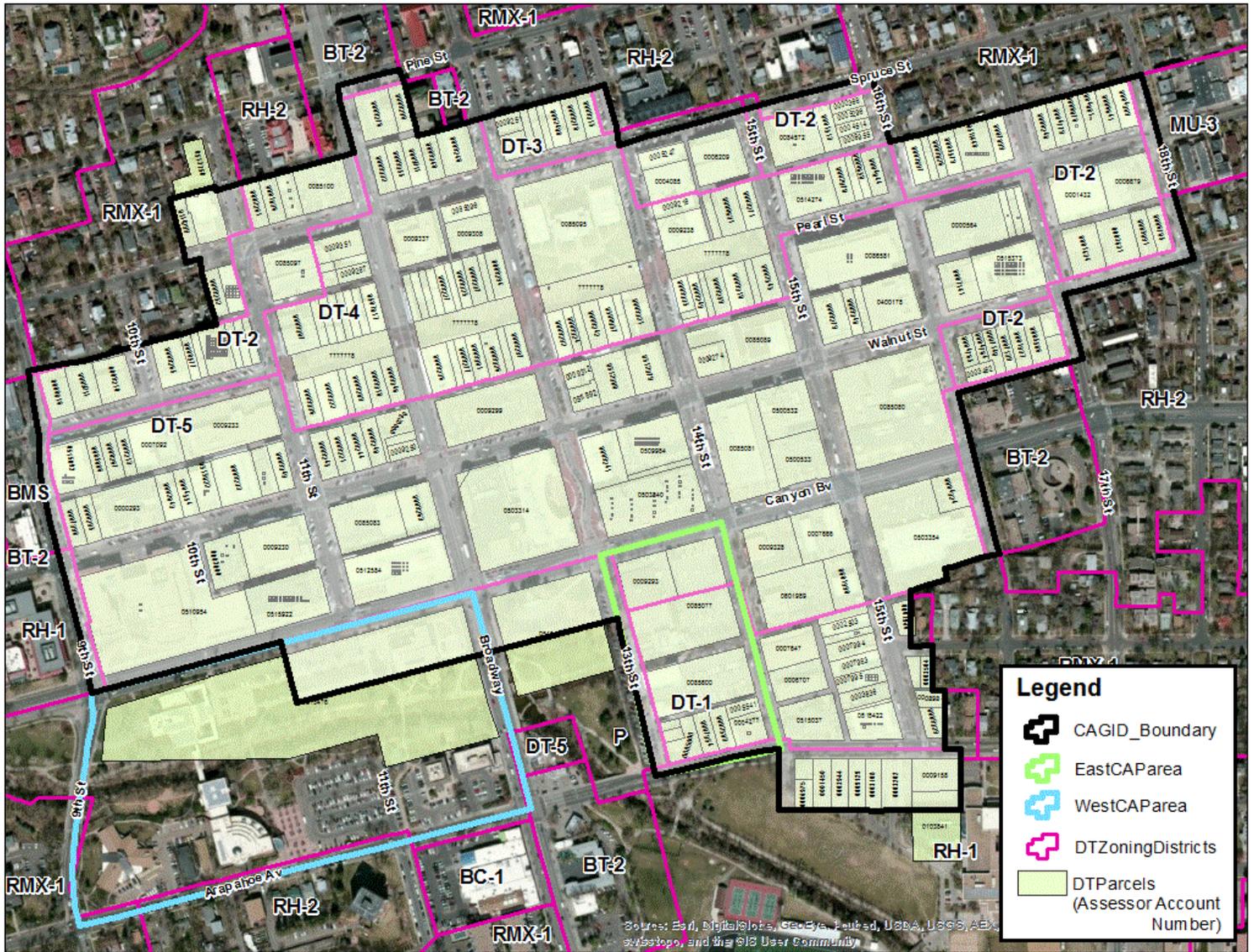
Since the 2013 update, several large projects have been approved and are in various stages of construction or are completed, the CAP planning process has advanced, and the Boulder economy and development environment has continued to evolve and strengthen. The current update is intended to reflect these changes, and also incorporate updated feedback from selected downtown property owners about their future development plans. It is also intended to capture the latest available data regarding land area, building space and employment from relevant databases.

This report first summarizes the results and methodology of the buildout analysis for CAGID; then examines buildout projections for the CAP areas; and finally summarizes buildout projections for the CAGID and CAP areas combined.

Figure 1 to follow illustrates the study area, with the boundaries of CAGID, zoning districts, the east CAP area, and the west CAP area highlighted. It should be noted that CAGID and the CAP areas overlap to some degree, particularly in the east CAP area (bounded by Arapahoe, Canyon, 13th, and 14th). As a general rule, all data presented in this report for CAGID is for CAGID exclusive of the CAP areas (but inclusive of the civic pad next to the St Julien Hotel), unless noted otherwise. Additionally, it should be noted that all square footage data discussed in this report excludes floor area associated with parking garages.

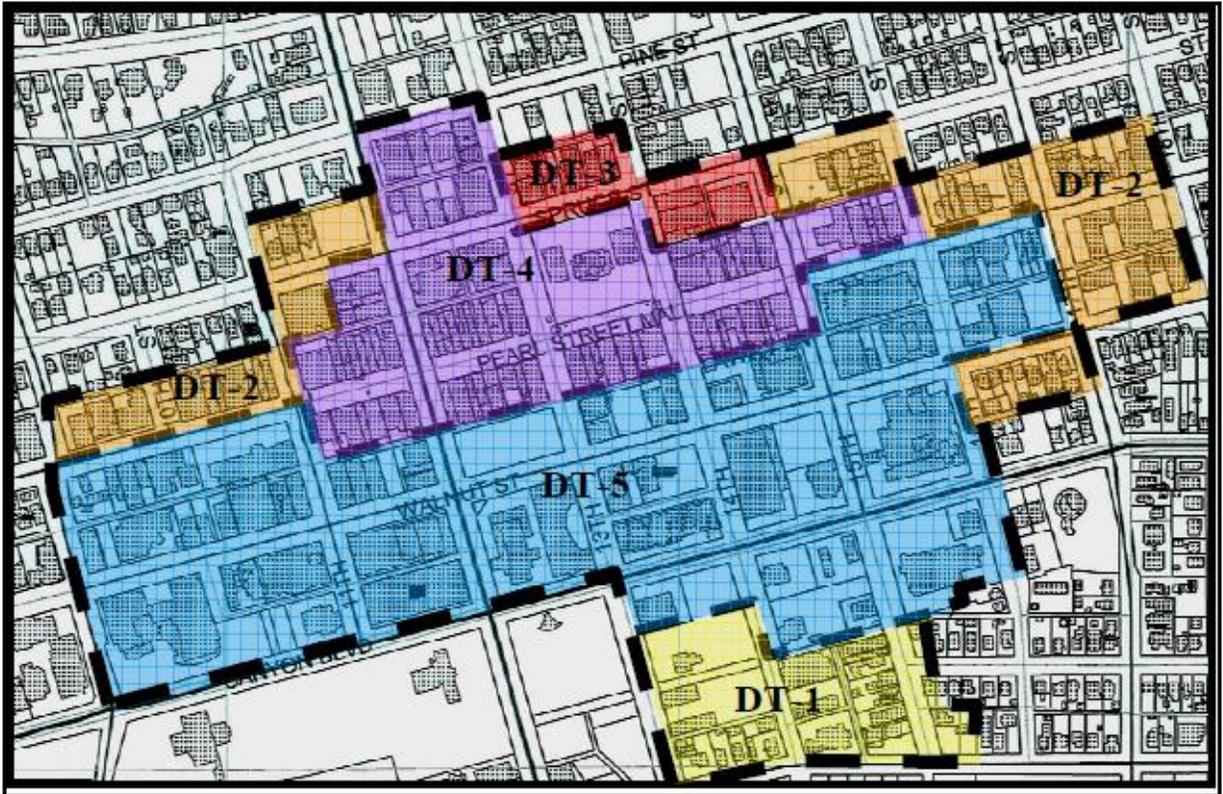
Figure 2 to follow illustrates the boundaries of the DT-1 through DT-5 zoning districts within CAGID, in a more visually clear way.

Figure 1
Map of CAGID and CAP Boundaries, and Zoning Districts



Source: City of Boulder GIS; RRC Associates. Note: West CAP also includes the civic pad located next to the St Julien Hotel.

Figure 2
Map of DT (Downtown) Zoning Districts Within CAGID



Source: City of Boulder Planning and Development Services (map of building footprints is several years old).

CAGID DEVELOPMENT PROJECTIONS (EXCLUDING CAPS)

This section of the report contains a summary of the results, methodology and assumptions of the buildout analysis for the CAGID area (excluding the portions of CAGID in the CAP areas, and excluding Boulder High School - BHS).¹

Summary of projections

Table 1 below shows current and projected square footage, residential units, employment, and employment density ratios for CAGID (excluding the CAP areas and BHS).

Table 1
Projected Gross Square Footage, Residential Units and Employment:
CAGID (excluding CAPs & BHS), 2015 thru Buildout

Measure	2015	2020			2025			2035 (buildout)		
		Low	Midpoint	High	Low	Midpoint	High	Low	Midpoint	High
Nonresidential gross sqft	3,182,291	3,672,801	3,672,801	3,672,801	3,961,063	3,961,063	3,961,063	4,434,882	4,434,882	4,434,882
Residential gross sqft	408,960	477,902	477,902	477,902	577,868	577,868	577,868	763,874	763,874	763,874
Total gross sqft	3,591,251	4,150,703	4,150,703	4,150,703	4,538,931	4,538,931	4,538,931	5,198,755	5,198,755	5,198,755
Residential units	260	294	294	294	343	343	343	434	434	434
Approximate full-time employees (25+ hrs/week)	6,404	7,255	7,377	7,499	7,775	7,972	8,169	8,669	8,991	9,314
Approximate part-time employees (<25 hrs/week)	2,552	2,829	2,859	2,889	3,005	3,055	3,104	3,323	3,406	3,489
Total employees	8,956	10,083	10,235	10,388	10,781	11,027	11,273	11,992	12,398	12,803
Full-time equivalent employees (25+ hrs/week)	7,935	8,952	9,092	9,232	9,579	9,805	10,031	10,663	11,035	11,407
Employees per 1000 gross nonresidential sqft	2.81	2.75	2.79	2.83	2.72	2.78	2.85	2.70	2.80	2.89
Gross nonresidential sqft per employee	355	364	359	354	367	359	351	370	358	346

Note: All results exclude CAGID area south of Arapahoe (i.e. BHS parking lots and portion of school building) and in CAPs.

Note: All results exclude above- and below-grade parking.

Note: Nonresidential sqft includes building space occupied by commercial, governmental, religious, and other nonresidential uses.

Note: Analysis assumes that any need for additional public parking can be accommodated (i.e. analysis hasn't tested whether need for public parking may serve as a constraint on buildout scenarios).

Source: Built sqft from Boulder County Assessor (supplemented by 2006 DBI databases and City of Boulder Facilities Management databases). Buildout assumptions per RRC, based on zoning and other factors.

¹ The CAGID boundary includes a modest amount of land south of Arapahoe currently used as BHS parking lots and a portion of the BHS building. These parcels are zoned RH-1 (Residential High-1). When the CAGID boundary was originally established, these parcels were privately owned (e.g. the former Sturtz & Copeland greenhouse and other uses). These parcels have been excluded from this CAGID buildout analysis, insofar as it is assumed that future uses will continue to be school-related and only slightly affected by CAGID land use/transportation policies. Qualifying BHS employees are eligible for CAGID-funded Ecopasses.

As shown in Table 1, key results include the following:

- **Built square footage:** As of late 2015 (the time when data for this report was collected), the CAGID area was estimated have approximately 3.59 million built square feet (sqft). RRC projects that built space will grow to approximately 4.15 million sqft by 2020, 4.54 million sqft by 2025, and 5.20 million sqft by 2035 (assumed buildout), with total built square footage increasing by 44 percent (1.61 million sqft) between 2015 and buildout.
- **Built square footage by type (residential vs. nonresidential):** Residential space is projected to grow from approximately 409,000 sqft today to 764,000 sqft at buildout, an increase of 87 percent (355,000 sqft). Nonresidential space is projected to grow from approximately 3.18 million sqft today to approximately 4.43 million sqft at buildout, an increase of 39 percent (1.25 million sqft).
- **Residential units:** The CAGID area is currently estimated to have 260 residential units. Total residential units are projected to increase to 294 units by 2020, 343 units by 2025, and 434 units by 2035 / buildout.
- **Employees:** The CAGID area is currently estimated to have 8,956 employees, including approximately 6,404 full-time employees working at least 25 hours a week (72 percent), and 2,552 part-time employees (28 percent). Depending on the employment intensity assumptions utilized, total employment is projected to grow to 10,083 – 10,388 employees by 2020, 10,781 – 11,273 employees by 2020, and 11,992 – 12,803 employees by 2035 / buildout. “Full-time equivalent employees,” calculated as the number of employee equivalents working at least 25 hours/week (with part-time employees assumed to average 15 hours/week)², is projected to grow from 7,935 currently to 10,663 – 11,407 at buildout.
- **Employees per 1000 gross square feet:** Currently, there are approximately 2.81 employees per 1000 gross square feet of nonresidential building space in CAGID. At buildout, employment intensity ratios are projected to be in the range of 2.70 to 2.89 employees per 1000 square feet (midpoint 2.80), thus bracketing the existing employment intensity ratio of 2.81 employees per 1000 square feet.

Existing and projected square footage by location and zoning district

Table 2 to follow illustrates existing and projected square footage in CAGID by location, with key findings described below.

² 2009-13 ACS PUMS data for the PUMA encompassing the City of Boulder indicates that local residents working 1-24 hours per week work an average of 14.66 hours per week.

- Existing space:** Approximately half of the existing built sqft in CAGID (excluding the CAPS) is located in the DT-5 zoning district (51 percent), with an additional 3 percent in DT-1, 11 percent in DT-2, 4 percent in DT-3, 31 percent in DT-4, and 1 percent in RMX-1. Ninety-six percent of the existing space is located north of Canyon, while four percent is south of Canyon.
- Incremental additional space:** A total of approximately 1.61 million incremental additional square feet of space is projected to be developed between 2015 and buildout. Of this incremental floor area, 7 percent is projected to be in the DT-1 zoning district, 17 percent in DT-2, 2 percent in DT-3, 9 percent in DT-4, and 66 percent in DT-5. Of this space, 70 percent is projected to be built north of Canyon, and 30 percent is projected to be built south of Canyon.
- At buildout,** approximately 5.20 million square feet of space is expected be present in CAGID. Of this space, 4 percent is projected to be in the DT-1 zoning district, 13 percent in DT-2, 3 percent in DT-3, 24 percent in DT-4, and 55 percent in DT-5. Of this space, 88 percent is projected to be located north of Canyon, and 12 percent is projected to be located south of Canyon.

**Table 2
Existing Built Square Footage and Projected Square Feet at Buildout, by Zoning District**

Area & Zoning District	Land Area (Sqft)	EXISTING (2015) BUILT SQFT (excluding parking garages)			PROJECTED FUTURE INCREMENTAL CONSTRUCTION (excluding parking garages)			PROJECTED SQFT AT BUILDOUT (excluding parking garages)		
		Non-residential	Residential	Total	Non-residential	Residential	Total	Non-residential	Residential	Total
CAGID - NORTH OF CANYON (including Civic Pad in West CAP):										
DT-2	392,845	353,826	55,310	409,136	151,803	117,984	269,787	505,629	173,294	678,923
DT-3	83,153	127,412	0	127,412	25,614	6,269	31,883	153,026	6,269	159,295
DT-4	554,182	1,068,513	31,201	1,099,714	108,918	33,271	142,189	1,177,431	64,472	1,241,903
DT-5 (N of Canyon)	1,167,532	1,492,494	263,279	1,755,773	611,622	64,649	676,272	2,104,116	327,928	2,432,045
RMX-1	44,683	7,592	30,926	38,518	0	0	0	7,592	30,926	38,518
Subtotal	2,242,396	3,049,837	380,716	3,430,553	897,957	222,173	1,120,130	3,947,794	602,889	4,550,683
CAGID - SOUTH OF CANYON (excluding East and West CAP):										
DT-1 (excl. CAP)	129,122	73,301	28,244	101,545	40,455	67,985	108,440	113,756	96,229	209,985
DT-5 (S of Canyon; excl CAP)	175,235	59,153	0	59,153	314,179	64,756	378,935	373,332	64,756	438,088
Subtotal	304,357	132,454	28,244	160,698	354,634	132,741	487,374	487,088	160,985	648,072
CAGID TOTAL, EXCLUDING EAST AND WEST CAP (but incl. St. Julien Civic Pad)										
Total	2,546,753	3,182,291	408,960	3,591,251	1,252,591	354,914	1,607,504	4,434,882	763,874	5,198,755
(DT-5 total, excl. east CAP)	1,342,767	1,551,647	263,279	1,814,926	925,801	129,405	1,055,206	2,477,448	392,684	2,870,132

Source: City of Boulder GIS; Boulder County Assessor; RRC Associates.

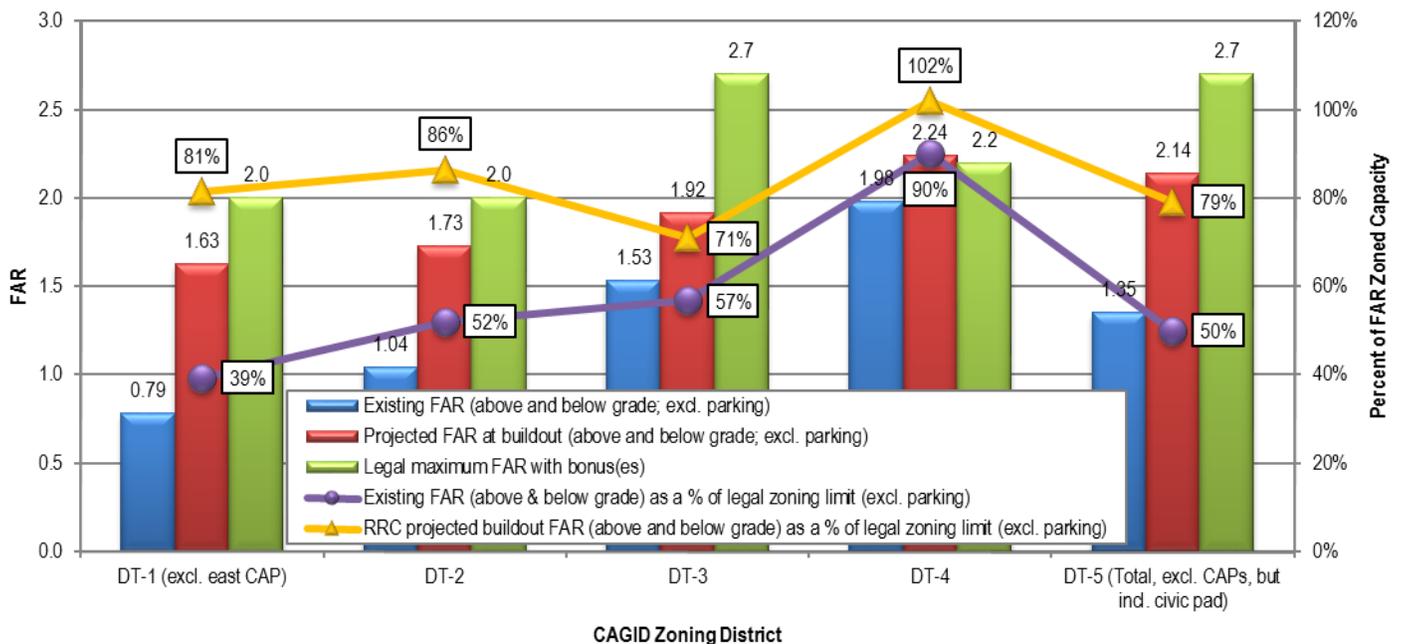
Existing and projected development relative to FAR zoned capacity

To help place existing and projected development in context, development can be expressed in FAR terms, and compared to FAR zoned capacity, by CAGID zone district (Figure 3).

Excluding parking structures (but including below-grade building space), existing development varies from a low of 0.79 FAR in DT-1 to a high of 1.98 FAR in DT-4. When expressed as a ratio to zoned capacity, existing built FAR (above and below grade) varies from a low of 39 percent of zoned capacity in DT-1 to a high of 90 percent of zoned capacity in DT-4.

At practical buildout, FAR is projected to vary from 1.63 FAR in DT-1 to 2.24 FAR in DT-4. The DT-1, DT-2, DT-3 and DT-5 zoning districts are each projected to be built to 71 – 86 percent of their zoned capacity, while DT-4 is projected to be built to 102 percent of its zoned capacity (due to some buildings currently exceeding zoned capacity, as well as significant below-grade space).

Figure 3
Existing, Buildout, and Legal Maximum FAR; and Existing & Projected FAR vs. Legal Maximum FAR
Summary by DT Zoning District; Above-Grade Parking Structures Excluded



Source: RRC Associates (projections); Boulder County Assessor (existing building sqft); City of Boulder GIS (land area).

It should be cautioned that insofar as the existing and projected FAR calculations include below-grade building space (which doesn't count against legal FAR limits), and excludes above-grade enclosed parking space (which does count as FAR), the comparisons to legal FAR limits are not

entirely “apples to apples,” and thus are not fully representative of current and projected development relative to legal FAR standards.³

Projections methodology

The current projections followed a largely similar methodology to that employed in 2013 and 2011. Specifically, a six step process was undertaken, as listed below and summarized in more detail to follow.

1. Prepare land and building inventory
2. Project future incremental floor area
3. Project future incremental development by time period
4. Project future incremental development by type of use
5. Project future incremental employment
6. Project future incremental residential units

The following discussion describes the six-step approach and accompanying assumptions used in the buildout analysis.

Step 1: Prepare land and building inventory

City of Boulder GIS staff has developed an inventory of “summary sites” in CAGID, consisting of legal parcels or (in some cases) combinations of parcels under common ownership or subject to a single development plan. A total of 231 sites or sub-sites have been identified in CAGID. For each site, data was compiled regarding the total land area, existing built square footage (broken down by residential vs. nonresidential space, and above vs. below-grade space), and selected other items such as year of construction and number of residential units.

The primary data sources were Boulder County Assessor records (for built space and building characteristics) and City GIS (for land area). In a few instances when Assessor records were incomplete, older CAGID building inventory records were used to estimate square footage. The City of Boulder rental license database was also used to help estimate the number of rental dwelling and rooming units in the study area.

As summarized previously (Table 1), the analysis found that the CAGID area currently has an aggregate of approximately **3.59 million square feet of existing floor area** (excluding floor area in parking garages).

³ For additional context, approximately 4.0 percent of existing floor area in CAGID is below grade, including a higher 6.9 percent in the DT-4 zone district. Above-grade parking structures also account for significant floor area in CAGID, although exact figures are not currently available.

Step 2: Project future incremental floor area

Projections of additional development were primarily based on an analysis of additional zoned development capacity. It was assumed that not all sites would develop to their theoretical maximum zoned potential in the foreseeable future, due to physical, regulatory, and/or market/financial constraints. Instead, for projections purposes, it was assumed that sites with additional zoned capacity would eventually develop to a level somewhat below the theoretical legal maximum, on average. Specifically, in DT-5, it was assumed that sites with remaining development capacity would develop to an average FAR of 2.5, or 0.2 below the maximum legal FAR (with bonuses) of 2.7. Similarly, in DT-1 through DT-4, it was assumed that sites would develop to an FAR of 0.15 to 0.40 below the theoretical legal maximum applicable to each district (Table 3 to follow). Note that individual sites might develop to a greater or lesser degree than these thresholds; the thresholds represent averages for modeling purposes. These same assumptions were also applied in the 2013 update.

Moreover, it was further assumed that future development would only take place if there was a minimum of 2500 sqft (DT-1 through DT-4) or 3500 sqft (DT-5) of additional floor area that could be built up to the assumed practical buildout thresholds; or if the additional development capacity was equal to at least 10 percent of the size of the existing floor area at the site; whichever minimum threshold was greater. Again, these were the same as the assumptions applied in the 2013 update.

Additionally, based on existing uses and recency of development, some parcels with additional zoned capacity were assumed to be unlikely to be redeveloped in the foreseeable future, e.g. the U.S. Post Office site, selected residential developments, religious uses, and selected other sites.

RRC also interviewed owners of several parcels with the largest remaining development capacity. In instances where the owners anticipated future redevelopment, they frequently expressed an intention to maximize the FAR. RRC feels that this feedback, along with recent development patterns, provides some general support for the development assumptions outlined below.

Table 3
Development Intensity Assumptions for Sites with Remaining Zoned Capacity

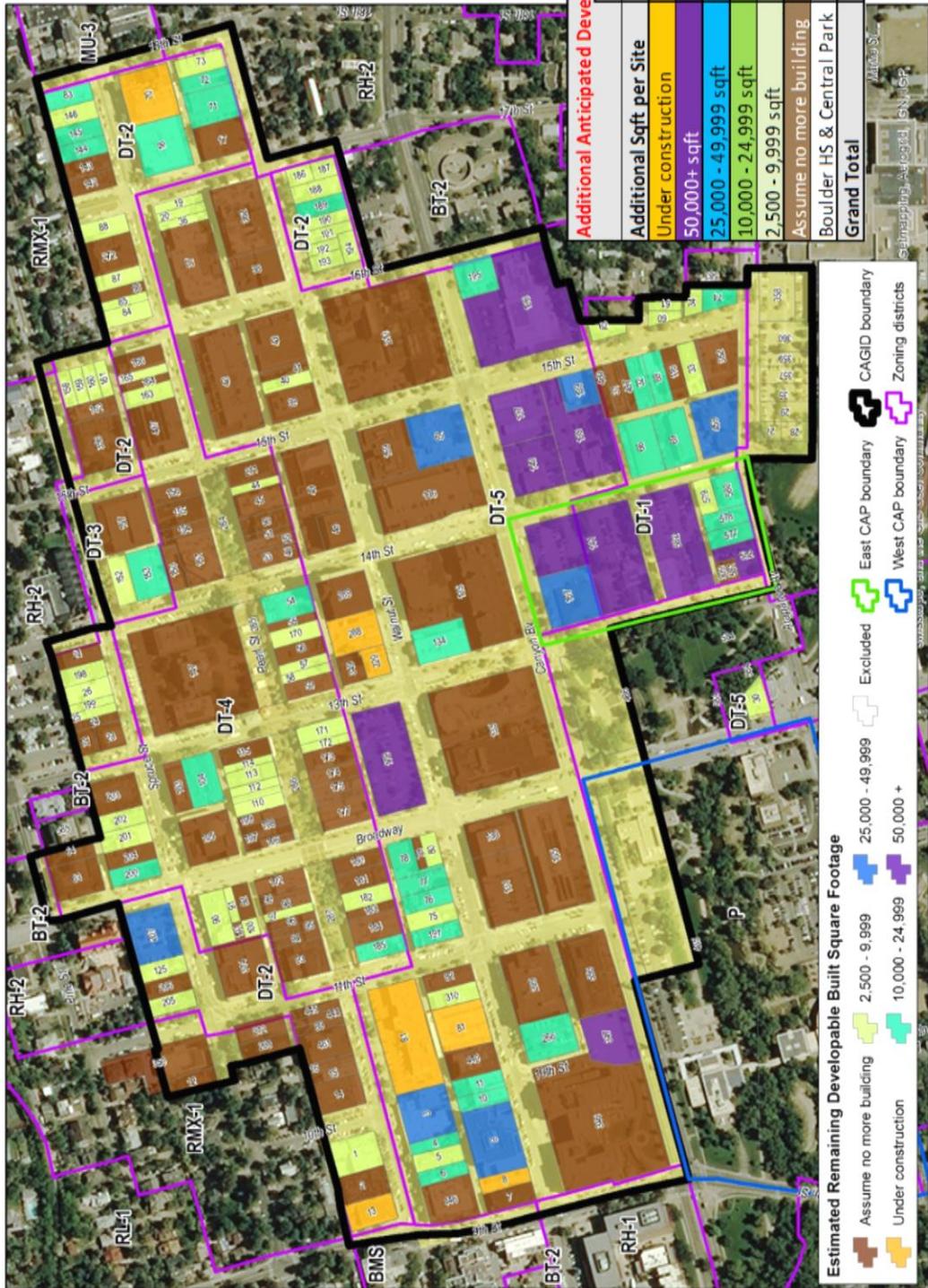
Zoning District	Legal maximum FAR (with bonuses)	RRC assumed practical buildout FAR	RRC assumed minimum additional capacity threshold (between existing FAR and practical buildout FAR) for development to occur
DT-1	2.0	1.8	2500 sqft or 10% of existing building sqft, whichever is greater
DT-2	2.0	1.85	2500 sqft or 10% of existing building sqft, whichever is greater
DT-3	2.7	2.3	2500 sqft or 10% of existing building sqft, whichever is greater
DT-4	2.2	2.05	2500 sqft or 10% of existing building sqft, whichever is greater
DT-5	2.7	2.5	3500 sqft or 10% of existing building sqft, whichever is greater
RMX-1	variable	n/a	n/a - assumed already built out

Source: RRC Associates. Note: Density projections exclude any floor area in above-grade parking structures.

Figure 4 to follow illustrates site-by-site projections of additional development potential. As shown, additional incremental development is assumed to occur on 105 sites in the future, with an aggregate total of **1.61 million additional square feet** of floor area developed. The bulk of the development is projected to occur on a relatively small number of parcels. Specifically, 18 percent of the projected 1.61 million incremental square feet is currently under construction (or recently completed) at five development sites. An additional 31 percent of remaining development capacity is projected to occur on six sites with at least 50,000 sqft of additional developable sqft each; 10 percent is projected to occur on six sites with 25,000 – 49,999 developable sqft each; and 21 percent of additional development is projected to occur on 28 sites with 10,000 – 24,999 developable sqft each. The final 20 percent is projected to occur across 60 sites with 2,500 – 9,999 developable sqft each. (Note: these projections are for modeling purposes only; actual development patterns could differ.)

Although some site-specific projections are shown in the east and west CAP areas, it should be noted that more meaningful development expectations in those areas have been prepared through the CAP design process, as summarized in more detail in a later chapter of this report.

Figure 4
Projected Future Incremental Built Square Footage in CAGID by Summary Site



Step 3: Project future incremental development by time period

The development projections outlined above were broken down by five-year time period, specifically 2016-20, 2021-25, and 2026 or later (i.e. through likely practical buildout, assumed to be 2035).

In CAGID, for a small number of parcels, timing assumptions were developed based on feedback from owners. For all remaining parcels, timing assumptions were applied based on the age of the existing building. Specifically:

- For buildings built in 1995 or before, it was assumed for projection purposes that:
 - 25 percent of the remaining practical development capacity would be built in the 2016-20 timeframe;
 - 35 percent would be built in the 2021-25 timeframe; and
 - 40 percent would be built in the 2026+ timeframe (to buildout).
 - (For these sites, it should be noted that a given individual site would not necessarily be expected to develop pursuant to these assumptions, but rather that the sites in aggregate would be assumed to exhibit this general timing distribution.)
- For buildings built in 1996 or later, it was assumed that any future redevelopment would take place in the 2026+ time period.

In the study area as a whole, approximately 297,000 sqft is currently under construction (or completed since data was collected in 2015). In addition, RRC projects that another 263,000 sqft will be built in the 2016-20 period; 388,000 sqft will be built in the 2021-25 period; and 660,000 sqft will be built in the 2026 – buildout period

Step 4: Project future incremental development by type of use

Existing built square footage was assumed to continue in its present use mix into the future. To the extent that some existing buildings might be “scraped” and/or redeveloped, it was assumed that a commensurate amount of space in a new building would have the same use mix in the future. For the remaining incremental development, a varying mix of uses was assumed for each zoning district. These assumptions were based on RRC’s judgment, as informed by development patterns in each area, and described further below.

For DT-5 (other than parcels where RRC had specific owner feedback), land use assumptions varied by FAR increment (below 0.9 vs. above 0.9, corresponding roughly to ground floor vs. upper floor space) and time period, as described below and illustrated in Table 4 to follow:

- DT-5: Remaining available FAR increment between 0.0 and 0.9: 100% of remaining available FAR increment between 0.0 to 0.9 is assumed to develop as commercial.
- DT-5: Remaining available FAR increment between 0.9 and 2.5:

- Sites developed in 2016-20: 95% development is assumed to be commercial. (This reflects an assumption that market conditions currently favor commercial development over residential development, and will continue to do so in the next five years. However, for later time periods, summarized below, it is assumed that market conditions for residential development will become more competitive.)
- Sites developed in 2021-25: 82.5% development as commercial and 17.5% development as residential.
- Sites developed in 2026+: 72.5% development as commercial and 27.5% development as residential.

Table 4
Land Use Assumptions for Incremental New Development: DT-5 Zoning District

	Incremental new development (built 2016+)			
	Ground floor mix:	Upper floor mix:		
	Built 2016-2026+	Built 2016-20	Built 2021-25	Built 2026+
DT-5: Nonresidential share	100%	95%	82.5%	72.5%
DT-5: Residential share	0%	5%	17.5%	27.5%
Total	100%	100%	100.0%	100.0%

Source: RRC Associates.

For DT-1 through DT-4, land use assumptions varied by zoning district and floor, as summarized in Table 5 to follow. In all zoning districts, ground floor development is assumed to be more heavily commercial than upper floors. Additionally, development in the DT-1 district (entirely south of Canyon) is assumed to tilt more heavily residential than the other zoning districts. Again, it should be noted that a given individual site would not necessarily be expected to develop pursuant to these assumptions. Instead, it is assumed that the development sites in aggregate will exhibit this distribution of use assumptions. These assumptions are the same as those employed in the 2013 update.

Table 5
Land Use Assumptions for Incremental New Development: CAGID Zoning Districts Other Than DT-5

Zoning District	Incremental new development (built 2016+)			
	Ground Floor Mix:		Upper Floor(s) Mix:	
	Nonresidential share	Residential share	Nonresidential share	Residential share
DT-1	60%	40%	30%	70%
DT-2	85%	15%	50%	50%
DT-3	100%	0%	80%	20%
DT-4	90%	10%	75%	25%
RMX-1	Built out	Built out	Built out	Built out

Source: RRC Associates.

Step 5: Project future incremental employment

Incremental future employment was projected based on the following assumptions regarding the utilization of commercial space (also illustrated in Table 6 to follow):

- Leasable space is equivalent to 85 percent of gross square footage (after deducting for common areas, stairways, etc.).
- Commercial vacancy rate is 5% (i.e. effective full occupancy).
- First-floor tenants have a range of 4.55 to 5.1 employees per 1000 sqft of leased area (corresponding to the low and high range of “employment intensity” observed in CAGID in selected years over the 1994 – 2015 period). (A history of CAGID employment intensities is shown in Table 7 to follow.)
- Upper-floor tenants have a range of 2.7 to 3.6 employees per 1000 sqft of leased area (corresponding to the low and high range of “employment intensity” observed in CAGID in selected years over the 1994 – 2015 period).

Table 6
Employment Assumptions for Incremental New Nonresidential Development

% of gross commercial space which is leasable:	85%	
Commercial vacancy rate:	5%	
Employees per 1000 sqft of leasable space:		
	"Typical" first floor uses	"Typical" upper floor uses
Historic minimum	4.45	2.7
Midpoint of min & max	4.78	3.15
Historic maximum	5.1	3.6
Hotels: assume 1 employee per room		

Source: RRC Associates; DUHMD-PS/DBI tenant / Ecopass databases.

Table 7
CAGID Employees per 1000 Square Feet of Leasable Nonresidential Space: Historic Comparisons

Database date	"Typical" first floor uses*	"Typical" upper floor uses**
12/31/1994	4.8	3.4
1999/00	4.8	3.6
2005	5.1	3.1
May 2011	4.45	2.70
Oct. 2013	4.69	2.84
Jul. 2015	4.74	3.20
Historic minimum	4.45	2.70
Historic maximum	5.10	3.60
Midpoint of min & max	4.78	3.15

*Assumed "typical" first floor uses: Retail, restaurant, personal services, one-third share of downtown banking & financial services uses.

**Assumed "typical" upper floor uses: Office, government, two-thirds share of downtown banking/financial services uses, nonprofit uses (exclusive of places of worship).

Factors exclude City and County government employment (accounted for separately for Ecopass purposes).

Source: DUHMD/PS and DBI Ecopass and Tenant databases; RRC Associates.

A set of "low," "midpoint" and "high" employment scenarios were developed corresponding to the low, high, and midpoint employment intensity measures described above. As illustrated in Table 8 to follow, between 2015 and buildout, the CAGID area is projected to add 3,036 to 3,847 jobs (midpoint estimate 3,442 jobs), depending on the employment intensity assumptions used.

Table 8
Projected Incremental Jobs (Low, Midpoint, and High) by Time Period (2016 to Buildout)

	Built 2016-20			Built 2021-25		Built 2026+		Total incremental: 2015 to buildout (2035)
	First Floor	Upper Floors	Hotel/Civic Pad	First Floor	Upper Floors	First Floor	Upper Floors	
Nonresidential Square Footage:								
Gross nonresidential sqft	91,365	352,745	58,000	209,854	66,808	126,195	347,624	1,252,591
* 85% leasable area	85%	85%	n/a	85%	85%	85%	85%	n/a
* 95% occupancy rate	95%	95%	n/a	95%	95%	95%	95%	n/a
= Occupied (net) nonresidential sqft	73,777	284,842	58,000	169,457	53,947	101,902	280,706	1,022,632
Employment Generation Rates:								
Jobs/1000 net sqft: historic minimum (est.)	4.45	2.70	assume 30 jobs	4.45	2.70	4.45	2.70	n/a
Jobs/1000 net sqft: historic maximum (est.)	5.10	3.60	assume 30 jobs	5.10	3.60	5.10	3.60	n/a
Projected Employment:								
Minimum projected employment	328	769	30	457	240	454	758	3,036
Midpoint projected employment	352	897	30	534	258	487	884	3,442
Maximum projected employment	376	1,025	30	610	275	520	1,011	3,847

Source: RRC Associates; DUHMD/PS and DBI Ecopass and Tenant databases.

Step 6: Project future incremental residential units

Incremental future residential units were projected based on the following assumptions regarding residential space:

- Deduct 15 percent of gross residential space for hallways, stairways, and related common areas.
- Divide remaining square footage by an assumed average of 1,732 square feet per unit (the approximate average size of the 217 CAGID residential units built in the 1998 – 2015 period).

Table 9
Residential Unit Assumptions for New Residential Development

Share of gross sqft used for common areas, access, etc.	15%
Average unit size (sqft):	1732

Source: RRC Associates; Boulder County Assessor database.

Additional background: development and employment data and trends

This section of the report contains additional background data on various development and employment trends. The data is intended to provide an additional frame of reference for some of the buildout assumptions used in the analysis, including assumptions regarding intensity, use mix, timing of development, and employment.

Projects built or under construction in CAGID since 2013 analysis

Since the last round of CAGID buildout projections were prepared in 2013, one major project has been completed (26 apartments at 1707 Walnut), and five major projects are currently under construction (or very recently completed), as summarized in Table 10 to follow. Altogether, three of the projects are in the DT-2 zone and three are in DT-5. Collectively, these six projects account for approximately 339,155 square feet, including 298,572 square feet of nonresidential development (87 percent of total) and 42,583 square feet of residential development (13 percent of total). The DT-2 projects will collectively build very close to the maximum allowable FAR (FAR 1.99 vs. 2.0 maximum). The DT-5 projects will build to a proposed above-grade FAR of 2.56 and a total (above and below grade, excluding parking) FAR of 2.86, as compared to the legal maximum above-grade FAR of 2.7. Several of the projects will involve significant amounts of parking, while some will provide no parking or reduced parking from existing conditions.

Table 10
Projects Built or Under Construction in CAGID Since 2013 Buildout Update

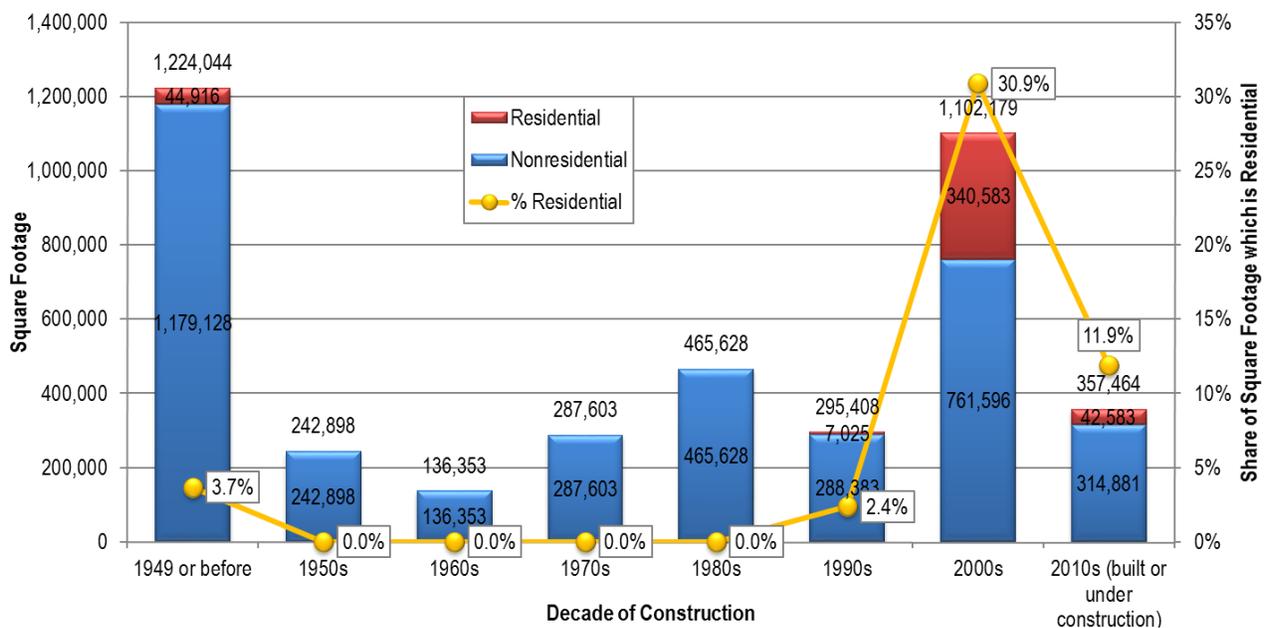
Address	Zone	Site sqft	SQFT AT BUILDOUT (excluding parking)					Buildout Res. units	Max allowable FAR (w/ additions)	Proposed above-grade FAR (ex. prkg)	Proposed total FAR (excl. pkg)	Parking spaces
			Total (above & below grade)	Above grade	Below grade	Non-residential	Residential					
1707 Walnut	DT-2	14,096	28,098	28,098	0	0	28,098	26	2.0	1.99	1.99	26
1738 Pearl	DT-2	21,132	42,000	42,000	0	42,000	0	0	2.0	1.99	1.99	25
901 Pearl	DT-2	10,803	21,632	21,632	0	7,147	14,485	4	2.0	2.00	2.00	13
DT-2 total		46,031	91,730	91,730	0	49,147	42,583	30	2.0	1.99	1.99	38
1048 Pearl	DT-5	59,266	173,446	159,934	13,512	173,446	0	0	2.7	2.70	2.93	271
1301 Walnut	DT-5	21,037	59,505	47,128	12,377	59,505	0	0	2.7	2.24	2.83	10
909 Walnut	DT-5	6,300	14,474	14,474	0	14,474	0	0	2.7	2.30	2.30	0
DT-5 total		86,603	247,425	221,536	25,889	247,425	0	0	2.7	2.56	2.86	281
Grand Total		132,634	339,155	313,266	25,889	296,572	42,583	30	n/a	2.36	2.56	319

Source: City of Boulder Planning and Development Services; RRC Associates.

Long-term historic development patterns in CAGID

Figure 5 to follow illustrates the decade of construction and use mix of buildings in CAGID, including buildings currently under construction.

Figure 5
Decade of Construction and Use Mix of Buildings in CAGID (Existing and Under Construction)



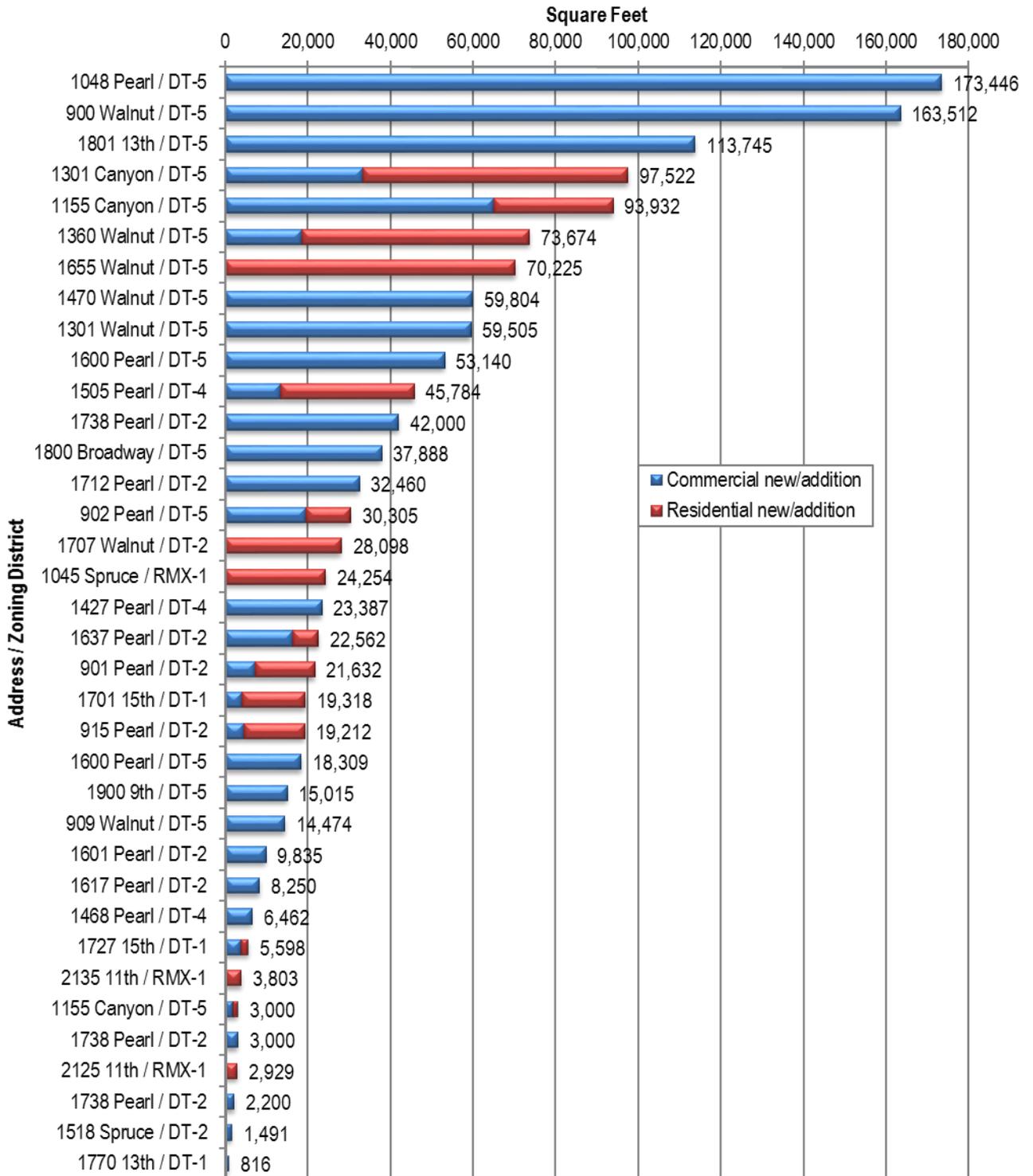
Source: Boulder County Assessor; City of Boulder building permits; RRC Associates

Among the patterns of interest, Figure 5 shows a burst of development in the 2000s, when approximately 1.1 million sqft was constructed, of which a relatively high share of 31 percent was residential and 69 percent was nonresidential. The surge of total development and residential development relative to preceding years was likely influenced by favorable market conditions and changes to zoning regulations (particularly the addition of residential density bonuses beginning in 2000 to encourage more residential units downtown).

Midway through the 2010s decade, development completed or under construction to date totals approximately 357,000 sqft, with 12 percent residential and 88 percent nonresidential. (Note that the zoning code was revised in 2011 to add a floor area addition up to a maximum of 1.0 for commercial uses in DT-5 zone district subject to a housing linkage fee, in part to respond to an expressed community need for more and better office space in the downtown core.) Should development occur at the same pace through the 2016-19 period, total development for the 2010 – 19 decade would total approximately 596,000 sqft, or about 54 percent of the volume experienced in the 2000-09 decade. If this level of development occurs, the 2010s would to have a high volume of construction activity relative to the decades prior to 2000, albeit a lower level of activity than in the 2000s.

Figure 6 to follow shows a listing of 36 newer projects built or under construction in CAGID over the past 19 years (since 1997), including the total size and use mix of each project. The chart illustrates that projects have had a wide range of sizes, although larger projects have accounted for the bulk of the square footage. In particular, the six largest projects have accounted about 51.1 percent of the square footage built since 1997, and the next six largest projects have accounted for an additional 23.6 percent of the square footage. In total, these 12 projects (one third of the total) have accounted for 74.7 percent of the space built.

Figure 6
New and Expanded Buildings in CAGID, 1997 - 2015 (including buildings currently under construction)



Source: City of Boulder building permits; RRC Associates. Excludes garage space and rooftop patios.

Employment trends by sector

Employment in the CAGID area has been tracked over time by DUHMD/PS as part of its processing of Ecopasses. Full-time employees (working at least 25 hours per week and qualifying for Ecopasses) have been documented very accurately, while part-time employees and others not qualifying for Ecopasses (e.g. contractors) have been tracked on a more informal basis, where possible.

Over the 2011 – 15 period, total full- and part-time employment in CAGID (excluding the City of Boulder and Boulder County) is estimated to have risen from 7,744 to 8,643, an increase of 12 percent (Table 11). “Office” types of employment are estimated to have increase by 36 percent, while “non-office” types of employment are estimated to have decreased by 8 percent. Within the office segment, the greatest absolute growth has occurred in the “technology” sector, which has grown by 93 percent (774 employees) since 2011, clearly indicating a boom in that sector. Nonprofits (up 172 percent) and green energy (up 154 percent) have also shown exceptionally strong growth, and professional services and creative services have also shown significant growth. By contrast, personal services and “other” employment have declined significantly, and restaurants, financial services, architectural and building services, and government employment (other than City and County employment, for which historic data is not currently available) have dipped more slightly.

Among the categories listed, restaurants are the biggest employer (2,171 jobs in 2015), followed by technology (1,610), retail (1,006), creative services (837), professional services (777), and financial services (651).

Table 11
Employment in CAGID: 2011 – 2015, by Sector

Space Type	Industry Sector	EMPLOYMENT			CHANGE IN EMPLOYMENT	
		As of 7/1/15	As of 10/23/13	As of 5/25/11	# Change 2011-15	% Change 2011-15
Non-office employment:						
Non-office	Personal Service - Health/Fitness/Spa/Salon/Therapy/Travel	302	334	413	(111)	-27%
Non-office	Restaurant	2,171	2,203	2,216	(45)	-2%
Non-office	Retail	1,006	1,029	967	39	4%
Non-office	Hotel, Other	476	486	708	(232)	-33%
	Non-office total	3,955	4,052	4,304	(349)	-8%
Office employment:						
Office	Government - excluding City & County of Boulder	55	63	70	(15)	-21%
Office	Non-profit (including religious)	269	215	99	170	172%
Office	Office: Architectural/Design/Building/Engineering	235	216	264	(29)	-11%
Office	Office: Creative Services - Marketing/design/advertising/video/web	837	883	740	97	13%
Office	Office: Financial services - Bank/brokerage/financial planning	651	615	694	(43)	-6%
Office	Office: Green/Energy - solar/wind/etc.	231	199	91	140	154%
Office	Office: Professional Services - Legal/Accounting/Real Estate	777	712	622	155	25%
Office	Office: Technology	1,610	1,182	836	774	93%
Office	(Blank / unassigned)	23	25	24	(1)	-4%
	Office total	4,688	4,110	3,440	1,248	36%
	Grand total - excluding City and County of Boulder	8,643	8,162	7,744	899	12%
	City of Boulder: Non-office (library, senior center, police, parking)	25	n/a	n/a	n/a	
	City of Boulder: Office	38	n/a	n/a	n/a	
	Boulder County	250	n/a	n/a	n/a	
	Grand total - including City and County of Boulder	8,956	n/a	n/a	n/a	

Source: DUHMD/PS Ecompass database; City of Boulder Facilities Management; Boulder County Human Resources; RRC Associates. Shifts in some categories, such as "other," may in part be influenced by reclassifications.

Additional employment characteristics by sector

Table 12 to follow illustrates the mix of full time and part-time employees by sector, as well as employment intensity rates (employees per square foot) by sector as of 2015. As shown, "non-office" sectors (as defined in the illustrated groupings) have a mix of 55 percent full-time employees and 45 percent part-time employees. The grouping averages 4.29 employees per 1,000 leased square feet, with very wide differences between sectors (varying from 8.27 employees/1000 sqft for restaurants, to 1.94 employees /1000 sqft for hotel/post office/other).

"Office" sectors in aggregate have a higher share of full-time employees (84 percent) and lower share of part-time employees (16 percent) than non-office sectors. In aggregate, office sectors also have lower employment intensity, averaging 3.03 employees per 1000 sqft of leased space. The largest sector, "technology", is estimated to have an average employment intensity of 3.69 employees per 1000 leased sqft.

In aggregate, CAGID as a whole is estimated to have approximately 3.50 employees per 1000 sqft of leased nonresidential space, or about 285 sqft of leased space per employee.⁴

Table 12
Employment Characteristics by Sector, 2015

Space Type	Industry Sector	CAGID employment (excl. CAPs)				Employees per 1000 leased sqft**	Leased sqft per Employee**
		Full-time*	Part-time*	Total	% Part-time*		
Non-office employment:							
Non-office	Personal Service - Health/Fitness/Spa/Salon/Therapy/Travel	211	91	302	30%	4.43	226
Non-office	Restaurant	1,104	1,067	2,171	49%	8.27	121
Non-office	Retail	511	495	1,006	49%	3.02	331
Non-office	Hotel, Post Office, Other	369	143	512	28%	1.94	517
Non-office	City of Boulder: Non-office (library, senior center, police, parking)	n/a	n/a	25	n/a	n/a	n/a
Non-office total		2,195	1,796	4,016	45%	4.29	233
Office employment:							
Office	City of Boulder: Office	n/a	n/a	38	n/a	n/a	n/a
Office	Government - excluding USPS & City of Boulder	n/a	n/a	269	n/a	n/a	n/a
Office	Non-profit (including religious)	194	75	269	28%	1.57	636
Office	Office: Architectural/Design/Building/Engineering	213	22	235	9%	3.88	257
Office	Office: Creative Services - Marketing/design/advertising/video/web	732	105	837	13%	3.69	271
Office	Office: Financial services - Bank/brokerage/financial planning	518	133	651	20%	2.24	446
Office	Office: Green/Energy - solar/wind/etc.	212	19	231	8%	4.80	208
Office	Office: Professional Services - Legal/Accounting/Real Estate	667	110	777	14%	2.68	373
Office	Office: Technology	1,347	263	1,610	16%	3.69	271
Office	(Blank / unassigned)	18	5	23	22%	n/a	n/a
Office total		3,901	732	4,940	16%	3.03	330
Grand total		6,096	2,528	8,956	29%	3.50	285

*Full-time and part-time employment counts exclude City and County employees, and selected other government employers.

**Employees intensity assumptions based on subset of Ecompass database records for which both employment and leased sqft is available.

Source: DUHMD/PS Ecompass database; RRC Associates.

CAP DEVELOPMENT PROJECTIONS

This section of the report summarizes development projections for the East and West CAP areas. This includes the portions of the East CAP which lie within CAGID. However, it excludes the West CAP's "civic use pad," located next to the St. Julien Hotel; unless noted otherwise, the civic pad is excluding from the CAP discussion below (since it has been included in the CAGID projections).

⁴ For additional context, current BVCP buildout projections assume 3.51 employees per 1000 gross sqft of nonresidential floor area in the DT-1 through DT-5 zoning districts. Additionally, the 2016 City of Boulder development impact fee study currently underway assumes future employment intensities citywide of 2.51 employees / 1000 gross nonresidential sqft for retail/restaurant/service, and 3.59 employees/1000 gross nonresidential sqft for office. These figures are not fully comparable to the figures shown in Table 12 and Table 7, insofar as those results are based on leased, occupied sqft (rather than gross sqft), as well as differences in the geographic areas included (in the case of the impact fee study).

Current building and employment data for the CAP areas has been gathered from Boulder County Assessor records, the CAGID Ecopass database, and City of Boulder Facilities Management. Future projections regarding development density, uses, and timing are based on CAP documentation and input from city staff, and are subject to change insofar as the mix and sizing of the components of the CAP plans have yet to be fully determined.

Projected built square footage

Table 13 below summarizes the various development components being considered for the CAP areas, again keeping in mind that the selection and sizing of components has yet to be finalized. Two groups of options are being considered, each of which has low and high development scenarios, for four total alternatives. In addition, one of the potential project components is envisioned as either a hotel or apartments, adding an additional layer of alternatives with regards to use mix. Summary square footages are shown both including and excluding the proposed development for the civic use pad.

Table 13

Projected development at buildout in East and West CAP areas

(Note: Actual development could differ, depending on the mix and size of project components that get built)

		SQUARE FEET AT BUILDOUT			
		Option A		Option B	
Location	Use	Low SF	High SF	Low SF	High SF
East CAP	Public market	9,000	15,000	9,000	15,000
East CAP	Municipal office - core services	0	0	80,000	120,000
East CAP	Private office	50,000	100,000	50,000	100,000
East CAP	Hotel or apartments (100-200 rooms/dwellings)	100,000	200,000	100,000	200,000
East CAP	Existing Teahouse	4,000	4,000	4,000	4,000
East CAP	BMOCA (currently 16000 sqft)	16,000	26,000	16,000	16,000
East or West CAP	Performing arts center (500-700 seats)	50,000	70,000	50,000	70,000
West CAP	Existing library (includes Canyon Theatre & art space)	84,000	84,000	84,000	84,000
West CAP	Existing Senior Center	16,000	16,000	16,000	16,000
West CAP	Senior Center Expansion	14,000	24,000	14,000	34,000
West CAP	N. of Canyon: Gallery - arts - events	10,000	10,000	10,000	10,000
West CAP	N. of Canyon: Hotel expansion (~30 rooms)	48,000	48,000	48,000	48,000
West CAP	Municipal building (municipal court? museum?)	24,000	24,000	24,000	24,000
TOTAL SQFT		425,000	621,000	505,000	741,000
Total nonresidential		325,000 - 425,000	421,000 - 621,000	405,000 - 505,000	541,000 - 741,000
Total residential		0 - 100,000	0 - 200,000	0 - 100,000	0 - 200,000
TOTAL SQFT - excluding civic pad N. of Canyon		367,000	563,000	447,000	683,000
Total nonresidential - excluding civic pad N. of Canyon		267,000 - 367,000	363,000 - 563,000	347,000 - 447,000	483,000 - 683,000
Total residential - excluding civic pad N. of Canyon		0 - 100,000	0 - 200,000	0 - 100,000	0 - 200,000

Source: PDS staff; RRC Associates.

Excluding the civic use pad, total development at buildout is projected to range from 367,000 to 683,000 sqft across the alternatives, including 267,000 – 683,000 nonresidential sqft, and 0 – 200,000 residential sqft. It should be noted that actual development could be less (and below the low end projections), if some components do not get built or have smaller sizes.

Table 14 below illustrates projected development in the CAP areas, along with existing built square footage, for the various alternatives under consideration. The CAP areas are estimated to currently have approximately 220,148 built square feet, of which approximately 201,525 sqft is nonresidential and 18,623 sqft is residential. Relative to this existing level of development, incremental additional development projected in the future is projected to range from approximately 147,000 sqft to 463,000 sqft, of which approximately 65,000 – 481,000 is nonresidential, and (19,000) to +181,000 is projected to be residential. (Note that future plans envision the removal of the existing Park Central and New Britain buildings, and the potential redevelopment and/or expansion of several other properties in the CAPs area.)

**Table 14
Existing and Projected Built Square Footage in CAP Areas**

Area	Land Area (Sqft)	EXISTING (2015) BUILT SQFT (excluding parking garages)			PROJECTED FUTURE INCREMENTAL CONSTRUCTION (excluding parking garages)			PROJECTED SQFT AT BUILDOUT (excluding parking garages)		
		Non-residential	Residential	Total	Non-residential	Residential	Total	Non-residential	Residential	Total
EAST AND WEST CAP AREAS (excluding Civic Pad)										
Option A - low sqft	TBD	201,525	18,623	220,148	65,475 -	(18,623) -		267,000 -		
					165,475	81,377	146,852	367,000	0 - 100,000	367,000
Option A - high sqft	TBD	201,525	18,623	220,148	161,475 -	(18,623) -		363,000 -		
					361,475	181,377	342,852	563,000	0 - 200,000	563,000
Option B - low sqft	TBD	201,525	18,623	220,148	145,475 -	(18,623) -		347,000 -		
					245,475	81,377	226,852	447,000	0 - 100,000	447,000
Option B - high sqft	TBD	201,525	18,623	220,148	281,475 -	(18,623) -		483,000 -		
					481,475	181,377	462,852	683,000	0 - 200,000	683,000

Source: Boulder County Assessor; City of Boulder Facilities Management; CAP documentation; PDS staff; RRC Associates.

Projected timing of development

Timing assumptions were estimated by PDS staff for the various project components, assuming the project components get built (not a given). The timing assumptions were expressed in terms of the probability that the respective elements would get built in the three respective time periods, as shown in Table 15 to follow.

Based on these probabilities, projected incremental development by time period is shown in Table 16 to follow. As illustrated, a net total of 22,700 – 62,500 sqft is projected to be added in

the 2016-20 period; 124,326 – 350,926 sqft is projected to be added in the 2021-25 period; and (174) – 49,426 sqft is projected to be added beyond 2025. Note that these square footages are net incremental, and thus represent the difference between new buildings added and old buildings removed. Additionally, the amount of development by time period will likely differ in practice, as these results are for modeling purposes and based on probabilities (with potential new buildings pro-rated across time periods).

Table 15
Timing Assumptions for Project Components in the East and West CAP Areas

Location	Use	If project occurs, likelihood of occurring in:		
		2016-20	2021-25	2026+
East CAP	Public market	30%	60%	10%
East CAP	Municipal office - core services	20%	70%	10%
East CAP	Private office	20%	70%	10%
East CAP	Hotel or apartments (100-200 rooms/dwellings)	0%	80%	20%
East CAP	Existing Teahouse	Existing	Existing	Existing
East CAP	BMOCA expansion	0%	50%	50%
East or West CAP	Performing arts center (500-700 seats)	20%	70%	10%
West CAP	Existing library (includes Canyon Theatre & art space)	Existing	Existing	Existing
West CAP	Existing Senior Center	Existing	Existing	Existing
West CAP	Senior Center Expansion	0%	50%	50%
West CAP	N. of Canyon: Gallery - arts - events	80%	20%	0%
West CAP	N. of Canyon: Hotel expansion (~30 rooms)	80%	20%	0%
West CAP	Municipal building (municipal court? museum?)	Existing	Existing	Existing

Source: PDS staff; RRC Associates.

Table 16
Projected Incremental Development by Time Period in the East and West CAP Areas

	Existing built sqft	Incremental 2016-20	Incremental 2021-25	Incremental 2026+	Total incremental (existing to buildout)	Buildout sqft (existing + incremental)
CAP - HOTEL SCENARIO:						
Nonresidential	201,525	22,700 - 62,500	133,638 - 360,238	9,138 - 58,738	165,475 - 481,475	367,000 - 683,000
Residential	18,623	0	-9,312	-9,312	-18,623	0
<i>Total</i>	<i>220,148</i>	<i>22,700 - 62,500</i>	<i>124,326 - 350,926</i>	<i>-174 - 49,426</i>	<i>146,852 - 462,852</i>	<i>367,000 - 683,000</i>
CAP - APARTMENT SCENARIO:						
Nonresidential	201,525	22,700 - 62,500	53,638 - 200,238	-10,863 - 18,738	65,475 - 281,475	167,000 - 583,000
Residential	18,623	0	70,689 - 150,689	10,689 - 30,689	81,377 - 181,377	100,000 - 200,000
<i>Total</i>	<i>220,148</i>	<i>22,700 - 62,500</i>	<i>124,326 - 350,926</i>	<i>-174 - 49,426</i>	<i>146,852 - 462,852</i>	<i>367,000 - 683,000</i>

Source: PDS staff; RRC Associates.

Projected employment and residential units

Within the CAP areas, incremental future employment was projected based on RRC and PDS staff assumptions regarding employment:sqft ratios for the respective types of uses, as summarized in Table 17 below.

Table 17
Employment Assumptions for Incremental New Nonresidential Development (inside of CAP areas)

Component	Assumed employees/1000 gross sqft
Public market	5
Municipal office	2.8
Private office	2.8
Hotel	1 employee/unit
Expanded BMOCA	0.5
Performing arts center	0.5
Gallery - arts related	1
Senior Center	1

Source: RRC Associates; PDS staff.

Based on the employment assumptions outlined above, total employment at buildout is projected to range from 453 to 1,189, depending on the development scenario. By comparison, there are an estimated 441 employees working in the CAP areas today. Incremental additional employment added between existing conditions and buildout is projected to range from 12 to 748 employees. Note that actual buildout employment could be less (and potentially below the projections outlined here), insofar as some project components may not get built or may be downsized.

Table 18
Existing Employment and Projected Employment at Buildout

	EMPLOYEES - AT BUILDOUT			
	Option A		Option B	
	Low SF	High SF	Low SF	High SF
Existing employment	441	441	441	441
Incremental employment to buildout: hotel scenario	112	407	336	748
Incremental employment to buildout: apartments scenario	12	207	236	548
Total employment at buildout: hotel scenario	553	848	777	1,189
Total employment at buildout: apartments scenario	453	648	677	989

Source: RRC Associates; PDS staff; City of Boulder Facilities Management; DUHMD/PS Ecopass database.

With regards to residential units, there are currently estimated to be 25 residential units in the CAP areas, including 14 units at the Arapahoe Court apartments and 11 privately owned units. Projected units at buildout are projected to range from 0 to 200 units, depending on whether

the apartment scenario is built or not, and the number of units included in the apartments, if built (currently assumed to range between 100 and 200 units).

COMBINED CAGID/CAP DEVELOPMENT PROJECTIONS

Summary of development projections

Development projections for the combined CAGID/CAP area are based on summing the results of the CAGID and CAP projections respectively. Key results are summarized in Table 19 below and the text which follows.

Table 19
Existing Conditions and Projected Buildout: CAGID/CAP Areas

	Existing	Incremental to Buildout		Buildout		Existing as a % of Buildout		% Change: Incremental vs. Existing	
		Low	High	Low	High	Low	High	Low	High
Built sqft by area:									
CAGID N of Canyon (incl. civic pad)	3,430,553	1,120,130	1,120,130	4,550,683	4,550,683	75%	75%	33%	33%
CAGID S of Canyon (excl. CAPs)	160,698	487,374	487,374	648,072	648,072	25%	25%	303%	303%
East & West CAPs	<u>220,148</u>	<u>146,852</u>	<u>462,852</u>	<u>367,000</u>	<u>683,000</u>	<u>60%</u>	<u>32%</u>	<u>67%</u>	<u>210%</u>
CAGID/CAPs total	3,811,399	1,754,356	2,070,356	5,565,755	5,881,755	68%	65%	46%	54%
Built sqft by use:									
Nonresidential sqft	3,383,816	1,318,066	1,734,066	4,701,882	5,117,882	72%	66%	39%	51%
Residential sqft	<u>427,583</u>	<u>336,291</u>	<u>536,291</u>	<u>763,874</u>	<u>963,874</u>	<u>56%</u>	<u>44%</u>	<u>79%</u>	<u>125%</u>
Total sqft	3,811,399	1,754,356	2,070,356	5,565,755	5,881,755	68%	65%	46%	54%
Employees:									
	9,397	3,048	4,595	12,445	13,992	76%	67%	32%	49%
Residential units:									
	285	149	349	434	634	66%	45%	52%	122%

- Existing conditions: The total CAGID/CAP area currently has approximately 3.81 million square feet of developed residential and nonresidential floor area (excluding parking garages). This includes approximately 428,000 sqft of residential floor area (11 percent of total), and 3.38 million sqft of nonresidential floor area (89 percent of total).

Of the 3.81 million existing square feet, approximately 220,000 sqft is located in the CAP areas (6 percent), while 3.59 million (94 percent) is in CAGID (excluding the portions of CAGID in the east and west CAP areas).

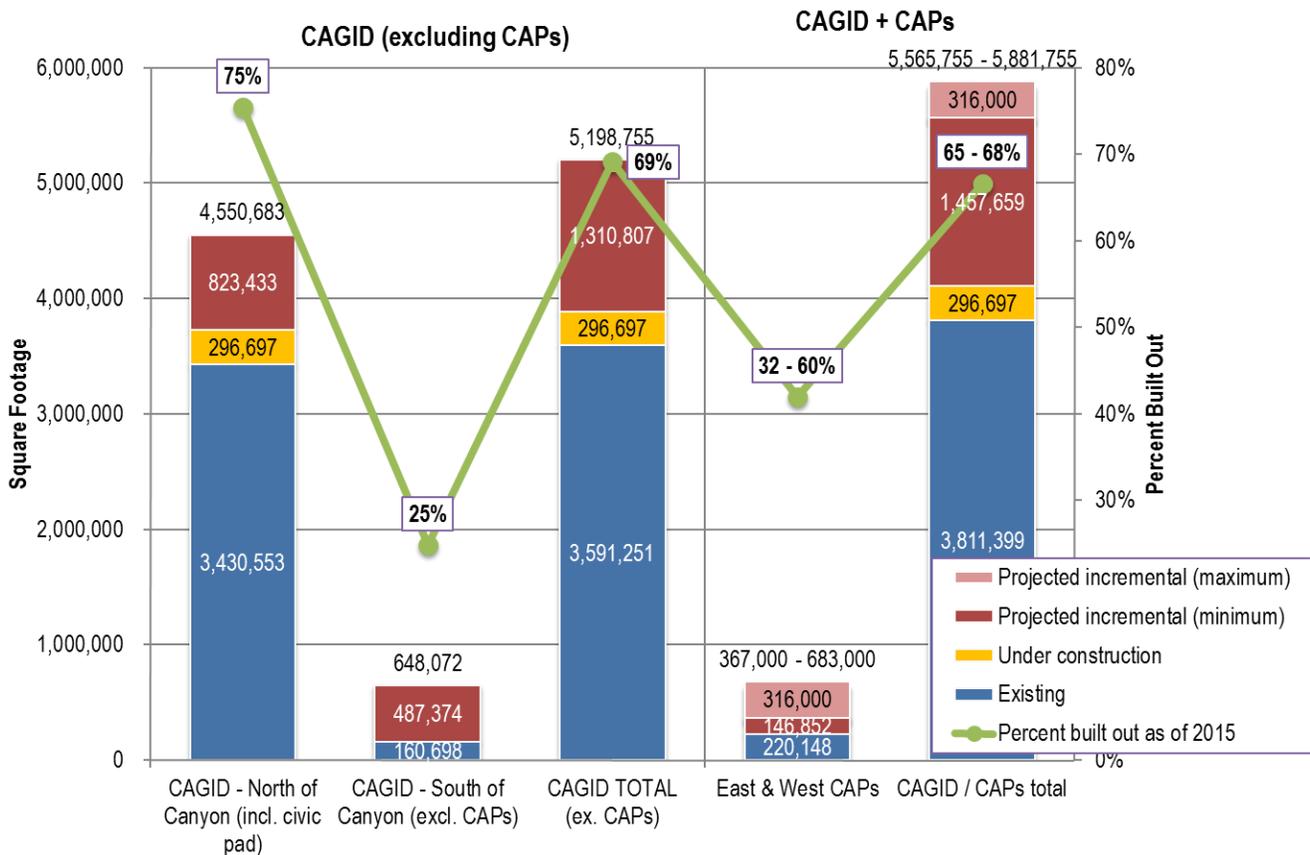
The CAGID/CAP areas are also estimated to currently have approximately 9,397 employees (including 8,956 in CAGID and 441 in the CAPs). The combined area is also

estimated to currently have 285 housing units (including 260 units in CAGID and 25 units in the CAPs).

- **Projected development at buildout:** At buildout, the combined area is projected to have approximately 5.57 to 5.88 million square feet, depending on the CAP development scenario assumed. Total employment at buildout is projected to range between 12,445 and 13,992, and total housing units are projected to range between 434 and 634.
- **Percent change: development at buildout vs. existing conditions:** Depending on the development scenarios assumed, total square footage at buildout is projected to be 46 percent to 54 percent higher than today’s levels. Total employment is projected to be 32 percent to 49 percent higher than today’s levels, and total housing units are projected to be 52 percent to 122 percent higher than today’s count.

Figure 7 below graphically illustrates existing and projected square footage by location, including existing square footage, square footage under construction, and additional square feet to buildout, with minimum and maximum buildout levels varying depending on the CAP development program assumed.

Figure 7
Existing and Projected Square Footage in CAGID/CAP Area, by Location



Comparison of 2015 and 2013 development projections

As a reasonableness check and for comparison purposes, Table 20 below illustrates development projections prepared in the current (2015) and previous (2013) round of updates. As shown, each of the measures tracked shows some degree of change, including the following:

- **Existing development:** Existing development in CAGID has increased slightly from 2013 as a result of new construction, as well as updated estimates of the square footage of preexisting buildings in the Assessor's database. Total housing units have increased by an estimated 26 units. Total employment has increased by an indeterminate amount (since City of Boulder and Boulder County employment in CAGID were not tabulated in 2013).
- **Projected development at buildout (low and high scenarios):** Projected development at buildout has increased slightly in CAGID, as a result of slight increases in the base amounts of square footage estimated by the Assessor, and slight increases in projected future incremental development (driven by changes in the underlying development assumptions and factors). By contrast, projected development in the CAP areas has diminished somewhat, as a result of scaling back some of the development assumptions (e.g. dropping the potential for up to 100 new senior housing units near the senior center). Total housing units are also projected to have declined, particularly in the high buildout scenario, in large part due to this shift.

Table 20
Comparison of 2015 and 2013 Development Projections: CAGID/CAP Areas

	Existing development			Low Buildout Scenario			High Buildout Scenario		
	2015	2013	% Chg	2015	2013	% Chg	2015	2013	% Chg
Built sqft by area:									
CAGID N of Canyon (incl. civic pad)	3,430,553	3,270,377	4.9%	4,550,683	4,354,147	4.5%	4,550,683	4,354,147	4.5%
CAGID S of Canyon (excl. CAPs)	160,698	159,385	0.8%	648,072	644,110	0.6%	648,072	644,110	0.6%
East & West CAPs	220,148	220,148	0.0%	367,000	390,472	-6.0%	683,000	801,472	-14.8%
CAGID/CAPs total	3,811,399	3,649,910	4.4%	5,565,755	5,388,729	3.3%	5,881,755	5,799,729	1.4%
Built sqft by use:									
Nonresidential sqft	3,383,816	3,263,762	3.7%	4,740,576	4,502,178	5.3%	5,156,576	4,926,178	4.7%
Residential sqft	427,583	386,148	10.7%	778,551	786,551	-1.0%	963,874	1,073,551	-10.2%
Total sqft	3,811,399	3,649,910	4.4%	5,565,755	5,388,729	3.3%	5,881,755	5,799,729	1.4%
Employees:									
	9,397	TBD	TBD	12,445	TBD	TBD	13,992	TBD	TBD
Residential units:									
	285	259	10.0%	434	442	-1.8%	634	742	-14.6%

Downtown TDM Program Impacts on Peak Hour Commute Trips

Employment	Current Year	2020 low	2020 high	2025 low	2025 high	2035 low	2035 high
Estimated Downtown Employment	8,956	10,083	10,388	10,781	11,273	11,992	12,803
Change in Employment from 2015		1,127	1,432	1,825	2,317	3,036	3,847
Individual TDM Strategy	Current Year	2020 low	2020 high	2025 low	2025 high	2035 low	2035 high
Parking Cash Out: \$1 with increasing participation; 5% in 2015; 7.5% in 2020, 10% in 2025; 15% in 2035							
<i>Peak hour Commute Trips Reduced</i>	131	216	223	295	308	444	474
<i>% of Employees Shifting Trips</i>	1.5%	2.1%	2.1%	2.7%	2.7%	3.7%	3.7%
<i>SOV Mode Share Change</i>	-1.9%	-2.7%	-2.7%	-3.5%	-3.5%	-4.7%	-4.7%
Eco Pass Expansion to 16% of employees currently without access to Eco Passes							
<i>Peak hour Commute Trips Reduced</i>	121	172	178	219	229	284	303
<i>% of Employees Shifting Trips</i>	1.4%	1.7%	1.7%	2.0%	2.0%	2.4%	2.4%
<i>SOV Mode Share Change</i>	-1.5%	-1.9%	-1.9%	-2.3%	-2.3%	-2.7%	-2.7%
Average Daily Parking Pricing Increase: 2015 \$.50; 2020 \$1; 2025 \$1; 2035 \$1.50							
<i>Peak hour Commute Trips Reduced</i>	121	277	286	297	310	505	539
<i>% of Employees Shifting Trips</i>	1.3%	2.7%	2.7%	2.8%	2.7%	4.2%	4.2%
<i>SOV Mode Share Change</i>	-1.6%	-3.2%	-3.2%	-3.2%	-3.2%	-4.9%	-4.9%
Combined TDM Strategies	Current Year	2020 low	2020 high	2025 low	2025 high	2035 low	2035 high
\$1 Parking Cash Out plus Parking Price Increase. 2015 \$.50 ; 2020 \$1; 2025 \$1; 2035 \$1.50							
<i>Peak hour Commute Trips Reduced</i>	145	244	251	344	360	680	726
<i>% of Employees Shifting Trips</i>	1.6%	2.4%	2.4%	3.2%	3.2%	5.7%	5.7%
<i>SOV Mode Share Change</i>	-2.1%	-3.1%	-3.1%	-4.1%	-4.1%	-7.3%	-7.3%
Parking Price Increase plus Expanded Eco Pass; 2015 \$.50; 2020 \$1; 2025 \$1; 2035 1.50							
<i>Peak hour Commute Trips Reduced</i>	284	460	474	492	515	720	769
<i>% of Employees Shifting Trips</i>	3.2%	4.6%	4.6%	4.6%	4.6%	6.0%	6.0%
<i>SOV Mode Share Change</i>	-3.6%	-5.3%	-5.3%	-5.3%	-5.3%	-7.0%	-7.0%

***Satellite Parking**

Model predicts that 18 percent of eligible employees will choose free parking with a 15 minute increase in travel time