City Council

Agenda

Tuesday, January 21, 2025
Council Chambers
749 Main Street
6:00 PM

Members of the public are welcome to attend and give comments remotely; however, the in-person meeting may continue even if technology issues prevent remote participation.

- *You can call in to +1 719 359 4580 or 877 853 5247 (toll free)*
  Webinar ID #876 9127 0986.
- *You can log in via your computer. Please visit the City's website here to link to the meeting: www.louisvilleco.gov/council*

The Council will accommodate public comments during the meeting. Anyone may also email comments to the Council prior to the meeting at Council@LouisvilleCO.gov.

1. CALL TO ORDER & ROLL CALL

2. PLEDGE OF ALLEGIANCE

3. APPROVAL OF AGENDA

4. PUBLIC COMMENTS ON ITEMS NOT ON THE AGENDA AND ITEMS ON THE CONSENT AGENDA

Public comments are limited to 3 minutes per speaker. When several people wish to speak on the same position on a given item, Council requests they select a spokesperson to state that position.

5. CONSENT AGENDA

The following items on the City Council Agenda are considered routine by the City Manager and shall be approved, adopted, accepted, etc., by motion of the City Council and voice vote unless the Mayor or a City Council person specifically requests an item be considered under "Regular Business." In such an event the item shall be removed from the "Consent Agenda" and Council action taken separately on said item in the order appearing on the Agenda. Those items so approved under the heading "Consent Agenda" will appear in the Council Minutes in their proper order.

A. Approval of Bills
B. National Radon Action Month Proclamation

Citizen Information

If you wish to speak at the City Council meeting in person, please fill out a sign-up card and present it to the City Clerk at the meeting; if you are attending remotely, please use the "raise hand" icon to show you wish to speak in public comments.

Persons planning to attend the meeting who need sign language interpretation, translation services, assisted listening systems, Braille, taped material, or special transportation, should contact the City Clerk's Office (303.335.4536 or 303.335.4574) or ClerksOffice@LouisvilleCO.gov. A forty-eight-hour notice is requested.

Si requiere una copia en español de esta publicación o necesita un intérprete durante la reunión del Consejo, por favor llame a la Ciudad al 303.335.4536 o 303.335.4574 o email ClerksOffice@LouisvilleCO.gov.

C. Approve the City Council 2025 Work Plan
D. Resolution No. 3, Series 2025 – A Resolution Approving an Addendum to the Water Tap Expansion Agreement at 1775 Cherry Street with Fresca Foods Holding Company, LLC
E. Award Contract Between the City of Louisville and RVi Planning + Landscape Architecture for Phase I of the Downtown Public Urban Landscaping and Streetscape Enhancements (PULSE) Project
F. Approval of Colorado Energy Office Decarbonization Grants to Support Internal Decarbonization Plan Implementation
G. Approval to Proceed with Sole Source Purchase of Toro Sentinel Irrigation Controllers

6. COUNCIL INFORMATIONAL COMMENTS AND COMMITTEE REPORTS

7. CITY MANAGER'S REPORT

8. REGULAR BUSINESS

A. DISCUSSION / DIRECTION – COMPREHENSIVE PLAN FUTURE LAND USE

- Staff Presentation
- Public Comments (Please limit to three minutes each)
- Council Questions / Comments / Action

B. ORDINANCE NO. 1876, SERIES 2024 – AN ORDINANCE AMENDING CHAPTER 15.18.030 OF THE LOUISVILLE MUNICIPAL CODE CONCERNING THE 2021 INTERNATIONAL ENERGY CONSERVATION CODE – 2ND READING, PUBLIC HEARING (advertised *Daily Camera* 12/22/24)

- Mayor Opens Public Hearing
- Staff Presentation
- Public Comments (Please limit to three minutes each)
- Council Questions & Comments
- Additional Public Comments (Please limit to three minutes each)
- Mayor Closes Public Hearing
- Action

9. CITY ATTORNEY'S REPORT

10. IDENTIFICATION OF FUTURE AGENDA ITEMS

11. ADJOURN

ITEMS TENTATIVELY SCHEDULED FOR REGULAR MEETING 2/4/2025

This list is not inclusive; items are subject to change; additional items may be added.

- Update Purchasing Policy - 1st Reading
- Home Hardening Amendments – 1st Reading
- Inclusionary Housing Update
- 824 Lee Avenue Minor Subdivision Application
- Summit at Steel Ranch Concept Plan
- Construction Contract for Enclave and Sunflower Parks
- Wastewater Treatment Plant Expansion Contract
- Parks, Recreation, and Open Space Long Range Plan Consultant Contract

CASH ACCOUNT: 001000 101001 WARRANT: 123124B 12/31/2024

VENDOR	VENDOR NAME	PURPOSE	AMOUNT
14164	ALPINE BANK	#5300089001 Solar Panel L	3,729.33
14164	ALPINE BANK	#5300177601 Solar Panel L	5,429.18
14621	CHAD ROOT	Mileage Reimbursement 11/	178.89
14967	CLASSIC CABINETS & DESIGN LLC	50% deposit - Cabinets fo	2,278.00
14967	CLASSIC CABINETS & DESIGN LLC	50% Deposit - Cabinets fo	10,127.35
15523	GOLF GURU LLC	Golf Lessons 12/13/24-12/	70.00
15634	MAUREEN SCHREINER	Golf Lessons 12/14/24-12	168.00
99999	REGINA BERRY	Mileage Reimbursement	78.39
99999	PAIGE STONARD	Mileage Remibursement	72.36
99999	PIA R. GRIFFITH	Mileage Reimbursement 10/	151.42
10951	PINNACOL ASSURANCE	Policy #4206615	22,606.21
14690	VELOCITY CONSTRUCTORS INC	2024 SCWTP Filter Media R	136,308.85
10884	WORD OF MOUTH CATERING INC	Lunches Ordered 12/19/24-	2,157.50
	13 INVOICES	WARRANT TOTAL	183,355.48

CASH ACCOUNT: 001000 101001 WARRANT: 010925 01/09/2025

VENDOR	VENDOR NAME	PURPOSE	AMOUNT
14038	ERIK SWIATEK	Travel Advance - Jan 12-1	200.00
5255	FAMILY SUPPORT REGISTRY	Payroll Run 1 - Warrant 0	173.53
15921	MANY WINDS ENTERTAINMENT	2nd Payment - 1/16/25 Per	400.00
14768	MOJOS CLEANING SERVICES INC	Janitorial Service - Jan	36,308.00
99999	ABBY MCNEAL	Travel Advance - Jan 12-1	200.00
10884	WORD OF MOUTH CATERING INC	Lunches Ordered 1/2/25-1/	1,916.75
	6 INVOICES	WARRANT TOTAL	39,198.28

CASH ACCOUNT: 001000 101001 WARRANT: 123124D 12/31/2024

VENDOR	VENDOR NAME	PURPOSE	AMOUNT
14955	CARANCI INC	Police Department e-Bike	5,182.20
14036	CENTER COPY BOULDER INC	2024/25 Winter Newsletter	6,795.10
14036	CENTER COPY BOULDER INC	Fowlkes Business Cards	42.88
14036	CENTER COPY BOULDER INC	Polk/Dahlia Mailing	701.30
14036	CENTER COPY BOULDER INC	Nettleton and Hoogenboom	54.03
15152	MIKE MAROONE FORD LONGMONT	Police Vehicle Repairs	3,931.19
99999	AMY ENKE	Mileage Reimbursement 10/	64.45
99999	HADLEY KLUBER SEIFERT	Mileage Reimbursement 12/	42.21
99999	SOPHIA IMPERIOLI	Mileage Reimbursement 202	55.34
3735	PETTY CASH	Petty Cash Replenishment	417.60
10	INVOICES	WARRANT TOTAL	17,286.30

CASH ACCOUNT: 001000 101001 WARRANT: 012125 01/21/2025

VENDOR	VENDOR NAME	PURPOSE	AMOUNT
15803	AUSMUS LAW FIRM, P.C.	Prosecuting Attorney Serv	1,500.00
15892	BROWN & BROWN INSURANCE SERVIC	Consulting Fee - 1/1/25-1	13,500.00
248	CDW GOVERNMENT	CUST #5143572 LENOVO LAP	1,406.26
248	CDW GOVERNMENT	CUST #5143572 WARRANTY -	293.34
10773	CENTRIC ELEVATOR CORP	ACCT #156501 JOB #3757	333.75
10773	CENTRIC ELEVATOR CORP	ACCT #156502 JOB #4822	624.07
10773	CENTRIC ELEVATOR CORP	ACCT #156600 JOB #265	365.35
10773	CENTRIC ELEVATOR CORP	ACCT #164400 JOB #1427	371.98
4785	CINTAS CORPORATION #66	CUST #12522401	301.09
12676	CIVIC RESULTS	Metro Mayors Caucus Annua	2,652.70
1120	COLORADO ANALYTICAL LABORATORY	WWTP - INFLUENT - WEEKLY	180.20
11346	COLORADO COMMUNICATIONS & UTIL	Annual Dues 2025	1,100.00
1250	COLORADO MUNICIPAL LEAGUE	2025 Membership Dues	20,527.00
15611	CONTROLOGY STUDIO LLC	JAN 2025 CONTROLOGY PILAT	784.00
15382	DELLACAVA/TEBO DEVELOPMENT CO.	FEB 2025 1805 HWY 42, SU	5,746.96
14760	GRANICUS LLC	Engagement HQ Annual Subs	12,850.12
15235	GRAVES CONSULTING LLC	1 OF 4 INVOICES FOR 2025	3,500.00
14735	JO-ANN STORES LLC	CUST #10517 CREATIVE BUG	1,350.00
15942	KIDCREATE STUIDIO - DENVER SOU	AURORA BOREALIS 1/6/25	462.00
13692	LIGHTNING MOBILE SERVICES LLC	LIBRARY SWEEPING JAN, MAR	335.00
15145	LOGICAL CONCEPTS INC	OmniBeacon Service and Re	442.00
6939	MCCANDLESS TRUCK CENTER LLC	Utilities Vehicle #3424 M	17.35
15526	MINES AND ASSOCIATES INC.	EAP 10 Session Model - 1/	1,686.40
99999	THOMAS YARNELL	DEVELOPERS GUARANTEE REIM	8,000.00
99999	CHRIS EPP	REFUND LOUISVILLE REC CEN	441.00
11307	PROQUEST LLC	2025 ACCT #165364	4,560.22
15131	RACE FORWARD	2025 GARE Membership Dues	1,000.00
14200	RAMAKER & ASSOCIATES INC	CIMS Cloud Hosting and Su	1,187.50

CASH ACCOUNT: 001000 101001 WARRANT: 012125 01/21/2025

VENDOR	VENDOR NAME	PURPOSE	AMOUNT
14560	SAMEDAY OFFICE SUPPLY	ACCT #A12877 PW NEW WORK	1,924.00
14560	SAMEDAY OFFICE SUPPLY	ACCT #A12877	-359.00
14612	SOME LIKE IT GREEN, LLC	JAN 2025 PLANT CARE MAINT	90.00
15899	TADD MOSKAL FINE ART	1ST HALF PAYMENT - RESILI	462.50
6609	THE TRAVELERSE INDEMNITY COMPA	Cyber Liability Insurance	29,248.00
14065	TYLER TECHNOLOGIES INC	Biometric Reader Maintena	271.00
13790	ZAYO GROUP LLC	JAN 2025 ACCT #018253	3,935.00
	35 INVOICES	WARRANT TOTAL	121,089.79

CASH ACCOUNT: 001000 101001 WARRANT: 123124C 12/31/2024

VENDOR	VENDOR NAME	PURPOSE	AMOUNT
9751	ADAMS COUNTY	Customer #385137	1,400.00
4160	ALARM DETECTION SYSTEMS, INC.	FIRE ALARM DEPOSIT ACCT	516.50
15873	AMBIENTE H2O INC.	PROBE CAST IRON HEAD	1,258.78
12150	ANIMAL & PEST CONTROL SPECIALI	2024 Prairie Dog Manageme	3,600.00
15930	ARGIS SOLUTIONS, INC	ARC GIS Software Upgrade	57.00
8933	ARKANSAS VALLEY SEED INC	Acct #5413 - Restoration,	1,904.00
15854	ASCENT GROUP INC.	LIBRARY PARKING GARAGE ST	1,500.00
10801	BADGER METER INC	Customer #51080	109.20
15255	GREEN LANDSCAPE SOLUTION	Median Landscape Renovati	25,042.68
15910	BOB MURRAY & ASSOCIATES	City Manager Recruiting S	7,070.00
640	BOULDER COUNTY	BOULDER COUNTY USE TAX DE	55,069.68
1122	BRETSA	Language Line Charges - B	81.06
9838	BRIGHTVIEW LANDSCAPE SERVICES	2024 Parks/Open Space mow	3,669.42
13344	BROWNS HILL ENGINEERING & CONT	24-117 SERVICE WORK 11/4/	1,470.50
13344	BROWNS HILL ENGINEERING & CONT	24-117 SERVICE WORK 11/5/	2,040.50
10900	CAROL CREECH	ADA 2024 WINTER CLASSES	118.00
14923	CHOICE SCREENING INC	Background Checks	391.00
4785	CINTAS CORPORATION #66	CUST #12522401 STAFF UNIF	140.03
4785	CINTAS CORPORATION #66	CUST #12522401 STAFF UNIF	486.32
14225	CLEAN DESIGNS INC	11/14/24 WASHING MACHINE	338.08
14225	CLEAN DESIGNS INC	REPAIR WASHER & DRYER 8/7	288.45
13260	CLIFTON LARSON ALLEN LLP	Account #A509999 - Profes	12,388.67
15152	MIKE MAROONE FORD LONGMONT	VEHICLE #3216 REPAIR	863.80
15152	MIKE MAROONE FORD LONGMONT	Vehicle #3216 Repairs	4,856.59
1120	COLORADO ANALYTICAL LABORATORY	WWTP - CTC LIFT STATION	319.50
1120	COLORADO ANALYTICAL LABORATORY	WWTP - INFLUENT - MONTHLY	329.40
1120	COLORADO ANALYTICAL LABORATORY	WWTP - SOLIDS - MONTHLY	240.00
1120	COLORADO ANALYTICAL LABORATORY	WWTP - UPSTREAM MONTHLY	488.00
1120	COLORADO ANALYTICAL LABORATORY	WWTP - INFLUENT - WEEKLY	180.20
1120	COLORADO ANALYTICAL LABORATORY	CITY OF LOUISVILLE CO010	162.00

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VENDOR	VENDOR NAME	PURPOSE	AMOUNT
1120	COLORADO ANALYTICAL LABORATORY	WWTP - INFLUENT - WEEKLY	115.20
1120	COLORADO ANALYTICAL LABORATORY	TOTAL PHOSPHORUS STUDY	600.50
1120	COLORADO ANALYTICAL LABORATORY	CITY OF LOUISVILLE CO0107	119.00
1120	COLORADO ANALYTICAL LABORATORY	CITY OF LOUISVILLE CO0107	119.00
15845	CONCORD TECHNOLOGIES	DEC 2024	228.74
13162	CORE & MAIN LP	Account #103796	7,514.82
9973	CPS DISTRIBUTORS INC	Account #12010000	1,472.88
9973	CPS DISTRIBUTORS INC	Account #12010000	2,138.98
9973	CPS DISTRIBUTORS INC	Account #12010000	731.02
12428	CUMMINS SALES AND SERVICE	SWTP - GENERATOR SERVICE	852.90
15769	CURTIS, JUSTUS, & ZAHEDI, LLC	DEC 2024	8,700.00
15036	DAVID J. THROWER	Judge Services - December	2,800.00
15149	DENALI WATER SOLUTIONS LLC	CUST #1120056 2024 WWTP	2,127.12
15149	DENALI WATER SOLUTIONS LLC	CUST #1120056 2024 WWTP	2,911.89
15149	DENALI WATER SOLUTIONS LLC	CUST #1120056 2024 WWTP	1,001.91
15149	DENALI WATER SOLUTIONS LLC	2024 WWTP Biosolids	2,045.29
13904	DOG WASTE DEPOT	Dog bag dispenser station	4,248.50
14835	EDGE CONTRACTING INC	2024 SWQMP PILOT PROJECT	58,631.15
13009	EIDE BAILLY LLP	Client #80119 - Audit for	13,300.00
11124	EJ USA INC	Pavement Booster-equipmen	4,878.36
14718	FRONTIER FIRE PROTECTION LLC	REFUND PERMIT #MEP-5426-2	812.67
6847	GENERAL AIR SERVICE & SUPPLY	Account #42580500	108.30
2310	GRAINGER	ACCT #802864512 HVAC FIL	1,851.36
15498	GRAMA GRASS AND LIVESTOCK LLC	2024 Regenerative Cattle	500.00
246	GREEN MILL SPORTSMAN CLUB	Range Use Nov 5, 12, 18	450.00
15381	HICKS CONTRACTORS SERVICES LLC	REPAIR ELECTRICAL ON 2MIL	864.00
15381	HICKS CONTRACTORS SERVICES LLC	INSTALL GRADING ON BOTTOM	1,154.00
13280	INSIGHT PUBLIC SECTOR INC	SQL Software License Rene	10,358.52
10772	INTEGRATED SAFETY SERVICES LLC	ANNUAL FIRE EXTING INSP 1	326.00
10772	INTEGRATED SAFETY SERVICES LLC	ANNUAL FIRE EXTING INSP 1	180.75
10772	INTEGRATED SAFETY SERVICES LLC	SPRINKLER SYSTEM SERVICE	2,127.38

CASH ACCOUNT: 001000 101001 WARRANT: 123124C 12/31/2024

VENDOR	VENDOR NAME	PURPOSE	AMOUNT
13778	INVISION GIS LLC	Professional Services - D	4,663.75
13778	INVISION GIS LLC	Work Order System Set Up	2,330.00
2360	KELLY PC	Legal Services through De	33,137.50
15942	KIDCREATE STUIDIO - DENVER SOU	COLOR ME CHRISTMAS 2024	1,260.00
14219	KIMLEY-HORN AND ASSOCIATES INC	SCWTP Residual Management	14,320.00
14097	L.A.W.S.	Camera and Radio Installm	1,553.98
15415	LEVITATE JUMP ROPE T	8/19/24 - 12/11/24 JUMP R	2,730.00
14592	LIVE OAK BANK	CEC SOLAR LEASE SEPT 2024	8,588.02
14592	LIVE OAK BANK	CEC SOLAR LEASE ACCT #187	7,068.82
3070	LL JOHNSON DISTRIBUTING CO	CUST #158907 PARKS-EQUIP	572.87
5432	LOUISVILLE FIRE PROTECTION DIS	Hernandez Blood Draw 11/6	35.00
5432	LOUISVILLE FIRE PROTECTION DIS	Malley Blood Draw 12/18/2	35.00
5432	LOUISVILLE FIRE PROTECTION DIS	DEC 2024 FIRE PROT DISTRI	1,340.00
14927	LOUISVILLE MASTER PLUMBING LLC	Emergency Repairs to Cour	11,100.00
15082	MALLORY SAFETY & SUPPLY LLC	CUST ID #133894 CALIBRAT	1,839.66
14071	MARY RITTER	H2O Running - 12/3/24-12/	949.20
6939	MCCANDLESS TRUCK CENTER LLC	Streets #3260 Sweeper	623.50
15924	MCGLINCHEY SEXTON CONSERVATION	Conservation work on Muse	5,860.00
13926	NICOLETTI-FLATER ASSOCIATES PL	Counseling, Support, and	570.00
13926	NICOLETTI-FLATER ASSOCIATES PL	Pre-Employment, Counselin	1,025.00
99999	PROGREEN SOLAR, LLC	Refund for Incorrect Perm	621.20
99999	DANIEL MCCONVILLE	Refund for Contractor Lic	88.00
99999	ROSANN MESSERE	REFUND LOUISVILLE REC CEN	467.50
99999	CAITLIN CROUCH	REFUND DUPLICATE COURT CH	135.00
99999	ANDREW J STEFFL	UTILITY BILLING REFUND -	132.50
99999	MARY LOU ROLLINGS	UTILITY BILLING REFUND 74	78.15
314	PARKSON CORPORATION	CUST #12132024GV MISC PA	2,271.04
15897	PAULETTE READING TEXTILE CONSE	Conservation work on Muse	4,000.00
14524	PC SOLUTIONS & INTEGRATION INC	Replacement Switches - Ci	3,530.60

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VENDOR	VENDOR NAME	PURPOSE	AMOUNT
14144	PING INC	Customer #40692	662.28
14144	PING INC	Customer #40692	2,055.09
14144	PING INC	Customer #40692 - tax exe	177.78
14144	PING INC	Customer #40692 - Credit	-167.44
15917	PRECISION ELECTRONIC	Repairs to NDHU-1 Pool HV	4,153.50
13549	PUSH PEDAL PULL INC	Handlebar conversion kits	2,706.22
13893	REBECCA TSUI	TAI CHI SEPT-DEC 2024	4,043.20
11325	RENNER SPORTS SURFACES	Mission Greens tennis cou	9,500.00
11325	RENNER SPORTS SURFACES	Mission Greens tennis cou	6,199.25
14844	REPUBLIC SERVICES INC #535	ACCT #3-0535-9535390 DEC	161,164.93
14844	REPUBLIC SERVICES INC #535	ACCT #3-0535-0109715 DEC	5,346.34
14804	RESPEC COMPANY LLC	2024 Stormwater Master Pl	17,230.00
14297	ROCKFAN ENTERTAINMENT	Court Recording Device Re	720.00
15154	RULE4 INC	Cybersecurity Incident Re	1,535.52
14696	SALT LAKE WHOLESALE SPORTS	Ammunition Purchase 2024	22,074.00
15796	SECURR	Replacement of 6 more OS	9,812.00
15594	SIMPLER SYSTEMS, INC	License and Maintenance -	1,000.00
15793	STURGEON ELECTRIC COMPANY INC.	Police Dept. Basement Wir	7,727.77
7917	THE AQUEOUS SOLUTION INC	PERLITE 25# BAG	718.26
15765	THE SOURCING GROUP, LLC	DISTRICT PERFECT WEIGHT F	1,531.66
14614	TIMOTHY D BOWEN	DEC 30 & DEC 31, 2024 CAM	770.00
13603	TOSHIBA BUSINESS SOLUTIONS INC	CONT #MA-MTR-LP-M-T 11/2	212.38
13603	TOSHIBA BUSINESS SOLUTIONS INC	CUST #T0B5E4W DEC 2024 C	209.81
6707	TRI STATE OIL RECLAIMERS INC	USED OIL DISPOSAL	50.00
4765	UNCC	Member ID #48760	699.18
15560	USABLUEBOOK	PIPETTE TIPS & CHEMKEY RE	838.92
15560	USABLUEBOOK	FREE CHLORINE REAGENT	1,306.48
15560	USABLUEBOOK	FLUORIDE CHEMKEY REAGENTS	207.03
15050	UTILITY ASSOCIATES INC	Sales Order #38876	32,287.50

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VENDOR	VENDOR NAME	PURPOSE	AMOUNT
14690	VELOCITY CONSTRUCTORS INC	2024 SCWTP Filter Media R	85,166.40
14792	VEOLIA WATER TECHNOLOGIES TREA	CUST #491718 CIRCUIT BOA	1,894.87
4900	VRANESH AND RAISCH LLP	DECEMBER 2024 WINDY GAP	637.05
11053	WATER TECHNOLOGY GROUP	CUST ID #421120	1,059.00
11053	WATER TECHNOLOGY GROUP	CUST ID #421120 PARTS &	2,406.00
12997	WHITESTONE CONSTRUCTION SERVIC	Open Space Emergency Acce	40,085.72
	125 INVOICES	WARRANT TOTAL	796,596.59

CITY OF LOUISVILLE

PURCHASE CARD SUMMARY

STATEMENT PERIOD 11/21/24 - 12/20/24

SUPPLIER	SUPPLIER LOCATION	CARDHOLDER	DEPARTMENT	TRANS DATE	AMOUNT
1800 GOT JUNK	DENVER	SARA PECK	POLICE	11/25/2024	806.15
21ST CENTURY - 43 - LO	LONGMONT	MASON THOMPSON	OPERATIONS	12/04/2024	149.73
303 SIGN COMPANY	LONGMONT	GIGI YANG	LIBRARY	11/25/2024	2,152.36
4 RIVERS EQUIPMENT	FREDERICK	JOSE TORRES	OPERATIONS	12/17/2024	484.62
4 RIVERS EQUIPMENT	FREDERICK	JOSE TORRES	OPERATIONS	12/16/2024	2,110.96
7SHIFTS	WILMINGTON	DAVID BARIL	GOLF COURSE	12/12/2024	76.99
ADOBE *ADOBE	4085366000	ERIN OWEN	LIBRARY	12/19/2024	103.76
ADOBE *ADOBE	4085366000	KURT KOWAR	PUBLIC WORKS	12/08/2024	31.12
ADOBE *ADOBE	4085366000	DEREK COSSON	CITY MANAGER	12/01/2024	79.99
ALISON	GALWAY	JEFF OWENS	WATER	11/21/2024	49.99
ALLDATA	800-859-3282	MASON THOMPSON	OPERATIONS	12/02/2024	125.00
ALLIANCE SAFETY - MOTO	AURORA	CATHERINE JEPSON	PARKS	11/21/2024	75.64
AMAZON MARK* 2368560K3	SEATTLE	MINDY OLKJER	PUBLIC WORKS	11/23/2024	499.00
AMAZON MARK* 6J6N677Y3	SEATTLE	JULIE SEYDEL	REC CENTER	11/27/2024	37.99
AMAZON MARK* 7M6QL7M33	SEATTLE	PATRICIA MORGAN	REC CENTER	11/24/2024	241.78
AMAZON MARK* BR7CL24N3	SEATTLE	MASON THOMPSON	OPERATIONS	11/25/2024	56.67
AMAZON MARK* C14HG6SL3	SEATTLE	JULIE SEYDEL	REC CENTER	11/22/2024	341.99
AMAZON MARK* NB4O25T03	SEATTLE	JULIE SEYDEL	REC CENTER	11/22/2024	730.90
AMAZON MARK* S99JQ11M3	SEATTLE	PATRICIA MORGAN	REC CENTER	11/22/2024	57.38
AMAZON MARK* Z100Y1772	SEATTLE	MASON THOMPSON	OPERATIONS	12/16/2024	35.47
AMAZON MARK* Z11OK2VS1	SEATTLE	MASON THOMPSON	OPERATIONS	12/18/2024	34.18
AMAZON MARK* Z11X23HL0	SEATTLE	JULIE SEYDEL	REC CENTER	12/17/2024	32.10
AMAZON MARK* Z12R43XF1	SEATTLE	KEVIN FREY	FACILITIES	12/18/2024	35.98
AMAZON MARK* Z13PG4L80	SEATTLE	KEVIN FREY	FACILITIES	12/15/2024	790.89
AMAZON MARK* Z13PT0GH2	SEATTLE	MARLA OLSON	PARKS	12/14/2024	94.74
AMAZON MARK* Z148K0JF1	SEATTLE	KEVIN FREY	FACILITIES	12/17/2024	238.27
AMAZON MARK* Z14SK1RT2	SEATTLE	KATIE BEASLEY	REC CENTER	12/16/2024	59.44
AMAZON MARK* Z15ZS4A01	SEATTLE	PAMELA LEMON	REC CENTER	12/17/2024	96.39
AMAZON MARK* Z16EL1B50	SEATTLE	JULIE SEYDEL	REC CENTER	12/17/2024	13.62
AMAZON MARK* Z18674QN1	SEATTLE	BENJAMIN FRANCISCO	OPERATIONS	12/19/2024	65.92
AMAZON MARK* Z18W69GN2	SEATTLE	KATIE TOFTE	REC CENTER	12/14/2024	36.94
AMAZON MARK* Z31SI8Y91	SEATTLE	PEGGY NORRIS	LIBRARY	12/02/2024	332.68
AMAZON MARK* Z33K35B61	SEATTLE	PATRICIA MORGAN	REC CENTER	11/30/2024	18.99
AMAZON MARK* Z34LC42A1	SEATTLE	MINDY OLKJER	PUBLIC WORKS	12/01/2024	15.65
AMAZON MARK* Z36FM8I00	SEATTLE	BILL VALENCIA	WASTEWATER	11/30/2024	81.46
AMAZON MARK* Z38WC6EM2	SEATTLE	LOGAN JOHNSON	CITY MANAGER	11/27/2024	29.46
AMAZON MARK* Z39ED2PG0	SEATTLE	JULIE SEYDEL	REC CENTER	11/27/2024	89.94
AMAZON MARK* Z39PG0XA0	SEATTLE	LOGAN JOHNSON	CITY MANAGER	11/27/2024	38.97
AMAZON MARK* Z90277J70	SEATTLE	BENJAMIN FRANCISCO	OPERATIONS	12/20/2024	89.98

AMAZON MARK* Z918T3ON0	SEATTLE	IRIS BELENSKY	LIBRARY	12/19/2024	39.98
AMAZON MARK* Z93G45JW0	SEATTLE	KEVIN FREY	FACILITIES	12/20/2024	7.99
AMAZON MARK* Z965O08I2	SEATTLE	MINDY OLKJER	PUBLIC WORKS	12/19/2024	96.97
AMAZON MARK* Z97P89SW2	SEATTLE	MINDY OLKJER	PUBLIC WORKS	12/19/2024	9.59
AMAZON MARK* Z97WY8CB2	SEATTLE	JULIE SEYDEL	REC CENTER	12/16/2024	20.57
AMAZON MARK* ZB8XI03Q3	SEATTLE	JULIE SEYDEL	REC CENTER	11/22/2024	33.15
AMAZON MARK* ZL60O3902	SEATTLE	BILL VALENCIA	WASTEWATER	12/04/2024	38.57
AMAZON MARK* ZQ8YX19T0	SEATTLE	LOGAN JOHNSON	CITY MANAGER	11/24/2024	68.43
AMAZON MARK* ZR24K1Y50	SEATTLE	CATHERINE JEPSON	PARKS	12/10/2024	8.26
AMAZON MARK* ZR3S87OI2	SEATTLE	KEVIN FREY	FACILITIES	12/04/2024	12.99
AMAZON MARK* ZR49W97P1	SEATTLE	JULIE SEYDEL	REC CENTER	12/11/2024	359.99
AMAZON MARK* ZR4HP3YJ2	SEATTLE	KATIE BEASLEY	REC CENTER	12/08/2024	69.93
AMAZON MARK* ZR65M1NV1	SEATTLE	KATIE BEASLEY	REC CENTER	12/08/2024	99.90
AMAZON MARK* ZR7OG3JI0	SEATTLE	PAMELA LEMON	REC CENTER	12/06/2024	74.98
AMAZON MARK* ZX03F2G71	SEATTLE	KATIE TOFTE	REC CENTER	12/14/2024	47.50
AMAZON MARK* ZX09P2KH2	SEATTLE	JULIE SEYDEL	REC CENTER	12/11/2024	63.26
AMAZON MARK* ZX0X39NC0	SEATTLE	KEVIN FREY	FACILITIES	12/11/2024	30.55
AMAZON MARK* ZX32C93B1	SEATTLE	AILEEN PROFIR	IT	12/13/2024	105.97
AMAZON MARK* ZX55A6XQ1	SEATTLE	MARLA OLSON	PARKS	12/14/2024	12.99
AMAZON MARK* ZX6SB8MX2	SEATTLE	CATHERINE JEPSON	PARKS	12/10/2024	217.28
AMAZON MARK* ZX74077A0	SEATTLE	MARLA OLSON	PARKS	12/14/2024	4.98
AMAZON MARK* ZX8GP97A2	SEATTLE	MASON THOMPSON	OPERATIONS	12/11/2024	7.99
AMAZON MKTPL*4M9LC98K3	AMZN.COM/BILL	GABBY MURATTI	PLANNING	11/20/2024	28.49
AMAZON MKTPL*4Z64U8EL3	AMZN.COM/BILL	KRISTEN BODINE	LIBRARY	11/22/2024	92.29
AMAZON MKTPL*6K5FJ2T93	AMZN.COM/BILL	AMANDA PERERA	REC CENTER	11/26/2024	226.16
AMAZON MKTPL*780V97UN3	AMZN.COM/BILL	LIGEA FERRARO	CITY MANAGER	11/26/2024	234.97
AMAZON MKTPL*AP0O79LT3	AMZN.COM/BILL	LOGAN JOHNSON	CITY MANAGER	11/21/2024	200.79
AMAZON MKTPL*AT5R84BW3	AMZN.COM/BILL	DAVID BARIL	GOLF COURSE	11/25/2024	245.65
AMAZON MKTPL*B52BN4BV3	AMZN.COM/BILL	GREG VENETTE	WATER	11/22/2024	124.92
AMAZON MKTPL*G05XW1S53	AMZN.COM/BILL	LOGAN JOHNSON	CITY MANAGER	11/21/2024	220.56
AMAZON MKTPL*ND0QD8BO3	AMZN.COM/BILL	LOGAN JOHNSON	CITY MANAGER	11/23/2024	243.63
AMAZON MKTPL*UQ3E02QN3	AMZN.COM/BILL	JILL SIEWERT	LIBRARY	11/20/2024	77.24
AMAZON MKTPL*VD3IV5S03	AMZN.COM/BILL	JILL SIEWERT	LIBRARY	11/24/2024	26.99
AMAZON MKTPL*Z103R1QJ2	AMZN.COM/BILL	LESLIE RINGER	HUMAN RESOURCES	12/15/2024	16.99
AMAZON MKTPL*Z10ZM62O2	AMZN.COM/BILL	LESLIE RINGER	HUMAN RESOURCES	12/15/2024	35.94
AMAZON MKTPL*Z11GV5FQ2	AMZN.COM/BILL	ABBY MCNEAL	PARKS	12/12/2024	46.98
AMAZON MKTPL*Z11X45CB2	AMZN.COM/BILL	LESLIE RINGER	HUMAN RESOURCES	12/12/2024	92.35
AMAZON MKTPL*Z12LZ4DB1	AMZN.COM/BILL	TANNER THORSON	WASTEWATER	12/19/2024	21.89
AMAZON MKTPL*Z13IW5S22	AMZN.COM/BILL	DANIEL WOOLDRIDGE		12/15/2024	124.22
AMAZON MKTPL*Z14BU21S0	AMZN.COM/BILL	MATTHEW RILEY	IT	12/16/2024	38.77
AMAZON MKTPL*Z14D01DH1	AMZN.COM/BILL	TANNER THORSON	WASTEWATER	12/19/2024	267.22
AMAZON MKTPL*Z15HX8GW2	AMZN.COM/BILL	LESLIE RINGER	HUMAN RESOURCES	12/14/2024	96.49
AMAZON MKTPL*Z16L65JF2	AMZN.COM/BILL	DANIEL WOOLDRIDGE		12/13/2024	128.90
AMAZON MKTPL*Z16OG3C32	AMZN.COM/BILL	SARA PECK	POLICE	12/12/2024	16.19

AMAZON MKTPL*Z16TE6Q21	AMZN.COM/BILL	LINDSEY WITTY	REC CENTER	12/19/2024	80.10
AMAZON MKTPL*Z17BM5L82	AMZN.COM/BILL	JILL SIEWERT	LIBRARY	12/12/2024	414.03
AMAZON MKTPL*Z19I06QE2	AMZN.COM/BILL	LESLIE RINGER	HUMAN RESOURCES	12/15/2024	25.38
AMAZON MKTPL*Z19LQ3U10	AMZN.COM/BILL	LINDSEY WITTY	REC CENTER	12/18/2024	35.99
AMAZON MKTPL*Z317J8MC1	AMZN.COM/BILL	GIGI YANG	LIBRARY	11/30/2024	211.53
AMAZON MKTPL*Z31B94980	AMZN.COM/BILL	ERICA BERZINS	POLICE	11/30/2024	28.50
AMAZON MKTPL*Z32EL7K01	AMZN.COM/BILL	MIKE MILLER	POLICE	12/01/2024	165.23
AMAZON MKTPL*Z34DX2EV2	AMZN.COM/BILL	SARA PECK	POLICE	11/27/2024	15.04
AMAZON MKTPL*Z36E37QA2	AMZN.COM/BILL	SARA PECK	POLICE	11/29/2024	108.79
AMAZON MKTPL*Z36MN6Z32	AMZN.COM/BILL	TANNER THORSON	WASTEWATER	11/26/2024	269.96
AMAZON MKTPL*Z91IJ5XS2	AMZN.COM/BILL	SARA PECK	POLICE	12/18/2024	34.99
AMAZON MKTPL*Z968353Y0	AMZN.COM/BILL	DANNY WEIONSTOCK	REC CENTER	12/20/2024	39.99
AMAZON MKTPL*ZL0SV1BY1	AMZN.COM/BILL	JILL SIEWERT	LIBRARY	12/05/2024	16.05
AMAZON MKTPL*ZL13W6HH0	AMZN.COM/BILL	ERICA BERZINS	POLICE	12/03/2024	96.04
AMAZON MKTPL*ZL1LT4AK2	AMZN.COM/BILL	GIGI YANG	LIBRARY	12/02/2024	281.13
AMAZON MKTPL*ZL1U94XJ1	AMZN.COM/BILL	DANIEL WOOLDRIDGE		12/04/2024	160.95
AMAZON MKTPL*ZL41P8YT1	AMZN.COM/BILL	SARA PECK	POLICE	12/07/2024	19.50
AMAZON MKTPL*ZR0DB0DO1	AMZN.COM/BILL	TANNER THORSON	WASTEWATER	12/11/2024	79.98
AMAZON MKTPL*ZR0GF8HZ1	AMZN.COM/BILL	ABBY MCNEAL	PARKS	12/10/2024	116.30
AMAZON MKTPL*ZR17R5C20	AMZN.COM/BILL	ABBY MCNEAL	PARKS	12/05/2024	210.72
AMAZON MKTPL*ZR1OG6WL0	AMZN.COM/BILL	LINDSEY WITTY	REC CENTER	12/10/2024	29.99
AMAZON MKTPL*ZR2NY9RM0	AMZN.COM/BILL	LINDSEY WITTY	REC CENTER	12/10/2024	75.40
AMAZON MKTPL*ZR5RC9N01	AMZN.COM/BILL	ERICA BERZINS	POLICE	12/08/2024	398.21
AMAZON MKTPL*ZR71W8U32	AMZN.COM/BILL	SARA PECK	POLICE	12/08/2024	124.75
AMAZON MKTPL*ZR93540K0	AMZN.COM/BILL	KRISTEN BODINE	LIBRARY	12/07/2024	381.43
AMAZON MKTPL*ZR9UG4Z42	AMZN.COM/BILL	KELLY THARP	OPERATIONS	12/05/2024	8.95
AMAZON MKTPL*ZX1LJ3621	AMZN.COM/BILL	LESLIE RINGER	HUMAN RESOURCES	12/15/2024	5.79
AMAZON MKTPL*ZX2JV0LL2	AMZN.COM/BILL	JILL SIEWERT	LIBRARY	12/09/2024	44.88
AMAZON MKTPL*ZX3BK44L0	AMZN.COM/BILL	GIGI YANG	LIBRARY	12/10/2024	17.63
AMAZON MKTPL*ZX3M63TU2	AMZN.COM/BILL	DANIEL WOOLDRIDGE		12/09/2024	948.00
AMAZON MKTPL*ZX4I669P0	AMZN.COM/BILL	LINDSEY WITTY	REC CENTER	12/14/2024	19.99
AMAZON MKTPL*ZX4V32731	AMZN.COM/BILL	LESLIE RINGER	HUMAN RESOURCES	12/15/2024	40.91
AMAZON MKTPL*ZX5P79AJ2	AMZN.COM/BILL	LESLIE RINGER	HUMAN RESOURCES	12/09/2024	239.21
AMAZON MKTPL*ZX8OG27X1	AMZN.COM/BILL	LESLIE RINGER	HUMAN RESOURCES	12/15/2024	162.87
AMAZON MKTPL*ZX95X8V91	AMZN.COM/BILL	LESLIE RINGER	HUMAN RESOURCES	12/14/2024	30.74
AMAZON MKTPL*ZX9SH7UJ0	AMZN.COM/BILL	LINDSEY WITTY	REC CENTER	12/14/2024	297.24
AMAZON MKTPL*ZX9TC6BB0	AMZN.COM/BILL	MATTHEW RILEY	IT	12/13/2024	67.00
AMAZON MKTPL*ZX9XQ4ZU0	AMZN.COM/BILL	TANNER THORSON	WASTEWATER	12/11/2024	121.96
AMAZON MKTPLACE PMTS	AMZN.COM/BILL	LINDSEY WITTY	REC CENTER	12/19/2024	75.40
AMAZON MKTPLACE PMTS	AMZN.COM/BILL	LESLIE RINGER	HUMAN RESOURCES	12/15/2024	65.98
AMAZON RETA* 283RO9WK3	SEATTLE	PATRICIA MORGAN	REC CENTER	11/23/2024	739.65
AMAZON RETA* H58V45123	SEATTLE	MINDY OLKJER	PUBLIC WORKS	11/22/2024	9.99
AMAZON RETA* V77E43X53	SEATTLE	JULIE SEYDEL	REC CENTER	12/17/2024	169.99
AMAZON RETA* VY77J5WG3	SEATTLE	CATHERINE JEPSON	PARKS	11/20/2024	290.85

AMAZON RETA* WZ1S712I3	SEATTLE	JULIE SEYDEL	REC CENTER	11/22/2024	31.44
AMAZON RETA* Z15OF22Y0	SEATTLE	JESSE DEGRAW	REC CENTER	12/18/2024	421.20
AMAZON RETA* Z19AZ9UJ0	SEATTLE	KEVIN FREY	FACILITIES	12/18/2024	47.98
AMAZON RETA* Z318N55A0	SEATTLE	JULIE SEYDEL	REC CENTER	11/27/2024	93.87
AMAZON RETA* Z37R775G0	SEATTLE	JULIE SEYDEL	REC CENTER	11/27/2024	93.87
AMAZON RETA* Z93SY4FM2	SEATTLE	PAMELA LEMON	REC CENTER	12/17/2024	68.21
AMAZON RETA* Z959A9CJ0	SEATTLE	GENEVIEVE KLINE	CITY CLERK	12/18/2024	37.90
AMAZON RETA* ZL3T94I82	SEATTLE	CATHERINE JEPSON	PARKS	12/04/2024	67.06
AMAZON RETA* ZL71L2WJ2	SEATTLE	CATHERINE JEPSON	PARKS	12/04/2024	67.06
AMAZON RETA* ZL86O7DL1	SEATTLE	PAMELA LEMON	REC CENTER	12/05/2024	33.14
AMAZON RETA* ZL8J34E72	SEATTLE	DAWN BURGESS	CITY MANAGER	12/02/2024	12.71
AMAZON RETA* ZL92767G0	SEATTLE	PAMELA LEMON	REC CENTER	12/04/2024	984.96
AMAZON RETA* ZX8XW0BH1	SEATTLE	MARLA OLSON	PARKS	12/14/2024	41.44
AMERICAN RED CROSS	800-733-2767	DANNY WEIONSTOCK	REC CENTER	12/17/2024	322.00
AMERICAN RED CROSS	800-733-2767	NICK PAPPAS	REC CENTER	12/14/2024	190.00
AMERICAN RED CROSS	800-733-2767	NICK PAPPAS	REC CENTER	11/21/2024	228.00
AMERICAN WATER WORKS A	DENVER	MINDY OLKJER	PUBLIC WORKS	12/19/2024	276.00
AMERICAN WATER WORKS A	DENVER	BILL VALENCIA	WASTEWATER	12/18/2024	86.00
AMERICAN WATER WORKS A	DENVER	GREG VENETTE	WATER	12/18/2024	276.00
AMERLIBASSOC ECOMMERCE	866-746-7252	PEGGY NORRIS	LIBRARY	12/17/2024	210.00
AMERLIBASSOC ECOMMERCE	866-746-7252	KRISTEN BODINE	LIBRARY	11/21/2024	265.00
AMERLIBASSOC ECOMMERCE	866-746-7252	KRISTEN BODINE	LIBRARY	11/21/2024	242.00
AMZN MKTP US	AMZN.COM/BILL	JILL SIEWERT	LIBRARY	12/11/2024	29.86
AMZN MKTP US	AMZN.COM/BILL	MINDY OLKJER	PUBLIC WORKS	12/09/2024	53.94
AMZN MKTP US*HI8RE0BQ3	AMZN.COM/BILL	PATRICIA MORGAN	REC CENTER	11/22/2024	152.91
AMZN MKTP US*P05TT1SQ3	AMZN.COM/BILL	MASON THOMPSON	OPERATIONS	11/26/2024	81.99
AMZN MKTP US*U27O83193	AMZN.COM/BILL	AMANDA PERERA	REC CENTER	11/25/2024	45.79
AMZN MKTP US*VU1459VB3	AMZN.COM/BILL	MINDY OLKJER	PUBLIC WORKS	11/25/2024	53.94
AMZN MKTP US*WQ78Y2CO3	AMZN.COM/BILL	LIGEA FERRARO	CITY MANAGER	11/25/2024	606.90
AMZN MKTP US*Z12RT4AU2	AMZN.COM/BILL	KATIE TOFTE	REC CENTER	12/13/2024	18.99
AMZN MKTP US*Z12V058K1	AMZN.COM/BILL	GENEVIEVE KLINE	CITY CLERK	12/19/2024	15.00
AMZN MKTP US*Z12XV1941	AMZN.COM/BILL	MIKE MILLER	POLICE	12/20/2024	439.96
AMZN MKTP US*Z14GZ6ZN1	AMZN.COM/BILL	MARLA OLSON	PARKS	12/17/2024	11.99
AMZN MKTP US*Z15W870A2	AMZN.COM/BILL	KEVIN FREY	FACILITIES	12/13/2024	97.65
AMZN MKTP US*Z30666E70	AMZN.COM/BILL	TANNER THORSON	WASTEWATER	11/26/2024	110.03
AMZN MKTP US*Z30O58MW2	AMZN.COM/BILL	GIGI YANG	LIBRARY	11/28/2024	575.28
AMZN MKTP US*Z34MD8AG0	AMZN.COM/BILL	BILL VALENCIA	WASTEWATER	11/26/2024	64.39
AMZN MKTP US*Z36672EZ0	AMZN.COM/BILL	DANIEL BIDLEMEN	REC CENTER	11/26/2024	199.95
AMZN MKTP US*Z917M1DL2	AMZN.COM/BILL	TANNER THORSON	WASTEWATER	12/19/2024	113.76
AMZN MKTP US*Z91ZH90J2	AMZN.COM/BILL	ABBY MCNEAL	PARKS	12/18/2024	215.94
AMZN MKTP US*Z94CD8VY2	AMZN.COM/BILL	ABBY MCNEAL	PARKS	12/19/2024	124.98
AMZN MKTP US*Z94MW0C10	AMZN.COM/BILL	TANNER THORSON	WASTEWATER	12/19/2024	27.88
AMZN MKTP US*Z97QQ82U2	AMZN.COM/BILL	ABBY MCNEAL	PARKS	12/20/2024	250.46
AMZN MKTP US*Z985W26E2	AMZN.COM/BILL	AMANDA PERERA	REC CENTER	12/19/2024	156.75

AMZN MKTP US*ZL3LO27S0	AMZN.COM/BILL	JILL SIEWERT	LIBRARY	12/04/2024	15.99
AMZN MKTP US*ZL54P4V11	AMZN.COM/BILL	KRISTEN BODINE	LIBRARY	12/05/2024	31.44
AMZN MKTP US*ZL5S66041	AMZN.COM/BILL	BILL VALENCIA	WASTEWATER	12/04/2024	32.99
AMZN MKTP US*ZL6P36890	AMZN.COM/BILL	MINDY OLKJER	PUBLIC WORKS	12/03/2024	53.94
AMZN MKTP US*ZL8T27RT0	AMZN.COM/BILL	MASON THOMPSON	OPERATIONS	12/05/2024	249.99
AMZN MKTP US*ZR1DU3001	AMZN.COM/BILL	TREVOR DEPEW	WATER	12/09/2024	2,239.00
AMZN MKTP US*ZR6HT2340	AMZN.COM/BILL	JILL SIEWERT	LIBRARY	12/06/2024	62.55
AMZN MKTP US*ZR6ZV7G91	AMZN.COM/BILL	LINDSEY WITTY	REC CENTER	12/09/2024	108.80
AMZN MKTP US*ZX07F4H22	AMZN.COM/BILL	TANNER THORSON	WASTEWATER	12/10/2024	104.64
ANDREW HUDSON	720-289-5877	PENNY FORD	HUMAN RESOURCES	12/05/2024	150.00
AR500TARGETSOLUTIONS	TREGO	MIKE MILLER	POLICE	12/19/2024	1,142.94
ARROWHEAD FORENSICS	LENEXA	ERICA BERZINS	POLICE	12/19/2024	562.95
ARROWSTAGELINES.COM	OMAHA	KATIE BEASLEY	REC CENTER	12/18/2024	1,589.00
ARROWSTAGELINES.COM	OMAHA	KATIE BEASLEY	REC CENTER	12/12/2024	1,189.00
ARROWSTAGELINES.COM	OMAHA	KATIE BEASLEY	REC CENTER	12/11/2024	1,189.00
ARROWSTAGELINES.COM	OMAHA	KATIE BEASLEY	REC CENTER	12/10/2024	1,189.00
ARROWSTAGELINES.COM	OMAHA	KATIE BEASLEY	REC CENTER	12/09/2024	1,789.00
ARROWSTAGELINES.COM	OMAHA	KATIE BEASLEY	REC CENTER	12/04/2024	2,360.00
ASFPM	MADISON	CAMERON FOWLKES	PUBLIC WORKS	12/02/2024	180.00
AUSTIN HARDWARE & SUPP	816-246-2800	KEVIN FREY	FACILITIES	12/06/2024	285.59
AMAZON.COM*5T7V01T23	AMZN.COM/BILL	JILL SIEWERT	LIBRARY	11/22/2024	17.72
AMAZON.COM*CP2QN9PI3	AMZN.COM/BILL	KRISTEN BODINE	LIBRARY	11/24/2024	161.23
AMAZON.COM*EH94254M3	AMZN.COM/BILL	JILL SIEWERT	LIBRARY	11/22/2024	75.29
AMAZON.COM*FO4SK58R3	AMZN.COM/BILL	TANNER THORSON	WASTEWATER	11/21/2024	226.49
AMAZON.COM*GB6RP4X53	AMZN.COM/BILL	JILL SIEWERT	LIBRARY	11/22/2024	13.97
AMAZON.COM*IK8M45SW3	AMZN.COM/BILL	JILL SIEWERT	LIBRARY	11/22/2024	101.03
AMAZON.COM*OB12O9FU3	AMZN.COM/BILL	ERIK SWIATEK	PARKS	11/23/2024	169.98
AMAZON.COM*Y01TD9WE3	AMZN.COM/BILL	ERIK SWIATEK	PARKS	11/22/2024	99.95
AMAZON.COM*Z11M72K51	AMZN.COM/BILL	DANIEL WOOLDRIDGE		12/19/2024	69.99
AMAZON.COM*Z145E35J0	AMZN.COM/BILL	JILL SIEWERT	LIBRARY	12/17/2024	19.96
AMAZON.COM*Z15GV4U11	AMZN.COM/BILL	AMANDA PERERA	REC CENTER	12/20/2024	349.00
AMAZON.COM*Z16PM4GC2	AMZN.COM/BILL	LINDSEY WITTY	REC CENTER	12/14/2024	499.99
AMAZON.COM*Z17AJ0JW2	AMZN.COM/BILL	LINDSEY WITTY	REC CENTER	12/13/2024	79.99
AMAZON.COM*Z17T57QD2	AMZN.COM/BILL	LESLIE RINGER	HUMAN RESOURCES	12/15/2024	40.74
AMAZON.COM*Z19279B01	AMZN.COM/BILL	KELLY THARP	OPERATIONS	12/19/2024	23.97
AMAZON.COM*Z32MI0030	AMZN.COM/BILL	TANNER THORSON	WASTEWATER	11/26/2024	191.19
AMAZON.COM*Z93DM9BS2	AMZN.COM/BILL	JOHN BROOKS	POLICE	12/19/2024	56.80
AMAZON.COM*Z93SV3OC0	AMZN.COM/BILL	GREG VENETTE	WATER	12/19/2024	51.69
AMAZON.COM*Z97XG8B22	AMZN.COM/BILL	SARA PECK	POLICE	12/19/2024	66.84
AMAZON.COM*ZL5CA14J0	AMZN.COM/BILL	GIGI YANG	LIBRARY	12/01/2024	24.23
AMAZON.COM*ZL5HB7RC0	AMZN.COM/BILL	JILL SIEWERT	LIBRARY	12/05/2024	15.76
AMAZON.COM*ZL5HG1S91	AMZN.COM/BILL	JILL SIEWERT	LIBRARY	12/06/2024	24.98
AMAZON.COM*ZR1777EE1	AMZN.COM/BILL	JILL SIEWERT	LIBRARY	12/09/2024	11.98
AMAZON.COM*ZR1Y91GN2	AMZN.COM/BILL	JILL SIEWERT	LIBRARY	12/06/2024	26.57

AMAZON.COM*ZR7E57561	AMZN.COM/BILL	JILL SIEWERT	LIBRARY	12/10/2024	25.98
AMAZON.COM*ZX16P50H1	AMZN.COM/BILL	TANNER THORSON	WASTEWATER	12/13/2024	140.39
AMAZON.COM*ZX1U64741	AMZN.COM/BILL	TANNER THORSON	WASTEWATER	12/15/2024	249.95
BATTERIES+BULBS #0777	LAFAYETTE	DANIEL SALAS ROBLES	PARKS	12/19/2024	59.70
BC SERVICES INC	866-8221798	MINDY OLKJER	PUBLIC WORKS	12/13/2024	46.40
BIZWEST-DIGITAL	GREELEY	ROBERT ZUCCARO	PLANNING	12/12/2024	13.00
BOSS PRINTING	BROOMFIELD	ROBERT ZUCCARO	PLANNING	12/12/2024	20.58
BOSS PRINTING	BROOMFIELD	ROBERT ZUCCARO	PLANNING	11/21/2024	37.24
BOULDER VALLEY TRANSFE	LOUISVILLE	GIGI YANG	LIBRARY	12/10/2024	952.75
BPI*MARYJANES FARM	800-476-4611	JILL SIEWERT	LIBRARY	12/12/2024	19.95
BPI*MARYJANES FARM	800-476-4611	JILL SIEWERT	LIBRARY	11/21/2024	19.95
BRIDGEPAY NETWORK SOLU	407-9008967	TANYA SCOTT	FINANCE	12/16/2024	34.90
BRIDGEPAY NETWORK SOLU	407-9008967	TANYA SCOTT	FINANCE	12/16/2024	26.90
BRIDGEPAY NETWORK SOLU	407-9008967	TANYA SCOTT	FINANCE	11/21/2024	32.30
BROOMFIELD RENTALS INC	BROOMFIELD	KELLY THARP	OPERATIONS	12/09/2024	63.00
BUTTERFLY PAVILION ONL	WESTMINSTER	PEGGY NORRIS	LIBRARY	12/16/2024	175.00
C&E WIRELESS REPAIR LL	623-398-7189	LINDSEY WITTY	REC CENTER	12/04/2024	179.16
CAB STORE THORNTON, CO	THORNTON	KEVIN FREY	FACILITIES	11/29/2024	71.97
CAR STICKERS INC.	5416472730	SCOTT MOORE	POLICE	12/02/2024	230.00
CARRIER WEST	DENVER	MATTHEW ROWE	FACILITIES	12/17/2024	1,081.43
CDW GOVT #AB8295W	800-808-4239	LIGEA FERRARO	CITY MANAGER	12/11/2024	363.36
CDW GOVT #AB96V1A	800-808-4239	DANIEL WOOLDRIDGE		12/19/2024	219.76
CDW GOVT #AB9GD6R	800-808-4239	LIGEA FERRARO	CITY MANAGER	12/13/2024	237.99
CENTER COPY PRINTING	303-4406000	LIGEA FERRARO	CITY MANAGER	12/17/2024	42.88
CENTER COPY PRINTING	303-4406000	TANYA SCOTT	FINANCE	12/09/2024	42.88
CENTER COPY PRINTING	303-4406000	KELLY THARP	OPERATIONS	12/06/2024	65.17
CENTER COPY PRINTING	303-4406000	LIGEA FERRARO	CITY MANAGER	11/21/2024	42.88
CENTURYLINK LUMEN	800-244-1111	TANYA SCOTT	FINANCE	11/25/2024	1,044.14
CERTIFIED LABORATORIES	IRVING	DAVID DEAN	GOLF COURSE	12/06/2024	206.17
CHERRYBLOSSOMSFLORISTC	303-4225650	MARLA OLSON	PARKS	12/10/2024	9.15
CHERRYBLOSSOMSFLORISTC	303-4225650	MARLA OLSON	PARKS	12/09/2024	124.09
CHILDHEALTHCONNECTION	FORT COLLINS	AMANDA PERERA	REC CENTER	12/16/2024	80.00
CHIPOTLE ONLINE	CHIPOTLE.COM	VANESSA ZARATE	PLANNING	12/10/2024	40.91
CINTAS CORP	MASON	GREG VENETTE	WATER	12/19/2024	1,439.36
CLUBCONNECT	9136615569	LINDSEY WITTY	REC CENTER	12/01/2024	149.00
CO DEPT OF AGRICULTURE	DENVER	CATHERINE JEPSON	PARKS	12/18/2024	767.64
CO DEPT OF LABOR AND E	DENVER	TREVOR DEPEW	WATER	12/17/2024	36.55
CO DEPT OF LABOR AND E	DENVER	TANNER THORSON	WASTEWATER	12/02/2024	36.55
CO PARK* CO	WHEAT RIDGE	DANNY WEIONSTOCK	REC CENTER	12/19/2024	200.00
CO PARK* CO	WHEAT RIDGE	DANNY WEIONSTOCK	REC CENTER	12/18/2024	200.00
COAL CREEK ACE HARDWAR	LOUISVILLE	GERALD PIERCE	GOLF COURSE	12/19/2024	70.47
COAL CREEK ACE HARDWAR	LOUISVILLE	ROSS MURPHY	POLICE	12/19/2024	18.36
COAL CREEK ACE HARDWAR	LOUISVILLE	GERALD PIERCE	GOLF COURSE	12/18/2024	15.98
COAL CREEK ACE HARDWAR	LOUISVILLE	GERALD PIERCE	GOLF COURSE	12/12/2024	57.95

COAL CREEK ACE HARDWAR	LOUISVILLE	BENJAMIN WHITE-PATARIN	PARKS	12/10/2024	85.96
COAL CREEK ACE HARDWAR	LOUISVILLE	GERALD PIERCE	GOLF COURSE	12/09/2024	53.90
COAL CREEK ACE HARDWAR	LOUISVILLE	KATIE TOFTE	REC CENTER	12/06/2024	13.18
COAL CREEK ACE HARDWAR	LOUISVILLE	MARC MORTON	PARKS	11/21/2024	14.99
COAL CREEK COLLISION	LOUISVILLE	MASON THOMPSON	OPERATIONS	12/12/2024	2,107.07
COAL CREEK SPORTS CENT	LAFAYETTE	KATHY MARTIN	REC CENTER	11/27/2024	110.00
COLORADO CWP	719-5456748	GREG VENETTE	WATER	12/16/2024	85.00
COLORADO OUTHOUSE	ENGLEWOOD	KAYLA CORCELLI	PARKS	12/03/2024	102.93
COLORADOFED	9705664350	SUSAN KENNEY	POLICE	12/18/2024	45.00
COMCAST CABLE COMM	800-COMCAST	SHARON NEMECHEK	LIBRARY	12/13/2024	111.95
COMCAST CABLE COMM	800-COMCAST	RAFAEL GUTIERREZ	POLICE	12/13/2024	49.95
COMCAST CABLE COMM	800-COMCAST	LESLIE RINGER	HUMAN RESOURCES	12/07/2024	455.90
COMCAST CABLE COMM	800-COMCAST	MARLA OLSON	PARKS	11/28/2024	458.63
COMCAST DENVER	800-266-2278	JILL SIEWERT	LIBRARY	12/17/2024	129.89
COMMUTINGSOLUTIONS.ORG	LOUISVILLE	LIGEA FERRARO	CITY MANAGER	12/19/2024	100.00
CONCENTRA INC	MECHANICSBURG	LESLIE RINGER	HUMAN RESOURCES	12/16/2024	363.00
CORE & MAIN LP - CO054	HENDERSON	NORMAN MERLO	GOLF COURSE	12/19/2024	637.00
CUSTOMINK LLC	8002934232	KATIE TOFTE	REC CENTER	12/11/2024	1,596.48
DEMCO INC	800-9624463	JILL SIEWERT	LIBRARY	12/17/2024	165.61
DEMCO INC	800-9624463	JILL SIEWERT	LIBRARY	11/21/2024	81.80
DEN PUBLIC PARKING	DENVER	MIKE MILLER	POLICE	11/21/2024	90.00
DENCOL SUPPLY COMPANY	DENVER	GEOFFREY KOZLOWSKI	PARKS	12/02/2024	478.96
DOLLAR TREE	THORNTON	JOHN ZAMORA	LIBRARY	12/04/2024	12.50
DOLLARTREE	LOUISVILLE	PAMELA LEMON	REC CENTER	12/18/2024	131.25
DOLLARTREE	LOUISVILLE	GINGER CROSS	GOLF COURSE	12/16/2024	8.75
DOLLARTREE	LOUISVILLE	BARBARA MACFERRIN	HUMAN RESOURCES	12/06/2024	60.00
DOLLARTREE	LOUISVILLE	BARBARA MACFERRIN	HUMAN RESOURCES	12/04/2024	2.50
DONORBOX PLATFORM	ALEXANDRIA	GIGI YANG	LIBRARY	12/03/2024	39.71
E 470 EXPRESS TOLLS	AURORA	TANYA SCOTT	FINANCE	11/21/2024	3.15
EINSTEIN BROS BAGELS36	LAFAYETTE	LOGAN JOHNSON	CITY MANAGER	12/05/2024	65.37
ELDORADO ARTESIAN SPRI	LOUISVILLE	LESLIE RINGER	HUMAN RESOURCES	12/06/2024	44.80
EMBASSY SUITES BLDR PA	BOULDER	VANESSA ZARATE	PLANNING	11/21/2024	8.00
EMBASSY SUITES BLDR PA	BOULDER	ROBERT ZUCCARO	PLANNING	11/21/2024	8.00
ESI TECHNOLOGIES LLC	FORT COLLINS	LIGEA FERRARO	CITY MANAGER	12/09/2024	2,375.00
ETSY.COM - SWEETNOTES	BROOKLYN	MINDY OLKJER	PUBLIC WORKS	11/20/2024	3.00
EVIDENT INC	540-5763512	JULIAN CLARK	POLICE	12/17/2024	180.50
EVIDENT INC	540-5763512	JULIAN CLARK	POLICE	12/17/2024	26.29
EXECUTIVE EDUCATION	FORT LAUDERDA	VANESSA ZARATE	PLANNING	11/26/2024	1,498.50
EXPEDIA 72969134409268	EXPEDIA.COM	ERIK SWIATEK	PARKS	11/21/2024	18.63
EZCATER*GREEN LEAFS	8004881803	MINDY OLKJER	PUBLIC WORKS	12/12/2024	90.98
EZCATER*PAPA JOHNS	8004881803	KAYLA CORCELLI	PARKS	12/18/2024	84.72
EZCATER*THE HUMMUS REP	8004881803	LIGEA FERRARO	CITY MANAGER	12/10/2024	268.05
FACEBK *F3JJYFLQV2	MENLO PARK	ERIN OWEN	LIBRARY	12/03/2024	50.00
FACEBK *K4B4RFLRV2	MENLO PARK	ERIN OWEN	LIBRARY	12/20/2024	50.00

FACEBK *QZWAXFCRV2	MENLO PARK	ERIN OWEN	LIBRARY	11/30/2024	50.00
FASTSIGNS 371501	BROOMFIELD	ROBERT ZUCCARO	PLANNING	12/12/2024	60.29
FASTSIGNS 371501	BROOMFIELD	ABBY MCNEAL	PARKS	12/10/2024	170.00
FASTSIGNS 371501	BROOMFIELD	ROBERT ZUCCARO	PLANNING	12/02/2024	105.29
FBI LEEDA INC	877-7727712	RAFAEL GUTIERREZ	POLICE	12/12/2024	50.00
FEDEX OFFIC74200007427	LOUISVILLE	SARA PECK	POLICE	12/11/2024	54.55
FEDEX OFFIC74200007427	LOUISVILLE	SARA PECK	POLICE	12/11/2024	61.17
FEDEX OFFIC74200007427	LOUISVILLE	MINDY OLKJER	PUBLIC WORKS	11/22/2024	12.63
FEDEX OFFIC74200007427	LOUISVILLE	MINDY OLKJER	PUBLIC WORKS	11/22/2024	131.39
FERGUSON ENT #1116	AURORA	VICKIE ILKO	OPERATIONS	11/25/2024	936.50
FIRST CHOICE COFFEE- D	DENVER	LIGEA FERRARO	CITY MANAGER	12/13/2024	237.80
FIRST CHOICE COFFEE- D	DENVER	GREG VENETTE	WATER	12/13/2024	181.76
FIRST CHOICE COFFEE- D	DENVER	DAVID DEAN	GOLF COURSE	12/13/2024	193.25
FORMS FULFILLMENT CENT	ELMSFORD	TANYA SCOTT	FINANCE	12/13/2024	23.48
FORMS FULFILLMENT CENT	ELMSFORD	TANYA SCOTT	FINANCE	12/02/2024	874.30
GRAINGER	LAKE FOREST	ABBY MCNEAL	PARKS	12/19/2024	1,755.46
GRAINGER	LAKE FOREST	DAVID DEAN	GOLF COURSE	11/20/2024	231.30
GRANT WRITING USA	ATASCADERO	SARA PECK	POLICE	11/27/2024	495.00
GRANT WRITING USA	ATASCADERO	SARA PECK	POLICE	11/27/2024	495.00
GREEN CO2 SYSTEMS	970-482-0203	DANIEL BIDLEMEN	REC CENTER	12/10/2024	906.62
GREEN CO2 SYSTEMS	970-482-0203	DANIEL BIDLEMEN	REC CENTER	12/09/2024	994.64
GUYS FLOOR SERVICE INC	DENVER	DANIEL BIDLEMEN	REC CENTER	12/16/2024	500.00
HACH COMPANY	9706631377	TANNER THORSON	WASTEWATER	12/18/2024	66.39
HACH COMPANY	9706631377	MINDY OLKJER	PUBLIC WORKS	12/13/2024	287.05
HACH COMPANY	9706631377	MINDY OLKJER	PUBLIC WORKS	12/11/2024	287.05
HACH COMPANY	9706631377	TANNER THORSON	WASTEWATER	12/02/2024	250.33
HARBOR FREIGHT TOOLS 4	THORNTON	TANNER THORSON	WASTEWATER	12/13/2024	974.97
HARRINGTON-DENVER 008	DENVER	VINCENT WRAY	WATER	11/27/2024	422.35
HARRINGTON-DENVER 008	DENVER	VINCENT WRAY	WATER	11/27/2024	21.24
HOMEDEPOT.COM	800-430-3376	PAUL BORTH	REC CENTER	12/18/2024	56.02
HOMEDEPOT.COM	800-430-3376	PAUL BORTH	REC CENTER	12/18/2024	634.48
HOMEDEPOT.COM	800-430-3376	DANIEL BIDLEMEN	REC CENTER	12/17/2024	13.29
HOMEDEPOT.COM	800-430-3376	JACOB MARINKOVICH	PARKS	12/12/2024	87.55
HOMEDEPOT.COM	800-430-3376	DANIEL BIDLEMEN	REC CENTER	11/29/2024	37.84
HOMEDEPOT.COM	800-430-3376	DANIEL BIDLEMEN	REC CENTER	11/27/2024	95.89
HOUZZ INC. SHOP	8003684268	KRISTEN BODINE	LIBRARY	12/05/2024	397.60
HYATT HOTELS	COLORADO SPRI	JULIE GLASER	FINANCE	11/22/2024	555.30
IACP	ALEXANDRIA	RAFAEL GUTIERREZ	POLICE	12/12/2024	220.00
ICE CASTLES LLC	OREM	PATRICIA MORGAN	REC CENTER	11/27/2024	823.50
ICMA ONLINE	2022894262	LIGEA FERRARO	CITY MANAGER	12/03/2024	1,200.00
ID-ENHANCEMENTS.COM	HARTSVILLE	NICK PROSSER	IT	12/11/2024	390.81
IEDC ONLINE	WASHINGTON	VANESSA ZARATE	PLANNING	12/12/2024	385.00
IMEG CONSULTANTS CORP	309-7880673	LIGEA FERRARO	CITY MANAGER	12/02/2024	60.00
IN *1ST RESPONDER HEAL	720-8930744	LESLIE RINGER	HUMAN RESOURCES	12/10/2024	1,308.00

IN *ALLIANCE OF INFORM	703-2182477	KATIE TOFTE	REC CENTER	12/17/2024	50.00
IN *ARROWHEAD AWARDS,	303-4479407	GENEVIEVE KLINE	CITY CLERK	11/25/2024	20.00
IN *DUTY FREE PETS POO	303-3889373	NICHOLAS POTOPCHUK	PARKS	11/21/2024	750.00
IN *ELIFEGUARD, INC.	321-4333630	DANIEL BIDLEMEN	REC CENTER	12/18/2024	29.28
IN *GRAFF'S TURF FARMS	970-8678873	KERRY KRAMER	PARKS	12/02/2024	400.00
IN *INTERMOUNTAIN SALE	303-7621070	RENEE LEWELLYN	OPERATIONS	12/06/2024	103.00
IN *INTERMOUNTAIN SALE	303-7621070	RENEE LEWELLYN	OPERATIONS	11/25/2024	185.00
IN *KAISER LOCK & KEY	LOUISVILLE	KEVIN FREY	FACILITIES	12/17/2024	5.00
IN *LANGUAGEUSA, INC.	713-7833800	DEREK COSSON	CITY MANAGER	11/26/2024	88.16
IN *SUMMIT SAFETY SOLU	303-4295560	CATHERINE JEPSON	PARKS	12/09/2024	915.00
IN *WYLD ENDURANCE	207-9305484	PAUL BORTH	REC CENTER	12/18/2024	464.80
INSIGHT PUBLIC SECTOR	CHANDLER	LIGEA FERRARO	CITY MANAGER	12/18/2024	32.07
INSIGHT PUBLIC SECTOR	CHANDLER	LIGEA FERRARO	CITY MANAGER	12/18/2024	32.07
INSIGHT PUBLIC SECTOR	CHANDLER	LIGEA FERRARO	CITY MANAGER	12/12/2024	32.07
INSIGHT PUBLIC SECTOR	CHANDLER	LIGEA FERRARO	CITY MANAGER	11/26/2024	32.07
INSIGHT PUBLIC SECTOR	CHANDLER	LIGEA FERRARO	CITY MANAGER	11/22/2024	805.22
INT'L CODE COUNCIL	888-422-7233	GABBY MURATTI	PLANNING	11/22/2024	900.00
INT'L CODE COUNCIL	888-422-7233	GABBY MURATTI	PLANNING	11/22/2024	900.00
INT'L CODE COUNCIL	888-422-7233	CHAD ROOT	BUILDING SAFETY	11/22/2024	900.00
INT'L CODE COUNCIL INC	888-422-7233	JILL SIEWERT	LIBRARY	11/23/2024	296.50
INDEED 100450053	AUSTIN	PENNY FORD	HUMAN RESOURCES	12/01/2024	200.00
JAX - 06	LAFAYETTE	ANDY ELLIS	PARKS	12/06/2024	99.99
JAX - 06	LAFAYETTE	DANIEL SALAS ROBLES	PARKS	11/27/2024	142.49
JAX - 06	LAFAYETTE	JEFF ROBISON	FACILITIES	11/27/2024	164.96
JAX - 06	LAFAYETTE	ANDY ELLIS	PARKS	11/26/2024	74.97
JAX - 06	LAFAYETTE	MATTHEW ROWE	FACILITIES	11/26/2024	158.96
JOHNS TABLE KITCHEN &	LOUISVILLE	DANIEL WOOLDRIDGE		12/16/2024	216.55
KENZIES OPTICS INC.	678-5744664	JOHN BROOKS	POLICE	12/18/2024	589.40
KING SOOPERS #0013	LOUISVILLE	PATRICIA MORGAN	REC CENTER	12/17/2024	40.97
KING SOOPERS #0013	LOUISVILLE	PATRICIA MORGAN	REC CENTER	12/16/2024	19.45
KING SOOPERS #0013	LOUISVILLE	PATRICIA MORGAN	REC CENTER	12/16/2024	78.29
KING SOOPERS #0013	LOUISVILLE	DAWN BURGESS	CITY MANAGER	12/11/2024	40.45
KING SOOPERS #0013	LOUISVILLE	IRIS BELENSKY	LIBRARY	12/05/2024	32.40
KING SOOPERS #0013	LOUISVILLE	LOGAN JOHNSON	CITY MANAGER	12/04/2024	37.22
KING SOOPERS #0013	LOUISVILLE	LIGEA FERRARO	CITY MANAGER	12/03/2024	25.97
KING SOOPERS #0013	LOUISVILLE	PATRICIA MORGAN	REC CENTER	12/02/2024	27.23
KING SOOPERS #0013	LOUISVILLE	PATRICIA MORGAN	REC CENTER	12/02/2024	79.98
KING SOOPERS #0013	LOUISVILLE	IRIS BELENSKY	LIBRARY	11/30/2024	9.98
KING SOOPERS #0013	LOUISVILLE	IRIS BELENSKY	LIBRARY	11/25/2024	141.25
KING SOOPERS #0013	LOUISVILLE	PATRICIA MORGAN	REC CENTER	11/25/2024	20.00
KING SOOPERS #0013	LOUISVILLE	IRIS BELENSKY	LIBRARY	11/25/2024	104.83
KING SOOPERS #0013	LOUISVILLE	IRIS BELENSKY	LIBRARY	11/25/2024	141.28
KING SOOPERS #0013	LOUISVILLE	PATRICIA MORGAN	REC CENTER	11/22/2024	7.78
KING SOOPERS #0013	LOUISVILLE	PATRICIA MORGAN	REC CENTER	11/22/2024	100.77

KING SOOPERS #0013	LOUISVILLE	AUSTIN BROWN	CITY MANAGER	11/21/2024	16.77
KING SOOPERS #0062	WESTMINSTER	LANA FAUVER	REC CENTER	12/07/2024	46.85
KOHL'S #1563	LAFAYETTE	KEVIN FREY	FACILITIES	12/05/2024	599.97
KOHL'S #1563	LAFAYETTE	KEVIN FREY	FACILITIES	12/05/2024	87.96
L.A.W.S.	720-8704965	SARA PECK	POLICE	11/20/2024	279.33
LANDS END BUS OUTFITTE	DODGEVILLE	JEN KENNEY	POLICE	12/18/2024	218.25
LANDSCAPEINDCAREERS	FAIRFAX	PENNY FORD	HUMAN RESOURCES	12/06/2024	65.00
LANGUAGE LINE	MONTEREY	MEREDYTH MUTH	CITY MANAGER	12/10/2024	31.66
LES MILLS US TRADING	CHICAGO	LINDSEY WITTY	REC CENTER	12/10/2024	389.00
LIFESTANCE HEALTH CO	FORT COLLINS	KELSEY LESNIAK	PARKS	11/26/2024	250.00
LIFESTANCE HEALTH CO	FORT COLLINS	KELSEY LESNIAK	PARKS	11/27/2024	146.41
LIFESTANCE HEALTH CO	FORT COLLINS	KELSEY LESNIAK	PARKS	11/27/2024	74.40
LIFESTANCE HEALTH CO	FORT COLLINS	KELSEY LESNIAK	PARKS	11/27/2024	29.19
LL JOHNSON DIST CO	DENVER	GERALD PIERCE	GOLF COURSE	12/05/2024	142.22
LL JOHNSON DIST CO	DENVER	GERALD PIERCE	GOLF COURSE	11/25/2024	180.35
LL JOHNSON DIST CO	DENVER	GERALD PIERCE	GOLF COURSE	11/20/2024	75.09
LOCO HERMANOS	LOUISVILLE	KEVIN FREY	FACILITIES	11/22/2024	42.19
LOCO HERMANOS	LOUISVILLE	MARLA OLSON	PARKS	11/20/2024	53.25
LOUISVILLE TIRE & AUTO	LOUISVILLE	MASON THOMPSON	OPERATIONS	12/11/2024	99.00
MAC EQUIPMENT INC (LOV	LOVELAND	ERIK SWIATEK	PARKS	12/18/2024	254.10
MAC EQUIPMENT INC (LOV	LOVELAND	DARRICK LAYTON	PARKS	12/12/2024	327.86
MAC EQUIPMENT INC (LOV	LOVELAND	KERRY KRAMER	PARKS	12/02/2024	86.14
MAC EQUIPMENT INC (LOV	LOVELAND	JACOB MARINKOVICH	PARKS	11/27/2024	317.40
MAD GREENS B	GOLDEN	DAWN BURGESS	CITY MANAGER	12/11/2024	312.00
MAPO.CLUBEXPRESS.COM	WHEAT RIDGE	DAVID DEAN	GOLF COURSE	12/02/2024	50.00
MARRIOTT	COLORADO SPRI	TRAVIS ANDERSON	SALES TAX	11/22/2024	555.00
MARRIOTT	COLORADO SPRI	TRAVIS ANDERSON	SALES TAX	11/22/2024	555.00
MARRIOTT	COLORADO SPRI	TRAVIS ANDERSON	SALES TAX	11/22/2024	615.00
ME-THORNTON-ECOMM	THORNTON	DAVID DEAN	GOLF COURSE	12/06/2024	198.59
MICHAELS STORES 2059	SUPERIOR	EMILY VIGMOSTAD	REC CENTER	12/14/2024	8.07
MICHAELS STORES 2059	SUPERIOR	IRIS BELENSKY	LIBRARY	12/04/2024	94.64
MIDJOURNEY INC.	SOUTH SAN FRA	GINGER CROSS	GOLF COURSE	12/10/2024	96.00
MILE HIGH TURFGRASS LL	EVERGREEN	DAVID DEAN	GOLF COURSE	11/27/2024	685.60
MOI 67586F89A2EE1D006B	DENVER	PATRICIA MORGAN	REC CENTER	12/10/2024	372.36
MORRELL PRINTING SOLUT	LAFAYETTE	GIGI YANG	LIBRARY	11/20/2024	266.45
NAPA AUTO PARTS 000013	FREDERICK	TANYA SCOTT	FINANCE	12/05/2024	1,987.46
NAPCOMMISSIONS	VIRGINIA BEAC	ROBERT ZUCCARO	PLANNING	12/04/2024	15.00
NATIONAL LEAGUE OF CIT	WASHINGTON	LIGEA FERRARO	CITY MANAGER	12/12/2024	2,190.00
NATIONAL SHOOTING SPOR	NEWTON	JOHN BROOKS	POLICE	12/02/2024	180.00
NEOGOV	EL SEGUNDO	PAULA KNAPEK	HUMAN RESOURCES	12/19/2024	1,891.95
NOODLES & CO 105	BROOMFIELD	AMANDA PERERA	REC CENTER	12/06/2024	18.55
O MEARA FORD	NORTHGLENN	MASON THOMPSON	OPERATIONS	12/13/2024	61.13
O MEARA FORD	NORTHGLENN	MASON THOMPSON	OPERATIONS	12/06/2024	526.37
O MEARA FORD	NORTHGLENN	JOSE TORRES	OPERATIONS	11/27/2024	178.64

O MEARA FORD	NORTHGLENN	MASON THOMPSON	OPERATIONS	11/21/2024	12.62
OCONNOR EMBROIDERY MON	CHARLESTON	DAVID BARIL	GOLF COURSE	12/09/2024	283.94
OFFICE DEPOT #1078	KENT	GABBY MURATTI	PLANNING	11/22/2024	47.44
OPENAI *CHATGPT SUBSCR	SAN FRANCISCO	GINGER CROSS	GOLF COURSE	12/14/2024	20.00
OPENAI *CHATGPT SUBSCR	SAN FRANCISCO	CAMERON FOWLKES	PUBLIC WORKS	12/03/2024	20.00
ORLEANS HOTEL & CASINO	LAS VEGAS	GABBY MURATTI	PLANNING	11/22/2024	62.15
ORLEANS HOTEL & CASINO	LAS VEGAS	GABBY MURATTI	PLANNING	11/22/2024	62.15
ORLEANS HOTEL & CASINO	LAS VEGAS	CHAD ROOT	BUILDING SAFETY	11/22/2024	62.15
OVERDRIVE DIST	2165736886	JILL SIEWERT	LIBRARY	12/16/2024	616.80
OVERDRIVE DIST	2165736886	JILL SIEWERT	LIBRARY	12/16/2024	785.81
PANERA BREAD #202432 P	SUPERIOR	MARLA OLSON	PARKS	11/20/2024	29.44
PARIS LAS VEGAS HOTEL	LAS VEGAS	RAFAEL GUTIERREZ	POLICE	11/27/2024	214.29
PASHOSHIM	PETAH TIKVA	JILL SIEWERT	LIBRARY	11/22/2024	142.80
PAYFLOW/PAYPAL	8888839770	TANYA SCOTT	FINANCE	12/02/2024	19.95
PAYFLOW/PAYPAL	8888839770	TANYA SCOTT	FINANCE	12/02/2024	59.95
PAYPAL *ADVANCEDPOL	8664464272	BENJAMIN KURTZ	POLICE	12/07/2024	325.00
PAYPAL *ARTCHEESELL	4029357733	PATRICIA MORGAN	REC CENTER	12/06/2024	357.50
PAYPAL *INDIGOWATER	4029357733	RENEE LEWELLYN	OPERATIONS	12/18/2024	160.00
PAYPAL *INDIGOWATER	4029357733	JEFFREY ROBINET	OPERATIONS	12/13/2024	200.00
PAYPAL *NCFILM	4029357733	GIGI YANG	LIBRARY	12/16/2024	395.60
PESTED.COM, LLC	KINGSTON	JILL MUNIZ	PARKS	12/06/2024	20.00
PETSMART # 1015	SUPERIOR	VINCENT WRAY	WATER	12/08/2024	4.99
PRAIRIE MOUNTAIN MEDIA	BOULDER	KATIE BEASLEY	REC CENTER	12/18/2024	270.00
PRAIRIE MOUNTAIN MEDIA	BOULDER	TANYA SCOTT	FINANCE	12/17/2024	2,448.16
PRAIRIE MOUNTAIN MEDIA	BOULDER	TANYA SCOTT	FINANCE	12/09/2024	1,389.52
PRO SUB FEE	SAN FRANCISCO	DEREK COSSON	CITY MANAGER	11/24/2024	15.00
PROGREEN EXPO25	LITTLETON	CHRIS LICHTY	PARKS	12/13/2024	660.00
PSI EXAMS	8003671565	TANNER THORSON	WASTEWATER	12/19/2024	104.00
PSI EXAMS	8003671565	SCOTT MOORE	POLICE	12/17/2024	175.00
PSI EXAMS	8003671565	RENEE LEWELLYN	OPERATIONS	11/25/2024	104.00
PSI SERVICES LLC USD	8188476180	VINCENT WRAY	WATER	11/21/2024	104.00
PST*VERMONT SYSTEMS	ESSEX JCT	KATHY MARTIN	REC CENTER	12/10/2024	1,359.60
PY *STORQUEST-LOUISVIL	LOUISVILLE	GIGI YANG	LIBRARY	12/09/2024	491.00
PY *STORQUEST-LOUISVIL	LOUISVILLE	GIGI YANG	LIBRARY	11/30/2024	502.00
PY *ZIGGIS COFFEE LOUI	LOUISVILLE	AUSTIN BROWN	CITY MANAGER	11/21/2024	28.20
PET SCOOP	DENVER	ABBY MCNEAL	PARKS	12/02/2024	496.00
PRIME VIDEO *OO6HV1TE3	888-802-3080	KATIE BEASLEY	REC CENTER	11/21/2024	6.53
QDOBA 2526	SUPERIOR	MARLA OLSON	PARKS	11/22/2024	46.64
QLT*FRAME SHOP	LAFAYETTE	MEREDYTH MUTH	CITY MANAGER	12/18/2024	1,540.96
RANGE SERVANT AMERICA	NORCROSS	DAVID DEAN	GOLF COURSE	11/22/2024	52.27
RAVEN ENVIRONMENTAL	KIRKWOOD	TANNER THORSON	WASTEWATER	12/13/2024	486.08
REMARKABLE	OSLO	CAMERON FOWLKES	PUBLIC WORKS	12/06/2024	3.27
RMD CONCEPTS INC	000-000-0000	DAVID DEAN	GOLF COURSE	12/10/2024	339.85
SAFEWAY #1656	SUPERIOR	PAULINA BENNETT	IT	11/19/2024	60.13

SAFEWAY #2812	LOUISVILLE	MARLA OLSON	PARKS	12/17/2024	13.98
SAFEWAY #2812	LOUISVILLE	KATIE TOFTE	REC CENTER	12/03/2024	28.46
SAFEWAY #2812	LOUISVILLE	KATIE TOFTE	REC CENTER	11/21/2024	43.96
SAFEWAY #2812	LOUISVILLE	DAVID BARIL	GOLF COURSE	11/22/2024	161.50
SAMEDAY OFFICE SUPPLY	303-7902777	KAYLA CORCELLI	PARKS	12/17/2024	180.96
SELKIRKS LLC LOT 9	DENVER	HANNAH MILLER	CITY MANAGER	12/04/2024	20.00
SEQUOIA CPE	SAN DIEGO	RYDER BAILEY	FINANCE	11/20/2024	149.00
SHAMROCK FSW 575 LOUIS	LOUISVILLE	KELLY THARP	OPERATIONS	12/18/2024	39.98
SHAMROCK FSW 575 LOUIS	LOUISVILLE	PATRICIA MORGAN	REC CENTER	12/12/2024	7.29
SHAMROCK FSW 575 LOUIS	LOUISVILLE	PATRICIA MORGAN	REC CENTER	12/04/2024	6.79
SHEETMUSICPLUS.COM	WILMINGTON	KATIE BEASLEY	REC CENTER	11/22/2024	26.46
SHELL OIL 57443810106	BROOMFIELD	MIKE MILLER	POLICE	12/09/2024	25.44
SIP.US	ALPHARETTA	GREG VENETTE	WATER	12/09/2024	31.24
SITEONE LANDSCAPE SUPP	BROOMFIELD	KERRY KRAMER	PARKS	12/10/2024	424.83
SITEONE LANDSCAPE SUPP	4702777038	DAVID DEAN	GOLF COURSE	12/02/2024	258.91
SITEONE LANDSCAPE SUPP	BROOMFIELD	KERRY KRAMER	PARKS	11/22/2024	94.71
SMARTFORCE	GREENWOOD VIL	JEN KENNEY	POLICE	11/21/2024	71.75
SNARFS LOUISVILLE LLC	LOUISVILLE	LIGEA FERRARO	CITY MANAGER	12/10/2024	222.05
SNARFS LOUISVILLE LLC	LOUISVILLE	LIGEA FERRARO	CITY MANAGER	11/19/2024	202.96
SOCIETYFORHUMANRESOURC	ALEXANDRIA	PAULA KNAPEK	HUMAN RESOURCES	12/01/2024	264.00
SP ACME FINE GOODS	LOUISVILLE	LOGAN JOHNSON	CITY MANAGER	11/20/2024	39.00
SP AV NOW INC.	SANTA CRUZ	LINDSEY WITTY	REC CENTER	11/25/2024	862.00
SP COLD PLUNGE STORE	SHENANDOAH	LINDSEY WITTY	REC CENTER	12/02/2024	60.00
SP LASERSAFETYINDUST	MINNEAPOLIS	MATTHEW RILEY	IT	12/11/2024	327.73
SP PRODUCTIVITYSTORE	LOS ANGELES	MINDY OLKJER	PUBLIC WORKS	11/26/2024	27.99
SP THE SINGING COOK	LOUISVILLE	LOGAN JOHNSON	CITY MANAGER	11/20/2024	26.48
SPI*DIRECTV SERVICE	800-531-5000	PAMELA PETERSON-HOHS	GOLF COURSE	12/17/2024	243.92
SPI*DIRECTV SERVICE	888-388-4249	PAMELA PETERSON-HOHS	GOLF COURSE	11/20/2024	243.92
SPO*PARMATRATTORIAMOZZ	LOUISVILLE	TANYA SCOTT	FINANCE	12/12/2024	4,560.00
SQ *ECO-BAGS PRODUCTS,	GOSQ.COM	CATHERINE JEPSON	PARKS	11/21/2024	992.94
SQ *PICA'S LOUISVILLE	LOUISVILLE	LIGEA FERRARO	CITY MANAGER	12/03/2024	232.30
SQ *POLICE BIKE STORE	GOSQ.COM	BENJAMIN WHITE-PATARIN	PARKS	11/26/2024	224.95
STAPLS7647598310000001	877-8267755	JILL SIEWERT	LIBRARY	12/13/2024	57.86
STAPLS7647829756000001	877-8267755	MARLA OLSON	PARKS	12/15/2024	132.73
STERICYCLE INC/SHRED-I	BANNOCKBURN	MARLA OLSON	PARKS	12/09/2024	196.39
STERICYCLE INC/SHRED-I	BANNOCKBURN	MEREDYTH MUTH	CITY MANAGER	12/06/2024	30.00
STERICYCLE INC/SHRED-I	BANNOCKBURN	TANYA SCOTT	FINANCE	12/04/2024	34.32
STICKER MULE	AMSTERDAM	GINGER CROSS	GOLF COURSE	12/11/2024	40.39
STICKER MULE	AMSTERDAM	GINGER CROSS	GOLF COURSE	12/10/2024	487.89
SUC N UP, LLC	LONGMONT	JACOB MARINKOVICH	PARKS	11/21/2024	475.00
SUPPLYHOUSE.COM	888-757-4774	DANIEL BIDLEMEN	REC CENTER	12/16/2024	698.99
STAPLES INC	STAPLES.COM	KAYLA CORCELLI	PARKS	12/18/2024	27.29
STAPLES INC	STAPLES.COM	KAYLA CORCELLI	PARKS	12/13/2024	18.74
STAPLES INC	STAPLES.COM	KAYLA CORCELLI	PARKS	12/14/2024	19.78

STAPLES INC	STAPLES.COM	KAYLA CORCELLI	PARKS	12/15/2024	69.06
STAPLES INC	STAPLES.COM	KAYLA CORCELLI	PARKS	12/06/2024	44.31
TARGET 00017699	SUPERIOR	CATHERINE JEPSON	PARKS	12/19/2024	45.66
TARGET 00017699	SUPERIOR	PAMELA PETERSON-HOHS	GOLF COURSE	11/26/2024	12.00
TELEDYNE INSTRUMENTS I	CITY INDUSTRY	MINDY OLKJER	PUBLIC WORKS	12/13/2024	446.00
TELEDYNE INSTRUMENTS I	CITY INDUSTRY	MINDY OLKJER	PUBLIC WORKS	12/10/2024	714.00
TEST GAUGE INC CO	AURORA	KAYLA CORCELLI	PARKS	11/21/2024	285.00
THE BATTERY DUDE	GOLDEN	NATHANIEL GOECKNER	PARKS	12/10/2024	814.70
THE BATTERY DUDE	GOLDEN	CATHERINE JEPSON	PARKS	11/25/2024	814.70
THE GRILL AT COAL CREE	L	MINDY OLKJER	PUBLIC WORKS	12/04/2024	984.00
THE GRILL AT COAL CREE	L	DAVID BARIL	GOLF COURSE	11/23/2024	210.00
THE HOME DEPOT #1506	LOUISVILLE	VICKIE ILKO	OPERATIONS	12/18/2024	56.93
THE HOME DEPOT #1506	LOUISVILLE	DAVID BARIL	GOLF COURSE	12/18/2024	109.00
THE HOME DEPOT #1506	LOUISVILLE	PAUL BORTH	REC CENTER	12/17/2024	141.42
THE HOME DEPOT #1506	LOUISVILLE	BRADLEY AUSTIN	PARKS	12/17/2024	333.88
THE HOME DEPOT #1506	LOUISVILLE	DANIEL SALAS ROBLES	PARKS	12/17/2024	12.73
THE HOME DEPOT #1506	LOUISVILLE	SHANE MAHAN	OPERATIONS	12/17/2024	79.96
THE HOME DEPOT #1506	LOUISVILLE	JACOB MARINKOVICH	PARKS	12/17/2024	87.55
THE HOME DEPOT #1506	LOUISVILLE	DANIEL SALAS ROBLES	PARKS	12/16/2024	18.29
THE HOME DEPOT #1506	LOUISVILLE	SHANE MAHAN	OPERATIONS	12/16/2024	35.57
THE HOME DEPOT #1506	LOUISVILLE	MATT ISABELL	PARKS	12/16/2024	33.96
THE HOME DEPOT #1506	LOUISVILLE	JOSEPH CAMPANA	OPERATIONS	12/16/2024	108.52
THE HOME DEPOT #1506	LOUISVILLE	JACOB MARINKOVICH	PARKS	12/12/2024	9.54
THE HOME DEPOT #1506	LOUISVILLE	KATHLEEN D LORENZO	PARKS	12/12/2024	18.94
THE HOME DEPOT #1506	LOUISVILLE	DANIEL SALAS ROBLES	PARKS	12/13/2024	31.94
THE HOME DEPOT #1506	LOUISVILLE	DANIEL BIDLEMEN	REC CENTER	12/12/2024	19.98
THE HOME DEPOT #1506	LOUISVILLE	SHANE MAHAN	OPERATIONS	12/12/2024	72.20
THE HOME DEPOT #1506	LOUISVILLE	JEFF ROBISON	FACILITIES	12/12/2024	30.96
THE HOME DEPOT #1506	LOUISVILLE	GIGI YANG	LIBRARY	12/12/2024	69.98
THE HOME DEPOT #1506	LOUISVILLE	JEFF ROBISON	FACILITIES	12/11/2024	4.53
THE HOME DEPOT #1506	LOUISVILLE	KEN MATHEWS	OPERATIONS	12/11/2024	46.91
THE HOME DEPOT #1506	LOUISVILLE	GIGI YANG	LIBRARY	12/11/2024	243.99
THE HOME DEPOT #1506	LOUISVILLE	KERRY KRAMER	PARKS	12/11/2024	108.74
THE HOME DEPOT #1506	LOUISVILLE	DANIEL BIDLEMEN	REC CENTER	12/11/2024	39.92
THE HOME DEPOT #1506	LOUISVILLE	GIGI YANG	LIBRARY	12/10/2024	19.73
THE HOME DEPOT #1506	LOUISVILLE	DAVID DEAN	GOLF COURSE	12/10/2024	77.51
THE HOME DEPOT #1506	LOUISVILLE	DANIEL SALAS ROBLES	PARKS	12/09/2024	37.94
THE HOME DEPOT #1506	LOUISVILLE	JEFF ROBISON	FACILITIES	12/09/2024	18.50
THE HOME DEPOT #1506	LOUISVILLE	JOHN BROOKS	POLICE	12/09/2024	62.42
THE HOME DEPOT #1506	LOUISVILLE	ANDY ELLIS	PARKS	12/09/2024	10.64
THE HOME DEPOT #1506	LOUISVILLE	JEFF ROBISON	FACILITIES	12/06/2024	73.88
THE HOME DEPOT #1506	LOUISVILLE	MARC MORTON	PARKS	12/05/2024	9.98
THE HOME DEPOT #1506	LOUISVILLE	DANIEL SALAS ROBLES	PARKS	12/05/2024	112.70
THE HOME DEPOT #1506	LOUISVILLE	ANDY ELLIS	PARKS	12/04/2024	28.84

THE HOME DEPOT #1506	LOUISVILLE	JOSEPH CAMPANA	OPERATIONS	12/04/2024	107.64
THE HOME DEPOT #1506	LOUISVILLE	ANDY ELLIS	PARKS	12/04/2024	6.97
THE HOME DEPOT #1506	LOUISVILLE	DANIEL BIDLEMEN	REC CENTER	12/03/2024	39.46
THE HOME DEPOT #1506	LOUISVILLE	SHANE MAHAN	OPERATIONS	12/03/2024	27.97
THE HOME DEPOT #1506	LOUISVILLE	JEFF ROBISON	FACILITIES	12/03/2024	27.96
THE HOME DEPOT #1506	LOUISVILLE	GIGI YANG	LIBRARY	12/03/2024	67.94
THE HOME DEPOT #1506	LOUISVILLE	MATT ISABELL	PARKS	12/02/2024	15.44
THE HOME DEPOT #1506	LOUISVILLE	DANIEL SALAS ROBLES	PARKS	12/02/2024	110.70
THE HOME DEPOT #1506	LOUISVILLE	KEVIN FREY	FACILITIES	12/02/2024	253.76
THE HOME DEPOT #1506	LOUISVILLE	NORMAN MERLO	GOLF COURSE	11/29/2024	32.72
THE HOME DEPOT #1506	LOUISVILLE	MATTHEW ROWE	FACILITIES	11/27/2024	26.93
THE HOME DEPOT #1506	LOUISVILLE	VINCENT WRAY	WATER	11/26/2024	10.98
THE HOME DEPOT #1506	LOUISVILLE	JACOB MARINKOVICH	PARKS	11/26/2024	10.94
THE HOME DEPOT #1506	LOUISVILLE	JACK MANIAN	OPERATIONS	11/25/2024	55.29
THE HOME DEPOT #1506	LOUISVILLE	KEN MATHEWS	OPERATIONS	11/25/2024	35.42
THE HOME DEPOT #1506	LOUISVILLE	GIGI YANG	LIBRARY	11/24/2024	541.95
THE HOME DEPOT #1506	LOUISVILLE	BRENDON MEILI	PARKS	11/22/2024	23.40
THE HOME DEPOT #1506	LOUISVILLE	KERRY KRAMER	PARKS	11/21/2024	8.92
THE HOME DEPOT #1506	LOUISVILLE	MATTHEW ROWE	FACILITIES	11/21/2024	29.54
THE HOME DEPOT #1506	LOUISVILLE	MATT LOOMIS	PARKS	11/21/2024	29.97
THE HOME DEPOT #1506	LOUISVILLE	RENEE LEWELLYN	OPERATIONS	11/22/2024	29.08
THE HOME DEPOT #1506	LOUISVILLE	RANDY DEWITZ	BUILDING SAFETY	11/22/2024	34.27
THE HOME DEPOT #1506	LOUISVILLE	JEFF ROBISON	FACILITIES	11/21/2024	83.38
THE HOME DEPOT #1506	LOUISVILLE	JEFF ROBISON	FACILITIES	11/20/2024	13.07
THE HOME DEPOT #1506	LOUISVILLE	BRENDON MEILI	PARKS	11/20/2024	54.30
THE HOME DEPOT #1506	LOUISVILLE	ANDY ELLIS	PARKS	11/20/2024	21.82
THE HOME DEPOT #1506	LOUISVILLE	JEFF ROBISON	FACILITIES	11/20/2024	23.12
THE HOME DEPOT #1506	LOUISVILLE	KEN MATHEWS	OPERATIONS	11/19/2024	71.76
THE HOME DEPOT #1506	LOUISVILLE	ABBY MCNEAL	PARKS	11/19/2024	42.88
THE HUMMUS REPUBLIC CO	LOUISVILLE	LOGAN JOHNSON	CITY MANAGER	12/05/2024	123.99
THE LIFEGUARD STORE, I	309-4515858	DANNY WEIONSTOCK	REC CENTER	12/18/2024	997.50
THE LIFEGUARD STORE, I	309-4515858	DANNY WEIONSTOCK	REC CENTER	12/16/2024	150.00
THE UPS STORE 5183	LOUISVILLE	THOMAS CZAJKA	OPERATIONS	11/21/2024	228.52
TOWN OF SUPERIOR	303-499-3675	ERIK SWIATEK	PARKS	12/05/2024	59.52
TRELLO.COM* ATLASSIAN	NEW YORK	MINDY OLKJER	PUBLIC WORKS	11/27/2024	108.00
TRITECH FORENSICS	LELAND	ERICA BERZINS	POLICE	12/03/2024	141.38
TST* BUCATINO TRATTORI	LAFAYETTE	MICHELLE CLINGAN	HUMAN RESOURCES	12/17/2024	277.00
TST* NOTHING BUNDT CAK	BOULDER	PATRICIA MORGAN	REC CENTER	11/26/2024	13.50
TST* NOTHING BUNDT CAK	BOULDER	PATRICIA MORGAN	REC CENTER	11/26/2024	29.00
TST* NOTHING BUNDT CAK	BOULDER	PATRICIA MORGAN	REC CENTER	11/26/2024	255.00
TST*BITTERSWEET - CAFE	LOUISVILLE	JOHN ZAMORA	LIBRARY	12/08/2024	222.00
TST*BITTERSWEET - CAFE	LOUISVILLE	IRIS BELENSKY	LIBRARY	11/30/2024	132.00
TST*THE HUCKLEBERRY	LOUISVILLE	IRIS BELENSKY	LIBRARY	12/06/2024	286.00
TST*THE HUCKLEBERRY	LOUISVILLE	MINDY OLKJER	PUBLIC WORKS	11/21/2024	92.04

TST*VERDE - LOUISVILLE	LOUISVILLE	RYDER BAILEY	FINANCE	12/04/2024	33.90
TST*WATERLOO	LOUISVILLE	KURT KOWAR	PUBLIC WORKS	11/19/2024	94.00
TUFF PRODUCTS BRAND	877-883-3776	JOHN BROOKS	POLICE	12/18/2024	259.00
TRANSPARENT INFORMATIO	3032178747	LESLIE RINGER	HUMAN RESOURCES	12/05/2024	495.90
UDEMY: ONLINE COURSES	SAN FRANCISCO	KURT KOWAR	PUBLIC WORKS	12/16/2024	155.29
UNITED AIRLINES	UNITED.COM	ERIK SWIATEK	PARKS	11/21/2024	256.96
UNITED REFRIG BR #T9	LOUISVILLE	DANIEL BIDLEMEN	REC CENTER	12/12/2024	14.67
USGA MEMBERSHIP	LIBERY CORNE	DAVID BARIL	GOLF COURSE	12/09/2024	175.00
USPS KIOSK 0756709550	SUPERIOR	LINDSEY WITTY	REC CENTER	11/22/2024	12.10
USPS PO 0756700237	SUPERIOR	BRENDON MEILI	PARKS	12/19/2024	4.85
USPS PO 0756700237	SUPERIOR	AMANDA PERERA	REC CENTER	12/03/2024	32.00
USPS PO 0756700237	SUPERIOR	BRENDON MEILI	PARKS	11/22/2024	9.70
VALLEY CHRYSLER DODGE	BOULDER	MASON THOMPSON	OPERATIONS	12/04/2024	200.00
VARIDESK* 1800 207 25	COPPELL	KELSEY LESNIAK	PARKS	12/06/2024	279.30
VSP*GAYLORD ARCHIVAL	SYRACUSE	GIGI YANG	LIBRARY	12/10/2024	216.11
VSP*GAYLORD ARCHIVAL	SYRACUSE	GIGI YANG	LIBRARY	12/02/2024	117.49
VZWRLSS*MY VZ VB P	800-922-0204	TANYA SCOTT	FINANCE	12/20/2024	6,381.60
VZWRLSS*MY VZ VB P	800-922-0204	TANYA SCOTT	FINANCE	12/12/2024	6,408.37
VZWRLSS*PRPAY AUTOPAY	888-294-6804	MINDY OLKJER	PUBLIC WORKS	12/08/2024	20.00
WAL-MART #5341	BROOMFIELD	LANA FAUVER	REC CENTER	11/30/2024	87.34
WALGREENS #6467	SUPERIOR	GINGER CROSS	GOLF COURSE	12/16/2024	99.90
WEF MAIN	ALEXANDRIA	GREG VENETTE	WATER	11/22/2024	115.00
WEF PAYMENT	8006660206	TANNER THORSON	WASTEWATER	11/28/2024	59.00
WHOLEFDS SUP 10445	SUPERIOR	HANNAH MILLER	CITY MANAGER	12/10/2024	20.78
WICKHAM TRACTOR - LONG	LONGMONT	MASON THOMPSON	OPERATIONS	12/04/2024	246.85
WILMINGTON FRA	CHARLOTTE	RAFAEL GUTIERREZ	POLICE	11/26/2024	1,150.00
WINGSAIRSPACEMSM	DENVER	PEGGY NORRIS	LIBRARY	11/25/2024	500.00
WM SUPERCENTER #1045	LAFAYETTE	IRIS BELENSKY	LIBRARY	12/17/2024	56.53
WM SUPERCENTER #1045	LAFAYETTE	IRIS BELENSKY	LIBRARY	12/07/2024	52.96
ZOOM.US 888-799-9666	SAN JOSE	MIKE MILLER	POLICE	11/21/2024	163.34
ZORO TOOLS INC	BUFFALO GROVE	KEVIN FREY	FACILITIES	12/17/2024	674.39
				Total	$163,010.02
				R.Bailey	-$70.00
				Grand Total	$162,940.02

City of Louisville
COLORADO • SINCE 1878

National Radon Action Month in Louisville, Colorado

WHEREAS, radon is an invisible, odorless, radioactive gas that threatens the health of our residents and their families as a group 1 carcinogen known to cause lung cancer in humans with prolonged exposure; and

WHEREAS, the Colorado Rocky Mountain Region has been ranked Zone 1, an area with the highest radon potential possible by the U.S. Environmental Protection Agency; and

WHEREAS, Colorado residential radon data has shown 50% of Colorado homes tested as being at or above the U.S. Environmental Protection Agency Radon Action Level of 4.0 pCi/L (picocuries per liter of air); and

WHEREAS, any home in Louisville, Colorado may have elevated levels of radon (even if homes in the same neighborhood do not); and

WHEREAS, supporting recommended radon practices and policies to reduce radon exposure is important to protect our community's health and welfare; and

WHEREAS, testing for radon is simple and inexpensive and any identified radon problems can be fixed; and

WHEREAS, Boulder County Public Health, the Colorado Department of Public Health and Environment, the U.S. Environmental Protection Agency, and the American Lung Association are supporting efforts to encourage Americans to test their homes for radon, have elevated levels of radon reduced, and have new homes built with radon-resistant features.

NOW, THEREFORE, BE IT RESOLVED that the City of Louisville City Council hereby proclaims January 1-31, 2025, as Official National Radon Action Month in Louisville, Colorado.

DATED this 21st day of January 2025.

_____
Christopher M. Leh, Mayor

ATTEST:

_____
Genny Kline, Interim City Clerk

Is your home safe from radon?

What is radon?

Radon is a naturally-occurring invisible, odorless gas that comes from the radioactive breakdown of uranium in soil, rock, and water.

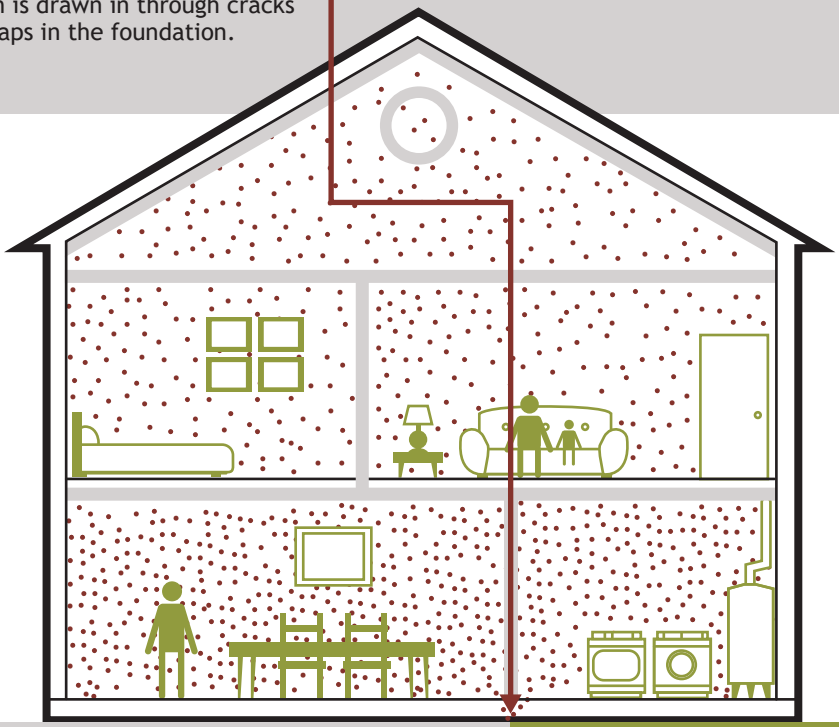
Radon in Colorado

About 50% of homes in Colorado have high radon levels.

Due to the geology of Colorado, homes in our state have higher levels of radon than the national average.

Radon can enter any home

Radon is drawn in through cracks and gaps in the foundation.



Radon occurs naturally in the soil



1. Uranium decays and creates radium

2. Radium decays and creates radon gas

200 chest x-rays

In Colorado, living in a home with average levels of radon (6.4pCi/L) is like having 200 chest x-rays every year.

That's more than three per week, per person, per year.

CC 01/21/25

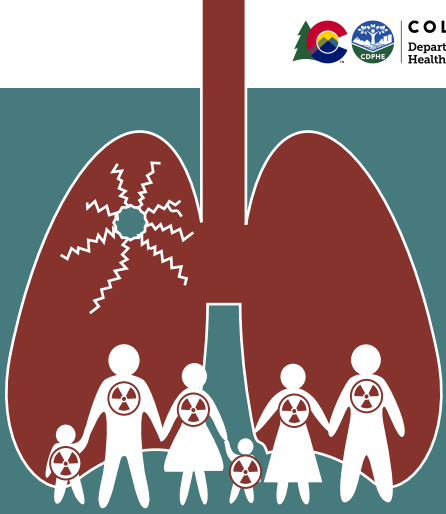
COLORADO
Department of Public Health & Environment

COLORADO
Department of Public Health & Environment

Radon causes cancer

Every year, over
20,000 people
die in the U.S. from lung cancer caused by radon.

Radon decays into radioactive particles that, when inhaled, can damage the DNA in sensitive lung cells. The damaged cells can become cancerous.



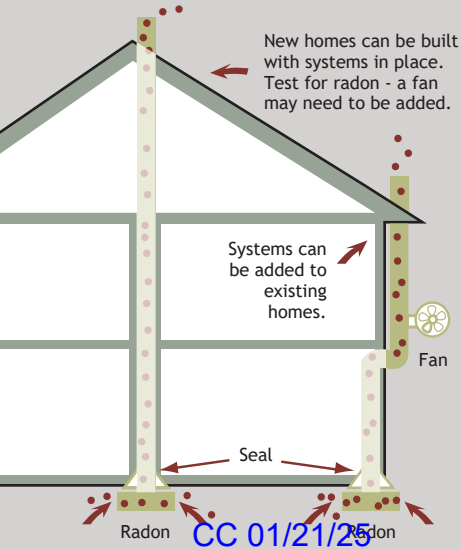
Testing for radon is easy



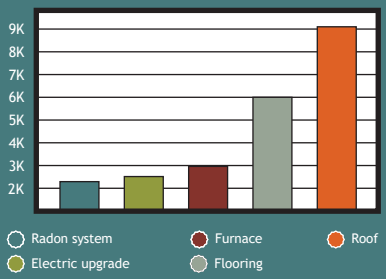
Do-it-yourself radon test kits are easy to set up and are available for less than $35. Test kits can be purchased on-line at https://sosradon.org/, at local hardware stores or from certified radon measurement contractors.

Fixing the problem is inexpensive

Contact your local health department for more information. Find a certified and licensed contractor at ColoradoRadon.info.



Improvement cost comparisons



For more information

Colorado Department of Public Health & Environment
1.800.846.3986 | ColoradoRadon.info

CC 01/21/25

Colorado Low-income Radon Mitigation Assistance Program (LIRMA)



If your home has high radon levels and you meet certain income requirements, you may qualify for a free radon mitigation system through the Colorado Department of Public Health and Environment (CDPHE).

COLORADO
Department of Public Health & Environment

You may be eligible if:

1) You own the home you live in.

2) You are a Colorado resident.

3) You qualify as a low-income household.

4) You properly test your home for radon and the levels are higher than 4 pCi/L (picocuries per liter of indoor air).

5) To see if you qualify, and/or to apply, visit: www.coloradoradon.info.

How to apply:

1) Visit **www.coloradoradon.info** and click on the "low income mitigation assistance" link.

2) Read the policy and procedures manual.

3) Complete the homeowner application.

4) Send in the required documents as indicated in your confirmation email from CDPHE:

- radon test results
- proof of home ownership
- a copy of your mortgage statement
- a copy of your Colorado identification

We hope to give up to 100 families free radon mitigation systems each year.

For more information
Colorado Department of Public Health & Environment
1.800.846.3986 or ColoradoRadon.info

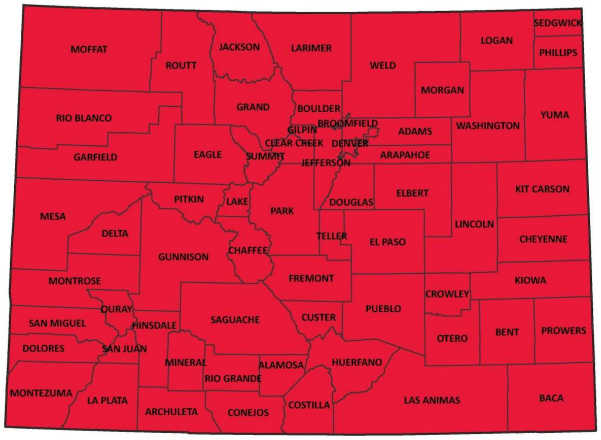
Preventing Lung Cancer from Radon Exposure

Boulder County Public Health



RADON AWARE

Colorado Residents are at Risk

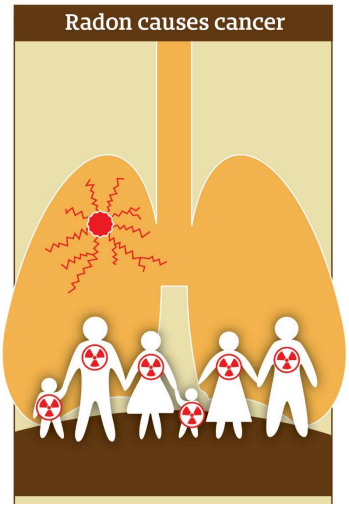


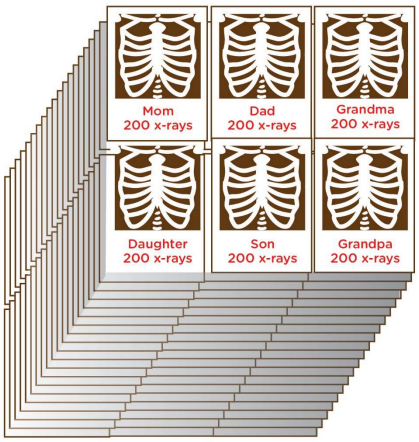
Colorado Department of Public Health and Environment

Source: Colorado Department of Public Health and Environment (CDPHE) Radon Outreach Program and Colorado Environmental Public Health Tracking.
Notes: These radon zones were determined based on indoor radon, geology, soil, construction type and aerial radiation measurements. Approximately 20,000 pre-mitigation radon test results were used in development of this map. 4 pC/L is the EPA action level for indoor radon.

ZONE 1 — High radon potential (probable indoor radon average >4pCi/L)

Radon Causes Cancer



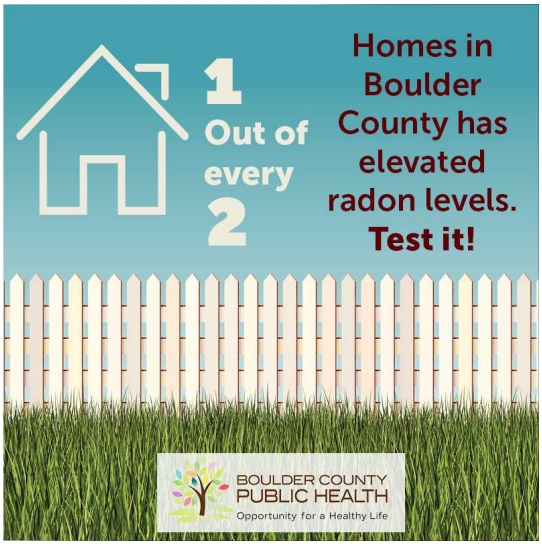


Radon Exposure is Avoidable

- Radon Aware video

RADON AWARE

Radon Awareness is Growing



Together, we can help Boulder County residents create healthy homes.

RADON AWARE

Patty Dooley-Strappelli
Boulder County Public Health Air Quality Program
Email: HealthRadon@BoulderCounty.gov
Webpage: www.boco.org/radon

CITY COUNCIL COMMUNICATION
AGENDA ITEM 5C

SUBJECT: **ADOPT THE CITY COUNCIL 2025 WORK PLAN**

DATE: **JANUARY 21, 2025**

PRESENTED BY: **SAMMA FOX, INTERIM CITY MANAGER**

SUMMARY:
The City Council establishes their work plan annually. The annual work plan reflects Council's priorities and includes only those items that require City Council involvement such as policy direction, guidance, or approval. The City Council work plan also helps staff prioritize internal work plans and schedule the work that is needed to bring to City Council for engagement.

This is the last step in a series of meetings planned to craft and finalize the 2025 Council Work Plan. Previously, work plans were organized by programs and contained a mix of strategic initiatives, programs, and tasks. For 2025, staff proposed taking an opportunity with the unique timing of the first resident survey in four years and the ten-year Comprehensive Plan Revision to build on existing strategic alignment of the work plan.

The City Council met in July and identified these four areas of focus for 2025:

- Economic Vitality
- Core Services
- Safety
- Affordable Housing

Additionally, the Council determined all work plan items should be viewed through the lenses of Equity, Diversity and Inclusion (EDI) and Environmental Sustainability.

These priorities and lenses align with the 2024 Resident Survey, the council affirmed Comprehensive Plan Vision and Values, and were used to inform the 2025-2026 Budget.

Staff has now applied programs and tasks to each priority area, in-line with council's expectations for the item, council has reviewed ad provided feedback, and the work plan is presented for adoption tonight. Once approved, the work plan will be used to set advanced agenda items, inform staff priorities, and inform advisory board priorities.

FISCAL IMPACT:
The City Council Work Plan outlines the issues and items Council plans to address throughout the next year and those may impact the budget.

PROGRAM/SUB-PROGRAM IMPACT:
One of the objectives of the Governance & Administration Sub-Program is providing governance based on a thorough understanding of the community's diverse interests executed through clear and effective policy direction. The annual City Council Work Plan helps set the agenda for Council policy direction and governance.

RECOMMENDATION:
The 2025 City Council Work Plan is presented for adoption.

ATTACHMENT(S):
1. 2025 Draft Work Plan – Redline
2. 2025 Work Plan – Clean Copy

STRATEGIC PLAN IMPACT:

☒	**Financial Stewardship & Asset Management**	☒	**Reliable Core Services**
☒	**Vibrant Economic Climate**	☒	**Quality Programs & Amenities**
☒	**Engaged Community**	☒	**Healthy Workforce**
☒	**Supportive Technology**	☒	**Collaborative Regional Partner**

DRAFT

2025 Louisville City Council Work Plan

2025 Council Priorities

Economic Vitality • Core Services • Safety • Affordable Housing

Equity, Diversity, and Inclusion (EDI) and Sustainability are core values of the City of Louisville and should be used as lenses through which to view all actions on this workplan. Council directs staff to consider both EDI and Sustainability in their decision making and in options presented for council direction.

Guiding Documents:

- Louisville City Charter
- Louisville City Code
- 2025/2026 Louisville City Budget
- 2024 Louisville Community Survey
- 2012-2013 Comprehensive Plan, transitioning to the 2025 Comprehensive Plan when adopted
- Sustainability Action Plan
- EDI Task Force – Final Report

The 2025 Louisville City Council Work Plan represents planned work on council priorities in 2025 above and beyond day-to-day services and anticipates updates to council throughout the year. Council may adjust this plan as needed, recognizing the scale of many of these initiatives and that adjustments such as additions or changes will impact items listed below. The following pages define each of Council's four 2025 priorities.

Economic Vitality

Economic Vitality, also known as Economic Prosperity, includes completion of current planning initiatives such as the Comprehensive Plan and Downtown Vision Plans, code updates to continue a business-friendly approach, and traditional economic development focuses such as business attraction and retention.

Additional Guiding Documents

- Downtown Vision Plan for Streetscapes and Public Places
- Housing Plan
- McCaslin Parcel O Redevelopment Study
- Urban Renewal Plans
  - Highway 42 Urban Renewal Plan
  - 550 South McCaslin Urban Renewal Plan

2025 Projects & Actions

Item	Description	Council Actions
Comprehensive Plan	Update to 2013 Comprehensive Plan addressing community future growth and development, infrastructure, and a range of other topics including but not limited to Housing Plan implementation.	Anticipating four City Council meetings in 2025, with City Council adoption planned for Summer 2025.
Downtown Vision Plan for Streetscapes and Public Places	The Downtown Vision Plan for Streetscapes and Public Places was adopted by the Louisville Revitalization Committee and City Council in 2024. The next steps focus on design and construction, being thoughtful to mitigate impacts for business and the community during this process.	Anticipate 2-3 meetings including approval of design RFP and approval of contractor. Additional meetings to be determined as the project progresses.
Economic Vitality Committee (EVC) Policy Recommendations	Based on 2024, staff anticipates the EVC to bring forward policy	*To Be Determined*

	recommendations for council consideration, such as potential Business Assistance Program (BAP) amendments, loan program, small retail special assistance, CHIPS designation, or branding.	
2025 Comprehensive Plan Implementation - Targeted Development Code Amendments	Identify near term, targeted, priority development code updates to implement the 2025 Comprehensive Plan that should occur prior to the development code rewrite project that is planned to begin in early 2026. Such code changes include but are not limited to parts of Title 16 (Subdivisions) and Title 17 (Zoning).	Potential council actions include discussion and direction, if needed, as well as adoption of targeted code amendments.
2025 Comprehensive Plan Implementation – Development Code Rewrite	A rewrite of Title 16 (Subdivisions) and Title 17 (Zoning) of the Louisville Municipal Code addressing development and design standards, procedures, land use, and other related topics. This project is estimated to take 18 months to completion and will require consultant support.	Anticipated action resulting from the 2025 Comprehensive Plan adoption in mid-2025. Council to review RFP and scope of work, approve consultant contract, and begin first phases of project in second half of 2025, with project continuing into 2026.

Potential Partners

- Louisville Chamber
- Louisville Downtown Business Association (DBA)
- Louisville Revitalization Commission (LRC)

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Core Services

Core Services are broad ranging with a 2025 focus on maintaining existing infrastructure and assets, including utilities, parks, open space, and sustainable asset management, as well as city communications.

Additional Guiding Documents

- Boulder County Community Wildfire Protection Plan
- Coal Creek Golf Course Facility Improvement Feasibility Study
- Digital Accessibility Guidance (state guidance)
- Historic Preservation Master Plan
- Open Space Vegetation Survey
- Parks General Maintenance Management Plan
- Parks, Recreation, Open Space, and Trails Master Plan
- Police Department 2025-2028 Guiding Document
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- Utility Master Plan (coming for adoption in 2025)
- Wildfire Risk Assessment

2025 Projects & Actions

Item	Description	Council Actions
Building the Foundation	Potential Study Session topics include: - Technology - Facilities - Transportation Infrastructure - Open Space	Anticipate up to four study sessions, which would provide a quarterly focus on a different area of core services.
Utility Master Plan	A utility master plan is a formal plan addressing mission-critical utility service requirements.	The Utility Master Plan has been updated through the last year and a half and will be placed on Council's agenda for formal adoption for records.
PROS Long-Range Plan & Trails Master Plan	The 10-year PROS(G) department strategic plan, last completed in 2012. Will be completed in concert with the department's first Trails Master Plan.	Anticipate 1-2 status update meetings in 2025. May also include requests to attend Open Houses or Public Engagement meetings. Anticipate adoption in 2026.
~~Website~~ Communications	Community engagement, internal and external, such as understanding communications	Anticipate 1-2 meetings with council.

	best practices and opportunities, telling our story, and revision of the City of Louisville website.	
Accessibility/ADA	Continuing efforts to improve accessibility for our community in all city services. Initial scoping is in progress.	ADA Transition Plan and Process contract approval in Q2. Review findings and needs Q1 2026.
Waste Water Treatment Plant (WWTP) Expansion	Expansion of WWTP to service Redtail Ridge.	Approval of Redtail WWTP Expansion Agreement and approve Redtail Ridge WWTP Expansion Construction contract.
~~**Pavement Management**~~ **Transportation Infrastructure**	~~Pavement Preservation is one of the City's highest funded priorities. The City surveys the street network every 3 years. This item provides for review of the 2024 pavement condition index results. (Good news. Network average was a 74.)~~ Receive an overview on current transportation and transportation infrastructure strategies and priorities, such as the Transportation Master Plan, rail, multi-modal, and regional efforts. Provide direction on potential future strategic transportation work if desired.	~~Review pavement survey results.~~ Review current transportation strategy and priorities. Provide feedback on future ~~pavement preservation funded~~ strategic work if desired.
Advocacy	Core services rely on supportive legislation, regional partnerships, and are benefited by grant funding and incentives. Support of and active advocacy around the legislative agenda, especially on items such as transit, is imperative.	Anticipate 1-2 meetings on the legislative agenda. Additional agenda items, such as resolutions in support or opposition of legislation, as needed.
Franchise Agreement	~~Such as~~ Comcast, due in 2025, ~~and Xcel, due in 2027.~~	Anticipate one or more meetings to review and approve the agreements, understand alternatives.
2026 Supplemental Year Budget	Funding is crucial for core services.	Anticipate 3 or more meetings to set and adopt the 2026 supplemental year budget.

EDI Task Force Follow Up	Review the Task Force's Report, what has been done to date, and discuss future policy and/or strategic EDI work if desired.	Anticipate one or more meetings. Study session or meeting for discussion/direction

Potential Partners

- Boulder Valley School District
- Colorado Municipal League
- Comcast
- Denver Regional Council of Governments (DRCOG)
- Developer
- Metro Mayor's Caucus
- Neighboring Jurisdictions
- Northwest Mayors and Commissioners Coalition
- Xcel

DRAFT

Safety

Safety is a core priority for council with a desire for residents to feel safe being in our community and a 2025 focus on bike and pedestrian safety, traffic safety, disaster and emergency preparedness.

Additional Guiding Documents

- Boulder County Community Wildfire Protection Plan
- Police Department 2025-2028 Guiding Document
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2025 Projects and Actions

Item	Description	Council Actions
Building the Foundation	Potential study session topics include: - Police and Public Safey - Emergency Response & Disaster Preparedness - Cyber Security - Information Technology - Mental Health	Anticipate 2-4 study sessions to provide insight into different areas of safety.
Traffic Safety	~~Capacity and resource focus, equipment, technology, vehicle and pedestrian safety.~~ An overview of infrastructure traffic safety.	Infrastructure Traffic Safety discussion anticipated in early 2025.
Preparedness	Collaboration and Coordination between Police, Fire District, ODM, Internal City departments, and other Regional Partners, and overviews on topics such as the CWPP, cell phone towers, and resident/business preparedness, balancing an all hazards approach with the importance of fire preparedness in our community. Training, communications, education, and engagement, such as for disaster preparedness month	May include study session(s) as noted above and discussion/direction opportunities. May also include requests to attend public engagement and promote trainings and education opportunities.

	and bringing together resources and work done in these areas.	
Wildland Urban Interface (WUI) Code	In 2024 City Council provided direction to pursue a WUI code. Senate Bill 23-166 requires the state to adopt a state-wide minimum WUI code and define areas of applicability by July 1, 2025 and includes a three-month period for local adoption.	Anticipate 1-3 council meetings on the topic, including adoption.
Potential Citywide Defensible Space	An opportunity to understand potential citywide defensible space policies to aid in wildfire mitigation and preparedness.	Anticipate one or more meetings, depending on council's direction.

Potential Partners

- Boulder Valley School District
- Boulder County (including Office of Disaster Management)
- Louisville Fire District
- Neighboring Jurisdictions
- Xcel

DRAFT

~~Affordable~~ Housing Policy

~~Affordable Housing includes~~ Includes implementation of the Housing Plan through development and adoption of code changes and policies, partnership with regional efforts, an emphasis on the importance of affordable housing, and a push to break ground on new units within Louisville.

Additional Guiding Documents

- Housing Plan
- State Requirements
  - HB 24-1313 (Housing in Transit Oriented Communities)
  - SB 24-174 (Sustainable Affordable Housing Assistance)
  - HB 24-1152 (Accessory Dwelling Units)
  - HB 24-1007 (Prohibit Residential Occupancy Limits)
  - HB 24-1304 (Minimum Parking Requirements)
  - HB 24-1175 (Local Government Rights to Property for Affordable Housing)
  - Proposition 123 Compliance

2025 Projects and Actions

Item	Description	Council Actions
Building the Foundation	A potential overview of housing legislation and/or another meeting with the housing authority	One study session.
Code Update: ADUs	Housing Plan implementation item to update the accessory dwelling unit codes due to state regulations. (City Council provided direction in mid-2024)	Two council meetings in early 2025 (1st and 2nd Readings).
Code Update: Inclusionary Housing Ordinance (IHO)	Housing Plan implementation to update the inclusionary housing ordinance to address incentives for providing more affordable housing, updates to fees, and other refinements.	Anticipate 2-3 council meetings, mid 2025.
Potential City Initiated Rezoning	Consider potential city-initiated rezoning ~~of a parcel~~ for housing development. The 2025 Comprehensive Plan's future land use framework will provide guidance for any such rezoning.	As a potential action item from the 2025 Comprehensive Plan, there could be 1-3 meetings on the subject.

DRAFT

Potential Property Acquisition or Project Contribution for the Creation of Affordable Housing	Potential to utilize budgeted capital funding for acquisition or contribution to leverage additional funding and support affordable housing.	Anticipate at least one council meeting.
Prop. 123 Compliance	Includes audit of development code for compliance with Prop 123 expedited review for affordable housing requirement as part of regional grant. This audit will inform a code amendment that must be in place by November 2026.	Anticipate one council meeting.

Potential Partners

- Boulder County
- Boulder County Housing Authority
- Neighboring Jurisdictions
- Nonprofits
- Regional Housing Partnership
- The State of Colorado - Department of Local Affairs (DOLA)

DRAFT

2025 Louisville City Council Work Plan

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Preparedness	Collaboration and Coordination between Police, Fire District, ODM, Internal City departments, and other Regional Partners, and overviews on topics such as the CWPP, cell phone towers, and resident/business preparedness, balancing an all hazards approach with the importance of fire preparedness in our community. Training, communications, education, and engagement, such as for disaster preparedness month and bringing together	May include study session(s) as noted above and discussion/direction opportunities. May also include requests to attend public engagement and promote trainings and education opportunities.

	resources and work done in these areas.	
Wildland Urban Interface (WUI) Code	In 2024 City Council provided direction to pursue a WUI code. Senate Bill 23-166 requires the state to adopt a state-wide minimum WUI code and define areas of applicability by July 1, 2025 and includes a three-month period for local adoption.	Anticipate 1-3 council meetings on the topic, including adoption.
Potential Citywide Defensible Space	An opportunity to understand potential citywide defensible space policies to aid in wildfire mitigation and preparedness.	Anticipate one or more meetings, depending on council's direction.

Potential Partners

- Boulder Valley School District
- Boulder County (including Office of Disaster Management)
- Louisville Fire District
- Neighboring Jurisdictions
- Xcel

Housing Policy

Includes implementation of the Housing Plan through development and adoption of code changes and policies, partnership with regional efforts, an emphasis on the importance of affordable housing, and a push to break ground on new units within Louisville.

Additional Guiding Documents

- Housing Plan
- State Requirements
  - HB 24-1313 (Housing in Transit Oriented Communities)
  - SB 24-174 (Sustainable Affordable Housing Assistance)
  - HB 24-1152 (Accessory Dwelling Units)
  - HB 24-1007 (Prohibit Residential Occupancy Limits)
  - HB 24-1304 (Minimum Parking Requirements)
  - HB 24-1175 (Local Government Rights to Property for Affordable Housing)
  - Proposition 123 Compliance

2025 Projects and Actions

Item	Description	Council Actions
Building the Foundation	A potential overview of housing legislation and/or another meeting with the housing authority	One study session.
Code Update: ADUs	Housing Plan implementation item to update the accessory dwelling unit codes due to state regulations. (City Council provided direction in mid-2024)	Two council meetings in early 2025 (1st and 2nd Readings).
Code Update: Inclusionary Housing Ordinance (IHO)	Housing Plan implementation to update the inclusionary housing ordinance to address incentives for providing more affordable housing, updates to fees, and other refinements.	Anticipate 2-3 council meetings, mid 2025.
Potential City Initiated Rezoning	Consider potential city-initiated rezoning-for housing development. The 2025 Comprehensive Plan's future land use framework will provide guidance for any such rezoning.	As a potential action item from the 2025 Comprehensive Plan, there could be 1-3 meetings on the subject.

Potential Property Acquisition or Project Contribution for the Creation of Affordable Housing	Potential to utilize budgeted capital funding for acquisition or contribution to leverage additional funding and support affordable housing.	Anticipate at least one council meeting.
Prop. 123 Compliance	Includes audit of development code for compliance with Prop 123 expedited review for affordable housing requirement as part of regional grant. This audit will inform a code amendment that must be in place by November 2026.	Anticipate one council meeting.

Potential Partners

- Boulder County
- Boulder County Housing Authority
- Neighboring Jurisdictions
- Nonprofits
- Regional Housing Partnership
- The State of Colorado - Department of Local Affairs (DOLA)

SUBJECT: **RESOLUTION NO. 3, SERIES 2024 – A RESOLUTION APPROVING AN ADDENDUM TO THE WATER TAP EXPANSION AGREEMENT AT 1775 CHERRY STREET WITH FRESCA FOODS HOLDING COMPANY, LLC**

DATE: **JANUARY 21, 2025**

PRESENTED BY: **KURT KOWAR, P.E., PUBLIC WORKS DIRECTOR**

SUMMARY:
Staff recommends approval of the Addendum #1 to the Water Tap Expansion Agreement (WTEA) with Fresca Holding Company, LLC for 1775 Cherry Street.

In September 2024, a WTEA was executed for a tenant of 1775 Cherry Street, Fresca Holding Company, LLC. (Fresca). The WTEA provide for the applicant to provide water through a water lease agreement in lieu of expansion fee.

During the preparation of the water lease agreement, which was approved by City Council on December 17, it was determined that an addendum to the WTEA agreement was necessary to provide further details, update schedules, and minor legal clarifications.

FISCAL IMPACT:
No additional fiscal impacts have been identified.

PROGRAM/SUB-PROGRAM IMPACT:
One of the main objectives for the Water Utility Sub-Program is to allow for reasonable and equitable rates while maintaining optimal quality. These efforts also allowed a collaborative alignment with the Economic Prosperity goal of promoting a business climate that facilitates investment.

RECOMMENDATION:
Staff recommends City Council approval of the Resolution to approve the addendum to the water tap agreement. The Resolution would further authorize the Mayor and City Clerk to sign and execute the Agreement and certain other documents on behalf of the City.

ATTACHMENTS:
1. Resolution No. 3, Series 2025
2. Addendum #1 to Water Tap Expansion Agreement

STRATEGIC PLAN IMPACT:

☒	**Financial Stewardship & Asset Management**	☒	**Reliable Core Services**

☒	**Vibrant Economic Climate**	☐	**Quality Programs & Amenities**
☐	**Engaged Community**	☐	**Healthy Workforce**
☐	**Supportive Technology**	☐	**Collaborative Regional Partner**

CITY COUNCIL COMMUNICATION

RESOLUTION NO. 3
SERIES 2025

A RESOLUTION APPROVING AN ADDENDUM TO TH WATER TAP EXPANSION AGREEMENT AT 1775 CHERRY STREET WITH FRESCA FOODS HOLDING COMPANY, LLC

WHEREAS, the City and Fresca Holding Company, LLC ("Fresca") are parties to a Water Tap Expansion Agreement ("WTEA") concerning Fresca's use of municipal water at a unit of property located at 1775 Cherry Street, Louisville, Colorado (the "Property"); and

WHEREAS, at the time of the WTEA's effective date, Louisville and Fresca were in the process of negotiating terms and conditions for how Fresca would remedy the deficiency described in the WTEA; and

WHEREAS, the WTEA, thus, granted Fresca ninety (90) days from the effective date of the WTEA to confirm an ancillary arrangement for the future commitment of water to Louisville's municipal water system (the "Final Agreement"); and

WHEREAS, for compliance with Section 13.12.040(E) of the City Code, there has been prepared an addendum to the WTEA ("Addendum") to require that lease payments under the Lease for the Leased Water be made by Fresca, and that all costs and fees, including transfer fees, associated with transferring the water to Louisville for use in its municipal water system be paid by Fresca, a copy of which Addendum accompanies this resolution; and

WHEREAS, by this resolution the City Council desires to approve, and authorize the Mayor to execute, the Addendum.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF LOUISVILLE, COLORADO:

Section 1. The City Council hereby approves the Addendum to Water Tap Expansion Agreement (the "Addendum"), by and between the City of Louisville and Fresca Products, Inc., in essentially the same form as the copy of such Addendum that accompanies this resolution.

Section 3. The Mayor is hereby authorized to execute the Addendum on behalf of the City, and the Mayor is hereby further authorized to negotiate and approve such revisions to such instruments as the Mayor determines are necessary or desirable for the protection of the City, so long as the essential terms and conditions of such instruments are not altered.

Section 4. All actions heretofore taken by the City staff pursuant to the that certain Water Tap Expansion Agreement, dated September 3, 2024, concerning Fresca' s use of municipal water at a unit of property leased by Fresca located at 1775 Cherry Street, Louisville, Colorado, are hereby ratified and affirmed.

PASSED AND ADOPTED this 21ST day of January 2025.

_____
Christopher M. Leh, Mayor

ATTEST:

_____
Genny Kline, Interim City Clerk

ADDENDUM
to
WATER TAP EXPANSION AGREEMENT

This ADDENDUM TO WATER TAP EXPANSION AGREEMENT ("**Addendum**") is made by and between the City of Louisville, a Colorado home rule municipal corporation acting by and through its Water Enterprise, whose address is 749 Main Street, Louisville, Colorado 80027 ("**Louisville**"), and Fresca Holding Company, LLC, a Colorado limited liability company whose address is 195 CTC Blvd, Louisville, CO 80027 ("**Fresca**"). The above may occasionally be referred to herein singularly as "**Party**" or collectively as the "**Parties**."

RECITALS

WHEREAS, this Addendum supplements and forms a part of the Water Tap Expansion Agreement made and entered into as of September 3, 2024, by and between Louisville and Fresca. Capitalized terms used in this Addendum, but which are not otherwise defined in this Addendum, have the meanings given to them in the Water Tap Expansion Agreement.

WHEREAS, pursuant to the Water Tap Expansion Agreement and Chapter 13.12 of the City Code, because Fresca's water usage is projected to exceed the annual water demand contemplated for the water tap size installed at the Property, Fresca is required to pay Louisville additional water tap fees or introduce additional water to Louisville's municipal water system in order to remedy the Deficiency described in the Water Tap Expansion Agreement.

WHEREAS, at the time of the Water Tap Expansion Agreement's Effective Date, Louisville and Fresca were in the process of negotiating terms and conditions for how Fresca would remedy the Deficiency and, therefore, the Water Tap Expansion Agreement granted Fresca ninety (90) days to confirm an ancillary arrangement for the future commitment of water to Louisville's municipal water system (the "**Final Agreement**").

WHEREAS, the Parties entered into an Extension to the Water Tap Expansion Agreement (the "Extension") on December 13, 2024, whereby the deadline to formalize the Final Agreement was extended to on or about January 13, 2025.

WHEREAS, the Water Tap Expansion Agreement provides Fresca with the option to introduce additional water to Louisville's municipal water system by securing a multi-year lease entitling Louisville to a share of the water supply from the Colorado Big Thompson ("**C-BT**") Project administered by the Northern Colorado Water Conservancy District ("**NCWCD**").

WHEREAS, for Louisville to accept water in lieu of water tap fees, Section 13.12.040(E) of the City Code requires Fresca to pay all costs and fees, including transfer fees, associated with transferring the water to Louisville for use in its municipal water system.

WHEREAS, Fresca has identified 4 Units of C-BT Project water ("**Leased Water**") owned by Christen and Kyle Kolb, whose address is 11820 Niwot Road, Longmont, CO 80504 (hereinafter collectively referred to as "**Lessor**"), available to lease to Louisville pursuant to a 5-year lease

agreement (the "**Lease**"), a copy of which is attached hereto as **Exhibit A** and the terms and conditions of the Lease are hereby incorporated by reference into this Addendum.

WHEREAS, Fresca desires to have the Leased Water serve as a sufficiently dependable supply of water for Louisville to use in its municipal water system pursuant to the 5-year Lease. To comply with Section 13.12.040(E) of the City Code and the Water Tap Expansion Agreement and continue to be a viable supply during the life of the Lease, the lease payments for the Leased Water must be made by Fresca.

WHEREAS, for Louisville to agree to the Lease and to accept the Leased Water as the supplemental water supply required by the Water Tap Expansion Agreement for the 5-year Lease term to offset the increase in Fresca's annual water usage at the Property, among other things, Louisville requires that Fresca agree to be financially responsible for all fees and costs associated with the Leased Water.

WHEREAS, Louisville and Fresca mutually desire to set forth their understanding as to Fresca's financial responsibilities for the Leased Water, to further clarify each Party's respective obligations regarding the Final Agreement, and the obligations of Fresca to secure a future supplemental water supply after the 5-year Lease term.

NOW, THEREFORE, for the consideration set forth herein, the sufficiency of which is mutually acknowledged by the Parties, Louisville and Fresca agree as follows:

1. Agreement. Fresca shall be responsible for the payment of all fees and costs associated with the Leased Water, including any fees required by NCWCD to transfer the Leased Water to Louisville for use in its municipal water system, and Fresca accepts full financial responsibility for all charges due under the Lease. Fresca agrees to pay Lessor directly for the annual cost of the Leased Water in accordance with the dates set forth in this Addendum. Fresca shall remain financially responsible for all charges due under the Lease for the entire term of the Lease, including any Lease extension or renewal, and Fresca shall not be released from its obligations without written consent from Louisville.

2. Effect of this Addendum. This Addendum shall be read and construed together with the Water Tap Expansion Agreement and the Extension, and the rights and obligations of the Parties shall be determined in accordance with the covenants, agreements, conditions, representations, and warranties made herein and in the Water Tap Expansion Agreement and the Extension thereto. Except as supplemented and/or modified hereby, the Water Tap Expansion Agreement and Extension remain in full force and effect and shall continue to be effective and enforceable in accordance with its terms. In the event there is a conflict between the terms and conditions of the Water Tap Expansion Agreement, the Extension, and this Addendum, this Addendum will control. The Water Tap Expansion Agreement, the Extension, and this Addendum shall constitute one contract and shall be the Final Agreement of the Parties.

3. Final Agreement. Upon the Effective Date of this Addendum, the Final Agreement requirement set forth in Paragraph 2 of the Water Tap Expansion Agreement shall be deemed satisfied.

4. Term; Subsequent Addendum to Remedy Deficiency.

4.1. Addendum Term. This Addendum shall become effective on the date that the Louisville City Council approves this Addendum (the "**Effective Date**") and shall continue until the expiration or earlier termination of the Lease, which expiration date is December 31, 2029.

4.2. Continuing Obligation to Remedy Deficiency. Fresca anticipates that its commercial operations at the Property will continue after the Lease terminates on December 31, 2029, and, therefore, Fresca is required to pay Louisville additional water tap fees or introduce additional water to Louisville's municipal water system to cover Fresca's projected water usage from January 1, 2030, and beyond.

4.3. Subsequent Addendums. At least one (1) year prior to the end of this Addendum, or by December 31, 2028, Fresca is required to secure a supplemental water supply or pay Louisville additional water tap fees pursuant to a renewal, extension or subsequent addendum to the Water Tap Expansion Agreement containing terms and conditions addressing the Deficiency to the satisfaction of Louisville. So long as the essential terms and conditions of this Addendum and the Water Tap Expansion Agreement are not altered by a subsequent addendum to the Water Tap Expansion Agreement, such subsequent addendum may be administratively approved by the City Manager. Unless otherwise extended by mutual agreement, failure of Fresca to renew, extend or enter into a subsequent addendum to the Water Tap Expansion Agreement on or before December 31, 2028, shall constitute a material breach of this Addendum and the Water Tap Expansion Agreement and Louisville shall have the option to exercise its rights and remedies under Paragraph 8, below.

5. Incorporation of Lease Terms and Conditions. To the extent this Addendum incorporates by reference the provisions of the Lease, such provisions shall be deemed a part of this Addendum. Nevertheless, as between Louisville and Fresca, if there is any conflict among the terms and conditions of this Addendum and the Lease, the terms set forth in this Addendum shall prevail.

6. Lease Payments and Reporting Obligations.

6.1. Initial Prepayment. Pursuant to the terms of the Extension, Fresca agreed to pay Lessor the Initial Lease Payment described in the Lease in the amount of Twelve Thousand and 00/100 Dollars ($12,000.00) on or before December 20, 2024.

Lease Year	Lease Deadline if Fresca Fails to Prepay	Total Annual Lease Payment	**Fresca's Prepayment Date**
2025	Jan. 15, 2025	$12,000.00	**Dec. 20, 2024**

6.2. Future Lease Prepayment Schedule. Fresca agrees to prepay Lessor the annual payments due for the Leased Water for the second through fifth lease years (2026-2029) pursuant to the following payment schedule:

Lease Year	Lease Deadline if Fresca Fails to Prepay	Total Annual Lease Payment	**Fresca's Prepayment Due Date**
2026	Jan. 15, 2026	$12,360.00	**Nov. 14, 2025**
2027	Jan. 15, 2027	$12,732.00	**Nov. 16, 2026**
2028	Jan. 18, 2028	$13,116.00	**Nov. 19, 2027**
2029	Jan. 16, 2029	$13,512.00	**Nov. 15, 2028**

6.3. Notice of Future Lease Payments. It is Fresca's additional responsibility to execute and deliver to Louisville no later than November 30th of each year for the second through fifth lease years (2026-2029) a written statement acknowledging the prepayment of the annual payments for the Leased Water and that, to Fresca's knowledge, no payments are outstanding under the Lease, or specifying any outstanding payments due and owing under the Lease as of a date certain, if such is the situation.

6.4. Additional Charges and Fees. In accordance with Section 13.12.040(E) of the City Code, Fresca shall pay all costs and fees associated with transferring the water to Louisville for use in its municipal water system, including transfer fees, administrative fees, temporary transfer costs, charges for services, NCWCD's Rule 11 charges, and any periodic charges or assessments related to the Leased Water. Fresca shall comply with the following deadlines for payment of such additional charges and fees:

6.4.1. Fee to Review. On or before December 20, 2024, Fresca shall pay NCWCD the Fee to Review the Lease in accordance with Rule 3.3 of NCWCD's Procedures for Subcontracting of Allotment Contracts. It is Fresca's responsibility to notify Louisville in writing that it has paid the required Fee to Review to NCWCD no later than December 30, 2024.

6.4.2. Other Fees and Charges. To the extent that Louisville is invoiced for any administrative fees, temporary transfer costs, charges for services, NCWCD's Rule 11 charges, and any periodic charges or assessments related to the Leased Water, Louisville shall provide a copy of the invoice(s) for such fees and/or charges to Fresca upon receipt. Fresca shall pay such charges and/or fees attributable to the Leased Water directly to Louisville not later than ten (10) business days after receipt of the invoice(s) from Louisville.

6.5. Effect of Missed Deadlines. If Fresca fails to deliver either the annual payments due for the Leased Water to the Lessor or the Notice of Lease Payments to Louisville by the relevant deadline set forth in this Addendum, Louisville shall treat the missed deadline(s) as conclusive evidence that Fresca does not intend to prepay the annual Lease Payment. Upon Fresca's failure to cure after notice is provided pursuant to Paragraph 6.6, below, Louisville shall have the option to exercise its rights and remedies under Paragraph 8, below.

6.6. Notice to Cure. If Fresca misses any of the deadlines described in Paragraphs 6.1 through 6.4, above, or if at any other time Louisville determines, in the reasonable exercise of its discretion, that any payment required under the Lease will not be paid by the Lease deadline or remains unpaid following all applicable notice and cure periods provided for in the Lease, Louisville shall give reasonable written notice to Fresca that a payment is owing and

unpaid under the Lease. The notice shall provide a date certain by which Fresca shall be required to make the payment owing under the Lease, which date shall not be less than forty-eight (48) hours following the delivery of such notice to Fresca.

6.7. Reimbursement of Louisville's Costs. Fresca agrees and covenants for itself and its successors and assigns, that, during the Term, if Fresca is in breach of its obligations under the Agreement or this Addendum, it will reimburse Louisville for its reasonable costs and expenses, include, but shall not be limited to, labor costs and attorney's fees incurred in enforcing the terms of the Agreement or this Addendum, including but not limited to, the process of making annual or outstanding payments under the Lease following the notice and cure periods described in Paragraph 6.6, above, regardless of whether Louisville uses its own personnel to correct the matter. In the event Louisville initiates any litigation or engages the services of legal counsel in order to enforce the provisions arising herein, Louisville shall be entitled to its reasonable attorney fees and costs as part of actual costs and expenses, regardless of whether Louisville contracts with outside legal counsel or utilizes in-house legal counsel for the same.

7. Events of Default. The term "Event of Default" shall mean the occurrence of any of the following events:

7.1. Payments. Fresca fails to make a payment in full when due.

7.2. Insolvency or Bankruptcy. The dissolution or insolvency of, the appointment of a receiver by or on behalf of, the application of any debtor relief law, the assignment for the benefit of creditors by or on behalf of, the voluntary or involuntary termination of existence by, or the commencement of any proceeding under any present or future federal or state insolvency, bankruptcy, reorganization, composition or debtor relief law by or against Fresca.

7.3. Business Termination. Fresca dissolves, reorganizes or ends Fresca's business or existence.

7.4. Failure to Perform. Fresca fails to perform any condition or to keep any promise or covenant of this Addendum or the Water Tap Expansion Agreement within ten (10) days after notice of such failure.

7.5. Misrepresentation. Fresca makes any representation or statement that is or proves to have been incorrect or misleading in any material respect when made or conceals a material fact at the time it is made or provided.

8. Rights and Remedies. Louisville's remedies are cumulative and the exercise of any one or more remedies shall not preclude or prevent the taking of any other action available at law or in equity. The remedies listed herein are not exclusive of any other remedies under any applicable federal, state or local law and it is within the discretion of Louisville to seek cumulative remedies.

8.1. Limit Water Use to Water Demand Budget. Require Fresca to immediately reduce its water usage to the corresponding water demand budget, as established pursuant to the City Code and ensuing regulations.

8.2. Restrict Flow. Impose flow restrictions upon the service line to the Property or other flow rate controls or restrictions available to Louisville pursuant to the City Code and ensuing regulations to limit water service to the Property.

8.3. Demand Payment of Increased Water Resource Fee. Require Fresca to pay Louisville the increased water resource fee component of the Expansion Fee for the larger meter size that corresponds to the actual water usage at the price in effect at the time of the default pursuant to the City Code and ensuing regulations to cover the full amount of the Overage.

8.4. Performance by Louisville. Louisville may pay, perform, or otherwise observe the Lease obligations after any Event of Default and use the Leased Water for any lawful purpose, at the discretion of Louisville, and all payments made, or costs or expenses incurred by Louisville in connection therewith, with interest thereon at the maximum rate allowed by applicable law, shall be, without demand, immediately repaid by Fresca to Louisville. Alternatively, Louisville may elect to terminate and/or renegotiate the terms of the Lease upon an Event of Default. No performance of any Lease obligations on the part of Louisville or the termination or renegotiation of the Lease shall be construed a waiver by Louisville of an Event of Default.

8.5. Exercise of Rights under City Code. Louisville may exercise all rights and remedies available to Louisville under the City Code, including Louisville's right to charge a lien upon the Property as the real property to which water service is provided pursuant to Section 13.12.130 of the City Code. This lien is in addition to other remedies available to Louisville to enforce payment for the amounts owned.

8.6. Automatic Termination and Acceleration. Upon the occurrence of any Event of Default described in Paragraph 7.2, above, the unpaid future Lease payments described in Paragraph 6, above, and all other accrued payment obligations under this Addendum and the Water Tap Expansion Agreement shall automatically become immediately due and payable.

8.7. Elective Termination and Acceleration. Upon the occurrence and during the continuance of any Event of Default (other than an Event of Default described in Paragraph 7.2., above), Louisville may, by written notice to Fresca, (i) declare that Louisville's remaining commitments under this Addendum and the Water Tap Expansion Agreement are terminated, and/or (ii) declare the unpaid future Lease payments described in Paragraph 6, above, and all other accrued payment obligations under this Addendum and the Water Tap Expansion Agreement to be immediately due and payable, without demand, notice or legal process of any kind.

9. Notice: Any notice required to be given hereunder to either Party shall be in writing and shall be sent to the following addresses unless written notice of a change of address has been previously given pursuant hereto:

If to Louisville: City Manager
The City of Louisville
749 Main Street
Louisville, Colorado 80027

With copy to: Ashley Pollock Zahedi
Curtis, Justus, & Zahedi, LLC
1333 W. 120th Ave., Suite 302
Westminster, CO 80234
(303) 285-9251
ashleyz@cjzwaterlaw.com

If to Fresca: Fresca Holding Company, LLC.
c/o Zan M. Powell
195 CTC Blvd.
Louisville CO 80027
Zan.Powell@frescafoodsinc.com

With copy to: Lyons Gaddis
Scott E. Holwick
P.O. Box 978
Longmont, Colorado 80502
(303) 776-9900
sholwick@lyonsgaddis.com

If to Lessor: Christen and Kyle Kolb
1182 Niwot Road
Longmont, CO 80504
kyle@ycs.com
(303) 319-6992

All notices shall be transmitted either by personal delivery, reliable overnight courier (such as Federal Express or UPS), or through the facilities of the United States Post Office, postage prepaid, certified or registered mail, return receipt requested. Any such notice shall be effective upon delivery, if delivered by personal delivery or overnight courier, and seventy-two (72) hours after dispatch, if mailed in accordance with the above.

10. Indemnification and Hold Harmless: To the extent authorized by law, Fresca agrees, for itself and its successors, that it will indemnify, defend, and hold Louisville harmless from any and all loss, costs, damage, injury, liability, claim, lien, demand, action, and causes of action whatsoever, whether at law or in equity, arising from or related to Fresca's negligent or intentional acts, errors or omissions, or the negligent or intentional acts, errors, or omissions of its agents, officers, servants, or employees in or related to the Lease. Any costs incurred by Louisville in enforcing the terms of this Addendum and/or the Water Tap Expansion Agreement against Fresca, its successors or assigns, including, without limitation, court costs, shall be borne by Fresca, its successors and assigns. Nothing in this Paragraph, except as expressly provided below, shall be deemed to waive or otherwise limit the defense available to Louisville pursuant to the Colorado Governmental Immunity Act, C.R.S. §§ 24-10-101, *et. seq.*, or as otherwise provided by law.

11. Miscellaneous.

11.1. Binding Effect. All grants, covenants, provisos, agreements, rights, powers, privileges, and liabilities contained in this Addendum will be read and held as made by and with, granted to and imposed upon, the respective Parties hereto, and their respective successors, and assigns.

11.2. Severability. In the event any Court of competent jurisdiction declares any part of this Addendum to be unenforceable, such declaration shall not affect the enforceability of the remaining parts of this Addendum.

11.3. Third Parties. This Addendum does not and shall not be deemed to confer upon or grant to any third party any right to claim damages or to bring any lawsuit, action, or other proceeding against either Louisville or Fresca because of any breach hereof or because of any terms, covenants, agreements, or conditions contained herein.

11.4. Applicable Law and Venue. This Addendum and all matters arising hereunder or in connection herewith shall be governed by and construed and enforced in accordance with the laws of the State of Colorado. Any disputes regarding or arising out of this Addendum shall be brought in the courts of Boulder County, Colorado.

11.5. Amendment. This Addendum may be amended by mutual agreement of the Parties only if the amendment is agreed to in writing and signed by both Parties.

11.6. Counterparts. This Addendum may be executed in counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. The signature pages from one or more counterparts may be removed from such counterparts and such signature pages shall all be attached to a single original instrument.

11.7. Recording. Louisville shall record this Addendum at Fresca's expense in the office of the Clerk and Recorder, County of Boulder, State of Colorado.

11.8. Covenant to Run with Property. This Addendum shall run with the Property and shall inure to the benefit of and be binding upon the successors and assigns of the Parties hereto.

IN WITNESS WHEREOF, the Parties have executed this Addendum to the Water Tap Expansion Agreement as of the dates set forth below.

CITY OF LOUISVILLE, COLORADO
Acting by and through the City of Louisville
Water and Wastewater Activity Enterprise

By:_____ Date:_____

Title:_____

FRESCA HOLDING COMPANY, LLC

By:_____ Date: 12/13/24
Zan Powell

Title: Chief Administrative Officer

SUBJECT: **AWARD CONTRACT BETWEEN THE CITY OF LOUISVILLE AND RVi PLANNING + LANDSCAPE ARCHITECTURE FOR PHASE I OF THE DOWNTOWN PUBLIC URBAN LANDSCAPING AND STREETSCAPE ENHANCEMENTS (PULSE) PROJECT**

DATE: **JANUARY 21, 2025**

PRESENTED BY: **KURT KOWAR, PUBLIC WORKS DEPARTMENT**

SUMMARY:
Staff is recommending City Council approve staff to finalize negotiations and award a final contract for professional design services for the Downtown Public Urban Landscaping and Streetscape Enhancements (PULSE) Project to RVi Planning + Landscape Architecture (RVi) for their proposal cost of $992,773, authorize staff to approve contract addendums up to $200,000 for unforeseen task items and project contingency, and authorize the Mayor, City Manager, and City Clerk to sign and execute contract documents on behalf of the City.

PROJECT DETAILS:
Initiated in 2023 by the Louisville Revitalization Committee (LRC) and officially adopted by City Council on November 19, 2024, the Downtown Vision Plan serves as the guiding framework for the Downtown PULSE Project. Phase 1 of the project focuses on refining the short-term improvement concepts outlined in the Vision Plan to align with the City's budget, followed by the design and construction of these initial improvements. Future phases of the Downtown PULSE Project will address the design and construction of mid-term and long-term improvements specified in the Downtown Vision Plan.

Staff issued an RFP on December 11, 2024, to solicit consultant proposals for professional design services including landscaping, streetscape, lighting, traffic-calming, wayfinding signage, architecture, and engineering services as required to modify conceptual designs as outlined in the Downtown Vision Plan and advance them to final design. Staff received three proposals on January 8, 2025 from MIG, RVi, and Civitas.

The selection committee, consisting of five City staff members, evaluated the proposals and conducted interviews with all three consultants to determine the recommended consultant.

The consultant teams were also asked to provide a sealed fee proposal at the interview phase. While the fee was not a primary consideration for the selection, fees were opened and reviewed after selection to ensure that the selected consultant's fee proposal was in a reasonable range to serve as the basis for fee negotiations.

Upon completion of interviews, the selection committee met to discuss final rankings. The selection committee agreed that RVi was the most prepared and most engaged firm with a quality team of sub-consultants.

The final contract is not yet complete for signature due to expedited selection timeframes and condensed timelines for follow-up activities.

FISCAL IMPACT:
The costs of the Downtown PULSE Project are identified below:

Projected Funding

Description	Account	2025 Budget Amount
DOWNTOWN VISION CIP (2025 Approved Budget)	301313-660310	$1,000,000
	Total approved funding:	**$1,000,000**
LRC Funding (Future Funding)		$8,000,000
	Total future funding:	**$8,000,000**
	Total available funding:	**$9,000,000**

Projected Expenses (DOWNTON VISION CIP) 301313-660310

Description	Amount
Phase 1 Design Contract - RVi	($992,773)
Contingency	($200,000)
Total Expenses:	**($1,192,773)**
Budget Amendment:	**($192,773)***

BUDGET AMENDMENT*
The total project budget is $9,000,000 over the next four years from LRC bond funding. The approved 2025 budget will require an amendment of $192,773 for current costs. The entirety of the funding is within the Capital Improvement Program.

PROGRAM/SUB-PROGRAM:
The recommended contract supports the City's and LRC's goal of enhancing public spaces, promoting pedestrian activity, and integrating sustainable, long-term improvements to provide a vibrant and accessible downtown.

STAFF RECOMMENDATION:
Staff recommends approval of staff to finalize negotiations and award the Downton PULSE Project design contract with RVi Planning + Landscape Architecture for $992,773 plus a 20% contingency in the amount of $200,000 for a total authorized amount of $1,192,773 and authorize the Mayor, City Manager, Public Works Director, and City Clerk to sign and execute contract documents on behalf of the City.

STRATEGIC PLAN IMPACT:

☐	**Financial Stewardship & Asset Management**	☐	**Reliable Core Services**
☒	**Vibrant Economic Climate**	☒	**Quality Programs & Amenities**
☒	**Engaged Community**	☐	**Healthy Workforce**
☐	**Supportive Technology**	☐	**Collaborative Regional Partner**

SUBJECT: **APPROVAL OF COLORADO ENERGY OFFICE DECARBONIZATION GRANTS TO SUPPORT INTERNAL DECARBONIZATION PLAN IMPLEMENTATION**

DATE: **JANUARY 21, 2025**

PRESENTED BY: **HANNAH MILLER, SUSTAINABILITY MANAGER**

SUMMARY

In 2022, Sustainability Division staff initiated the Council Priority Project titled *Internal Decarbonization Plan*. This project required extensive inter-departmental collaboration involving Public Works, Finance, Legal, and the City Manager's Office. To support the effort, the City engaged McKinstry, an external consultant, to audit existing systems and prepare the roadmap necessary to implement and plan for the multiple phases of the *Internal Decarbonization Plan*.

As a reminder, this Plan's goals include transitioning City facilities from gas-powered heating and cooling systems to electric systems, implementing energy efficiency measures, converting the City's vehicle fleet to electric, and installing electric vehicle charging stations at select facilities.

For additional information regarding the Plan, please reference Council Packets for July 26, 2022, November 1, 2022, April 4, 2023, August 15, 2023 and October 10, 2023.

The Plan was formally adopted via Resolution No. 48, Series 2023 on October 10, 2023. Following its adoption, staff began the process of securing grants from various entities to support the implementation of the *Internal Decarbonization Plan*.

The purpose of this Council Communication is to formally accept two grant awards from the Colorado Energy Office (CEO). Final execution of the grant contracts is required to secure these funds.

The City has been awarded the following grants from the CEO:

1. Public Building Electrification Grant (PBEG)
2. High-Efficiency Electric Heating and Appliance (HEEHA) Grant

These grants will play a critical role in advancing the goals outlined in the *Internal Decarbonization Plan*.

The PBEG award is $667,500. This is a reimbursement-only grant, meaning funds will be distributed to the City after submitting reimbursement requests. This grant covers funding for the planning and installation of electric equipment in the Library at 951 Spruce Street. Regarding the 50% match, CEO states, "Grantee shall submit to the Colorado Energy Office details on any federal and local tax benefits received for the

property that constitute grant match requirements. Deliverable/s: Evidence of City of Louisville Capital Improvement Funds utilized for the project ($677,500.00)". The projected cost of the total electrification equipment and infrastructure are $1,355,000, and CEO's award will reimburse 50% of the total cost up to the award amount.

The HEEHA award totals $1,592,000. The City will be reimbursed 50% of the total cost up to the awarded amount. Like the PBEG, funds will be released upon submission of reimbursement requests. This grant covers funding for the procurement and installation of electric equipment at the Recreation & Senior Center (900 Via Appia Way), the Police & Municipal Court (992 West Via Appia Court), and the Sid Copeland Water Treatment Plant (1955 Washington Ave). Regarding the 50% match, CEO states, "Grantee shall submit to the Colorado Energy Office details on any federal and local tax benefits received for the property that constitute grant match requirements. Evidence of City of Louisville Capital Improvement Funds utilized for the project ($1,592,000.00)".

Both the PBEG and HEEHA awards, once their required scopes are met, contribute toward the 70% match required for the Department of Local Affairs (DOLA) grant. The DOLA grant totals $2,500,000 and is reimbursement-based only. As previously mentioned, the DOLA grant requires a 70% match. Its scope encompasses nine facilities throughout the city, focusing on projects such as decarbonizing HVAC equipment, installing electric vehicle charging stations, implementing energy efficiency measures, and installation of solar arrays.

Both the PBEG and HEEHA contracts have been reviewed by the inter-departmental staff team, which includes representatives from Public Works, Legal, Finance, and the City Manager's Office. This is the same team that played a key role in the development and creation of the *Internal Decarbonization Plan*.

For details on other projected costs and revenues related to the *Internal Decarbonization Plan*, please refer to the 2025 budget.

FISCAL IMPACT

The *Internal Decarbonization Plan* is partially supported by the City's six-year Capital Improvement Plan (CIP), which allocates $11,200,000 for decarbonization efforts. In 2025, the budget is $6,400,000, with no budget allocated for 2026. From 2027 to 2030, the anticipated budget is $4,800,000, subject to appropriation. The City will also leverage grants from the Department of Local Affairs (DOLA) and the Colorado Energy Office (CEO). Both HEEHA and PBEG match requirements are met via budgeted CIP projects.

Of the $11,200,000, $7,900,000 will be used for energy efficiency and electrification equipment upgrades and purchases for selected facilities listed below. For these selected facilities, 60% of the total project cost is covered by grant awards.

Aside from secured grants, the City will use Xcel Energy rebates, Inflation Reduction Act (IRA) Direct Pay tax reimbursement (pending federal administration decisions towards IRA funds), and continue applying to grants to cover the next phases of the *Internal Decarbonization Plan*. Without the CEO's financial support, implementation of the *Internal Decarbonization Plan* cannot proceed.

Recreation and Senior Center:
The scope of the Recreation and Senior Center covered under both CEO and DOLA grants includes: Decarbonization the Recreation and Senior Center including mechanical electrification of thirteen (13) heat pump rooftop units (RTU) replacements (2-3 Ton, 2- 4 Ton, 2–5 Ton, 3-6 Ton, 1- 7.5 Ton, 1-10 Ton, 2-15 Ton); one (1) nanatorium dehumidification unit replacement; two (2) energy recovery ventilators (ERV); installation of a 380 kilowatt (kW) ground-mounted solar photovoltaic (PV) array with agrivoltaic elements below, including native pollinator habitats with firewise/drought resistant landscaping; energy efficiency measures including window glazing upgrades, a pool cover, sauna scheduling, building envelope air sealing, and weather stripping; lighting controls; advanced plug load reduction; installation of three (3) level 2 and two (2) level 3 electric vehicle (EV) chargers; and installation/replacement/optimization of associated controls, conduit, piping, and electrical.

The estimated cost for the Recreation and Senior Center is $2,500,000. The DOLA grant and CEO HEEHA grant cover 71% of the total Recreation and Senior Center decarbonization project.

Library:
The scope for Library decarbonization is covered under both DOLA and CEO grants includes: Decarbonization of the Library including mechanical electrification of two (2) heat pump RTU replacements (50- ton); one (1) electric domestic hot water heater replacement; variable frequency drives; snow melt system retrocomissioning; advanced plug load reduction; envelope air sealing; duct air sealing; installation of a 128kW rooftop solar PV array, installation of four (4) level 2 EV chargers and one (1) level 3 EV charger; and installation/replacement/optimization of associated controls, conduit, piping, and electrical.

The estimated cost for the Library is $2,300,000. The DOLA and CEO PBEG grant 69% of the total Library decarbonization project.

Police and Municipal Court:
The scope for Police and Municipal Court decarbonization is covered under both DOLA and CEO grants and includes: Decarbonization of the Police and Municipal Court Building including two (2) heat pump RTU replacements (30-ton); one (1) electric unit heater; envelope air sealing; duct air sealing/insulation; controls optimization/retrocommissioning; advanced plug load reduction; installation of three (3) level 2 EV chargers and two (2) level 3 EV chargers; installation of a 257kW ground

mounted solar PV array; ventilation and air conditioning unit replacement; and installation or replacement of associated controls, conduit, piping, and electrical

The estimated cost for decarbonization of the Police and Municipal Courts is $2,300,00. The DOLA and CEO grants cover 49% of the total Police and Municipal Courts decarbonization project.

Sid Copeland Water Treatment Plant:
The scope for Sid Copeland Water Treatment includes: Energy efficiencies including one (1) heat pump RTU replacement (3-ton) with a heat wheel; envelope air sealing; lighting controls; light-emitting diode (LED) replacement lighting; installation of one (1) EV level 2 charger; and installation or replacement of associated controls, conduit, piping, and electrical.

The approximate cost for energy efficiencies at Sid Copeland are $32,000. The DOLA and CEO HEEHA grants cover 50% of the total Sid Copeland project.

PROGRAM/SUB-PROGRAM IMPACT
Administration and Support Services, sub-program Sustainability.

RECOMMENDATION
Staff recommends approval and signature of the CEO PBEG and HEEHA grant contracts to secure funding and support the City's decarbonization efforts.

ATTACHMENT(S):
1. Public Building Electrification Grant (PBEG) Contract
2. High Efficiency and Electric Heating and Appliances (HEEHA) Grant Contract

STRATEGIC PLAN IMPACT:

☒	**Financial Stewardship & Asset Management**	☒	**Reliable Core Services**
☐	**Vibrant Economic Climate**	☒	**Quality Programs & Amenities**
☐	**Engaged Community**	☐	**Healthy Workforce**
☒	**Supportive Technology**	☒	**Collaborative Regional Partner**

GRANT AWARD LETTER
SUMMARY OF GRANT AWARD TERMS AND CONDITIONS

State Agency Colorado Energy Office	**Grant Amount** State Fiscal Year 2025: $677,500.00 State Fiscal Year 2026: Any SFY25 unspent funds State Fiscal Year 2027: $0.00 State Fiscal Year 2028: $0.00 State Fiscal Year 2029: $0.00 State Fiscal Year 2030: $0.00 **Total for all State Fiscal Years: $677,500.00**
Grantee City of Louisville	
Grant Issuance Date The date the State Controller or an authorized delegate signs this Grant Letter	
Fund Expenditure End Date November 30, 2029 **Grant Expiration Date** November 30, 2029	**Local Match Amount** **Total for all State Fiscal Years: $677,500.00**
Grant Authority Authority to enter into this Grant exists in HB 22-1362.	

Grant Purpose
The Grantee was awarded funding as a result of the competitive Public Building Electrification Grant (PBEG) Requests for Application released in October 2023.

Exhibits and Order of Precedence
The following Exhibits and attachments are included with this Grant:

1. Exhibit A, Statement of Work.
2. Exhibit B, Budget and Payment Conditions.
3. Exhibit C, Grantee's Application.

In the event of a conflict or inconsistency between this Grant and any Exhibit or attachment, such conflict or inconsistency shall be resolved by reference to the documents in the following order of priority:

1. Colorado Special Provisions in §17 of the main body of this Grant
2. The provisions of the other sections of the main body of this Grant.
3. Exhibit A, Statement of Work.
4. Exhibit B, Budget and Payment Conditions.
5. Exhibit C, Grantee's Application

Principal Representatives

For the State:
Brittney Vancuran
Colorado Energy Office
1600 Broadway, Suite 1960

Denver, CO 80202
brittney.vancuran@state.co.us

For Grantee:
Hannah Miller
City of Louisville
749 Main Street

Louisville, CO 80027
hmiller@louisvilleco.gov

SIGNATURE PAGE

THE PARTIES HERETO HAVE EXECUTED THIS AGREEMENT

Each person signing this Agreement represents and warrants that the signer is duly authorized to execute this Agreement and to bind the Party authorizing such signature.

GRANTEE City of Louisville _____ By: Date: _____	**STATE OF COLORADO** Jared S. Polis, Governor Colorado Energy Office Will Toor, Executive Director _____ By: Dominique Gómez, Deputy Director Date: _____

In accordance with §24-30-202, C.R.S., this Agreement is not valid until signed and dated below by the State Controller or an authorized delegate.

STATE CONTROLLER
Robert Jaros, CPA, MBA, JD

_____
By: Office of the Governor, Jonathon Bray, Controller

Effective Date:_____

1. GRANT

As of the Grant Issuance Date, the State Agency shown on the first page of this Grant Award Letter (the "State") hereby obligates and awards to Grantee shown on the first page of this Grant Award Letter (the "Grantee") an award of Grant Funds in the amounts shown on the first page of this Grant Award Letter. By accepting the Grant Funds provided under this Grant Award Letter, Grantee agrees to comply with the terms and conditions of this Grant Award Letter and requirements and provisions of all Exhibits to this Grant Award Letter.

2. TERM

A. Initial Grant Term and Extension

The Parties' respective performances under this Grant Award Letter shall commence on the Grant Issuance Date, and the Grant Funds shall be expended by the Fund Expenditure End Date, and shall terminate on the Grant Expiration Date shown on the Cover Page for this Grant Award Letter unless sooner terminated or further extended in accordance with the terms of this Grant Award Letter. Upon request of Grantee, the State may, in its sole discretion, extend the term of this Grant Award Letter by providing Grantee with an updated Grant Award Letter showing the new Grant Expiration Date.

B. Early Termination in the Public Interest

The State is entering into this Grant Award Letter to serve the public interest of the State of Colorado as determined by its Governor, General Assembly, or Courts. If this Grant Award Letter ceases to further the public interest of the State or if State, Federal or other funds used for this Grant Award Letter are not appropriated, or otherwise become unavailable to fund this Grant Award Letter, the State, in its discretion, may terminate this Grant Award Letter in whole or in part by providing written notice to Grantee that includes, to the extent practicable, the public interest justification for the termination. If the State terminates this Grant Award Letter in the public interest, the State shall pay Grantee an amount equal to the percentage of the total reimbursement payable under this Grant Award Letter that corresponds to the percentage of Work satisfactorily completed, as determined by the State, less payments previously made. Additionally, the State, in its discretion, may reimburse Grantee for a portion of actual, out-of-pocket expenses not otherwise reimbursed under this Grant Award Letter that are incurred by Grantee and are directly attributable to the uncompleted portion of Grantee's obligations, provided that the sum of any and all reimbursements shall not exceed the maximum amount payable to Grantee hereunder. This subsection shall not apply to a termination of this Grant Award Letter by the State for breach by Grantee.

3. DEFINITIONS

The following terms shall be construed and interpreted as follows:

A. "**Budget**" means the budget for the Work described in Exhibit B.

B. "**Business Day**" means any day in which the State is open and conducting business, but shall not include Saturday, Sunday or any day on which the State observes one of the holidays listed in §24-11-101(1) C.R.S.

C. "**CORA**" means the Colorado Open Records Act, §§24-72-200.1 *et seq.*, C.R.S.

D. **"Electric Ready"** means adequate panel capacity, dedicated electric panel space, electrical wire, electrical receptacles, and adequate physical space to accommodate future installation

of high-efficiency electric appliances including heating, water heating, cooking, drying, and an electric vehicle.

E. "**Grant Award Letter**" means this letter which offers Grant Funds to Grantee, including all attached Exhibits, all documents incorporated by reference, all referenced statutes, rules and cited authorities, and any future updates thereto.

F. "**Grant Funds**" means the funds that have been appropriated, designated, encumbered, or otherwise made available for payment by the State under this Grant Award Letter.

G. "**Grant Expiration Date**" means the Grant Expiration Date shown on the first page of this Grant Award Letter.

H. "**Grant Issuance Date**" means the Grant Issuance Date shown on the first page of this Grant Award Letter.

I. "**Exhibits**" exhibits and attachments included with this Grant as shown on the first page of this Grant

J. "**Extension Term**" means the period of time by which the Grant Expiration Date is extended by the State through delivery of an updated Grant Award Letter

K. "**Goods**" means any movable material acquired, produced, or delivered by Grantee as set forth in this Grant Award Letter and shall include any movable material acquired, produced, or delivered by Grantee in connection with the Services.

L. "**Incident**" means any accidental or deliberate event that results in or constitutes an imminent threat of the unauthorized access or disclosure of State Confidential Information or of the unauthorized modification, disruption, or destruction of any State Records.

M. "**Initial Term**" means the time period between the Grant Issuance Date and the Grant Expiration Date.

N. **"IPMVP"** means International Performance Measurement and Verification Protocol

O. "**Matching Funds**" means the funds provided Grantee as a match required to receive the Grant Funds.

P. **"M&V"** means measurement and verification.

Q. "**Party**" means the State or Grantee, and "Parties" means both the State and Grantee.

R. "**PII**" means personally identifiable information including, without limitation, any information maintained by the State about an individual that can be used to distinguish or trace an individual's identity, such as name, social security number, date and place of birth, mother's maiden name, or biometric records; and any other information that is linked or linkable to an individual, such as medical, educational, financial, and employment information. PII includes, but is not limited to, all information defined as personally identifiable information in §§24-72-501 and 24-73-101 C.R.S. "PII" shall also mean "personal identifying information" as set forth at § 24-74-102, et. seq., C.R.S.

S. **"Quarter"** means the three (3) months periods ending March 31, June 30, September 30, and December 31 of each calendar year.

T. "**Services**" means the services to be performed by Grantee as set forth in this Grant Award Letter, and shall include any services to be rendered by Grantee in connection with the Goods.

U. "**State Confidential Information**" means any and all State Records not subject to disclosure under CORA. State Confidential Information shall include, but is not limited to, PII, and State personnel records not subject to disclosure under CORA. State Confidential Information shall not include information or data concerning individuals that is not deemed confidential but nevertheless belongs to the State, which has been communicated, furnished, or disclosed by the State to Grantee which (i) is subject to disclosure pursuant to CORA; (ii) is already known to Grantee without restrictions at the time of its disclosure to Grantee; (iii) is or subsequently becomes publicly available without breach of any obligation owed by Grantee to the State; (iv) is disclosed to Grantee, without confidentiality obligations, by a third party who has the right to disclose such information; or (v) was independently developed without reliance on any State Confidential Information.

V. "**State Fiscal Rules**" means the fiscal rules promulgated by the Colorado State Controller pursuant to §24-30-202(13)(a) C.R.S.

W. "**State Fiscal Year**" means a 12 month period beginning on July 1 of each calendar year and ending on June 30 of the following calendar year. If a single calendar year follows the term, then it means the State Fiscal Year ending in that calendar year.

X. "**State Records**" means any and all State data, information, and records, regardless of physical form, including, but not limited to, information subject to disclosure under CORA.

Y. "**Subcontractor**" means third-parties, if any, engaged by Grantee to aid in performance of the Work. "Subcontractor" also includes sub-grantees.

Z. "**Work**" means the delivery of the Goods and performance of the Services described in this Grant Award Letter.

AA. "**Work Product**" means the tangible and intangible results of the Work, whether finished or unfinished, including drafts. Work Product includes, but is not limited to, documents, text, software (including source code), research, reports, proposals, specifications, plans, notes, studies, data, images, photographs, negatives, pictures, drawings, designs, models, surveys, maps, materials, ideas, concepts, know-how, and any other results of the Work. "Work Product" does not include any material that was developed prior to the Grant Issuance Date that is used, without modification, in the performance of the Work.

Any other term used in this Grant Award Letter that is defined in an Exhibit shall be construed and interpreted as defined in that Exhibit.

4. STATEMENT OF WORK

Grantee shall complete the Work as described in this Grant Award Letter and in accordance with the provisions of Exhibit A. The State shall have no liability to compensate or reimburse Grantee for the delivery of any goods or the performance of any services that are not specifically set forth in this Grant Award Letter.

5. PAYMENTS TO GRANTEE

A. Maximum Amount

Payments to Grantee are limited to the unpaid, obligated balance of the Grant Funds. The State shall not pay Grantee any amount under this Grant that exceeds the Grant Amount for each State Fiscal Year shown on the first page of this Grant Award Letter. Financial obligations of the State payable after the current State Fiscal Year are contingent upon funds for that purpose being appropriated, budgeted, and otherwise made available. The State shall

not be liable to pay or reimburse Grantee for any Work performed or expense incurred before the Grant Issuance Date or after the Grant Expiration Date; provided, however, that Work performed and expenses incurred by Grantee before the Grant Issuance Date that are chargeable to an active Federal Award may be submitted for reimbursement as permitted by the terms of the Federal Award.

B. Matching Funds.

Grantee shall provide the Local Match Amount shown on the first page of this Grant Award Letter and described in Exhibit A (the "Local Match Amount"). Grantee's obligation to pay all or part of any matching funds, whether direct or contingent, only extends to funds duly and lawfully appropriated for the purpose of this Agreement by the authorized representatives of Grantee and paid into Grantee's treasury or bank account. Grantee shall appropriate and allocate all Local Match Amounts to the purpose of this Grant Award Letter each fiscal year prior to accepting any Grant Funds for that fiscal year. Grantee does not by accepting this Grant Award Letter irrevocably pledge present cash reserves for payments in future fiscal years, and this Grant Award Letter is not intended to create a multiple-fiscal year debt of Grantee. Grantee shall not pay or be liable for any claimed interest, late charges, fees, taxes or penalties of any nature, except as required by Grantee's laws or policies.

D. Reimbursement of Grantee Costs

Upon prior written approval, the State shall reimburse Grantee's allowable costs, not exceeding the maximum total amount described in this Grant Award Letter for all allowable costs described in this Grant Award Letter and shown in the Budget, except that Grantee may adjust the amounts between each line item of the Budget without formal modification to this Agreement as long as the Grantee provides notice to the State of the change, the change does not modify the total maximum amount of this Grant Award Letter or the maximum amount for any state fiscal year, and the change does not modify any requirements of the Work.. The State shall only reimburse allowable costs if those costs are: **(i)** reasonable and necessary to accomplish the Work and for the Goods and Services provided; and **(ii)** equal to the actual net cost to Grantee (i.e. the price paid minus any items of value received by Grantee that reduce the cost actually incurred).

E. Close-Out.

Grantee shall close out this Grant within 45 days after the Grant Expiration Date. To complete close out, Grantee shall submit to the State all deliverables (including documentation) as defined in this Grant Award Letter and Grantee's final reimbursement request or invoice. The State will withhold 5% of allowable costs until all final documentation has been submitted and accepted by the State as substantially complete.

6. REPORTING - NOTIFICATION

A. Performance and Final Status

Grantee shall submit all financial, performance and other reports to the State no later than the end of the close out described in **§5.E**, containing an evaluation and review of Grantee's performance and the final status of Grantee's obligations hereunder.

B. Violations Reporting

Grantee shall disclose, in a timely manner, in writing to the State, all violations of federal or State criminal law involving fraud, bribery, or gratuity violations potentially affecting the

Award. The State may impose any penalties for noncompliance allowed under 2 CFR Part 180 and 31 U.S.C. 3321, which may include, without limitation, suspension or debarment.

7. GRANTEE RECORDS

A. Maintenance and Inspection

Grantee shall make, keep, and maintain, all records, documents, communications, notes and other written materials, electronic media files, and communications, pertaining in any manner to this Grant for a period of three years following the completion of the close out of this Grant. Grantee shall permit the State to audit, inspect, examine, excerpt, copy and transcribe all such records during normal business hours at Grantee's office or place of business, unless the State determines that an audit or inspection is required without notice at a different time to protect the interests of the State.

B. Monitoring

The State will monitor Grantee's performance of its obligations under this Grant Award Letter using procedures as determined by the State. The State shall have the right, in its sole discretion, to change its monitoring procedures and requirements at any time during the term of this Agreement. The State shall monitor Grantee's performance in a manner that does not unduly interfere with Grantee's performance of the Work.

C. Final Audit Report

Grantee shall promptly submit to the State a copy of any final audit report of an audit performed on Grantee's records that relates to or affects this Grant or the Work, whether the audit is conducted by Grantee or a third party.

8. CONFIDENTIAL INFORMATION-STATE RECORDS

A. Confidentiality

Grantee shall hold and maintain, and cause all Subcontractors to hold and maintain, any and all State Records that the State provides or makes available to Grantee for the sole and exclusive benefit of the State, unless those State Records are otherwise publicly available at the time of disclosure or are subject to disclosure by Grantee under CORA. Grantee shall not, without prior written approval of the State, use for Grantee's own benefit, publish, copy, or otherwise disclose to any third party, or permit the use by any third party for its benefit or to the detriment of the State, any State Records, except as otherwise stated in this Grant Award Letter. Grantee shall provide for the security of all State Confidential Information in accordance with all policies promulgated by the Colorado Office of Information Security and all applicable laws, rules, policies, publications, and guidelines. If Grantee or any of its Subcontractors will or may receive the following types of data, Grantee or its Subcontractors shall provide for the security of such data according to the following: **(i)** the most recently promulgated IRS Publication 1075 for all Tax Information and in accordance with the Safeguarding Requirements for Federal Tax Information attached to this Grant as an Exhibit, if applicable, **(ii)** the most recently updated PCI Data Security Standard from the PCI Security Standards Council for all PCI, **(iii)** the most recently issued version of the U.S. Department of Justice, Federal Bureau of Investigation, Criminal Justice Information Services Security Policy for all CJI, and **(iv)** the federal Health Insurance Portability and Accountability Act for all PHI and the HIPAA Business Associate Agreement attached to this Grant, if applicable. Grantee shall immediately forward any request or demand for State Records to the State's principal representative.

B. Other Entity Access and Nondisclosure Agreements

Grantee may provide State Records to its agents, employees, assigns and Subcontractors as necessary to perform the Work, but shall restrict access to State Confidential Information to those agents, employees, assigns and Subcontractors who require access to perform their obligations under this Grant Award Letter. Grantee shall ensure all such agents, employees, assigns, and Subcontractors sign nondisclosure agreements with provisions at least as protective as those in this Grant, and that the nondisclosure agreements are in force at all times the agent, employee, assign or Subcontractor has access to any State Confidential Information. Grantee shall provide copies of those signed nondisclosure restrictions to the State upon request.

C. Use, Security, and Retention

Grantee shall use, hold and maintain State Confidential Information in compliance with any and all applicable laws and regulations in facilities located within the United States, and shall maintain a secure environment that ensures confidentiality of all State Confidential Information wherever located. Grantee shall provide the State with access, subject to Grantee's reasonable security requirements, for purposes of inspecting and monitoring access and use of State Confidential Information and evaluating security control effectiveness. Upon the expiration or termination of this Grant, Grantee shall return State Records provided to Grantee or destroy such State Records and certify to the State that it has done so, as directed by the State. If Grantee is prevented by law or regulation from returning or destroying State Confidential Information, Grantee warrants it will guarantee the confidentiality of, and cease to use, such State Confidential Information.

D. Incident Notice and Remediation

If Grantee becomes aware of any Incident, it shall notify the State immediately and cooperate with the State regarding recovery, remediation, and the necessity to involve law enforcement, as determined by the State. After an Incident, Grantee shall take steps to reduce the risk of incurring a similar type of Incident in the future as directed by the State, which may include, but is not limited to, developing and implementing a remediation plan that is approved by the State at no additional cost to the State.

E. Safeguarding PII

If Grantee or any of its Subcontractors will or may receive PII under this Agreement, Grantee shall provide for the security of such PII, in a manner and form acceptable to the State, including, without limitation, State non-disclosure requirements, use of appropriate technology, security practices, computer access security, data access security, data storage encryption, data transmission encryption, security inspections, and audits. Grantee shall be a "Third-Party Service Provider" as defined in §24-73-103(1)(i), C.R.S. and shall maintain security procedures and practices consistent with §§24-73-101 *et seq.*, C.R.S. In addition, as set forth in § 24-74-102, et. seq., C.R.S., Grantee, including, but not limited to, Grantee's employees, agents and Subcontractors, agrees not to share any PII with any third parties for the purpose of investigating for, participating in, cooperating with, or assisting with Federal immigration enforcement..

9. CONFLICTS OF INTEREST

Grantee shall not engage in any business or activities, or maintain any relationships that conflict in any way with the full performance of the obligations of Grantee under this Grant. Grantee

acknowledges that, with respect to this Grant, even the appearance of a conflict of interest shall be harmful to the State's interests and absent the State's prior written approval, Grantee shall refrain from any practices, activities or relationships that reasonably appear to be in conflict with the full performance of Grantee's obligations under this Grant. If a conflict or the appearance of a conflict arises, or if Grantee is uncertain whether a conflict or the appearance of a conflict has arisen, Grantee shall submit to the State a disclosure statement setting forth the relevant details for the State's consideration. Grantee acknowledges that all State employees are subject to the ethical principles described in §24-18-105, C.R.S. Grantee further acknowledges that State employees may be subject to the requirements of §24-18-105, C.R.S. with regard to this Grant.

10. INSURANCE

Grantee shall maintain at all times during the term of this Grant such liability insurance, by commercial policy or self-insurance, as is necessary to meet its liabilities under the Colorado Governmental Immunity Act, §24-10-101, *et seq.*, C.R.S. (the "GIA"). Grantee shall ensure that any Subcontractors maintain all insurance customary for the completion of the Work done by that Subcontractor and as required by the State or the GIA.

11. REMEDIES

In addition to any remedies available under any exhibit to this Grant Award Letter, if Grantee fails to comply with any term or condition of this Grant, the State may terminate some or all of this Grant and require Grantee to repay any or all Grant funds to the State in the State's sole discretion. The State may also terminate this Grant Award Letter at any time if the State has determined, in its sole discretion, that Grantee has ceased performing the Work without intent to resume performance, prior to the completion of the Work.

12. DISPUTE RESOLUTION

Except as herein specifically provided otherwise, disputes concerning the performance of this Grant that cannot be resolved by the designated Party representatives shall be referred in writing to a senior departmental management staff member designated by the State and a senior manager or official designated by Grantee for resolution.

13. NOTICES AND REPRESENTATIVES

Each Party shall identify an individual to be the principal representative of the designating Party and shall provide this information to the other Party. All notices required or permitted to be given under this Grant Award Letter shall be in writing, and shall be delivered either in hard copy or by email to the representative of the other Party. Either Party may change its principal representative or principal representative contact information by notice submitted in accordance with this **§13**.

14. RIGHTS IN WORK PRODUCT AND OTHER INFORMATION

Grantee hereby grants to the State a perpetual, irrevocable, non-exclusive, royalty free license, with the right to sublicense, to make, use, reproduce, distribute, perform, display, create derivatives of and otherwise exploit all intellectual property created by Grantee or any Subcontractors or Subgrantees and paid for with Grant Funds provided by the State pursuant to this Grant.

15. GOVERNMENTAL IMMUNITY

Liability for claims for injuries to persons or property arising from the negligence of the Parties, their departments, boards, commissions committees, bureaus, offices, employees and officials shall be controlled and limited by the provisions of the Colorado Governmental Immunity Act, §24-10-101, et seq., C.R.S.; the Federal Tort Claims Act, 28 U.S.C. Pt. VI, Ch. 171 and 28 U.S.C. 1346(b),

and the State's risk management statutes, §§24-30-1501, *et seq*. C.R.S. No term or condition of this Agreement shall be construed or interpreted as a waiver, express or implied, of any of the immunities, rights, benefits, protections, or other provisions, contained in these statutes.

16. GENERAL PROVISIONS

A. Assignment

Grantee's rights and obligations under this Grant are personal and may not be transferred or assigned without the prior, written consent of the State. Any attempt at assignment or transfer without such consent shall be void. Any assignment or transfer of Grantee's rights and obligations approved by the State shall be subject to the provisions of this Grant Award Letter.

B. Captions and References

The captions and headings in this Grant Award Letter are for convenience of reference only, and shall not be used to interpret, define, or limit its provisions. All references in this Grant Award Letter to sections (whether spelled out or using the § symbol), subsections, exhibits or other attachments, are references to sections, subsections, exhibits or other attachments contained herein or incorporated as a part hereof, unless otherwise noted.

C. Entire Understanding

This Grant Award Letter represents the complete integration of all understandings between the Parties related to the Work, and all prior representations and understandings related to the Work, oral or written, are merged into this Grant Award Letter.

D. Modification

The State may modify the terms and conditions of this Grant by issuance of an updated Grant Award Letter, which shall be effective if Grantee accepts Grant Funds following receipt of the updated letter. The Parties may also agree to modification of the terms and conditions of the Grant in a formal amendment to this Grant, properly executed and approved in accordance with applicable Colorado State law and State Fiscal Rules.

E. Statutes, Regulations, Fiscal Rules, and Other Authority.

Any reference in this Grant Award Letter to a statute, regulation, State Fiscal Rule, fiscal policy or other authority shall be interpreted to refer to such authority then current, as may have been changed or amended since the Grant Issuance Date. Grantee shall strictly comply with all applicable Federal and State laws, rules, and regulations in effect or hereafter established, including, without limitation, laws applicable to discrimination and unfair employment practices.

F. Digital Signatures

If any signatory signs this agreement using a digital signature in accordance with the Colorado State Controller Contract, Grant and Purchase Order Policies regarding the use of digital signatures issued under the State Fiscal Rules, then any agreement or consent to use digital signatures within the electronic system through which that signatory signed shall be incorporated into this Agreement by reference.

G. Severability

The invalidity or unenforceability of any provision of this Grant Award Letter shall not affect the validity or enforceability of any other provision of this Grant Award Letter, which shall

remain in full force and effect, provided that the Parties can continue to perform their obligations under the Grant in accordance with the intent of the Grant.

H. Survival of Certain Grant Award Letter Terms

Any provision of this Grant Award Letter that imposes an obligation on a Party after termination or expiration of the Grant shall survive the termination or expiration of the Grant and shall be enforceable by the other Party.

I. Third Party Beneficiaries

Except for the Parties' respective successors and assigns described above, this Grant Award Letter does not and is not intended to confer any rights or remedies upon any person or entity other than the Parties. Any services or benefits which third parties receive as a result of this Grant are incidental to the Grant, and do not create any rights for such third parties.

J. Waiver

A Party's failure or delay in exercising any right, power, or privilege under this Grant Award Letter, whether explicit or by lack of enforcement, shall not operate as a waiver, nor shall any single or partial exercise of any right, power, or privilege preclude any other or further exercise of such right, power, or privilege.

K. Accessibility

i. Grantee shall comply with and the Work Product provided under this Agreement shall be in compliance with all applicable provisions of §§24-85-101, *et seq.*, C.R.S., and the *Accessibility Standards for Individuals with a Disability*, as established by OIT pursuant to Section §24-85-103 (2.5), C.R.S. Grantee shall also comply with all State of Colorado technology standards related to technology accessibility and with Level AA of the most current version of the Web Content Accessibility Guidelines (WCAG), incorporated in the State of Colorado technology standards.

ii. The State may require Grantee's compliance to the State's Accessibility Standards to be determined by a third party selected by the State to attest to Grantee's Work Product and software is in compliance with §§24-85-101, *et seq*., C.R.S., and the *Accessibility Standards for Individuals with a Disability* as established by OIT pursuant to Section §24-85-103 (2.5), C.R.S.

17. COLORADO SPECIAL PROVISIONS (COLORADO FISCAL RULE 3-3)

A. STATUTORY APPROVAL. §24-30-202(1) C.R.S.

This Agreement shall not be valid until it has been approved by the Colorado State Controller or designee. If this Agreement is for a Major Information Technology Project, as defined in

§24-37.5-102(2.6), then this Agreement shall not be valid until it has been approved by the State's Chief Information Officer or designee.

B. **FUND AVAILABILITY. §24-30-202(5.5) C.R.S.**

Financial obligations of the State payable after the current fiscal year are contingent upon funds for that purpose being appropriated, budgeted, and otherwise made available.

C. **GOVERNMENTAL IMMUNITY.**

Liability for claims for injuries to persons or property arising from the negligence of the Parties, its departments, boards, commissions committees, bureaus, offices, employees and officials shall be controlled and limited by the provisions of the Colorado Governmental Immunity Act, §24-10-101, et seq., C.R.S.; the Federal Tort Claims Act, 28 U.S.C. Pt. VI, Ch. 171 and 28 U.S.C. 1346(b), and the State's risk management statutes, §§24-30-1501, et seq. C.R.S. No term or condition of this Agreement shall be construed or interpreted as a waiver, express or implied, of any of the immunities, rights, benefits, protections, or other provisions, contained in these statutes.

D. **INDEPENDENT CONTRACTOR.**

Grantee shall perform its duties hereunder as an independent contractor and not as an employee. Neither Grantee nor any agent or employee of Grantee shall be deemed to be an agent or employee of the State. Grantee shall not have authorization, express or implied, to bind the State to any agreement, liability, or understanding, except as expressly set forth herein. **Grantee and its employees and agents are not entitled to unemployment insurance or workers compensation benefits through the State and the State shall not pay for or otherwise provide such coverage for Grantee or any of its agents or employees. Grantee shall pay when due all applicable employment taxes and income taxes and local head taxes incurred pursuant to this Agreement. Grantee shall (a) provide and keep in force workers' compensation and unemployment compensation insurance in the amounts required by law, (b) provide proof thereof when requested by the State, and (c) be solely responsible for its acts and those of its employees and agents.**

E. **COMPLIANCE WITH LAW.**

Grantee shall comply with all applicable federal and State laws, rules, and regulations in effect or hereafter established, including, without limitation, laws applicable to discrimination and unfair employment practices.

F. **CHOICE OF LAW, JURISDICTION, AND VENUE.**

Colorado law, and rules and regulations issued pursuant thereto, shall be applied in the interpretation, execution, and enforcement of this Agreement. Any provision included or incorporated herein by reference which conflicts with said laws, rules, and regulations shall be null and void. All suits or actions related to this Agreement shall be filed and proceedings held in the State of Colorado and exclusive venue shall be in the City and County of Denver.

G. **PROHIBITED TERMS.**

Any term included in this Agreement that requires the State to indemnify or hold Grantee harmless; requires the State to agree to binding arbitration; limits Grantee's liability for damages resulting from death, bodily injury, or damage to tangible property; or that conflicts

with this provision in any way shall be void ab initio. Nothing in this Agreement shall be construed as a waiver of any provision of §24-106-109 C.R.S.

H. **SOFTWARE PIRACY PROHIBITION.**

State or other public funds payable under this Agreement shall not be used for the acquisition, operation, or maintenance of computer software in violation of federal copyright laws or applicable licensing restrictions. Grantee hereby certifies and warrants that, during the term of this Agreement and any extensions, Grantee has and shall maintain in place appropriate systems and controls to prevent such improper use of public funds. If the State determines that Grantee is in violation of this provision, the State may exercise any remedy available at law or in equity or under this Agreement, including, without limitation, immediate termination of this Agreement and any remedy consistent with federal copyright laws or applicable licensing restrictions.

I. **EMPLOYEE FINANCIAL INTEREST/CONFLICT OF INTEREST. §§24-18-201 and 24-50-507 C.R.S.**

The signatories aver that to their knowledge, no employee of the State has any personal or beneficial interest whatsoever in the service or property described in this Agreement. Grantee has no interest and shall not acquire any interest, direct or indirect, that would conflict in any manner or degree with the performance of Grantee's services and Grantee shall not employ any person having such known interests.

EXHIBIT A, STATEMENT OF WORK

1. Public Building Electrification Grant Program

The Public Building Electrification Grant (PBEG) Program was created by HB 22-1362 to promote greenhouse gas emissions reductions from public buildings in the State of Colorado. Emissions from heating buildings are one of the five major sources of greenhouse gas pollution in the State, according to the State's Greenhouse Gas Pollution Reduction Roadmap. Furthermore, public buildings tend to be older buildings whose systems have high energy needs and high energy costs. Energy upgrades to public buildings often remain cost-prohibitive and are a lower priority than the execution of public services. In recognition of these challenges, the PBEG Program was designed to support public buildings in need of financial and technical assistance to transition fossil fuel powered HVAC systems, water heating systems, or fossil fuel-powered appliances to highly efficient electric equipment and appliances.

The resulting Public Building Electrification Grant Program (PBEG) program is a competitive, reimbursement-based grant program administered by CEO. The total funding amount distributed by PBEG is not to exceed $10 million over the program's duration. Projects that support electrification and energy efficiency upgrades in Disproportionately Impacted, Low-Income, and/or Just Transition (DI / LI / JT) communities are highly encouraged. 30% of total grant funding is reserved for projects in DI / LI / JT communities.

Funding allocations will go exclusively toward the purchase and installation of high-efficiency electric equipment for space heating, water heating, or cooking in public buildings. In the case of applicants located in DI/ LI/ JT communities, administrative costs associated with the purchase and installation of electrification equipment are eligible for additional cost coverage.

2. Project Description

The Grantee was awarded grant funding as a result of the Public Building Electrification Grant (PBEG) Request for Applications (RFA). The Colorado Energy Office (hereinafter called "CEO" or the "State") agrees to provide funding to the **City of Louisville, Colorado** (hereinafter called "Grantee"), towards the costs associated and eligible with the PBEG program.

PBEG is a program administered by the Colorado Energy Office (CEO) to encourage use of electric equipment and appliances in buildings, because they reduce greenhouse gas emissions, promote energy security through reliance on domestic electricity, and drive an innovative market for new technology applications. The general purpose of this project is to encourage the installation of electric building equipment in public buildings throughout the state of Colorado.

Grantee is requesting funding for the planning and installation of electric equipment in **the City of Louisville Library buildings at 951 Spruce Street Louisville, Colorado.**

Any dates or deadlines with the exception of the Effective Date, Fund Expenditure End Date, and Grant Expiration Date of this Grant Award Letter may be adjusted by mutual written agreement of the Grantee and CEO. Exclusively for the purposes of modifying deadlines in this Statement of Work, e-mail shall suffice as written documentation. If applicable, an extension of the Fund Expenditure End Date or Grant Expiration Date of the Grant Award shall require a formal modification to the Grant Award Letter.

The Grantee shall hire and retain contractors and other professional services as needed to purchase and install necessary equipment and supporting structures.

Total project grant award not to exceed **$677,500.00**

3. Grantee Tasks, Deliverables & Timeline

Grantee is subject to the following tasks, deliverables and timelines.

3.1. Grant Administration

3.1.1. Kick-off Meeting

Kick-off meeting will be held within 45 days of Grant Award Letter execution and will establish expectations of Grantee for implementing this agreement. The meeting shall include, but not be limited to, a review of the project implementation timeline, contingency plans should the original timeline be extended, Grantee's strategy to implement the proposed project and associated deliverables, and a review of this agreement to ensure a clear understanding of expectations.

Deliverables: PowerPoint slides or presentation containing the project timeline and contingency plans. Other meeting materials developed as appropriate.

Timeline: Meeting will be held within 45 days of Grant Award Letter execution and materials developed and presented in the kick-off meeting to be delivered to the grant program manager within 2 business days following the meeting.

3.1.2. Reporting & Progress Meetings

CEO & Grantee shall conduct check-in calls on a quarterly schedule (State Fiscal Year). The Grantee shall be responsible for ensuring that all relevant staff attend calls. Meeting agenda will include updates on relevant project tasks, challenges and barriers the Grantee is encountering, and any decisions or guidance needed from CEO. Additionally, these meetings may include identifying any needed modifications to the tasks, implementation timeline, or budgets.

- Monthly Progress Reports

Grantee will be subject to monthly performance reporting.
Reports shall include:

- Financial/Expenditure – tracking of grant related expenses for the quarter (paid and unpaid) and expenditures to date by match funding source. Expenses must match the budget line items outlined in Exhibit B. Expenditures of funds must reconcile with CEO's files and may also include unpaid invoices.
- Programmatic – narrative report; including progress made toward project goals and objectives, obstacles encountered to date and possible solutions, photos indicative of construction progress for the quarter, planned activities for the next month.

Deliverables: Monthly progress report with financial/expenditure tracking and programmatic narrative update.

Timeline: Monthly reports will be submitted to the CEO grant program manager by the 15th of each month.

- Annual Performance Reporting

  Grantee shall submit a report to the Colorado Energy Office the first five years after receiving the grant award. This report shall include description of the project and measures funded using grant funds and operational data of electric equipment on gas and electricity use, cost, and emissions. Reporting template will be provided by the Colorado Energy Office.

  Deliverables: Annual report with financial/expenditure tracking, programmatic narrative update, and impact reporting on energy use.

  Timeline: Annual report will be due each year in December.

- Final Report
  - The Grantee shall complete reimbursable work within 12 months of the Grant Agreement Effective Date and submit a final report. This report will demonstrate the completion of the project and installation of the electric equipment. To be acceptable, the final report must explain the Grantee's procurement and installation process, and it must identify the location of the equipment accompanied with a picture of the installed unit. The Grantee shall provide an invoice to CEO for the purchase of the unit and associated equipment, permitting costs, and the labor costs associated with the installation. To be acceptable, the invoice must be supported by receipts or invoices for all equipment, permits, and labor. The invoice must include an itemized list of

all project costs being considered under the grant, including a breakdown of those covered under PBEG and by any match funding.

Deliverables: Final report providing a summary of key accomplishments from the past year, including project completion and final reporting requirements.

Timeline: Due at final reimbursement request and by the Fund Expenditure End Date.

Budget: $0.00

3.1.3. Payment Requests/Reimbursements

- Grantee shall submit a finance/expenditure report including receipts/invoices detailing eligible project expenditures and pictures of operational equipment, along with the monthly progress report detailing installation and operation of electric equipment per unit complete. The electric equipment will be acceptable to the CEO if they are installed, operational, and available for use by Fund Expenditure End Date. The Grantee's invoice to CEO will be acceptable if it is properly supported by invoices or receipts and the costs are associated with procurement of electric equipment, construction materials, permitting, construction labor costs, and installation costs.
- The reimbursement report will be acceptable to CEO if it explains the Grantee's procurement and installation process, and it identifies the location of the electric equipment accompanied with a picture of the installed units. If the units, invoice, and report are acceptable, the CEO Program Manager will submit the invoice to the accounting department for payment.
    - If the units, invoice, and report are unacceptable, the CEO Program Manager will work with the Grantee to correct, modify, or replace as needed.

Deliverable/s: The following documentation is required for CEO to reimburse eligible costs on the project:

- Reimbursement Report
- Summary Invoice/Reimbursement Request
- Legible copies of all sales invoices showing the purchase price and amount paid by the applicant for the equipment, number of units purchased and serial numbers from the units.

- Legible copies of all invoices/receipts showing installation costs and number of labor hours spent by the installers and any subcontractors on the project.
- Date(s) of installation, installation completion and when the unit(s) are operational and available for use.
- Digital photograph(s) of the completed unit(s).
- Photographs must demonstrate adherence to the design standards. Additional photographs may be requested prior to reimbursement being finalized if this is not clearly demonstrated.
- All deliverables shall be adjusted to the final approval and discretion of the CEO.

3.2. Equipment Installation & Commissioning

3.2.1. Equipment Installation

The following activities will be performed and equipment will be purchased, installed, and operational:

- Space Heating & Cooling
  - Heat pump rooftop units (2)
  - Associated equipment and labor costs required for equipment installation (2)
- Water Heating
  - High efficiency electric water heater (1)
  - Associated equipment and labor costs required for equipment installation (1)

Deliverables: Installation of approved appliances with supporting documentation including paid invoices and photos

Budget: $677,500.00

3.2.2. Commissioning & Operational Verification

Grantee shall undertake a process to ensure all systems & equipment are designed, installed, tested, operated, and maintained according to the operational requirements to ensure proper installation and operation. Grantee shall also clearly demonstrate installed equipment is primarily used over fossil fuel driven redundancy boiler(s).

Deliverable/s: Supporting documentation including a commissioning logbook, IPMVP Option B compliant M&V plan and report and any supporting data and primary information to be provided within 1 year of project completion date.

3.2.3. Final Project Design

Grantee is tasked with finalizing the detailed design of this project and providing CEO with a copy of such design.

Deliverable/s: Copy of final project design development and construction documents upon completion.

3.3. Local Match Amount

Grantee shall submit to the Colorado Energy Office details on any federal and local tax benefits received for the property that constitute grant match requirements.

Deliverable/s: Evidence of City of Louisville Capital Improvement Funds utilized for the project ($677,500.00)

3.4. Acceptance Criteria

Deliverables will be accepted upon timely submission and review by the CEO grant manager to ensure they meet all criteria in the above tasks and are included in the monthly reports from the Grantee. CEO shall notify the Grantee in writing within ten (10) calendar days of receiving a deliverable whether it accepts or rejects that deliverable. If no notification is delivered to the Grantee within this period, the deliverable shall be considered accepted. Any deliverable rejection notice shall specify in reasonable detail the way the deliverable does not materially conform to the specifications set forth in this Exhibit A. Grantee shall then implement such changes as reasonably required to bring the deliverable into material conformity with this Exhibit A. If, at the time the Grant is closed-out or terminated, it is determined that the Work is unfinished, incomplete, or unsatisfactory, or if Grantee fails to complete its obligations under this Statement of Work, in the State's sole discretion, the State shall have the right to recover from Grantee up to 100% of the Grant Funds that have been expended.

EXHIBIT B, BUDGET & PAYMENT CONDITIONS

1. Eligible Costs

The following items are eligible for reimbursement:

- Energy audit(s) of ASHRAE Level II or equivalent to help an applicant determine electrification equipment type and sizing for the project.
- The purchase and installation of high efficiency electric equipment for space heating, water heating, or cooking.
- Utility and electric infrastructure upgrades that are necessary to install high efficiency electric equipment. This includes wiring, transformers, breaker boxes, electrical panels, and circuits.
- The purchase and installation of other innovative high efficiency building technologies that the CEO decides will likely be the same or better efficiency as high efficiency heat pumps.
- DI / LI / JT Communities Only: Community organizing time associated with the planning of the neighborhood-scale electrification project. Up to 30 hours of community organizing to recruit homeowners, organizing energy audits, and other tasks associated with the planning grant may be reimbursed through the grant.
- DI / LI / JT Communities Only: Administrative costs associated with the implementation of the neighborhood-scale electrification project may be reimbursed through the grant funding. Administrative costs may include but are not limited to reimbursement for staff time for managing or coordinating the implementation and installation of the equipment, working with contractors to complete projects, or other implementation-focused activities.

2. Project Budget

Table 1. HEEHA Budget Form Summary

Planning Phase Budget Request	**Measure**	**Total Cost**	**CEO Grant Coverage Percentage**
	Energy Audits/	$0	0%

	Analysis Costs:		
	Community Organizing Costs:	$0	0%
	Total Request	**$0**	0%
Implementation Phase Budget Request	**Measure**	**Total Cost**	**CEO Grant Coverage Percentage**
	Electrification Equipment Costs:	$1,235,000.00	50%*
	Electric Service/Panel Upgrade Costs:	$120,000	50%
	Administrative Costs:	$0	0%
	Total Request before Training:	$677,500	
	Total Request Cover by Grant after Training:	**$677,500**	
Total Project Costs Covered before Training (Planning & Implementation)		$677,500	
Total Project Costs Covered by Grant after Training (Planning & Implementation)		$677,500	

*Grantees who elect to participate in CEO's electrification training course receive a 5% discount on match requirement for electrification equipment costs.

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PUBLIC BUILDING ELECTRIFICATION GRANT PROGRAM

Implementation Only Grant Application Form

Grant Program Overview

The Public Building Electrification Grant (PBEG) Program was created by HB 22-1362[1], to promote greenhouse gas emissions (GHGs) reductions from public buildings in the State of Colorado (State). Emissions from heating buildings are one of the five major sources of greenhouse gas pollution in the State, according to the State's Greenhouse Gas Pollution Reduction Roadmap. Furthermore, public buildings tend to be older buildings whose systems have high energy needs and high energy costs. Energy upgrades to public buildings often remain cost-prohibitive and are a lower priority than the execution of public services. In recognition of these challenges, the PBEG Program was designed to support public buildings in need of financial and technical assistance to transition fossil fuel powered HVAC systems, water heating systems, or fossil fuel-powered appliances to highly efficient electric equipment and appliances.

Projects that support electrification and energy efficiency projects for public buildings in Disproportionately Impacted, Low-Income, and/or Just Transition (DI / LI / JT) communities are highly encouraged. 30% of total grant funding is reserved for projects in DI / LI / JT communities.

Program Goals
The objectives of the PBEG Program are to:

1. Scale up beneficial electrification in projects across Colorado, specifically in DI / LI / JT communities.
2. Reduce energy consumption in public buildings in Colorado.
3. Reduce harmful indoor air pollution and greenhouse gas emissions associated with burning natural gas and other fossil fuels that disproportionately impact low-income communities.
4. Reduce energy burden for public entities, with the intent of saving money spent on energy bills and reallocating those to other public services.
5. Support State-wide adoption of Colorado's updated Energy Code.
6. Spur electrification market transformation and technology advancement to accelerate the deployment of net-zero buildings.

[1] House Bill (HB) 22-1362, the Building Greenhouse Gas Emissions Act, directed the Colorado Energy Office (CEO) to create a grant program that supports the electrification of public buildings called the Public Building Electrification Grant (PBEG) program. The development of the Grant Program is outlined in Section 24-38.5-405 of the House Bill.

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Preparing your Implementation Only Grant Application

BEFORE YOU BEGIN: Please read through the PBEG Program Guidelines and Resource pages to understand the program objectives, eligibility, and requirements. To complete your application, please DOWNLOAD OR MAKE A COPY of this Google Doc and fill out all applicable fields.

To identify your community as a DI / JT / LI community for this grant funding opportunity, please:

1. Follow the guidance in the Community Identification Resource;
2. Prepare all documentation described in the resource; and
3. Provide the documentation outlined in Section 2 Community Information.

Note: A community is considered eligible for the DI / JT / LI allotment if they qualify for one or more of the community identifiers.

Implementation Only Grant Application Overview

The purpose of the grant application is to provide the Review Committee with an understanding of the applicant's proposed project, the project's commitment to full equipment electrification, any demonstrated need for funding support, and preparedness to implement the proposed project.

To submit your application and documentation, **DOWNLOAD OR MAKE A COPY of this Google Doc, fill out all applicable fields, DOWNLOAD OR MAKE A COPY of this Google Doc, fill out all applicable fields**, then follow submission instructions on the Colorado Energy Office's PBEG Grant Webpage. The applicant should review these guidelines in full prior to completing an application.

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Please DOWNLOAD OR MAKE A COPY of this Google Doc and fill out all applicable fields.

1. Contact Information and Project Summary

Project Title: City of Louisville Public Library Building Electrification Retrofit

Applicant Organization/Entity: City of Louisville

Organization Type:

State agency	School district
Local government	Tribal government
Institution of higher education	Other, please specify
Special district	

Lead Applicant Name/Title: Kayla Betzold, Sustainability Manager

Lead Applicant Email Address: kbetzold@louisvilleco.gov

Lead Applicant Phone Number: 720-765-7006

Lead Organization Mailing Address: 749 Main Street, Louisville CO, 80027

Total Funding Amount Requested: $677,500

Estimated Total Project Cost: 1,355,000

Project Timeline (anticipated start and end dates, any potential reason for delay):

3 months for final design – anticipated start date of April 2024, anticipated completion date of December 2024 (due to supply chain constraints).

Brief Project Description (750 words):

In December 2021, the City of Louisville experienced the most destructive wildfire in the state's history, with 550 homes and businesses destroyed. Almost two years after the devastating Marshall Fire, the City of Louisville continues to rebuild. In addition to pre-disaster planning, the City is focused on improving its climate resiliency and lessening its carbon footprint. The City developed and adopted an Internal Decarbonization Plan, which includes a roadmap to decarbonization and electrification of City facilities, fleet and equipment. The roadmap's recommendations are outlined in phases – near term, mid term and long term. The near term recommendations in the Plan include energy efficiency and load reduction at all 10 facility sites, 2.3 MW of onsite solar at seven facility sites, electric vehicle charging at five facility sites and mechanical electrification at five facility sites. The five near

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term sites were chosen due to their equipment nearing the end of its useful life. The Louisville Public Library is one of five near term building electrification sites outlined in the Internal Decarbonization Plan and electrifying the rooftop units and domestic hot water heater at the library is an integral part of achieving the goals outlined in the Internal Decarbonization Plan and grant funding will allow the City to implement the Plan's recommendations without reduction in scope, realizing the greatest decarbonization potential.

The transition from natural gas to electric heating and water systems is a crucial step towards reducing the carbon footprint associated with energy consumption. This project not only aligns with the City's commitment to environmental stewardship but also contributes to the broader goals of the state of Colorado in addressing climate change.

The benefits of this project extend beyond energy efficiency; it also promotes cleaner air, improved indoor air quality, and a healthier environment for patrons and staff. Furthermore, the successful implementation of this grant will undoubtedly contribute to the facilities' long-term operational efficiency and cost savings, reflecting a proactive approach to managing energy needs while fostering a positive impact on the community.

2. Community Information

Description of Community Location:

County: Boulder

City/Town: Louisville

Community Population: 19,394

Disproportionately Impacted, Just Transition, and/or Low Income Communities

Are you self-identifying your community as a Disproportionately Impacted, Just Transition, or Low-Income (DI/JT/LI) Community?

Yes

No

If yes, do you anticipate needing assistance with project management or administration of the grant if awarded? *Note: DI / JT / LI communities qualify for free technical and administrative assistance if the grant is awarded.*

Yes



No

[UPLOAD] If you are self-identifying your community as DI/JT/LI (checked "yes") please provide the documentation requested in the Community Identification resource, in this section, to demonstrate applicability with the DI / JT / LI requirements.

Project Narrative. Please keep answers to a 500 word limit for each question.

1. Please describe why grant funds are necessary for your community/organization/entity and if the project would be able to move forward without the grant funding.

In addition to the COVID-19 pandemic, Boulder County and the City of Louisville have experienced numerous disasters in recent years. The 2013 Flood resulted in extensive damage to residential and commercial property, as well as roads, bridges creeks and open space and the 2021 Marshall Fire was the most destructive wildfire in Colorado history, with over 1,200 structures damaged or destroyed countywide. As the City of Louisville continues to rebuild from the fire, City leadership are working to become more resilient through climate mitigation and adaptation efforts.

The first large step was the City's Internal Decarbonization Plan which includes building and infrastructure upgrades, energy efficiency, clean energy and sustainable transportation. The City is also hiring a Resiliency Program Manager and Mitigation Coordinator to further increase resiliency work within the City. Through these efforts, the City of Louisville is doing its part to prepare, mitigate and adapt to climate change and reduce the impacts of future natural disasters, while also reducing emissions in an effort to reduce the intensity and frequency of these disasters in the future. This endeavor is important, impactful and expensive.

If this project is not awarded grant funds, the City would have to significantly reduce the scope, delay the project, or look for other ways to slowly implement measures over time. CEO funding for this project will enable the project to move forward as it currently exists. This project is an unprecedented opportunity for Louisville to achieve its resiliency, facility, and climate goals while continuing to provide on-going programming services to the community of Louisville.

2. In general, how will this project benefit your community? Please include all associated co-benefits on this project.

Through electrification and EV charging, the City will adapt to potential shifts in energy sources and technology advancements and will be more resilient to fluctuating fossil fuel prices due to global economic instability. Energy efficiency measures ensure ongoing energy savings and resiliency in the face of economic uncertainty.

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The project enhances the community's health and well-being by improving indoor air quality, reducing carbon emissions and upgrading building infrastructure which preserves a community resource used for programs and meetings. It improves the local economy by reducing operational costs allowing the City to allocate funds to other essential services.

Through implementation of this project, the community will be able to reduce its energy consumption, produce more clean energy on-site and reduce the reliance on gas through building electrification. As a result of the project, the City will reduce GHG emissions, reduce current and future utility costs, lessen global warming, and -in turn - produce a healthier environment for present and future generations. In addition, this project focuses on extending the life of the current facilities within Louisville versus building new which produces less embodied carbon and fewer lifecycle carbon emissions. It enhances project benefits by providing sustainable improvements for both present and future generations to enjoy.

During the bidding of the project's scope of work, all subcontractors in the local community will be encouraged to respond, including smaller companies that may be more at-risk due to the financial impacts of climate change. This project will help to promote social equity of clean energy across the Louisville community by sharing knowledge and education of the process and helping to make the transition to a clean energy economy a more holistic, state-wide solution. By preserving and enhancing a key publicly accessible community hub, Louisville will be providing equitable access and maintaining resources within the library for all residents and community members – regardless of background.

3. Are you working to achieve any sustainability goals or to implement strategies from other community plans (such as a comprehensive plan, etc)?

In 2019, City Council advanced its commitment to climate action by unanimously adopting Resolution 25-2019, setting clean energy and carbon emission reduction goals for the municipality and larger community. The municipal climate action goals are as follows:

- Meet all of Louisville’s municipal electric needs with 100% carbon-free sources by 2025
- Reduce core municipal greenhouse gas (GHG) emissions annually below the 2016 baseline through 2025 (2016 baseline is 4,016 mtCO2)

As of March 2020, all City facility electricity comes from carbon-free sources, which is supplied as a premium charge added to each premise’s monthly electricity consumption through utility billing (Renewable*Connect and Windsource). City facilities also participate in community solar gardens in Boulder and Weld counties and on-site solar at the Water and Wastewater Treatment Plants.

Currently, the City is not meeting the municipal goal to decrease GHG emissions from building energy use and fleet fuel annually from the 2016 baseline. In 2022, municipal greenhouse gas

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emissions associated with building energy use and fleet fuel decreased, but are significantly higher than the baseline year of 2016, likely due to the Recreation Center expansion in 2018.

The City's Strategic Plan calls out 'Complete and implement Internal Decarbonization Plan for City facilities, fleet and equipment in an effort to support the City's renewable energy and carbon emission reduction goals and to serve as a role model for the community' as a priority initiative. The 2023 City Council Work Plan identifies 'City climate change/greenhouse gas reduction initiatives' as a high priority with "Completion and implementation of the Internal Decarbonization Plan" listed.

The City's adopted Sustainability Action Plan lists several energy, climate and transportation goals that are being achieved through the creation and implementation of the Internal Decarbonization Plan.

Required Uploads

- DI/JT/LI documentation, if applicable.

3. Building Information

[UPLOAD] Please fill out the spreadsheet titled "Building Information Spreadsheet" with the following information for the proposed project:

- Property Street Address
- Utility companies serving the building for natural gas and electricity.
- Description of the current facility:
    - Uses / Occupancy Type
    - Age of Building
    - Building square footage
    - Fuel Types Used
    - HVAC System - Space Heating
    - HVAC System - Domestic Water Heating
    - Other Applicable Gas-Fueled Appliance(s)
    - Note any retrofits or equipment upgrades within the last 10 years, if known or applicable.
- Description of the all electric systems that will be installed with the grant funding.
    - Note if electric service upgrades will be needed for the building to complete the project.
        - Electric panel upgrade.
        - Electric utility service upgrade.

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[UPLOAD] Provide 12 Months of Energy Bills. Provide bills from Gas, Propane, Electricity, or other energy source providers. This can be in spreadsheet form or you may submit PDFs of the energy bills. Ensure all uploaded documents are clearly titled.

[UPLOAD] Natural Gas and Electric Rates: Gas and electric rate documentation (if not included in the 12 months of Energy Bills submitted).

[UPLOAD] All-Electric Systems Information: Please fill out the tab in the "Building Information Spreadsheet" titled "All-Electric Systems Information Spreadsheet" to provide information on the all-electric systems you are installing for the project.

Required Uploads

- Building Information Spreadsheet.
- 12 months of Energy Bills (electric, natural gas, propane, stationary diesel, etc).
- Gas and Electric Rate Documentation if not included in the 12 months of Energy Bills submitted.
- All-Electric Systems Information Spreadsheet.

4. Project Details

Electrification Project Scope

[UPLOAD] Provide all energy audits of ASHRAE Level II or equivalent or analysis completed for the project that evaluated the electrification of fossil gas equipment and/or any electric-service and electric-panel upgrades.

[UPLOAD] Submit documentation that justifies the selected size and type of equipment or installation with the quote. This may include but is not limited to an energy audit, a report from an energy analyst, or a set of Manual J calculations.

Provide a description in narrative form of the full project scope including which electrification measures will be implemented and electric service upgrades needed if applicable. (750 word limit)

Through this PGEB funded project at the Louisville Public Library, the City will transition two natural gas 80% efficient rooftop units (RTU) to two 50-ton air to air heat pump RTUs. One of the heat pump RTUs will have a coefficient of performance (COP) of 3.33 with heat recovery at 47 degrees Fahrenheit and the second heat pump RTU will have a COP of 3.18 with heat recovery at 17 degrees Fahrenheit. Additionally, a natural gas 80% efficient domestic hot water heater will be transitioned to an 80 gallon, 18kW electric water heater with a COP of 1



with electric resistance backup heating. Since the City will not be electrifying the natural gas boiler, a service upgrade is not needed at the site at this time.

Additional Energy Work within Project Scope

For each facility in the proposed project, please describe if the project will be paired with renewable energy, energy storage, and/or other energy efficiency improvements. If so, please describe those improvements here and attach any relevant documentation. (500 word limit, and/or **UPLOAD)**

There are several other aspects of decarbonization at the public library site that will be implemented in conjunction with the mechanical electrification. The following energy efficiency and load reduction measures will be implemented: variable frequency drives, snow melt system retro-commissioning, controls optimization/retro-commissioning, duct air sealing/insulation, envelope air sealing, lighting controls/vacancy sensors, advanced plug load reduction. Additionally, a 128 kW-DC flat roof solar system will be installed on the roof to further decarbonization efforts and produce renewable electricity onsite.

Energy Performance Contracting

Are you planning on pairing grant funding with EPC financing?

Yes

No

Implementation Project Team

Who will be involved in the implementation project? List any contractors, facilities managers, building owners, etc. along with relevant certifications and/or licenses (if applicable).

[UPLOAD] You may either fill out the table below or upload a document with your project team's information.

Project Team Member	Role	Company/ Organization	Certification/ Licenses (if applicable)
Kayla Betzold	Sustainability Manager/Project Manager	City of Louisville	
Kevin Frey	Facilities	City of Louisville	

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	Superintendent/Project Manager		
Kurt Kowar	**Public Works Director**	**City of Louisville**	
ESCO	**Construction management**	**TBD**	
Ryder Bailey	**Finance Director**	**City of Louisville**	

Commissioning Plan

Project commissioning is not required but highly encouraged. If you are pursuing commissioning, please provide the following detail.

Name of Certified Commissioning Agent: TBD

Timeline for Commissioning: 2024

Systems being Commissioned: Commissioning will be completed after installation of the electric units through the EPC.

[UPLOAD] Commissioning Plan.

Additional Relevant Information

Note: Projects that do not provide information in this section will not be penalized.

1. Is there any additional information that will assist the Evaluation Committee in understanding the proposed project and need? (500 word limit)

2. **[UPLOAD]** Please attach any additional documents that would support your application (i.e., design documents, energy analysis, letters of recommendation, letters of support, etc.) and include a brief description of the documents attached. (500 word limit)

Required Uploads

- Energy Audit or Analysis (ASHRAE Level II or equivalent).



- Size and Type of Electric Systems Justification Report.
- Commissioning Plan, if applicable.
- Project team documentation, if not filling out the provided table.
- Any additional documents that support your application.

5. Project Budget

Project Budget

[UPLOAD] Complete the "Project Budget" Spreadsheet and upload it.

> **DI / LI / JT Communities**
> DI / LI / JT Applicants may have up to 40 hours of administrative time covered under the Implementation Grant. Please provide details on the administrative cost and the number of hours needed. Note, there cannot be double counting between administrative time covered with grant funding and any in-kind support that contributes to the community match.

[UPLOAD] Please attach a quote(s) and all specification sheets for the proposed high-efficiency electric equipment and/or any electric service and electric-panel upgrades necessary for project execution. You must include at least two (2) quotes per service or equipment type, as applicable, and must indicate which vendor was selected to perform the work.

[UPLOAD] Confirmation a project team member has signed up or completed the Electrification Training for the match contribution.

Required Uploads

- Project Budget Form.
- Project Quotes/Estimates.
- Equipment Specification Sheets.
- Confirmation of Electrification Training.

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6. Required Uploads for Supporting Documentation

Supporting Uploads and Documentation

Please ensure all the following documents have been attached to your application:

Section 2: DI/JT/LI documentation, if applicable.
Section 3: Building Information Spreadsheet.
Section 3: 12 months of Energy Bills (electric, natural gas, propane, stationary diesel, etc).
Section 3: Gas and Electric Rate Documentation if not included in the 12 months of Energy Bills submitted.
Section 3: All-Electric Systems Information Spreadsheet.
Section 4: Energy Audit or Analysis (ASHRAE Level II or equivalent)
Section 4: Size and Type Justification Analysis if information is not included in the energy audit.
Section 4: Commissioning Plan, if applicable.
Section 4: Any additional documents that support your application.
Section 4: Project team documentation, if not filling out the provided table.
Section 5: Project Budget Form.
Section 5: Project Quotes/Estimates.
Section 5: Equipment Specification Sheets.
Section 5: Confirmation of Electrification Training.

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7. Reporting Plan and Final Documentation - Implementation

Reporting Plan

Briefly describe the plan for grant reporting, including roles, responsibilities, and methods. If you are self-identifying your community as a DI/JT/LI community and plan to use grant funding to cover administrative costs, be sure to include the estimated administrative costs associated with grant reporting in the project budget. (500 word limit)

If awarded funding, the City of Louisville team will effectively manage the grant reporting and community progress and outcomes to the Colorado Energy Office. Kayla Betzold will act as the Project Manager and will oversee the project and its reporting. Kayla will compile information, ensure accuracy and provide a comprehensive overview of the project status and outcomes. Kayla will also be the City of Louisville point of contact and will communicate with other city team members through the project. Ryder Bailey and his Finance team will be responsible for providing accurate financial data related to grant expenditures and other financial documentation required by the state. Kevin Frey and the Public Works team will be directly involved with the project's implementation and will provide details about project activities, milestones achieved, challenges faced and success stories.

Upon completion of the project, the following documentation will be required:

1. Final budget sheet including all project expenses and matched income.
2. Legible copies of all sales/invoices showing the purchase price and amount paid by the applicant for the PBEG equipment and installation, the number and type of units purchased, and the coefficient of performance or efficiency rating for all units purchased.
3. Date(s) of installation, installation completion, and when the units were operational.
4. If available, energy use data/energy bills for each building for the months following the installation of the high-efficiency electric equipment.

To submit documentation, follow submission instructions on the Colorado Energy Office's PBEG Grant Program webpage.

GRANT AWARD LETTER
SUMMARY OF GRANT AWARD TERMS AND CONDITIONS

State Agency Colorado Energy Office	**Grant Amount** State Fiscal Year 2025: $1,592,000.00 State Fiscal Year 2026: Any SFY25 unspent funds State Fiscal Year 2027: $0.00 State Fiscal Year 2028: $0.00 State Fiscal Year 2029: $0.00 State Fiscal Year 2030: $0.00 **Total for all State Fiscal Years: $1,592,000.00**
Grantee City of Louisville	
Grant Issuance Date The date the State Controller or an authorized delegate signs this Grant Letter	
Grant Expiration Date December 31, 2029	**Local Match Amount** **Total for all State Fiscal Years: $1,592,000.00**
Grant Authority Authority to enter into this Grant exists in HB 22-1362.	

Grant Purpose
The Grantee was awarded funding as a result of the competitive High Efficiency Electric Heating & Appliances (HEEHA) Requests for Application.

Exhibits and Order of Precedence
The following Exhibits and attachments are included with this Grant:

1. Exhibit A, Statement of Work.
2. Exhibit B, Budget and Payment Conditions.
3. Exhibit C, Grantee's Application.

In the event of a conflict or inconsistency between this Grant and any Exhibit or attachment, such conflict or inconsistency shall be resolved by reference to the documents in the following order of priority:

1. Colorado Special Provisions in §17 of the main body of this Grant
2. The provisions of the other sections of the main body of this Grant.
3. Exhibit A, Statement of Work.
4. Exhibit B, Budget and Payment Conditions.
5. Exhibit C, Grantee's Application

Principal Representatives

For the State:
Brittney Vancuran
Colorado Energy Office
1600 Broadway, Suite 1960

Denver, CO 80202
brittney.vancuran@state.co.us

For Grantee:
Hannah Miller
City of Louisville
749 Main Street

Louisville, CO 80027
hmiller@louisvilleco.gov

CC 01/21/25

SIGNATURE PAGE

THE PARTIES HERETO HAVE EXECUTED THIS AGREEMENT

Each person signing this Agreement represents and warrants that the signer is duly authorized to execute this Agreement and to bind the Party authorizing such signature.

GRANTEE City of Louisville _____ By: Date: _____	**STATE OF COLORADO** Jared S. Polis, Governor Colorado Energy Office Will Toor, Executive Director _____ By: Dominique Gómez, Deputy Director Date: _____

In accordance with §24-30-202, C.R.S., this Agreement is not valid until signed and dated below by the State Controller or an authorized delegate.

STATE CONTROLLER
Robert Jaros, CPA, MBA, JD

_____
By: Office of the Governor, Jonathon Bray, Controller

Effective Date:_____

1. GRANT

As of the Grant Issuance Date, the State Agency shown on the first page of this Grant Award Letter (the "State") hereby obligates and awards to Grantee shown on the first page of this Grant Award Letter (the "Grantee") an award of Grant Funds in the amounts shown on the first page of this Grant Award Letter. By accepting the Grant Funds provided under this Grant Award Letter, Grantee agrees to comply with the terms and conditions of this Grant Award Letter and requirements and provisions of all Exhibits to this Grant Award Letter.

2. TERM

A. Initial Grant Term and Extension

The Parties' respective performances under this Grant Award Letter shall commence on the Grant Issuance Date and shall terminate on the Grant Expiration Date shown on the Cover Page for this Grant Award Letter unless sooner terminated or further extended in accordance with the terms of this Grant Award Letter. Upon request of Grantee, the State may, in its sole discretion, extend the term of this Grant Award Letter by providing Grantee with an updated Grant Award Letter showing the new Grant Expiration Date.

B. Early Termination in the Public Interest

The State is entering into this Grant Award Letter to serve the public interest of the State of Colorado as determined by its Governor, General Assembly, or Courts. If this Grant Award Letter ceases to further the public interest of the State or if State, Federal or other funds used for this Grant Award Letter are not appropriated, or otherwise become unavailable to fund this Grant Award Letter, the State, in its discretion, may terminate this Grant Award Letter in whole or in part by providing written notice to Grantee that includes, to the extent practicable, the public interest justification for the termination. If the State terminates this Grant Award Letter in the public interest, the State shall pay Grantee an amount equal to the percentage of the total reimbursement payable under this Grant Award Letter that corresponds to the percentage of Work satisfactorily completed, as determined by the State, less payments previously made. Additionally, the State, in its discretion, may reimburse Grantee for a portion of actual, out-of-pocket expenses not otherwise reimbursed under this Grant Award Letter that are incurred by Grantee and are directly attributable to the uncompleted portion of Grantee's obligations, provided that the sum of any and all reimbursements shall not exceed the maximum amount payable to Grantee hereunder. This subsection shall not apply to a termination of this Grant Award Letter by the State for breach by Grantee.

3. DEFINITIONS

The following terms shall be construed and interpreted as follows:

A. "**Budget**" means the budget for the Work described in Exhibit B.

B. "**Business Day**" means any day in which the State is open and conducting business, but shall not include Saturday, Sunday or any day on which the State observes one of the holidays listed in §24-11-101(1) C.R.S.

C. "**CORA**" means the Colorado Open Records Act, §§24-72-200.1 *et seq.*, C.R.S.

D. **"Electric Ready"** means adequate panel capacity, dedicated electric panel space, electrical wire, electrical receptacles, and adequate physical space to accommodate future installation

of high-efficiency electric appliances including heating, water heating, cooking, drying, and an electric vehicle.

E. "**Grant Award Letter**" means this letter which offers Grant Funds to Grantee, including all attached Exhibits, all documents incorporated by reference, all referenced statutes, rules and cited authorities, and any future updates thereto.

F. "**Grant Funds**" means the funds that have been appropriated, designated, encumbered, or otherwise made available for payment by the State under this Grant Award Letter.

G. "**Grant Expiration Date**" means the Grant Expiration Date shown on the first page of this Grant Award Letter.

H. "**Grant Issuance Date**" means the Grant Issuance Date shown on the first page of this Grant Award Letter.

I. "**Exhibits**" exhibits and attachments included with this Grant as shown on the first page of this Grant

J. "**Extension Term**" means the period of time by which the Grant Expiration Date is extended by the State through delivery of an updated Grant Award Letter

K. "**Goods**" means any movable material acquired, produced, or delivered by Grantee as set forth in this Grant Award Letter and shall include any movable material acquired, produced, or delivered by Grantee in connection with the Services.

L. "**Incident**" means any accidental or deliberate event that results in or constitutes an imminent threat of the unauthorized access or disclosure of State Confidential Information or of the unauthorized modification, disruption, or destruction of any State Records.

M. "**Initial Term**" means the time period between the Grant Issuance Date and the Grant Expiration Date.

N. **"IPMVP"** means International Performance Measurement and Verification Protocol

O. "**Matching Funds**" means the funds provided Grantee as a match required to receive the Grant Funds.

P. **"M&V"** means measurement and verification.

Q. "**Party**" means the State or Grantee, and "Parties" means both the State and Grantee.

R. "**PII**" means personally identifiable information including, without limitation, any information maintained by the State about an individual that can be used to distinguish or trace an individual's identity, such as name, social security number, date and place of birth, mother's maiden name, or biometric records; and any other information that is linked or linkable to an individual, such as medical, educational, financial, and employment information. PII includes, but is not limited to, all information defined as personally identifiable information in §§24-72-501 and 24-73-101 C.R.S. "PII" shall also mean "personal identifying information" as set forth at § 24-74-102, et. seq., C.R.S.

S. **"Quarter"** means the three (3) months periods ending March 31, June 30, September 30, and December 31 of each calendar year.

T. "**Services**" means the services to be performed by Grantee as set forth in this Grant Award Letter and shall include any services to be rendered by Grantee in connection with the Goods.

U. "**State Confidential Information**" means any and all State Records not subject to disclosure under CORA. State Confidential Information shall include, but is not limited to, PII, and State personnel records not subject to disclosure under CORA. State Confidential Information shall not include information or data concerning individuals that is not deemed confidential but nevertheless belongs to the State, which has been communicated, furnished, or disclosed by the State to Grantee which (i) is subject to disclosure pursuant to CORA; (ii) is already known to Grantee without restrictions at the time of its disclosure to Grantee; (iii) is or subsequently becomes publicly available without breach of any obligation owed by Grantee to the State; (iv) is disclosed to Grantee, without confidentiality obligations, by a third party who has the right to disclose such information; or (v) was independently developed without reliance on any State Confidential Information.

V. "**State Fiscal Rules**" means the fiscal rules promulgated by the Colorado State Controller pursuant to § 24-30-202(13)(a) C.R.S.

W. "**State Fiscal Year**" means a 12 month period beginning on July 1 of each calendar year and ending on June 30 of the following calendar year. If a single calendar year follows the term, then it means the State Fiscal Year ending in that calendar year.

X. "**State Records**" means any and all State data, information, and records, regardless of physical form, including, but not limited to, information subject to disclosure under CORA.

Y. "**Subcontractor**" means third parties, if any, engaged by Grantee to aid in performance of the Work. "Subcontractor" also includes sub-grantees.

Z. "**Work**" means the delivery of the Goods and performance of the Services described in this Grant Award Letter.

AA. "**Work Product**" means the tangible and intangible results of the Work, whether finished or unfinished, including drafts. Work Product includes, but is not limited to, documents, text, software (including source code), research, reports, proposals, specifications, plans, notes, studies, data, images, photographs, negatives, pictures, drawings, designs, models, surveys, maps, materials, ideas, concepts, know-how, and any other results of the Work. "Work Product" does not include any material that was developed prior to the Grant Issuance Date that is used, without modification, in the performance of the Work.

Any other term used in this Grant Award Letter that is defined in an Exhibit shall be construed and interpreted as defined in that Exhibit.

4. STATEMENT OF WORK

Grantee shall complete the Work as described in this Grant Award Letter and in accordance with the provisions of Exhibit A. The State shall have no liability to compensate or reimburse Grantee for the delivery of any goods or the performance of any services that are not specifically set forth in this Grant Award Letter.

5. PAYMENTS TO GRANTEE

A. Maximum Amount

Payments to Grantee are limited to the unpaid, obligated balance of the Grant Funds. The State shall not pay Grantee any amount under this Grant that exceeds the Grant Amount for each State Fiscal Year shown on the first page of this Grant Award Letter. Financial obligations of the State payable after the current State Fiscal Year are contingent upon funds for that purpose being appropriated, budgeted, and otherwise made available. The State shall

not be liable to pay or reimburse Grantee for any Work performed or expense incurred before the Grant Issuance Date or after the Grant Expiration Date; provided, however, that Work performed and expenses incurred by Grantee before the Grant Issuance Date that are chargeable to an active Federal Award may be submitted for reimbursement as permitted by the terms of the Federal Award.

B. Matching Funds.

Grantee shall provide the Local Match Amount shown on the first page of this Grant Award Letter and described in Exhibit A (the "Local Match Amount"). Grantee's obligation to pay all or part of any matching funds, whether direct or contingent, only extends to funds duly and lawfully appropriated for the purpose of this Agreement by the authorized representatives of Grantee and paid into Grantee's treasury or bank account. Grantee shall appropriate and allocate all Local Match Amounts to the purpose of this Grant Award Letter each fiscal year prior to accepting any Grant Funds for that fiscal year. Grantee does not by accepting this Grant Award Letter irrevocably pledge present cash reserves for payments in future fiscal years, and this Grant Award Letter is not intended to create a multiple-fiscal year debt of Grantee. Grantee shall not pay or be liable for any claimed interest, late charges, fees, taxes or penalties of any nature, except as required by Grantee's laws or policies.

C. Reimbursement of Grantee Costs

Upon prior written approval, the State shall reimburse Grantee's allowable costs, not exceeding the maximum total amount described in this Grant Award Letter for all allowable costs described in this Grant Award Letter and shown in the Budget, except that Grantee may adjust the amounts between each line item of the Budget without formal modification to this Agreement as long as the Grantee provides notice to the State of the change, the change does not modify the total maximum amount of this Grant Award Letter or the maximum amount for any state fiscal year, and the change does not modify any requirements of the Work.. The State shall only reimburse allowable costs if those costs are: **(i)** reasonable and necessary to accomplish the Work and for the Goods and Services provided; and **(ii)** equal to the actual net cost to Grantee (i.e. the price paid minus any items of value received by Grantee that reduce the cost actually incurred).

D. Close-Out.

Grantee shall close out this Grant within 45 days after the Grant Expiration Date. To complete close out, Grantee shall submit to the State all deliverables (including documentation) as defined in this Grant Award Letter and Grantee's final reimbursement request or invoice. The State will withhold 5% of allowable costs until all final documentation has been submitted and accepted by the State as substantially complete.

6. REPORTING - NOTIFICATION

A. Performance and Final Status

Grantee shall submit all financial, performance and other reports to the State no later than the end of the close out described in **§ 5.E**, containing an evaluation and review of Grantee's performance and the final status of Grantee's obligations hereunder.

B. Violations Reporting

Grantee shall disclose, in a timely manner, in writing to the State, all violations of federal or State criminal law involving fraud, bribery, or gratuity violations potentially affecting the

Award. The State may impose any penalties for noncompliance allowed under 2 CFR Part 180 and 31 U.S.C. 3321, which may include, without limitation, suspension or debarment.

7. GRANTEE RECORDS

A. Maintenance and Inspection

Grantee shall make, keep, and maintain, all records, documents, communications, notes and other written materials, electronic media files, and communications, pertaining in any manner to this Grant for a period of three years following the completion of the close out of this Grant. Grantee shall permit the State to audit, inspect, examine, excerpt, copy and transcribe all such records during normal business hours at Grantee's office or place of business, unless the State determines that an audit or inspection is required without notice at a different time to protect the interests of the State.

B. Monitoring

The State will monitor Grantee's performance of its obligations under this Grant Award Letter using procedures as determined by the State. The State shall have the right, in its sole discretion, to change its monitoring procedures and requirements at any time during the term of this Agreement. The State shall monitor Grantee's performance in a manner that does not unduly interfere with Grantee's performance of the Work.

C. Final Audit Report

Grantee shall promptly submit to the State a copy of any final audit report of an audit performed on Grantee's records that relates to or affects this Grant or the Work, whether the audit is conducted by Grantee or a third party.

8. CONFIDENTIAL INFORMATION-STATE RECORDS

A. Confidentiality

Grantee shall hold and maintain, and cause all Subcontractors to hold and maintain, any and all State Records that the State provides or makes available to Grantee for the sole and exclusive benefit of the State, unless those State Records are otherwise publicly available at the time of disclosure or are subject to disclosure by Grantee under CORA. Grantee shall not, without prior written approval of the State, use for Grantee's own benefit, publish, copy, or otherwise disclose to any third party, or permit the use by any third party for its benefit or to the detriment of the State, any State Records, except as otherwise stated in this Grant Award Letter. Grantee shall provide for the security of all State Confidential Information in accordance with all policies promulgated by the Colorado Office of Information Security and all applicable laws, rules, policies, publications, and guidelines. If Grantee or any of its Subcontractors will or may receive the following types of data, Grantee or its Subcontractors shall provide for the security of such data according to the following: **(i)** the most recently promulgated IRS Publication 1075 for all Tax Information and in accordance with the Safeguarding Requirements for Federal Tax Information attached to this Grant as an Exhibit, if applicable, **(ii)** the most recently updated PCI Data Security Standard from the PCI Security Standards Council for all PCI, **(iii)** the most recently issued version of the U.S. Department of Justice, Federal Bureau of Investigation, Criminal Justice Information Services Security Policy for all CJI, and **(iv)** the federal Health Insurance Portability and Accountability Act for all PHI and the HIPAA Business Associate Agreement attached to this Grant, if applicable. Grantee shall immediately forward any request or demand for State Records to the State's principal representative.

B. Other Entity Access and Nondisclosure Agreements

Grantee may provide State Records to its agents, employees, assigns and Subcontractors as necessary to perform the Work, but shall restrict access to State Confidential Information to those agents, employees, assigns and Subcontractors who require access to perform their obligations under this Grant Award Letter. Grantee shall ensure all such agents, employees, assigns, and Subcontractors sign nondisclosure agreements with provisions at least as protective as those in this Grant, and that the nondisclosure agreements are in force at all times the agent, employee, assign or Subcontractor has access to any State Confidential Information. Grantee shall provide copies of those signed nondisclosure restrictions to the State upon request.

C. Use, Security, and Retention

Grantee shall use, hold and maintain State Confidential Information in compliance with any and all applicable laws and regulations in facilities located within the United States, and shall maintain a secure environment that ensures confidentiality of all State Confidential Information wherever located. Grantee shall provide the State with access, subject to Grantee's reasonable security requirements, for purposes of inspecting and monitoring access and use of State Confidential Information and evaluating security control effectiveness. Upon the expiration or termination of this Grant, Grantee shall return State Records provided to Grantee or destroy such State Records and certify to the State that it has done so, as directed by the State. If Grantee is prevented by law or regulation from returning or destroying State Confidential Information, Grantee warrants it will guarantee the confidentiality of, and cease to use, such State Confidential Information.

D. Incident Notice and Remediation

If Grantee becomes aware of any Incident, it shall notify the State immediately and cooperate with the State regarding recovery, remediation, and the necessity to involve law enforcement, as determined by the State. After an Incident, Grantee shall take steps to reduce the risk of incurring a similar type of Incident in the future as directed by the State, which may include, but is not limited to, developing and implementing a remediation plan that is approved by the State at no additional cost to the State.

E. Safeguarding PII

If Grantee or any of its Subcontractors will or may receive PII under this Agreement, Grantee shall provide for the security of such PII, in a manner and form acceptable to the State, including, without limitation, State non-disclosure requirements, use of appropriate technology, security practices, computer access security, data access security, data storage encryption, data transmission encryption, security inspections, and audits. Grantee shall be a "Third-Party Service Provider" as defined in § 24-73-103(1)(i), C.R.S. and shall maintain security procedures and practices consistent with § 24-73-101 *et seq.*, C.R.S. In addition, as set forth in § 24-74-102, et. seq., C.R.S., Grantee, including, but not limited to, Grantee's employees, agents and Subcontractors, agrees not to share any PII with any third parties for the purpose of investigating for, participating in, cooperating with, or assisting with Federal immigration enforcement.

9. CONFLICTS OF INTEREST

Grantee shall not engage in any business or activities or maintain any relationships that conflict in any way with the full performance of the obligations of Grantee under this Grant. Grantee

acknowledges that, with respect to this Grant, even the appearance of a conflict of interest shall be harmful to the State's interests and absent the State's prior written approval, Grantee shall refrain from any practices, activities or relationships that reasonably appear to be in conflict with the full performance of Grantee's obligations under this Grant. If a conflict or the appearance of a conflict arises, or if Grantee is uncertain whether a conflict or the appearance of a conflict has arisen, Grantee shall submit to the State a disclosure statement setting forth the relevant details for the State's consideration. Grantee acknowledges that all State employees are subject to the ethical principles described in § 24-18-105, C.R.S. Grantee further acknowledges that State employees may be subject to the requirements of § 24-18-105, C.R.S. with regard to this Grant.

10. INSURANCE

Grantee shall maintain at all times during the term of this Grant such liability insurance, by commercial policy or self-insurance, as is necessary to meet its liabilities under the Colorado Governmental Immunity Act, § 24-10-101, *et seq.*, C.R.S. (the "GIA"). Grantee shall ensure that any Subcontractors maintain all insurance customary for the completion of the Work done by that Subcontractor and as required by the State or the GIA.

11. REMEDIES

In addition to any remedies available under any exhibit to this Grant Award Letter, if Grantee fails to comply with any term or condition of this Grant, the State may terminate some or all of this Grant and require Grantee to repay any or all Grant funds to the State in the State's sole discretion. The State may also terminate this Grant Award Letter at any time if the State has determined, in its sole discretion, that Grantee has ceased performing the Work without intent to resume performance, prior to the completion of the Work.

12. DISPUTE RESOLUTION

Except as herein specifically provided otherwise, disputes concerning the performance of this Grant that cannot be resolved by the designated Party representatives shall be referred in writing to a senior departmental management staff member designated by the State and a senior manager or official designated by Grantee for resolution.

13. NOTICES AND REPRESENTATIVES

Each Party shall identify an individual to be the principal representative of the designating Party and shall provide this information to the other Party. All notices required or permitted to be given under this Grant Award Letter shall be in writing and shall be delivered either in hard copy or by email to the representative of the other Party. Either Party may change its principal representative or principal representative contact information by notice submitted in accordance with this **§ 13**.

14. RIGHTS IN WORK PRODUCT AND OTHER INFORMATION

Grantee hereby grants to the State a perpetual, irrevocable, non-exclusive, royalty free license, with the right to sublicense, to make, use, reproduce, distribute, perform, display, create derivatives of and otherwise exploit all intellectual property created by Grantee or any Subcontractors or Subgrantees and paid for with Grant Funds provided by the State pursuant to this Grant.

15. GOVERNMENTAL IMMUNITY

Liability for claims for injuries to persons or property arising from the negligence of the Parties, their departments, boards, commissions committees, bureaus, offices, employees and officials shall be controlled and limited by the provisions of the Colorado Governmental Immunity Act, § 24-10-101, et seq., C.R.S.; the Federal Tort Claims Act, 28 U.S.C. Pt. VI, Ch. 171 and 28 U.S.C. 1346(b),

and the State's risk management statutes, § 24-30-1501, *et seq*. C.R.S. No term or condition of this Agreement shall be construed or interpreted as a waiver, express or implied, of any of the immunities, rights, benefits, protections, or other provisions, contained in these statutes.

16. GENERAL PROVISIONS

A. Assignment

Grantee's rights and obligations under this Grant are personal and may not be transferred or assigned without the prior, written consent of the State. Any attempt at assignment or transfer without such consent shall be void. Any assignment or transfer of Grantee's rights and obligations approved by the State shall be subject to the provisions of this Grant Award Letter.

B. Captions and References

The captions and headings in this Grant Award Letter are for convenience of reference only, and shall not be used to interpret, define, or limit its provisions. All references in this Grant Award Letter to sections (whether spelled out or using the § symbol), subsections, exhibits or other attachments, are references to sections, subsections, exhibits or other attachments contained herein or incorporated as a part hereof, unless otherwise noted.

C. Entire Understanding

This Grant Award Letter represents the complete integration of all understandings between the Parties related to the Work, and all prior representations and understandings related to the Work, oral or written, are merged into this Grant Award Letter.

D. Modification

The State may modify the terms and conditions of this Grant by issuance of an updated Grant Award Letter, which shall be effective if Grantee accepts Grant Funds following receipt of the updated letter. The Parties may also agree to modification of the terms and conditions of the Grant in a formal amendment to this Grant, properly executed and approved in accordance with applicable Colorado State law and State Fiscal Rules.

E. Statutes, Regulations, Fiscal Rules, and Other Authority.

Any reference in this Grant Award Letter to a statute, regulation, State Fiscal Rule, fiscal policy or other authority shall be interpreted to refer to such authority then current, as may have been changed or amended since the Grant Issuance Date. Grantee shall strictly comply with all applicable Federal and State laws, rules, and regulations in effect or hereafter established, including, without limitation, laws applicable to discrimination and unfair employment practices.

F. Digital Signatures

If any signatory signs this agreement using a digital signature in accordance with the Colorado State Controller Contract, Grant and Purchase Order Policies regarding the use of digital signatures issued under the State Fiscal Rules, then any agreement or consent to use digital signatures within the electronic system through which that signatory signed shall be incorporated into this Agreement by reference.

G. Severability

The invalidity or unenforceability of any provision of this Grant Award Letter shall not affect the validity or enforceability of any other provision of this Grant Award Letter, which shall

remain in full force and effect, provided that the Parties can continue to perform their obligations under the Grant in accordance with the intent of the Grant.

H. Survival of Certain Grant Award Letter Terms

Any provision of this Grant Award Letter that imposes an obligation on a Party after termination or expiration of the Grant shall survive the termination or expiration of the Grant and shall be enforceable by the other Party.

I. Third Party Beneficiaries

Except for the Parties' respective successors and assigns described above, this Grant Award Letter does not and is not intended to confer any rights or remedies upon any person or entity other than the Parties. Any services or benefits which third parties receive as a result of this Grant are incidental to the Grant, and do not create any rights for such third parties.

J. Waiver

A Party's failure or delay in exercising any right, power, or privilege under this Grant Award Letter, whether explicit or by lack of enforcement, shall not operate as a waiver, nor shall any single or partial exercise of any right, power, or privilege preclude any other or further exercise of such right, power, or privilege.

K. Accessibility

i. Grantee shall comply with and the Work Product provided under this Agreement shall be in compliance with all applicable provisions of § 24-85-101, *et seq.*, C.R.S., and the *Accessibility Standards for Individuals with a Disability*, as established by OIT pursuant to Section § 24-85-103 (2.5), C.R.S. Grantee shall also comply with all State of Colorado technology standards related to technology accessibility and with Level AA of the most current version of the Web Content Accessibility Guidelines (WCAG), incorporated in the State of Colorado technology standards.

ii. The State may require Grantee's compliance to the State's Accessibility Standards to be determined by a third party selected by the State to attest to Grantee's Work Product and software is in compliance with § 24-85-101, *et seq.*, C.R.S., and the *Accessibility Standards for Individuals with a Disability* as established by OIT pursuant to Section § 24-85-103 (2.5), C.R.S.

17. COLORADO SPECIAL PROVISIONS (COLORADO FISCAL RULE 3-3)

A. **STATUTORY APPROVAL. § 24-30-202(1) C.R.S.**

This Agreement shall not be valid until it has been approved by the Colorado State Controller or designee. If this Agreement is for a Major Information Technology Project, as defined in § 24-37.5-102(2.6), then this Agreement shall not be valid until it has been approved by the State's Chief Information Officer or designee.

B. **FUND AVAILABILITY. § 24-30-202(5.5) C.R.S.**

Financial obligations of the State payable after the current fiscal year are contingent upon funds for that purpose being appropriated, budgeted, and otherwise made available.

C. **GOVERNMENTAL IMMUNITY.**

Liability for claims for injuries to persons or property arising from the negligence of the Parties, its departments, boards, commissions committees, bureaus, offices, employees and officials shall be controlled and limited by the provisions of the Colorado Governmental Immunity Act, § 24-10-101, et seq., C.R.S.; the Federal Tort Claims Act, 28 U.S.C. Pt. VI, Ch. 171 and 28 U.S.C. 1346(b), and the State's risk management statutes, § 24-30-1501, et seq. C.R.S. No term or condition of this Agreement shall be construed or interpreted as a waiver, express or implied, of any of the immunities, rights, benefits, protections, or other provisions, contained in these statutes.

D. **INDEPENDENT CONTRACTOR.**

Grantee shall perform its duties hereunder as an independent contractor and not as an employee. Neither Grantee nor any agent or employee of Grantee shall be deemed to be an agent or employee of the State. Grantee shall not have authorization, express or implied, to bind the State to any agreement, liability, or understanding, except as expressly set forth herein. **Grantee and its employees and agents are not entitled to unemployment insurance or workers compensation benefits through the State and the State shall not pay for or otherwise provide such coverage for Grantee or any of its agents or employees. Grantee shall pay when due all applicable employment taxes and income taxes and local head taxes incurred pursuant to this Agreement. Grantee shall (a) provide and keep in force workers' compensation and unemployment compensation insurance in the amounts required by law, (b) provide proof thereof when requested by the State, and (c) be solely responsible for its acts and those of its employees and agents.**

E. **COMPLIANCE WITH LAW.**

Grantee shall comply with all applicable federal and State laws, rules, and regulations in effect or hereafter established, including, without limitation, laws applicable to discrimination and unfair employment practices.

F. **CHOICE OF LAW, JURISDICTION, AND VENUE.**

Colorado law, and rules and regulations issued pursuant thereto, shall be applied in the interpretation, execution, and enforcement of this Agreement. Any provision included or incorporated herein by reference which conflicts with said laws, rules, and regulations shall be null and void. All suits or actions related to this Agreement shall be filed and proceedings held in the State of Colorado and exclusive venue shall be in the City and County of Denver.

G. **PROHIBITED TERMS.**

Any term included in this Agreement that requires the State to indemnify or hold Grantee harmless; requires the State to agree to binding arbitration; limits Grantee's liability for damages resulting from death, bodily injury, or damage to tangible property; or that conflicts with this provision in any way shall be void ab initio. Nothing in this Agreement shall be construed as a waiver of any provision of §24-106-109 C.R.S.

H. **SOFTWARE PIRACY PROHIBITION.**

State or other public funds payable under this Agreement shall not be used for the acquisition, operation, or maintenance of computer software in violation of federal copyright laws or applicable licensing restrictions. Grantee hereby certifies and warrants that, during the term of this Agreement and any extensions, Grantee has and shall maintain in place appropriate systems and controls to prevent such improper use of public funds. If the State determines that Grantee is in violation of this provision, the State may exercise any remedy available at

law or in equity or under this Agreement, including, without limitation, immediate termination of this Agreement and any remedy consistent with federal copyright laws or applicable licensing restrictions.

I. **EMPLOYEE FINANCIAL INTEREST/CONFLICT OF INTEREST. §§ 24-18-201 and 24-50-507 C.R.S.**

The signatories aver that to their knowledge, no employee of the State has any personal or beneficial interest whatsoever in the service or property described in this Agreement. Grantee has no interest and shall not acquire any interest, direct or indirect, that would conflict in any manner or degree with the performance of Grantee's services and Grantee shall not employ any person having such known interests.

EXHIBIT A, STATEMENT OF WORK

1. High Efficiency Electric Heating and Appliances Grant Program

The HEEHA Grant Program was created by HB 22-1362 to promote neighborhood-scale electrification projects in the State of Colorado (State). Fossil gas-powered appliances and equipment produce greenhouse gasses (GHG) and harmful indoor air pollution which can cause health problems. As a result, buildings rank in the top five biggest sources of GHG pollution in the State. Projects that support electrification and energy efficiency upgrades in Disproportionately Impacted, Low-Income, and/or Just Transition (DI / LI / JT) communities are highly encouraged. 30% of total grant funding is reserved for projects in DI / LI / JT communities.

The resulting High Efficiency Electric Heating & Appliances (HEEHA) program is a competitive, reimbursement-based grant program administered by CEO. The total funding amount distributed by HEEHA is not to exceed $10 million over the program's duration.

Funding allocations will go exclusively toward the purchase and installation of high-efficiency electric equipment for space heating, water heating, or cooking in 5 or more residential units or 3 or more commercial buildings. In the case of applicants located in DI/ LI/ JT communities, administrative costs associated with the purchase and installation of electrification equipment are eligible for additional cost coverage.

2. Project Description

The Grantee was awarded grant funding as a result of the High Efficiency Electric Heating and Appliances (HEEHA) Request for Applications (RFA). The Colorado Energy Office (hereinafter called "CEO" or the "State") agrees to provide funding to the **City of Louisville, Colorado** (hereinafter called "Grantee"), towards the costs associated and eligible with the HEEHA program.

HEEHA is a program administered by the Colorado Energy Office (CEO) to encourage use of electric equipment and appliances in buildings, because they reduce greenhouse gas emissions, promote energy security through reliance on domestic electricity, and drive an innovative market for new technology applications. The general purpose of this project is to encourage the installation of electric building equipment in residential and commercial buildings throughout the state of Colorado.

Grantee is requesting funding for the procurement and installation of electric equipment **at the Recreation & Senior Center: 900 Via Appia Way, The Police & Municipal Court: 992 West Via Appia Court, and The Sid Copeland Water Treatment: 1955 Washington Ave.**

Any dates or deadlines with the exception of the Effective Date and Grant Expiration Date of this Grant Award Letter may be adjusted by mutual written agreement of the Grantee and CEO. Exclusively for the purposes of modifying deadlines in this Statement of Work, e-mail shall suffice as

written documentation. If applicable, an extension of the Grant Expiration Date of the Grant Award shall require a formal modification to the Grant Award Letter.

The Grantee shall hire and retain contractors and other professional services as needed to purchase and install necessary equipment and supporting structures.

Total award not to exceed **$1,592,000.00**

3. Grantee Tasks, Deliverables & Timeline

Grantee is subject to the following tasks, deliverables and timelines.

3.1. Grant Administration

3.1.1. Kick-off Meeting

Kick-off meeting will be held within 45 days of Grant Agreement execution and will establish expectations of grantee for implementing this agreement. The meeting shall include, but not be limited to, a review of the project implementation timeline, contingency plans should the original timeline be extended, Grantee's strategy to implement the proposed project and associated deliverables, and a review of this agreement to ensure a clear understanding of expectations.

Deliverables: PowerPoint slides or presentation containing the project timeline and contingency plans. Other meeting materials developed as appropriate.

Timeline: Meeting will be held within 45 days of grant agreement execution and materials developed and presented in the kick-off meeting to be delivered to the grant program manager within 2 business days following the meeting.

3.1.2. Reporting & Progress Meetings

CEO & Grantee shall conduct check-in calls on a quarterly schedule (State fiscal year). The Grantee shall be responsible for ensuring that all relevant staff attend calls. Meeting agenda will include updates on relevant project tasks, challenges and barriers the Grantee is encountering, and any decisions or guidance needed from CEO. Additionally, these meetings may include identifying any needed modifications to the tasks, implementation timeline, or budgets.

- Monthly Progress Reports
  Grantee will be subject to monthly performance reporting.
  Reports shall include:
  - Financial/Expenditure – tracking of grant related expenses for the quarter (paid and unpaid) and expenditures to date by match funding source. Expenses must match the budget line items

outlined in Exhibit B. Expenditures of funds must reconcile with CEO's files and may also include unpaid invoices.
    - Programmatic – narrative report; including progress made toward project goals and objectives, obstacles encountered to date and possible solutions, photos indicative of construction progress for the quarter, planned activities for the next month.

Deliverables: Monthly progress report with financial/expenditure tracking and programmatic narrative update.

Timeline: Monthly reports will be submitted to the grant program manager by the 15th of each month.

- Annual Performance Reporting

  Grantee shall submit a report to the Colorado Energy Office the first five years after receiving the grant award. This report shall include description of the project and measures funded using grant funds and operational data of electric equipment on gas and electricity use, cost, and emissions. Reporting template will be provided by the Colorado Energy Office.

  Deliverables: Annual report with financial/expenditure tracking, programmatic narrative update, and impact reporting on energy use.

  Timeline: Annual report will be due each year in December.

- Final Report
    - The Grantee shall complete reimbursable work within 12 months of the Grant Agreement Effective Date and submit a final report. This report will demonstrate the completion of the project and installation of the electric equipment. To be acceptable, the final report must explain the Grantee's procurement and installation process, and it must identify the location of the equipment accompanied with a picture of the installed unit. The Grantee shall provide an invoice to CEO for the purchase of the unit and associated equipment, permitting costs, and the labor costs associated with the installation. To be acceptable, the invoice must be supported by receipts or invoices for all equipment, permits, and labor. The invoice must include an itemized list of all project costs being considered under the grant, including a breakdown of those covered under HEEHA and by any match funding.

Deliverables: Final report providing a summary of key accomplishments from the past year, including project completion and final reporting requirements.

Timeline: Due at final reimbursement request within 12 months of Grant Effective Date.

Budget: $0.00

3.1.3. Payment Requests/Reimbursements

- Grantee shall submit a finance/expenditure report including receipts/invoices detailing eligible project expenditures and pictures of operational equipment, along with the monthly progress report detailing installation and operation of electric equipment per unit complete. The electric equipment will be acceptable to the CEO if they are installed, operational, and available for use. The Grantee's invoice to CEO will be acceptable if it is properly supported by invoices or receipts and the costs are associated with procurement of electric equipment, construction materials, permitting, construction labor costs, and installation costs.
- The reimbursement report will be acceptable to CEO if it explains the Grantee's procurement and installation process, and it identifies the location of the electric equipment accompanied with a picture of the installed units. If the units, invoice, and report are acceptable, the CEO Program Manager will submit the invoice to the accounting department for payment.
    - If the units, invoice, and report are unacceptable, the CEO Program Manager will work with the Grantee to correct, modify, or replace as needed.

Deliverables: The following documentation is required for CEO to reimburse eligible costs on the project:

- Reimbursement Report
- Summary Invoice/Reimbursement Request
- Legible copies of all sales invoices showing the purchase price and amount paid by the applicant for the equipment, number of units purchased and serial numbers from the units.
- Legible copies of all invoices/receipts showing installation costs and number of labor hours spent by the installers and any subcontractors on the project.
- Date(s) of installation, installation completion and when the unit(s) are operational and available for use.
- Digital photograph(s) of the completed unit(s).

- Photographs must demonstrate adherence to the design standards. Additional photographs may be requested prior to reimbursement being finalized if this is not clearly demonstrated.
- All deliverables shall be adjusted to the final approval and discretion of the CEO.

3.2. Equipment Installation & Commissioning

3.2.1. Equipment Installation

The following activities will be performed and equipment will be purchased, installed, and operational:

- Space Heating & Cooling
  - Heat Pump rooftop units for the recreation & senior center (8)
  - Heat Pump rooftop units for the police & municipal court (2)
  - Heat Pump rooftop unit for the Sid Copeland Water Treatment Facility (1)
  - Installation and associated labor of heat pump rooftop units (11)
  - Associated equipment and labor costs required for equipment installation.

Deliverables: Installation of approved appliances with supporting documentation including paid invoices and photos

Budget: $1,592,000.00

3.2.2. Commissioning & Operational Verification

Grantee shall undertake a process to ensure all systems & equipment are designed, installed, tested, operated, and maintained according to the operational requirements to ensure proper installation and operation. Grantee shall also clearly demonstrate installed equipment is primarily used over fossil fuel driven redundancy boiler(s).

Deliverables: Supporting documentation including a commissioning logbook, IPMVP Option B compliant M&V plan and report and any supporting data and primary information to be provided within 1 year of project completion date.

3.2.3. Final Project Design

Grantee is tasked with finalizing the detailed design of this project and providing CEO with a copy of such design.

Deliverables: Copy of final project design development and construction documents upon completion.

3.3. Local Match Amount

Grantee shall submit to the Colorado Energy Office details on any federal and local tax benefits received for the property that constitute grant match requirements.

- Evidence of City of Louisville Capital Improvement Funds utilized for the project ($1,592,000.00)

Deliverables: Evidence of federal tax credit/benefits or local rebates received for this project. Evidence of general reserve funds and budgeted capital expenditure allocated for the project.

3.4. Acceptance Criteria

Deliverables will be accepted upon timely submission and review by the CEO grant manager to ensure they meet all criteria in the above tasks and are included in the monthly reports from the Grantee. CEO shall notify the Grantee in writing within ten (10) calendar days of receiving a deliverable whether it accepts or rejects that deliverable. If no notification is delivered to the Grantee within this period, the deliverable shall be considered accepted. Any deliverable rejection notice shall specify in reasonable detail the way the deliverable does not materially conform to the specifications set forth in this Exhibit A. Grantee shall then implement such changes as reasonably required to bring the deliverable into material conformity with this Exhibit A. If, at the time the Grant is closed-out or terminated, it is determined that the Work is unfinished, incomplete, or unsatisfactory, or if Grantee fails to complete its obligations under this Statement of Work, in the State's sole discretion, the State shall have the right to recover from Grantee up to 100% of the Grant Funds that have been expended.

EXHIBIT B, BUDGET & PAYMENT CONDITIONS

1. Eligible Costs

The following items are eligible for reimbursement:

- Energy audit(s) of ASHRAE Level II or equivalent to help an applicant determine electrification equipment type and sizing for the project.
- The purchase and installation of high efficiency electric equipment for space heating, water heating, or cooking.
- Utility and electric infrastructure upgrades that are necessary to install high efficiency electric equipment. This includes wiring, transformers, breaker boxes, electrical panels, and circuits.
- The purchase and installation of other innovative high efficiency building technologies that the CEO decides will likely be the same or better efficiency as high efficiency heat pumps.
- DI / LI / JT Communities Only: Community organizing time associated with the planning of the neighborhood-scale electrification project. Up to 30 hours of community organizing to recruit homeowners, organizing energy audits, and other tasks associated with the planning grant may be reimbursed through the grant.
- DI / LI / JT Communities Only: Administrative costs associated with the implementation of the neighborhood-scale electrification project may be reimbursed through the grant funding. Administrative costs may include but are not limited to reimbursement for staff time for managing or coordinating the implementation and installation of the equipment, working with contractors to complete projects, or other implementation-focused activities.

2. Project Budget

Table 1. HEEHA Budget Form Summary

Planning Phase Budget Request	**Measure**	**Total Cost**	**CEO Grant Coverage Percentage**
	Energy Audits/	$0	0%

	Analysis Costs:		
	Community Organizing Costs:	$0	0%
	Total Request	**$0**	0%
Implementation Phase Budget Request	**Measure**	**Total Cost**	**CEO Grant Coverage Percentage**
	Electrification Equipment Costs:	$3,184,000	50%*
	Electric Service/Panel Upgrade Costs:	$0.00	0%
	Administrative Costs:	$0.00	0%
	Total Request before Training:	$1,592,000.00	
	Total Request Cover by Grant after Training:	**$1,592,000.00**	
Total Project Costs Covered before Training (Planning & Implementation)		$1,592,000.00	
Total Project Costs Covered by Grant after Training (Planning & Implementation)		$1,592,000.00	

*Grantees who elect to participate in CEO's electrification training course receive a 5% discount on match requirement for electrification equipment costs.

COLORADO
Energy Office

High Efficiency and Electrification Heating Appliances
Implementation Only Grant Application Form

Grant Program Overview

The HEEHA Grant Program was created by HB 22-1362[1] to promote neighborhood-scale electrification projects in the State of Colorado (State). Fossil gas-powered appliances and equipment produce greenhouse gas (GHG) and harmful indoor air pollution which can cause health problems. As a result, buildings rank in the top five biggest sources of GHG pollution in the State, according to the Colorado Greenhouse Gas Pollution Reduction Roadmap. In addition, over one million Coloradans spend five percent or more of their household income on energy costs – a situation known as "energy-burdened."

High efficiency electric appliance upgrades can reduce indoor air pollutants, reduce energy costs, and improve comfort, but present a significant cost to implement. The HEEHA Grant Program intends to reduce this cost barrier.

Projects that support electrification and energy efficiency upgrades in Disproportionately Impacted, Low-Income, and/or Just Transition (DI / LI / JT) communities are highly encouraged. 30% of total grant funding is reserved for projects in DI / LI / JT communities.

Program Goals

The objectives of the HEEHA Grant Program are to:

1. Scale up beneficial electrification in projects across Colorado, specifically in DI / LI / JT communities.
2. Support electrification and energy efficiency projects in DI / LI / JT communities.
3. Reduce harmful indoor air pollution and GHGs associated with burning natural gas and other fossil fuels, which disproportionately harm DI / LI / JT communities.
4. Reduce energy burden and energy use, with the intent to save money spent on energy bills for DI / LI / JT communities.[2]
5. Advance the goals of the State's GHG Pollution Reduction Roadmap.
6. Increase demand and publicity for innovative, climate-smart building technology.

[1] In 2022, the Colorado State Legislature passed House Bill (HB) 22-1362, the Building Greenhouse Gas Emissions Act. Section 24-38.5-405 of this bill directed the Colorado Energy Office (CEO) to create a grant program, the High Efficiency Electric Heating and Appliances (HEEHA) Grant Program.
[2] https://rmi.org/insight/the-new-economics-of-electrifying-buildings

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Preparing your Implementation Only Grant Application

BEFORE YOU BEGIN: Please read through the HEEHA Grant Program Guidelines and Resource pages to understand the program objectives, eligibility, and requirements. To complete your application, please DOWNLOAD OR MAKE A COPY of this Google Doc and fill out all applicable fields.

To self-identify your community as a DI / JT / LI community for this grant funding opportunity, please:

1. Follow the guidance in the Community Identification Resource;
2. Prepare all documentation described in the resource; and
3. Provide the documentation outlined in Section 2 Community Information.

Note: A community is considered eligible for the DI / JT / LI allotment if they qualify for one or more of the community identifiers.

Implementation Only Grant Application Overview

The purpose of the grant application is to provide the Review Committee with an understanding of the applicant's proposed project, the project's commitment to full beneficial electrification, any demonstrated need for funding support, and preparedness to implement the proposed project.

To submit your application and documentation, **DOWNLOAD OR MAKE A COPY of this Google Doc, fill out all applicable fields,** then follow submission instructions on the Colorado Energy Office's HEEHA Grant Webpage. The applicant should review the HEEHA Grant Program Guidelines in full prior to completing an application.

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Implementation Only Grant Application Form

Please DOWNLOAD OR MAKE A COPY of this Google Doc and fill out all applicable fields.

1. Contact Information and Project Summary

Project Title: City of Louisville Municipal Decarbonization Project

Applicant Organization/Entity: City of Louisville

Applicant Type:

Private/non-profit organization	Business district/association
Local government	Utilities
Institution of higher education	Tribal government
Apartment/condominium complex	HOA
Housing developer	Other, please explain

Lead Applicant Name/Title: Kayla Betzold, Sustainability Manager

Lead Applicant Email Address: kbetzold@louisvilleco.gov

Lead Applicant Phone Number: 720-765-7006

Lead Organization/Entity Mailing Address: 749 Main Street, Louisville CO, 80027

Total Funding Amount Requested: $1,592,000

Estimated Total Project Cost: $3,184,000

Project Timeline (anticipated start and end dates, any potential reason for delay):

3 months for final design – anticipated start date of April 2024, anticipated construction timeline of 18 months, due to supply chain constraints.

Brief Project Description (750 word limit):

In December 2021, the City of Louisville experienced the most destructive wildfire in the state's history, with 550 homes and businesses destroyed. Almost two years after the devastating Marshall Fire, the City of Louisville continues to rebuild. In addition to pre-disaster planning, the City is focused on improving its climate resiliency and lessening its carbon footprint. The City developed and adopted an Internal Decarbonization Plan, which includes a roadmap to decarbonization and electrification of City facilities, fleet and equipment. The roadmap's



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recommendations are outlined in phases – near term, mid term and long term. The near term recommendations in the Plan include energy efficiency and load reduction at all 10 facility sites, 2.3 MW of onsite solar at seven facility sites, electric vehicle charging at five facility sites and mechanical electrification at five facility sites. The five near term sites were chosen due to their equipment nearing the end of its useful life. The Recreation & Senior Center, Police & Municipal Court and Sid Copeland Water Treatment Plant are all facilities included in the near term scope outlined in the Internal Decarbonization Plan.

The transition from natural gas to electric heating and water systems is a crucial step towards reducing the carbon footprint associated with energy consumption. This project not only aligns with the City's commitment to environmental stewardship but also contributes to the broader goals of the state of Colorado in addressing climate change.

The benefits of this project extend beyond energy efficiency; it also promotes cleaner air, improved indoor air quality, and a healthier environment for patrons and staff. Furthermore, the successful implementation of this grant will undoubtedly contribute to the facilities' long-term operational efficiency and cost savings, reflecting a proactive approach to managing energy needs while fostering a positive impact on the community.

Electrifying the rooftop units at the Recreation & Senior Center, Police & Courts and Sid Copeland Water Treatment Plant is an integral part of achieving the goals outlined in the Internal Decarbonization Plan and grant funding will allow the City to implement the Plan's recommendations without reduction in scope, realizing the greatest decarbonization potential.

2. Community Information

Community Location

County: Boulder

City/Town: Louisville

Neighborhood Address: Recreation & Senior Center: 900 Via Appia Way, Police & Municipal Court: 992 West Via Appia Court, Sid Copeland Water Treatment: 1955 Washington Ave

OR

[UPLOAD] Neighborhood Map: You may also upload a screenshot of your neighborhood instead of providing an address.

Neighborhood Description: Please provide a written narrative/description of the neighborhood that captures location and other relevant information. (500 word limit)

The Recreation and Senior Center and Police & Municipal Court buildings are located on the same street, a well-traveled east-west street through the north central neighborhood of Louisville. Both buildings are located directly across the street from one of the hardest hit neighborhoods in the Marshall Fire, with more than 100 homes being rebuilt in the surrounding area. The Sid Copeland Water Treatment Plant is located on the north side of the city, south of South Boulder Road.

Disproportionately Impacted, Just Transition, and/or Low-Income Communities

1. Are you self-identifying your community as a Disproportionately Impacted, Just Transition, or Low-Income (DI / JT / LI) Community?

   Yes

   No

2. If yes, do you anticipate needing assistance with project management and/or administration of the grant if awarded? *Note: DI / JT / LI communities qualify for free technical assistance from CEO if the grant is awarded.*

   Yes

   No

3. **[UPLOAD]** If you are self-identifying your community as DI /JT /LI (answered "yes" in Question 1 of this section), please upload the documentation requested in the Community Identification resource to demonstrate applicability with the DI / JT / LI requirements.

Project Narrative. Please keep answers to a 500 word limit for each question.

1. Please describe why HEEHA grant funds are necessary for your community/organization/entity and if the project would be able to move forward without grant funding.

In addition to the COVID-19 pandemic, Boulder County and the City of Louisville have experienced numerous disasters in recent years. The 2013 Flood resulted in extensive damage to residential and commercial property, as well as roads, bridges creeks and open space and the 2021 Marshall Fire was the most destructive wildfire in Colorado history, with over 1,200 structures damaged or destroyed countywide. As the City of Louisville continues to rebuild from the fire, City leadership are working to become more resilient through climate mitigation and adaptation efforts.

The first large step was the City's Internal Decarbonization Plan which includes building and infrastructure upgrades, energy efficiency, clean energy and sustainable transportation. The

City is also hiring a Resiliency Program Manager and Mitigation Coordinator to further increase resiliency work within the City. Through these efforts, the City of Louisville is doing its part to prepare, mitigate and adapt to climate change and reduce the impacts of future natural disasters, while also reducing emissions in an effort to reduce the intensity and frequency of these disasters in the future. This endeavor is important, impactful and expensive. The full decarbonization plan cost is $51M and the costs for the near term recommendations in the Plan are $27M.

Currently, the City has $3M budgeted in the Capital Improvement Fund to support this project and needs grants and other funding to implement the full decarbonization recommendations in the Plan. If this project is not awarded grant funds, the City would have to significantly reduce the scope, delay the project, or look for other ways to slowly implement measures over time. CEO funding for this project will enable the project to move forward as it currently exists. This project is an unprecedented opportunity for Louisville to achieve its resiliency, facility, and climate goals while continuing to provide on-going programming services to the community of Louisville.

2. In general, how will this project benefit your community? Please describe all potential associated co-benefits of this project.

Through electrification and EV charging, the City will adapt to potential shifts in energy sources and technology advancements and will be more resilient to fluctuating fossil fuel prices due to global economic instability. Energy efficiency measures ensure ongoing energy savings and resiliency in the face of economic uncertainty.

The project enhances the community's health and well-being by improving indoor air quality, reducing carbon emissions and upgrading building infrastructure which preserves a community resource used for programs and meetings. It improves the local economy by reducing operational costs allowing the City to allocate funds to other essential services.

Through implementation of this project, the community will be able to reduce its energy consumption, produce more clean energy on-site and reduce the reliance on gas through building electrification. As a result of the project, the City will reduce GHG emissions, reduce current and future utility costs, lessen global warming, and -in turn - produce a healthier environment for present and future generations. In addition, this project focuses on extending the life of the current facilities within Louisville versus building new which produces less embodied carbon and fewer lifecycle carbon emissions. It enhances project benefits by providing sustainable improvements for both present and future generations to enjoy.

During the bidding of the project's scope of work, all subcontractors in the local community will be encouraged to respond, including smaller companies that may be more at-risk due to the financial impacts of climate change. This project will help to promote social equity of

clean energy across the Louisville community by sharing knowledge and education of the process and helping to make the transition to a clean energy economy a more holistic, state-wide solution. By preserving and enhancing a key publicly accessible community hub, Louisville will be providing equitable access and maintaining resources within the library for all residents and community members – regardless of background.

Required Uploads

- Neighborhood Map, if applicable.
- DI / LI / JT documentation, if applicable.

3. Project Information

Please indicate the targeted number of dwelling units, commercial units, and/or buildings, etc. in the project. *Note: Applicants must represent a minimum of five (5) homes or dwelling units, or at least three (3) businesses/building units.*

This project will fund building electrification at three (3) facilities – the Recreation & Senior Center, Police & Municipal Court and Sid Copeland Water Treatment Plant.

[UPLOAD] Please fill out the "Project Information Spreadsheet" with the following information for each building and/or unit in the proposed project. *Note: If any information is unavailable, please include a description in the space provided indicating why the applicant could not find the information.*

1. Property Street Address(es).
    - Unit Numbers (as applicable)
2. Utility companies serving the building(s) for natural gas and electricity.
3. Description of the facilities:
    - Approximate Square Footage
    - Age of Building
    - Uses and/or Occupancy Type
    - Fuel Types Used (electricity, propane, natural gas, etc)
    - HVAC System - Space Heating
    - HVAC System - Domestic Water Heating
    - Other Applicable Gas-Fueled Appliance(s):
        - *Note: This may include but is not limited to clothes dryers, stoves, ovens, and/or fireplaces.*
4. Note any retrofits or equipment upgrades were completed within the last 10 years, if known or applicable. (500 word limit)



- *This may include but is not limited to energy efficiency or weatherization retrofits and upgrades, including any prior work completed with a CEO program such as the Weatherization Assistance Program.*

5. Description of the all electric systems that will be installed with the grant funding.
    - Note if any of the following electric service upgrades will be needed to complete the project.
        - Electric Panel Upgrade
        - Electric Utility Service Upgrade

[UPLOAD] Provide 12 Months of Energy Bills. Provide bills from Gas, Propane, Electricity, or other energy source providers for each unit and/or building. *Note: This can be compiled in a separate spreadsheet or submitted as separate PDFs of each energy bill. Ensure all uploaded documents are clearly titled.*

[UPLOAD] Natural Gas and Electricity Rates. If NOT included in the submitted 12 months of energy bills, provide gas and electric rate documentation. *Note: This may be a screenshot or PDF of one gas and electric rate documentation each.*

[UPLOAD] All-Electric Systems Information: Please fill out the tab in the "Building Information Spreadsheet" titled "All-Electric Systems Information Spreadsheet" to provide information on the all-electric systems you are installing for each building and/or unit included in the project.

Required Uploads

- Project Information Spreadsheet
- 12 Months of Energy Bills (electric, natural gas, propane, stationary diesel, etc).
- Gas and Electric Rate Documentation, if not included in the 12 months of Energy Bills submitted.
- All-Electric Systems Information Spreadsheet

4. Project Details

Project Beneficiaries

1. **[UPLOAD]** Please attach all written approvals from participants for whom this application represents.
2. **Optional, unless you are a DI / LI / JT community seeking to use grant funds to cover community organizing**: Please describe any community organizing activities completed to recruit participants for this project. Attach any supporting documentation as applicable. (500 word limit and/or **UPLOAD**)

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Electrification Project Scope

1. **[UPLOAD]** Provide all energy audits of ASHRAE Level II or equivalent or analysis completed for the project that evaluated the electrification of fossil gas equipment and/or any electric service and electric panel upgrades.

    a. **[UPLOAD]** If not included in the energy audits or analysis provided in Question 1 of this section, submit documentation that justifies the selected size and type of equipment or installation with the quote. This may include but is not limited to an energy audit, a report from an energy analyst, or a set of Manual J calculations.

2. Provide a description in narrative form of the full project scope including which electrification measures will be implemented and electric service upgrades needed if applicable. (750 word limit)

This project will fund building electrification at the Louisville Recreation & Senior Center, Police & Municipal Court and Sid Copeland Water Treatment Plant. At the Recreation & Senior Center, this project scope includes funding to convert eight (8) natural gas rooftop units to heat pump rooftop units.

Existing

RTU 1 – 5 ton gas DX

RTU 2 – 5 ton gas DX

RTU 3 – 6 ton gas DX

RTU 4 – 10 ton gas DX

RTU 5 – 4 ton gas DX

RTU 6 – 3 ton gas DX

RTU 7 – 7.5 ton gas DX

RTU 8 – 6 ton gas DX

Replacement

RTU 1 - 5-ton heat pump with gas backup

RTU 2 - 5-ton heat pump with gas backup

RTU 3 – 6-ton heat pump with gas backup

RTU 4 – 10 ton heat pump with gas backup

RTU 5 – 5 ton heat pump with gas backup

RTU 6 – 3 ton heat pump with gas backup

RTU 7 – 7.5 ton heat pump with gas backup

RTU 8 – 6 ton heat pump with gas backup

At Police & Municipal Court, this project scope includes funding to convert two (2) natural gas rooftop units to heat pump rooftop units.

Existing

RTU 1 – 30 ton gas DX

RTU 2 – 20 ton gas DX

Replacement

RTU 1 – 30 ton heat pump with electric backup

RTU 2 – 20 ton heat pump with electric backup

At Sid Copeland Water Treatment Plant, this project scope includes funding to convert one (1) natural gas rooftop unit to a heat pump rooftop unit.

Existing

RTU 1 – 3 ton gas DX

Replacement

RTU 1 – 3 ton heat pump with electric backup

Additional Energy Work within Project Scope - Implementation Phase

For each facility or unit in the proposed project, please describe if the project will be paired with renewable energy, energy storage, and/or other energy efficiency improvements. If so, please describe those improvements here and attach any relevant documentation. (500 word limit and/or **UPLOAD**)

This grant project scope is part of a larger implementation plan for the City's Internal Decarbonization Plan.



At the Recreation & Senior Center, the building electrification will be paired with energy efficiency and load reduction measures including: pool covers, sauna scheduling, window replacements, building automation system scheduling, controls optimization/retro-commissioning, duct air sealing/insulation, envelope air sealing, lighting controls/vacancy sensors and advanced plug load reduction. Additionally, there will be a 380 kW agrivoltaic ground mounted solar array installed on site with native and pollinator friendly plants underneath the panels.

At the Police & Municipal Court, the building electrification will be paired with energy efficiency and load reduction measures including: HVAC occupancy sensors, building automation scheduling, controls optimization/retro-commissioning, duct air sealing/insulation, envelope air sealing, lighting controls/vacancy sensors and advanced plug load reduction. Additionally, there will be a 257 kW ground mounted solar array installed on site.

At the Sid Copeland Water Treatment Plant, the building electrification will be paired with energy efficiency and load reduction measures including: Envelope air sealing, lighting controls/vacancy sensors and LED lighting. Additionally, there will be a 376 kW ground mounted solar array installed on site.

Through the Internal Decarbonization Plan, geothermal and energy storage were considered at all sites, but were not recommended due to cost and payback timelines.

New Construction Projects

If you are applying for grant funding of a new construction project, your application must also demonstrate the following:

1. **[UPLOAD]** Properly calculated HVAC loads for future electric HVAC equipment serving each unit and/or building.
2. **[UPLOAD]** REScheck, ERI, or comparable modeling pathway detail that demonstrates the new construction project meets the standards of the 2018 IECC OR the most recent version of the International Energy Conservation Code adopted by the project's jurisdiction, whichever is more stringent. If your project does not meet these code requirements, please contact the HEEHA Program Manager.

(OPTIONAL - for Commercial Properties Only) Commissioning Plan

Project commissioning is not required but highly encouraged. If you are pursuing commissioning, please provide the following detail.

Commissioning will be completed during the construction period of the project and will be administered by the energy service company.

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Name of Certified Commissioning Agent:

Timeline for Commissioning:

Systems being Commissioned:

[UPLOAD] Commissioning Plan.

Implementation Project Team

Who will be involved in this project? List any contractors, community staff/stakeholders, facilities managers, building owners, etc., along with relevant certifications and/or licenses (if applicable).

[**UPLOAD**] You may either fill out the table below or upload a document with your project team's information.

Project Team Member	Role	Company/ Organization	Certification/ Licenses (if applicable)
Kayla Betzold	Sustainability Manager/Project Manager	City of Louisville	
Kevin Frey	Facilities Superintendent/Project Manager	City of Louisville	
Kurt Kowar	Public Works Director	City of Louisville	
ESCO	Construction Management	TBD	
Ryder Bailey	Finance Director	City of Louisville	

OPTIONAL: Additional Relevant Information

Note: This section is optional and not required for the grant application. Projects that do not provide information in this section will not be penalized.

1. Is there any additional information that will assist the Review Committee in understanding the proposed project and need? (500 word limit)

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2. **[UPLOAD]** Please attach any additional documents that would support your application (i.e., neighborhood sustainability plans, site design documents / photos, letters of recommendation, etc.). Include a brief description of the documents attached. (500 word limit)

Required Uploads

- Participant Written Approvals.
- Community Organizing Documentation (if applicable).
- Energy Audit or Analysis (ASHRAE Level II or equivalent).
- Size and Type Justification Analysis, if information is not included in the energy audit OR for new construction projects.
- For new construction projects, documentation demonstrating the minimum requirements of the International Energy Conservation Code and all applicable local jurisdictional code requirements have been met. This should be an ERI or ResCheck.
- Commissioning Plan, if applicable.
- Project Team Documentation, if provided table is not filled out.
- Any additional documents that support your application.

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5. Project Budget

Project Budget

[**UPLOAD**] Complete the "Project Budget" Spreadsheet, detailing each project expense for which you anticipate using project funding, and upload. See HEEHA Grant Program Guidelines for additional information on eligible costs and community match allowances for each phase.

[**UPLOAD**] Please attach all quote(s) and specification sheets for the proposed high-efficiency electric equipment and/or any electric service and electric-panel upgrades necessary for project execution. You must include at least two (2) quotes per service or equipment type, as applicable, and indicate which vendor was selected to perform the work.

For community match, please detail the cash match contribution and provide both description and cost for any in-kind match contribution. In addition, include details on any leveraged rebates and incentives that will be used to contribute towards the community match.

> **DI / LI / JT Communities**
> DI / LI / JT Applicants may use grant funds to cover up to 40 hours of administrative time. Please provide detail on the administrative cost and the number of hours needed. *Note: You may not double count between administrative time covered with grant funding and any in-kind support that contributes to the community match.*

Required Uploads

- Project Budget Spreadsheet.
- Project Quotes/Estimates.
- Equipment Specification Sheets.

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6. Reporting Plan and Final Documentation - Implementation Phase

Reporting Plan

Briefly describe the plan for grant reporting and document submission, including roles, responsibilities, methods, and approvals from participants. If you are self-identifying your community as a DI/JT/LI community and plan to use grant funding to cover administrative costs, be sure to include the estimated administrative costs associated with grant reporting in the project budget. (500 word limit)

If awarded funding, the City of Louisville team will effectively manage the grant reporting and community progress and outcomes to the Colorado Energy Office. Kayla Betzold will act as the Project Manager and will oversee the project and its reporting. Kayla will compile information, ensure accuracy and provide a comprehensive overview of the project status and outcomes. Kayla will also be the City of Louisville point of contact and will communicate with other city team members through the project. Ryder Bailey and his Finance team will be responsible for providing accurate financial data related to grant expenditures and other financial documentation required by the state. Kevin Frey and the Public Works team will be directly involved with the project's implementation and will provide details about project activities, milestones achieved, challenges faced and success stories.

Upon completion of the project, the following information will be required to be submitted to CEO:

1. Final budget sheet including all project expenses and matched income.
2. Legible copies of all sales/invoices showing the purchase price and amount paid by the applicant for the HEEHA equipment and installation, the number and type of units purchased, and the coefficient of performance or efficiency rating for all units purchased.
3. Date(s) of installation, installation completion, and when the units were operational.
4. If available, energy use data/energy bills for each building for the months following the installation of the high-efficiency electric equipment.

To submit documentation, follow submission instructions on the Colorado Energy Office's HEEHA Grant Webpage.

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7. Required Uploads

Uploads and Documentation

Please ensure all the following documents have been uploaded with your application:

Section 2: Neighborhood map, if applicable.
Section 2: DI/JT/LI documentation, if applicable.
Section 3: Project Information Spreadsheet.
Section 3: 12 months of Energy Bills (electric, natural gas, propane, stationary diesel, etc).
Section 3: Gas and Electric Rate Documentation, if not included in the 12 months of Energy Bills submitted.
Section 4: Participant Written Approvals.
Section 4: Community Organizing Documentation, if applicable.
Section 4: Energy Audit or Analysis (ASHRAE Level II or equivalent).
Section 4: Size and Type Justification Analysis, if information is not included in the energy audit OR for new construction projects.
Section 4: For new construction projects, documentation demonstrating the minimum requirements of the most recent version of the International Energy Conservation Code have been met. This must be an ERI or ResCheck.
Section 4: Commissioning Plan, if applicable.
Section 4: Project Team Roster, if provided table is not filled out.
Section 4: Any additional documents that support your application.
Section 5: Project Budget Spreadsheet.
Section 5: Project Quotes/Estimates.
Section 5: Equipment Specification Sheets.

To submit documentation, follow submission instructions on the Colorado Energy Office's HEEHA Grant Webpage.

SUBJECT: APPROVAL TO PROCEED WITH SOLE SOURCE PURCHASE OF TORO SENTINEL IRRIGATION CONTROLLERS

DATE: JANUARY 21,2025

PRESENTED BY: ABBY MCNEAL, PARKS SUPERINTENDENT & ADAM BLACKMORE, PARKS, RECREATION & OPEN SPACE DIRECTOR

OVERVIEW:
This project involves replacing outdated irrigation controllers within the Parks system with advanced TORO Sentinel Irrigation Controllers. The new controllers, suitable for both wall-mount and pedestal applications, will modernize the system and improve operational efficiency.

Staff is requesting approval to sole source purchase the latest TORO Sentinel central control irrigation controllers, cabinets, and associated components necessary for the renovation. The anticipated cost is $285,734 and the items to be procured from CPS Distributors “CPS” are detailed in the Controller Component documents.

As you can see in the attached letter, TORO has appointed CPS Distributors as the exclusive provider in the State of Colorado.

City Council has previously approved a capital improvement project allocation, Irrigation Replacements and Improvements (201577-630101), to support the renovation of the Parks irrigation systems. These upgraded controllers will enhance water conservation efforts in the designated park areas.

FISCAL IMPACT:
This purchase has allocated budget funds as outlined above. The account will be left with additional funding that will be utilized for additional future improvements to irrigation infrastructure.

RECOMMENDATION:
Approval to sole source purchase TORO Sentinel Irrigation Controllers from CPS Distributors in the amount of $285,734.

ATTACHMENT(S):
1. Controller Components CPS Distributors
2. Sole Source documentation

STRATEGIC PLAN IMPACT:

☒	**Financial Stewardship & Asset Management**	☐	**Reliable Core Services**
☒	**Vibrant Economic Climate**	☒	**Quality Programs & Amenities**
☒	**Engaged Community**	☐	**Healthy Workforce**
☐	**Supportive Technology**	☐	**Collaborative Regional Partner**

TORO CPS Controller Costs

Parks Location	Cabinet	Costs	Notes
88th Street Median	Sm SS SB-LD165W	$10,604.29	
Alder & McCaslin	Sm SS SB-LD165W	$865.29	
Annette Brand	Ped SS	$10,870.43	Re-use exisiting cabinet
Arboretum	Wall SS SB16-SW	$14,900.00	
Cemetery	Wall SS SB16-SW	$9,505.93	
Coal Creek Ranch2	Wall SS SB16-SW	$13,192.49	
Cherry St Median (Orchid)	Sm SS SB-LD165W	$5,742.00	
Cherrywood 1	Wall SS SB16-SW	$9,831.00	
Cherrywood 2	Wall SS SB16-SW	$3,200.00	
Cleo Mudrok Detention	WOBEE	$5,743.00	Antenna
Cowboy Park	Ped SS 16 w/ riser	$10,871.00	
Dutch Creek- Elephant	Sm SS SB-LD165W	$8,695.29	
Enrietto Park	Ped SS 16 w/ riser	$10,870.43	
Hoover Park	Sm SS SB-LD165W	$8,695.29	
McCaslin North	Wall SS SB16-SW	$10,516.63	Worm unit
Meadows Park	Ped SS 16 w/ riser	$10,604.29	
Miners Field	Sm SS SB-LD165W	$8,442.70	
Mission Greens	Sm SS SB-LD165W	$8,695.29	
South and Main	Sm SS SB-LD165W	$8,961.43	
Sunflower	WOBEE	$2,843.00	Antenna
South Shore	Wall SS SB16-SW	$12,385.00	
Sports Complex	Wall SS SB16-SW	$8,695.29	
Tyler Park	Wall SS SB16-SW	$8,695.29	
Via Appia Median 1	Sm SS SB-LD165W	$13,093.49	long range antenna
Via Appia Median 3	Sm SS SB-LD165W	$13,719.63	long range antenna
Washington Park	Wall SS SB16-SW	$8,695.29	
	TOTAL Controller/ Cabinets	$238,933.77	
Additional Costs			
TORO 5 year extended warranty	26 @ $700/each	$ 18,200.00	
CPS cabinet prep	26 @ $350/ each	$ 9,100.00	
Certification	26 @ $750/ each	$ 19,500.00	
	TOTAL COSTS	$285,733.77	

THE TORO COMPANY

2025

January 8, 2025

RE: Sole Source Letter for The City of Louisville, CO

To Whom it May Concern,

To maintain the highest level of service for Toro® central control products, Toro has appointed CPS Distributors (CPS) as the exclusive, sole provider of WMS configured DXi™ products and Sentinel parts and accessories in the State of Colorado.

Due to the technical nature of central control components, field service and support may be necessary. The CPS commitment to provide testing and service for the system would not be possible with open distribution. CPS is also qualified to perform installations and upgrades as your organization sees fit.

Please do not hesitate to contact me with any questions or concerns.

Sincerely,



Sergio Ramos
Marketing Manager | Commercial Irrigation & Software
(O) 951-785-3453 | sergio.ramos@toro.com

CITY COUNCIL COMMUNICATION AGENDA ITEM 8A

SUBJECT: **DISCUSSION / DIRECTION: COMPREHENSIVE PLAN FUTURE LAND USE**

DATE: **JANUARY 21, 2025**

PRESENTED BY: **JEFF HIRT, AICP, PLANNING MANAGER**
ROB ZUCCARO, AICP, COMMUNITY DEVELOPMENT DIRECTOR

PURPOSE

The purpose of this item is to:

- Share the results from the Comprehensive Plan's most recent community engagement; and
- Request City Council direction on the proposed approach for the Plan's future land use framework.

BACKGROUND

The Comprehensive Plan's future land use framework is a foundational part of the Plan. It will articulate the City's official land use policy through goals, strategies, and a Future Land Use Map (FLUM). This framework will guide the City's future land use decisions like rezoning requests and PUDs and inform a future development code update.

Over the last couple of months, the project team has been using the Plan's Vision Statement and Core Values as a lens for community engagement to develop the future land use framework, among other topics, that will inform the draft Comprehensive Plan. The engagement focused on future growth options within key opportunity areas that may see land use changes, while maintaining and enhancing other areas in the community. There are four identified opportunity areas – 1) South Boulder Road, 2) Downtown Louisville, 3) McCaslin Boulevard, and 4) Redtail Ridge.

Key Land Use-Related Findings from Community Engagement

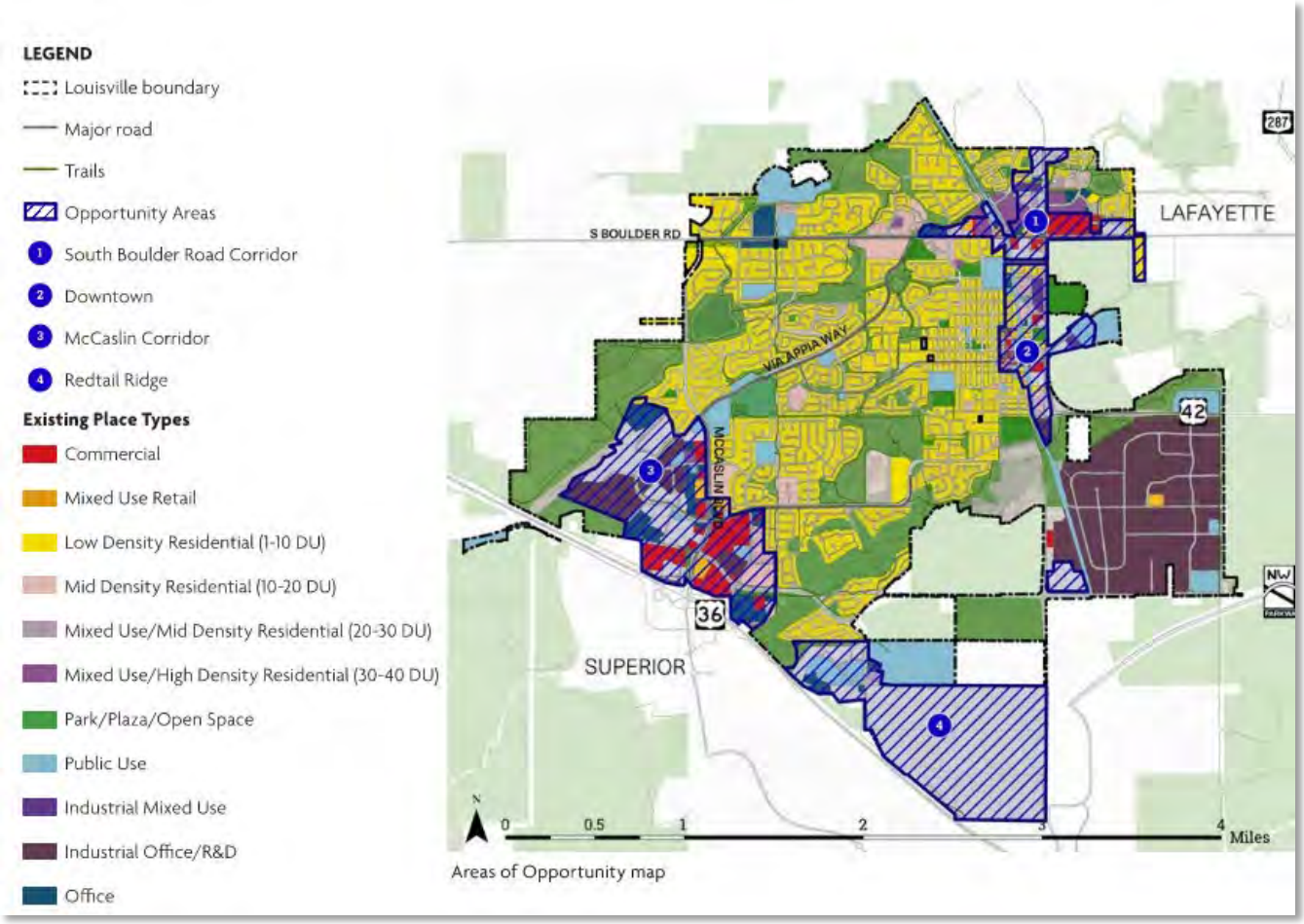
Attachment 2 is a detailed summary of the outcomes from this recent engagement that informed the recommendations in this memo. The key findings related to future land use within these opportunity areas include but are not limited to community support for:

- Land use changes from commercial-exclusive to mixed use development (including residential) at select locations, including vacant and underutilized sites in the McCaslin area;
- Some higher density mixed use development at specific locations including near the US 36 corridor;
- Allowing a wider range of housing types within these opportunity areas;
- Preserving the scale and community feel of Downtown Louisville; and
- Maintenance and enhancement of existing low density single family and parks and open space areas.

The City also conducted its statistically valid biennial resident survey in 2024 and asked some Comprehensive Plan related questions. One question asked participants to rate their level of support or opposition for the development of mixed-use housing and businesses in areas with "empty parking lots" and with "several vacant storefronts". About 8 in 10 respondents supported such development (City of Louisville Community Survey 2024, page 35).

Comprehensive Plan Proposed Opportunity Areas

This map was shared with the community as part of recent engagement.



Areas of Opportunity map

Comprehensive Plan Future Land Use Recommendations

Recent community input informed development of the Plan's future land use approach summarized below in Table 1. The project team will draft the Plan's future land use map and framework based on Planning Commission and City Council input on this recommended approach.

Future Land Use Map (FLUM) Recommendations

The Plan's draft FLUM will show the following proposed key land use elements within each of the opportunity areas. Attachments 1 and 2 provide a more detailed summary of the recent community input that was focused on these opportunity areas. These recommendations only focus on future land uses. There will be other elements of the FLUM (e.g., transportation connectivity) addressed in the Plan.

Table 1: FLUM Recommendations

Opportunity Area	FLUM Recommendations
1. South Boulder Road	• Mid-density residential uses in some locations near South Boulder Road and Highway 42, opportunity to consider 3-stories. • Mixed use residential and commercial along some parts of South Boulder Road; consider allowing residential by-right in mixed use districts.
2. Downtown Louisville	• Maintain ground floor retail and other street level active uses in commercial area. • Propose mid-density residential in some locations, including above ground floor retail. • Consider 3-stories in some locations, including near future transit. • Support enhancements to community gathering places. • Address as a special character area with supplemental policies addressing design, scale, and land use.
3. McCaslin Corridor	• Mid-density residential uses along Centennial Blvd, changing current zoning from office. • Maintain commercial (retail) as primary use along McCaslin Blvd. • High-density residential/mixed use near US 36; consider 4 stories, possibly up to 5 stories at locations along US 36. • Incorporate parks, green space, or trail connections to promote transportation and open space connectivity.

Table 1: FLUM Recommendations	
Opportunity Area	**FLUM Recommendations**
4. Redtail Ridge	• Mid-density residential and mixed-use residential uses at some locations, opportunity to consider 3 or 4 stories. • High-density residential near relocated hospital site and along US 36; opportunity to consider 4-stories, consider transit connections. • Propose mid- to high-density housing inter-mixed with office, R&D and industrial uses when appropriate to support jobs-housing balance and vibrancy. • Consider a community green area, green corridor and trails network to promote livability/workability.

Future Land Use Category Recommendations ("Place Types")

The Plan's FLUM will include the following proposed place types assigned to areas of the city. The Plan will also identify other "character areas" with supplemental land use policies to the Future Land Use Map that recognize they are unique places. Such places will likely include Downtown Louisville and potentially open space areas.

Table 2: Comprehensive Plan Proposed Future Land Use ("Place Type") Categories		
Land Use Category	**Example Images**	**Brief Description**
Low Density Residential		• Only detached single family residential • 1-10 DU/acre • Up to 2-2 ½ stories
Mid Density Residential		• Only residential with some attached units (e.g., townhomes) • 10-20 DU/acre • Up to 3 stories

Table 2: Comprehensive Plan Proposed Future Land Use ("Place Type") Categories

Land Use Category	Example Images	Brief Description
Mixed Use - Mid Density Residential		• Residential with mostly attached units (e.g., multifamily); some retail or office allowed • 20-30 DU/acre • Up to 3 stories
Mixed Use - Retail		• Mix of retail with some residential or office • 3-4 stories
Mixed Use Center - High Density Residential		• Residential with some ground floor retail or office • 30-40 DU/acre • 4 stories, up to 5 stories in some locations
Commercial		• Mostly retail, office • 3-4 stories
Industrial Mixed Use		• Light industrial with some limited retail or office • 3-4 stories

Table 2: Comprehensive Plan Proposed Future Land Use ("Place Type") Categories

Land Use Category	Example Images	Brief Description
Industrial Office/Research and Development		• Light industrial with office, research, or labs • 3-4 stories
Office		• Mostly offices • 3-4 stories
Park		• Public parks and other community gathering places
Open Space		• Open space areas as defined in the City Charter
Public/Institutional		• Government facilities, schools, and other similar uses
DU=dwelling unit		

Future Land Use Recommendations and Alignment with Core Values
Planning Commission and City Council endorsed the Plan's Vision Statement and Core Values in September that were developed with input from thousands of Louisville residents. These will be an organizing element of the Plan (see Attachment 2, proposed Plan Table of Contents).

The future land use approach addresses the Plan's Vision Statement by fostering a more inclusive community with more housing choices and a continued focus on economic vibrancy while maintaining and enhancing the places that have created Louisville's high quality of life. More specifically, the key findings from recent community input and FLUM recommendations in Table 1 address the core values as follows:

- Community Character – maintaining or enhancing the character of existing low density residential neighborhoods and parks and open space areas, while focusing future change within opportunity areas. Such opportunity areas are predominantly either existing commercial areas or have significant vacant or underutilized sites that are already connected to infrastructure. The recommendations also recognize the need for policies to address unique community character areas like Downtown Louisville.
- Environmental Sustainability – allowing more mixed use, including housing, within opportunity areas connected to existing transportation infrastructure. This will support less vehicles miles traveled (VMT) with more people able to live closer to where they work, shop, or play. The Plan will also address the City's ability to serve new growth through water and wastewater infrastructure capacity, among other environmental sustainability goals.
- Economic Vibrancy – maintaining the existing core commercial and retail areas of the community, including Downtown Louisville, South Boulder Road, and the McCaslin corridor. Allowing new housing within opportunity areas near these commercial areas will support their economic vibrancy with more demand for nearby retail and other services.
- Community Places – maintaining and enhancing existing community places like Downtown Louisville and the City's parks and open space areas. Supplemental policies informed by community input related to these areas will address the specific elements to maintain and enhance.

Each of these values will be addressed further in the Plan. The Community Connectivity and Civic Leadership Core Values will be more directly addressed through the Comprehensive Plan's goals, strategies, and action plan.

PLANNING COMMISSION INPUT ON FUTURE LAND USE FRAMEWORK

Planning Commission discussed the same information as included in this packet on January 9. They provided comments related to the three future growth and development scenarios and specific comments on future land uses within each of the Plan's four proposed opportunity areas. The comments from Planning Commission at this meeting included:

- A desire for the Plan's future land use framework to address the areas outside of the opportunity areas related to:
  - Transportation and open space connectivity between the opportunity areas; and
  - Opportunities for targeted, neighborhood context-sensitive infill development.
- A desire for the Plan's future land use framework to have overarching policies related to transition areas between opportunity areas and existing neighborhoods. Such policies should address building heights and integration with surrounding transportation and open space.
- A desire for the Plan to address transportation connectivity between existing or emerging residential areas and nearby commercial areas like Downtown Louisville, South Boulder Road, and the McCaslin corridor to promote ease and safety of access.
- Several Planning Commissioners expressed that Scenario A (the lowest housing unit growth scenario) does not meet the City's adopted Housing Plan policies. There needs to be some combination of Scenarios B and C that prioritizes addressing community character and impacts.
- Regarding the **South Boulder Road** opportunity area, support for the recommendations in Table 1: FLUM Recommendations, with the following comments that the Plan should address:
  - This opportunity area needs to connect and integrate with Downtown Louisville, particularly related to bicycle and pedestrian infrastructure.
  - The Plan should carefully consider the transportation impacts along this corridor specifically, given its existing traffic load as an important east-west regional connector.
- Regarding the **Downtown Louisville** opportunity area, support for the recommendations in Table 1 with the following comments that the Plan should address:
  - Downtown should be segmented into subdistricts to address building heights. Allowing three stories "by right" in the historic commercial core may be inconsistent with the existing character and put economic pressure to tear down 1-2 story buildings that are part of the community fabric. If three stories were to be allowed in the commercial core, it should be as part of a discretionary review process. Areas where three stories may be appropriate by right within downtown include the DELO area.

- Regarding the **McCaslin Corridor** opportunity area, support for the recommendations in Table 1 with the following comments that the Plan should address:
    - Any new residential or mixed use development should be designed in a manner that promotes developing a new, cohesive neighborhood in the area west of McCaslin Boulevard. The policies to advance this need further discussion but could include bicycle and pedestrian connectivity and urban design policies.
    - For areas appropriate for residential, primarily west of McCaslin Boulevard, the desire for a variety of housing types that transition from higher density closer to US 36 to lower density near existing residential areas.
- Regarding the **Redtail Ridge** opportunity area, support for the recommendations in Table 1 generally, but that the Plan should have clear, Redtail-specific policies that address its unique features. Such comments included:
    - If there were to be residential, support for concentrating it near Monarch High School and the existing hospital area. The primary reasons for this are to 1) promote contiguity with existing Louisville neighborhoods and proximity to Monarch High School, and 2) ensure opportunities for significant open space in other Redtail Ridge areas to maintain Louisville's open space buffering, among other reasons.
    - Any such residential should be sensitive to existing neighborhood context related to building heights and densities, as well as incompatible uses on other areas within or adjacent to Redtail Ridge.

The Planning Commission meeting can be viewed at this link. There were also eight members of the public that spoke related to the Comprehensive Plan at Planning Commission and 12 written comments (see Attachment 3). The public speaking period starts at about 1:03 into the meeting.

SCHEDULE AND NEXT STEPS

The project team will begin drafting the Comprehensive Plan with target adoption public hearings in July. The project team will also be conducting focused engagement with numerous City boards and commissions in March to develop the Plan's content, including Planning Commission. There will be community outreach for input on the draft plan beginning in early Summer 2025 in addition to the adoption process with public hearings. The project team anticipates the next discussion/direction before City Council in March or early April.

Draft Comprehensive Plan Schedule

Deliverable	JAN	FEB	MAR	APR	MAY	JUNE	JULY
50% Draft Document *Microsoft Word*		Staff Review					
FLUM and Placetypes		Staff Worksession					
Goals and Strategies			Roadshow *PC and Council Review*				
80% Draft *Formatted PDF*					Staff Review		
95% Draft *Formatted PDF- Comments captured in comment log*						Public Comment PC and Council Review	
Final Adoption							PC Council
	City Staff Review Timeframe						
	Consultant Production Timeframe						

REQUESTED CITY COUNCIL ACTION

The Comprehensive Plan project team is requesting the following input from City Council:

1. Do you agree with the approach for the Plan's Future Land Use Map (FLUM)? When evaluating the FLUM, consider the following:
    a. Preferred Scenario. Based on the three scenarios presented to the community, which of these, or which combinations, most closely align with your vision for the future? The community's vision?
    b. FLUM. Based on community feedback, what should be carried forward to a preferred FLUM? What should not be considered? Are these the right future land use categories?
    c. Plan Elements. How much housing is right for the future of Louisville? How and where should there be a focus on economic vibrancy? How can housing and mixed use housing be used to strategically influence economic vibrancy? What needs to be considered from an equity, sustainability, and resilience perspective in these plans? What are critical infrastructure aspects including transportation, utilities, and services?
    d. Decision making. How should the FLUM be used to influence future zoning decisions? What flexibility should exist to allow for changing conditions?
2. Do you have any comments about the Plan's proposed table of contents (see Attachment 1)?

ATTACHMENTS:

1. Design Workshop Memo (Project Updates, Draft Plan Table of Contents, etc.)
2. Community Engagement Round 2 Summary (link to Engagement Summary Appendices)
3. Public Comments from January 9 Planning Commission
4. Presentation

For more project information, visit: https://www.engagelouisvilleco.org/comp-plan

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MEMORANDUM

To:	The City of Louisville
From:	Design Workshop: Jessica Garrow, Alison Cotey
Date:	Issued: December 20, 2024 Revised: January 13, 2024 Meeting Date January 21, 2024
Project Name:	Louisville Comprehensive Plan
Project #:	7131
Subject:	Louisville Comprehensive Plan- City Council Update #3

MEMORANDUM PURPOSE

The following memorandum outlines updates for the City of Louisville Comprehensive Plan. **We will discuss the following at the City of Louisville City Council on January 21, 2024.**

We anticipate the following 60-minute agenda:

General Project Update	5 Min.
Presentation on Community Engagement Window #2	10 Minutes
Scenarios and Future Land Use Map Discussion	40 Minutes
Next Steps	5 Minutes

1) PROJECT UPDATES (5 Minutes)
Progress Report. Based on the scope of work, the following deliverables have been outlined as Complete, In Progress, or Pending.

Our team has completed the following percent complete for the contract:

- **Phase 1: Project Initiation- 90% Complete.**
  - **Complete:** This work included project kick off visits, project management plans, community engagement and stakeholder tracking, project communications and advisory board meetings. (Sept 2023-Mar 2024)
  - **Work in Progress:** The team will continue to hold bi-weekly meetings with the town (32 of 32 Meetings complete), one update to the community engagement plans for the draft plan/engagement window #3, and additional meetings with planning commission (5 of 6 meetings completed), and council (3 of 3 meetings completed).
- **Phase 2: Vision and Trends- 100% Complete**
  - **Complete:** This work included context and understanding as well as community engagement window #1. Deliverables included a past plan review, focus groups/1:1 interviews, and multiple assessments of existing conditions. Community engagement window #1 included an Open House and Online survey (March-April 2024)
- **Task 3: Future Needs and Trends- 100% Complete**
  - **Complete:** This work included a second round of engagement (engagement window #2) on plan vision and values, drafting plan vision, values and goal themes, development of scenarios and community open house and workshops. This will inform the development of plan content for the 50% Draft Plan. (Oct-Dec 2024)
- **Phase 4: Strategies and Implementation- 15% Complete**
  - **Complete:** This phase included project templates and Table of Contents (attached) and plan framework (June-July 2024)
  - **Work in Progress**: Refining three scenarios to a single Future Land Use Map (FLUM) and Three Mile Plan, the development of goals and strategies to support the FLUM. This will constitute a 50% Draft.
  - **Pending:** We will format an 80% of the plan for commission/council comment and feedback. (March-April 2025) Revisions will be made, and a 95% Draft will be shared with the community and presented for adoption. (May-June 2025) (100% delivered pending any final inclusions).

2) COMMUNITY ENGAGEMENT UPDATE (10 Minutes Presentation)

Our team approaches community engagement as interwoven throughout the process to guide and inform the technical content produced. This project includes three engagement windows where we will share the current state of the project and gather feedback from the community around specific questions to inform the next stages of work produced. The following table indicates the proposed engagement windows and status.



	Technical Content	Public Participation
Project Launch *Complete* *Nov. to Dec. 2023*	Branding and Communications	Project FAQ & Q&A Advisory Committee SKO Council and Commission SKO
Engagement Window #1 *Complete* *Dec. 2023-Mar.2024*	Past Plan Review Technical Assessment	Community Vision - Focus Groups - Community Survey - Vision Open House Advisory Committee PC Meeting Council Presentation Engagement Summary
Engagement Window 1.5 *Complete* *June. 2023-July 2024*	Plan Vision, Values and Goals	Sharing the Community Vision and Core Values - Pop Up Events (Staff led) Advisory Committee PC Meeting Council Presentation
Engagement Window #2 **Timeframe:** *Complete* *Oct. 2024-Dec. 2024*	Plan Opportunities Future Land Use Map and Three Mile Plan Strategy Framework	Community Choices - Community Workshop - Open House We Are Here! - Engagement Summary (Attached!) - PC Meeting (Jan 6) - Council Presentation (Jan. 21)
Engagement Window #3 **Timeframe: March-June 2025**	Draft Plan Final Plan	Plan Review- Community Presentation Strategy Roadshows PC Meeting Adoption Meetings

Community Engagement 2 Summary. The attached community engagement summary outlines key findings from the community to inform the plan and future land use map. The key findings are also summarized in the next section of this memo.

3) SCENARIO PLANNING AND FUTURE LAND USE (40 Minutes)

The community provided feedback on their preferred direction for the three scenarios presented in community engagement window #2 (summary attached). We will share high level feedback from the community and engage in discussion to identify a preferred direction for the future of Louisville in the development of the Future Land Use Map (FLUM).

As you review the feedback, please consider the following key questions. The team will use these questions to guide the discussion at the meeting.

1. Do you agree with the approach for the Plan's Future Land Use Map (FLUM)? When evaluating the FLUM, consider the following:
    a. Preferred Scenario. Based on the three scenarios presented to the community, which of these, or which combinations, most closely align with your vision for the future? The community's vision?
    b. FLUM. Based on community feedback, what should be carried forward to a preferred FLUM? What should not be considered? Are these the right future land use categories?
    c. Decision making. How should the FLUM be used to influence future zoning decisions? What flexibility should exist to allow for changing conditions?
2. Do you have any comments about the Plan's proposed table of contents (see Attachment 1)

Scenario planning. Using current drivers and trends to assume possible outcomes, the scenarios explore how different decisions may impact land use and development. The core values previously established were important when developing the 3 scenarios and were used as a lens for which to evaluate trade-offs of each alternative. The community engagement summary includes a robust assessment of the community's feedback and preference on the three scenarios.

When applied to the creation of a Future Land Use Map (FLUM), the feedback, coupled with the analysis from the existing conditions phase of work, will help to inform a shared vision for the community's future. Several themes have emerged and should inform the next stages of the Comprehensive Plan. The Future Land Use Map (FLUM) should address the following:

- ***Land Use:*** *Support increased housing options and focus on density toward centers in appropriate locations. This includes encouraging mid-to-high density housing along McCaslin Boulevard with the potential for up to 4-stories in certain areas by Hwy 36, mid-density infill in downtown with the potential for up to 3-stories for multi-family development, and a mix of housing types in Retail Ridge and along South Boulder Road. Continue to maintain existing single-family neighborhoods, while allowing gentle infill for contextually appropriate Accessory Dwelling Units (ADUs), duplexes and triplexes.*
- ***Circulation****: Promote transit centers and encourage connectivity through transit, bus lines, and micro-transit options. Improve pedestrian crossings, including those over rail lines, and consider adding flashing lights for pedestrian safety. Enhance signage and wayfinding along trail corridors and add more underpasses to improve accessibility. There is a desire for an pedestrian undercrossing at Coal Creek and Dillon Road.*
- ***Economy:*** *Support increased job opportunities and a retail balance along McCaslin Boulevard. Focus on job and commercial development in Retail Ridge and along McCaslin, as appropriate. Promote increased job opportunities downtown to enhance vitality and consider events or programs to attract people to the area.*

- ***Parks and Open Space:*** *Encourage the development of gathering spaces, particularly downtown, and explore the addition of a soccer field. Maintain and improve open space, with particular emphasis on preserving habitat. Maintaining some open space in Redtail Ridge, such as a large community green.*
- ***Sustainability:*** *Ensure future housing and development is efficient and sustainable. Identify locations for solar energy infrastructure. Integrate transit connections into new developments to reduce commuting and vehicle miles traveled (VMT). Encourage sustainable building practices, including smaller and more compact development.*
- ***Equity:*** *Support the development of senior housing and affordable housing for families. Ensure transit stops and connections are available to support new development.*

Future Land Use Map (FLUM). Future Land Use Map (FLUM) is a critical component of comprehensive planning to guide long-term development and land use decisions. It serves as a visual representation of how land is intended to be used in the future, based on the community's goals and vision. To support the uses on the map, Future Land Use Classifications (e.g., residential, commercial, industrial, open space) outline the types of development that are encouraged for the future. This is not zoning but can help to support future decisions related to zoning and policy. A review of the comments indicates the community's desire for a combination of the three scenarios. Key Findings from the Community Engagement Window and the existing conditions analysis to inform the Future Land Use Map include the following:

Opportunity Area	*Community Feedback- Key Understanding*	*Future Land Use Approach*
Area 1: South Boulder Road	• *Preference for a mix of residential and mixed-use. Identified as a good location for senior and affordable housing.* • *Pocket parks and pedestrian connectivity and traffic flow are important.* • *Adaptive reuse opportunities for infill and retrofitting office to residential.*	• *Mid-density residential uses in some locations near South Boulder Road and Highway 42, opportunity to consider 3-stories.* • *Mixed use residential and commercial along some parts of South Boulder Road; consider allowing residential by-right in mixed use districts.*
Area 2: Downtown Louisville	• *Desire to see a thriving downtown, a central hub of the community.* • *Allow for more diverse uses in downtown such as housing but spread out so not concentrated to one area.* • *Desire to see mixed-use 3-story buildings at appropriate locations.* • *Promote commercial and retail vibrancy.*	• *Maintain ground floor retail and other street level active uses in commercial area.* • *Propose mid-density residential in some locations, including above ground floor retail.* • *Consider 3-stories in some locations, including near future transit.* • *Support enhancements to community gathering places.* • *Address as a special character area with supplemental policies addressing design, scale, and land use.*

Area 3: McCaslin Corridor	• *Desire to see a vibrant place in the community, including a mix of uses, gathering space and connectivity.* • *Emphasis on mid-density along Centennial Blvd., mix-use and commercial along the McCaslin corridor, and high-density along the Hwy. 36 corridor.* • *Encourage safe, accessible and connected streets and pathways.*	• *Mid-density residential uses along Centennial Blvd, changing current zoning from office.* • *Maintain commercial (retail) as primary use along McCaslin Blvd.* • *High-density residential/mixed use near US 36; consider 4 stories, up to 5 stories at locations along US 36.* • *Incorporate parks, green space, or trail connections to promote transportation and open space connectivity.*
Area 4: Redtail Ridge	• *Desire to balanced development that promotes jobs and housing balance and preserves some open space.* • *Integrated to the City of Louisville, but can stand alone (jobs, homes, goods and services located in the same area).* • *Connectivity and congestion (both internal and on surrounding roadways) are important.*	• *Mid-density residential and mixed-use residential uses at some locations, opportunity to consider 3 or 4 stories.* • *High-density residential near relocated hospital site and along US 36; opportunity to consider 4-stories, consider transit connections.* • *Propose mid- to high-density housing inter-mixed with office, R&D and industrial uses when appropriate to support jobs-housing balance and vibrancy.* • *Consider a community green area, green corridor and trails network to promote livability/workability.*

Land Use Classifications. We are proposing the following Land Use Categories/ Placetypes. Each Placetype will include the following: (1) Description/Characteristics, (2) Design Elements- Land Use, Connectivity, Placemaking (3) Resilience and Sustainability Considerations, (4) Economic Vibrancy Considerations, (5) Equity Considerations.

Table 2: Comprehensive Plan Proposed Future Land Use ("Place Type") Categories

Land Use Category (Place Type)	Brief Description
Low Density Residential	• Only detached single family residential • 1-10 DU/acre • Up to 2-2 ½ stories
Mid Density Residential	• Only residential with some attached units (e.g., townhomes) • 10-20 DU/acre • Up to 3 stories
Mid Density Residential Mixed Use	• Residential with mostly attached units (e.g., multifamily); some retail or office allowed • 20-30 DU/acre • Up to 3 stories
Mixed Use Retail	• Mix of retail with some residential or office • 3-4 stories
Mixed Use Center/High Density Residential	• Residential with some ground floor retail or office • 30-40 DU/acre • 4 stories, up to 5 in some locations
Commercial	• Mostly retail, office • 3-4 stories
Industrial Mixed Use	• Light industrial with some limited retail or office • 3-4 stories
Industrial Office/Research and Development	• Light industrial with office, research, or labs • 3-4 stories
Office	• Mostly offices • 3-4 stories
Park	• Public parks and other community gathering places
Open Space	• Open space areas as defined in the City Charter
Public/Institutional	• Government facilities and other institutional uses
DU=dwelling unit	

4) NEXT STEPS

The following indicates the timeline for the development of the City of Louisville Comprehensive Plan.

Deliverable	JAN	FEB	MAR	APR	MAY	JUNE	JULY
50% Draft Document *Microsoft Word*		Staff Review					
FLUM and Placetypes		Staff Worksession					
Goals and Strategies			Roadshow *PC and Council Review*				
80% Draft *Formatted PDF*					Staff Review		
95% Draft *Formatted PDF- Comments captured in comment log*						Public Comment PC and Council Review	
Final Adoption							PC Council
	City Staff Review Timeframe						
	Consultant Production Timeframe						

DOCUMENT FORMAT

As the project plan moves into the drafting and adoption phase, it is important to consider the overall document format and contents. We will create a graphically engaging document that is clear, concise, and easy to understand that can be delivered to a variety of audiences in an accessible way of approximately 80-100 pages.

Previous project deliverables including the synthesis of existing plan review memo (complete), focus group meeting summary (complete), baseline assessments (complete), and community engagement materials and summaries 1, 1.5 and 2 (complete), and scenario planning memorandum, which will serve as a foundation of content for the Draft Plan. Other aspects of the plan document, such as strategies, future land use maps, and corresponding future land use categories are in development and will be shared with the city in 2025 according to the timeline above.

The anticipated Table of Contents for the document is outlined below.

TABLE OF CONTENTS **Subject to Change*

I. Cover

II. Letter from the Mayor or City Manager (2 page spread)

a. *City staff to support the development of letter.*

III. Acknowledgements (2 page spread)

a. *City to support the development of acknowledgements list.*
b. *Land Acknowledgement (City to determine if desired)*

IV. Table of Contents (2 page spread)

V. Chapter 1: Introduction (Approx. 6 Pages)

a. About this Plan
    i. Purpose
    ii. Plan Process
    iii. Community Engagement
b. Plan Organization (Overview)
    i. How this Plan is Organized
    ii. Vision and Values
    iii. Goal Summary/Plan Framework

VI. Chapter 2: Current Understanding (Approx. 10 Pages)

a. Community Context
    i. Regional Context
    ii. Demographic Snapshot
    iii. Historic Context
    iv. Past Plan Summary
b. Current Understanding/ Existing Conditions
    i. Land Use and Urban Design
    ii. Transportation and Mobility
    iii. Environment and Sustainability
    iv. Economic Conditions
c. Driving Forces and Key Findings

VII. Chapter 3: Vision and Values (Approx. 6 Pages)

a. **Vision Framework**
    i. Vision Statement
    ii. Core Values (Guiding Principle Statement)
        1. Overarching Values
            a. Equity (Narrative)
            b. Resilience (Narrative)
            c. Sustainability (Narrative)
            d. Vibrancy (Narrative)
    iii. What we heard from the community/ How these were developed

VIII. Chapter 4: Plan Elements (Approx. 25 Pages)

a. Introduction to the Plan Elements and Goals Summary
b. Community Character: We value a balanced approach to change that maintains and enhances our community.
    i. Background- What we heard
    ii. Themes and Focus Areas. (Each of the following includes several goals followed by strategies to achieve the goal.)
        1. Housing Diversification
        2. Jobs and Housing Balance
        3. Community Identity
        4. Transportation and Connectivity
c. Community Places: We value community places that bring people together and support healthy living including parks, open spaces, and other public places.

i. Background- What we heard
ii. Themes and Focus Areas. (Each of the following includes several goals followed by strategies to achieve the goal.)
    1. Parks and Facilities
    2. Open Space
    3. Public Plazas and Community Gathering

d. Community Connectivity: We value knowing our neighbors through a community network that is inclusive and inter-connected.
    i. Background- What we heard
    ii. Themes and Focus Areas. (Each of the following includes several goals followed by strategies to achieve the goal.)
        1. Equity, Diversity and Inclusion
        2. Community Events
        3. Community Partnerships
        4. Community Resilience and Adaptation

e. Civic Leadership: We value transparent, collaborative, and fiscally responsible local government.
    i. Background- What we heard
    ii. Themes and Focus Areas. (Each of the following includes several goals followed by strategies to achieve the goal.)
        1. Core Community Services
        2. Transparency and Inclusivity
        3. Fiscal Responsibility
        4. Regional Collaboration

f. Economic Vibrancy: We value thriving and dynamic businesses that support and engage the community.
    i. Background- What we heard
    ii. Themes and Focus Areas. (Each of the following includes several goals followed by strategies to achieve the goal.)
        1. Downtown Vibrancy
        2. Supportive Business Environment
        3. Placemaking and Public Ream

g. Environmental Sustainability: We value climate action, environmental resilience, and adaptation to promote environmental sustainability for the enduring vitality of our community.
    i. Background- What we heard
    ii. Themes and Focus Areas. (Each of the following includes several goals followed by strategies to achieve the goal.)
        1. Recovery and Resilience
        2. Open Space and Habitats
        3. Sustainability and Decarbonization
        4. Equitable Resilience and Adaptation

IX. Chapter 4: Future Land Use (Approx. 14 Pages)

a. About/ Purpose
b. What we heard from the Community
    i. How do we think about growth?

ii. How did this inform the FLUM?

c. Future Land Use Map
    i. Land Uses Categories (Up to 12 Categories- Further described in the section below)
    ii. Districts
    iii. Nodes
    iv. Corridors
d. Land Use Categories
    i. Placetype (Each Placetype will include the following:)
        1. Description/ Community Character
        2. Values Alignment
            a. Resilience and Sustainability Considerations
            b. Economic Vibrancy Considerations
            c. Equity Considerations
        3. Urban Design
            a. Land Use
                i. Density/Scale
                ii. Architectural Considerations
            b. Community Connectivity
            c. Community Placemaking
e. Three Mile Plan
    i. Annexation Areas
    ii. Partners and IGAs
    iii. Infrastructure Planning/Water Supply

X. Chapter 5: Next Steps (Approx. 4 Pages)

a. Implementation Matrix Highlights and/or Priority Actions
b. Regulatory Requirements and Recommendations
c. Conclusion

XI. Glossary and List of Acronyms (Approx. 3 Pages)

a. City to support in the identification of terms.
b. DW to develop definitions.

XII. Appendix

a. Implementation Matrix
b. Previous Plans Review (Memorandum)
c. Baseline Assessments (Compiled Memorandum)
d. Community Engagement Summary (Compiled Focus Groups, Engagement Summaries)

LOUISVILLE
COMPREHENSIVE PLAN



COMMUNITY ENGAGEMENT SUMMARY

Prepared by
DESIGNWORKSHOP

Issued: December 2024



1. Introduction

The City of Louisville has conducted community-wide engagement to understand the community's preferred growth scenarios as a part of the process to create a new Comprehensive Plan. Once understood, these will inform the City's Future Land Use Map. This summary document outlines the feedback received in Engagement Window 2, which included an open house event and a community survey. Questions in these activities were focused on understanding the preferred growth scenarios of the community and asked about topics such as opportunity areas for development, job growth, transportation and the environment. Engagement Window 2 built off the feedback in Engagement Window 1. The summary of Engagement Window 1 can be found here.

Engagement

The Louisville community survey was conducted online from November 7 to December 3, 2024 and was hosted via the ESRI's survey platform. Over the course of four weeks, 81 responses were collected. The survey was noticed on EngageLouisville.com, and flyers with QR codes were posted around the city. The survey was also noticed through social media posts.

The open house was held in Louisville on November 7, 2024 at the Recreation and Senior Center and drew over 100 participants. Three Workshops were help throughout the day, from 11-12:30, 1:30-2:00, 2:30-4:00. These meetings included a presentation followed by a map activity. The evening open house was held from 5:00-7:00 and was an open pass through format with a scavenger hunt to visit different 'stations' around the room. The boards for this event are located on the adjacent page and full size images are in the Appendix.

The results from these activities are used to refine the future land use map and develop the draft goals and strategies of the Comprehensive Plan. This is the third effort in this process to gather feedback from the community.

This document includes the following sections:

1) Introduction
2) Analysis Methodology
3) Community Values
4) Scenario Planning Workshops
5) Preferred Scenarios
6) Key Findings
7) Appendices



Open House Participants from November 8th, 2024

Engagement Activities



2. Analysis Methodology

The following analysis includes a summary of responses and insight into the community's vision, values and priorities. To analyze the individual responses to each of the questions, key sub-themes were formulated based on the frequency of responses.

The following factors influenced how data is shown throughout the report.

- Not every survey participant answered every question and as a result, summaries of each set of results is based on the individuals who answered the specific question.
- Questions at the open house and workshop events were similar to the community survey, and where possible the results have been combined in this summary to share the overall community feedback from this Engagement Window.

Each question identifies key understanding from the responses and references quotes from Louisville residents.



Engagement Workshops at the Louisville Recreation and Senior Center

CC 01/21/25



Open House Participants from November 8th, 2024



Workshop Participants from November 8th, 2024

3. Community Values

A core values answers the question 'Who are we and what guides us? There are six theme areas, each of which has evolved from the previous 2012 Values through extensive outreach and discussion with staff, leadership, and the community. Each of these values has been reviewed and endorsed by Louisville Planning Commission and City Council. The following analysis includes a summary of responses from the community values boards. The community could provide open comments at the open house and online survey. The following includes a summary of understanding, themes and selected quotes. Open comments are included in the Appendix.

1. What strategies or actions would you like to see to enhance COMMUNITY CHARACTER in Louisville?

Key Understanding

To enhance community character in Louisville, residents emphasize housing diversity and affordability, calling for zoning changes to allow denser, mixed-use developments, more affordable options, and diverse housing types at appropriate locations, such as duplexes and triplexes, to sustain families and promote inclusivity.

Revitalization and preservation efforts focus on restoring downtown as a vibrant core while protecting the city's small-town charm. Adjustments in zoning and land use to repurpose underutilized spaces and integrate mixed-use developments into suitable areas are desired.

Equity and inclusivity are highlighted as critical gaps needing attention in vision statements and policies. Improved pedestrian and cyclist safety infrastructure, like better crossings and bike routes, is a shared priority, alongside expanding recreational amenities and safeguarding natural areas and wildlife to maintain Louisville's unique identity and quality of life.

Housing Diversity and Affordability

"More mixed use and denser housing options with commercial space on the ground floor."

"More affordable housing options so people can afford to live here."

"Housing diversification is most needed."

"Permit more units within existing old town neighborhoods."

"Housing for families with young kids. More affordable. Support our schools."

"Would like to see zoning changes so that duplexes/triplexes could be integrated into existing residential neighborhoods."

Revitalization and Preservation

"Revitalize downtown – we need our core gathering spaces back."

"Keep Louisville unique; it's fast losing all of its once charming character."

"Put small-town character back in the vision statement and core values."

Land Use Changes and Pedestrian Safety

"Redo residential zoning districts; allow more mixed use in some areas that have been residential."

"Instead of reducing and confusing car traffic lanes, make crossings that light up or stop traffic for pedestrians and bikes."

"Safer pedestrian crossings. Blinking lights at Cherry/Bella Vista crossing."

"Repurpose existing commercial buildings."

"Safer bike routes in the downtown area."

COMMUNITY VALUES

2. What strategies or actions would you like to see to enhance COMMUNITY PLACES in Louisville?

Key Understanding

To enhance Louisville's community places, residents prioritize expanding housing and economic diversity with affordable multi-unit housing, senior housing, and retail developments to attract families and support workers. Enhancing community spaces through parks, plazas, food halls, and downtown events fosters vibrant public life.

Improving infrastructure with better multi-modal connections, mixed-use developments, and recreational facilities like pickleball and indoor tennis courts is also emphasized. Long-term planning includes protecting natural areas, planting more trees, preparing for disasters, and managing growth to maintain Louisville's small-town charm.

Housing and Economic Diversity

"No more single-family houses; more multi-units and retail developments to attract young families."

"More affordable housing units, such as apartments, for people who work in Louisville."

"Senior housing that is cheap to build."

Community Spaces and Gathering Areas

"Rework McCaslin to have community spaces like parks. Think big."

"More community gathering spots – food halls, public markets."

"Downtown community events like street fairs, ice skating, food fests, and farmers markets."

"Create a public plaza in Centennial Valley."

"An amphitheater downtown."

Infrastructure and Accessibility

"Strong multi-modal connections around town. Create new and enhance existing."

"Mixed use in downtown; remove/reduce arbitrary height restrictions."

"Dedicated pickleball courts."

"Indoor tennis courts."

Environmental and Long Term Planning

"More trees for birds/raptors; we are losing trees."

"There needs to be a real disaster planning budget."

"Move Avista to Red Tail Ridge property."

"Cap growth to keep Louisville's small-town feel."

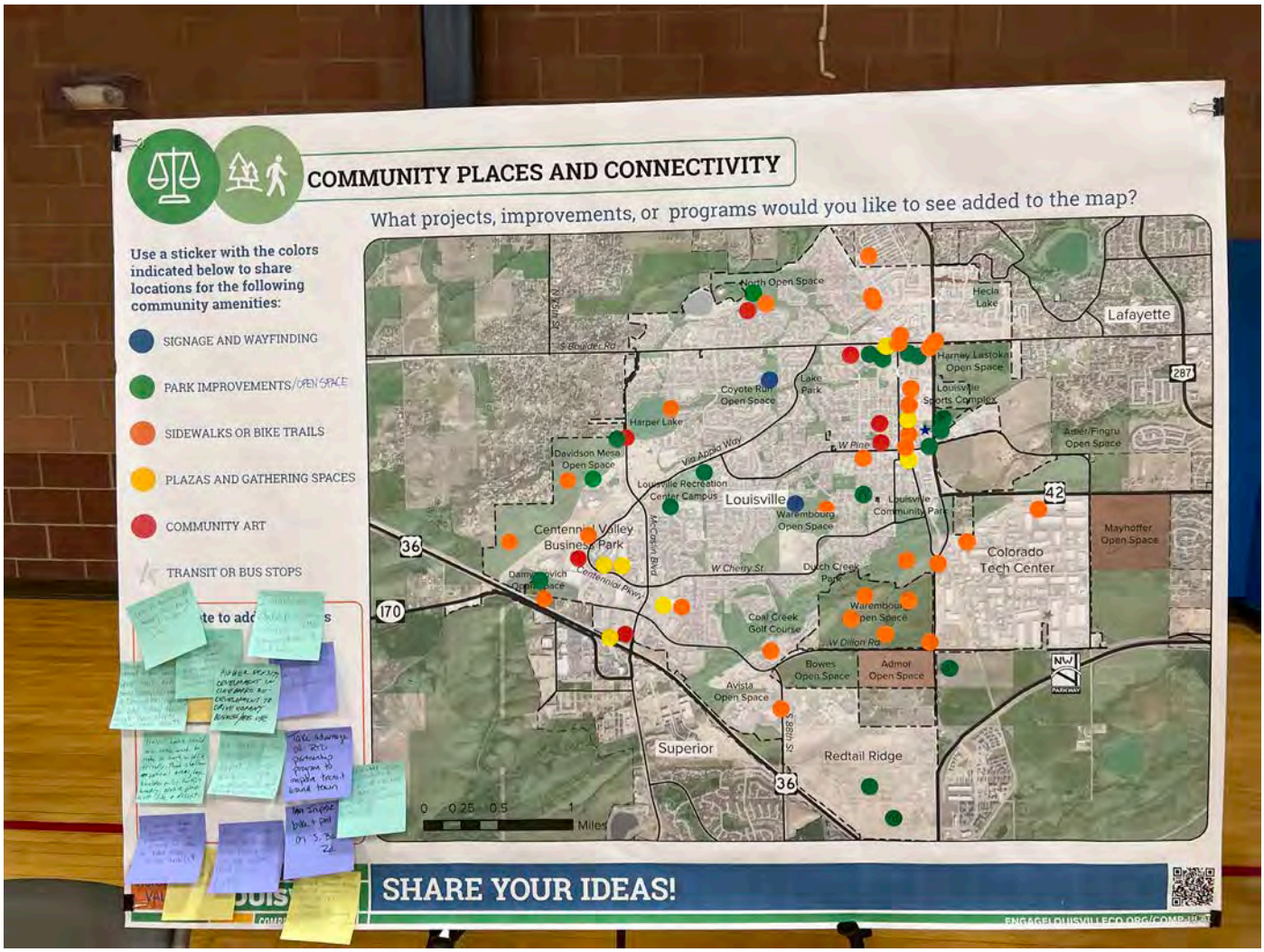
COMMUNITY VALUES

3. What projects, improvements, or programs would you like to see added to the map related to COMMUNITY CHARACTER and COMMUNITY PLACES?

Key Understanding

To enhance community character and places in Louisville, residents suggest projects such as improving connectivity with better multi-modal transportation connections to Boulder, more bike trails, and underpasses for safer bicycle crossings. Enhancements include adding signs and maps on open space trails for easier navigation and improving bike/pedestrian access on South Boulder Road.

They also propose wildlife-friendly upgrades to Harper Lake, benches and structures at Davidson Mesa dog park, and better utilization of open space behind the police station. Higher-density development at the Cinebarre site could foster vibrant business and arts use. Partnerships like RTD could expand transit options, while downtown bike path alternatives address e-bike congestion.



Community Places and Connectivity Board at Open House

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COMMUNITY VALUES

4. What strategies or actions would you like to see to enhance CIVIC LEADERSHIP in Louisville?

Key Understanding

To strengthen civic leadership in Louisville, residents propose strategies to increase responsiveness from City Council and providing more opportunities for town and youth civic leadership.

Suggestions include hosting regular ward meetings, "coffee with your local official" events, and leveraging local stakeholder groups for collaboration. Enhanced regional cooperation with Superior and Lafayette on community activities is also encouraged to foster broader community connections.

Accessible and Responsive Governance

"More online engagement from city council"

"Coffee with your local official."

Enhanced Leadership Opportunities

"More opportunities for town civic leadership."

"More opportunities for youth civic leadership."

"Regular monthly ward meetings."

Community Collaboration and Stakeholder Engagement

"Utilize local stakeholder groups/ individuals more often."

"Collaborate with Superior and Lafayette on community activities."

COMMUNITY VALUES

5. What strategies or actions would you like to see to enhance COMMUNITY CONNECTIVITY in Louisville?

Key Understanding

To enhance community connectivity in Louisville, residents suggest stronger regional coordination, particularly with county trails, and solving the "last mile" problem to improve transit accessibility. Ideas include extending the Powerline Trail to connect key bike routes, adding more bike lanes, and expanding public transit options, such as connections to the CTC and reduced car dependency.

Proposals also include a pedestrian underpass across South Boulder Road at the Highway 42 intersection to encourage walking, partnering with school districts for connectivity, and exploring county-level transportation management instead of RTD. Balancing car access with pedestrian and bike priorities remains a key concern.

Regional and Local Connectivity

"Coordinate to have stronger regional connections, especially with county trails."

"Public transit to CTC from other communities."

"Powerline Trail should connect to Lookout Road and eventually link the diagonal bikeway and highline trail."

Addressing Transportation Gaps

"Need to solve the 'last mile problem' – make it easy to get from McCaslin Park to ride to residences."

"Tunnel from Union Jack area to King Soopers to promote walking from Delo to grocery."

Transit Infrastructure Alternatives

"More bike lanes, more access to transit. We need people to get out of their car dependency."

"Need more transit connections. Fewer cars as time goes on."

"Focusing/prioritizing bicycle and pedestrian connectivity is a huge mistake. Bottom line, people want to drive their cars."

Governance and Partnerships

"Dissolve RTD and handle transportation at the county level."

"How could the city partner with school districts?"

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COMMUNITY VALUES

6. What strategies or actions would you like to see to enhance ECONOMIC VIBRANCY in Louisville?

Key Understanding

To boost economic vibrancy in Louisville, residents propose prioritizing retail over office spaces and encouraging mixed-use developments with condos, ground-floor retail, and parks. Suggestions include attracting local businesses that cater to residents, offering incentives for commercial stores on McCaslin, and creating spaces for artists and small shops.

Enhancing the McCaslin corridor with residential, business, and light industrial uses, increasing density to blend residences with retail, and attracting high-quality restaurants are key strategies. Downtown revitalization, including tidying up unsafe structures, supporting businesses through tax breaks or lower rents, and adding multi-family housing, is also emphasized to create a more dynamic and accessible local economy.

Revitalization of Commercial Areas

"Redo McCaslin corridor with more residential, business, and light industrial."

"Support more businesses downtown. Tax breaks? Lower rents?"

"Downtown needs some tidying up. Some business structures are unkept and unsafe."

Diversified Housing Options

"Condos for diversity of housing with ground floor retail."

"New urbanism for McCaslin. More affordable and attainable housing, mixed-use, and parks."

"More density and intermingling of residences and retail."

"More multi-family housing."

Local Businesses and Retail Development

"Include local businesses aimed at residents, not tourists."

"Attract nicer restaurants."

"Can incentives be used to attract and maintain commercial stores on McCaslin?"

"Artist space or studios or small shops."

Mixed-Use and Urban Design

"Less office, more retail."

"Mixed-use development."

COMMUNITY VALUES

7. What strategies or actions would you like to see to enhance ENVIRONMENTAL SUSTAINABILITY in Louisville?

Key Understanding

To enhance environmental sustainability in Louisville, residents emphasize prioritizing fire mitigation and disaster planning to ensure safety. Suggestions include incorporating climate change considerations into all city decisions and providing incentives to encourage decarbonization efforts.

Safety and Disaster Preparedness

"Safety of residents, less sustainability, more fire mitigation and disaster plan."

"More fire mitigation preparedness."

Climate Change and Sustainability

"Consider climate change in all decisions."

"Need to inform of and add incentives to decarbonize."

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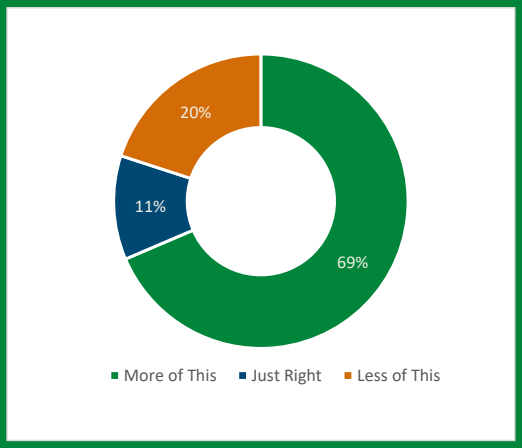
COMMUNITY VALUES

8. Which land uses would you like to see more or less of?

Mixed Use Retail:

69% of open house participants indicated that they would like to see more mixed use retail in Louisville. 20% indicated that they would like to see less of it while 11% indicated that Louisville already has the right amount.

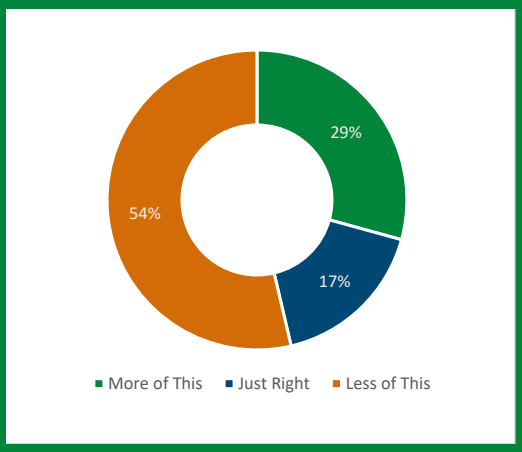




Low Density Residential:

29% of open house participants indicated that they would like to see more low density residential development. 54% indicated that they would like to see less of it while 17% indicated that Louisville already has the right amount.

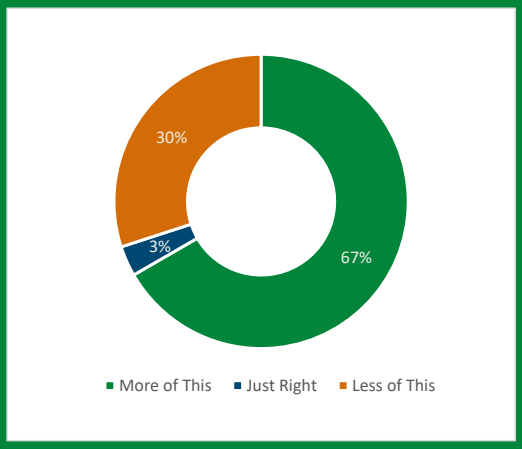




Mid Density Residential:

62% of open house participants indicated that they would like to see more mid density residential development. 3% indicated that they would like to see less of it while 30% indicated that Louisville already has the right amount.





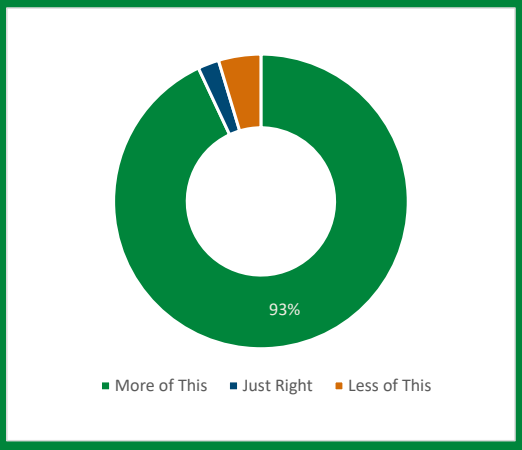
COMMUNITY VALUES

8. Which land uses would you like to see more or less of?

Mixed Use/Mid Density Residential:

93% of open house participants indicated that they would like to see more mixed use/ mid density residential in Louisville. 5% indicated that they would like to see less of it while 2% indicated that Louisville already has the right amount.

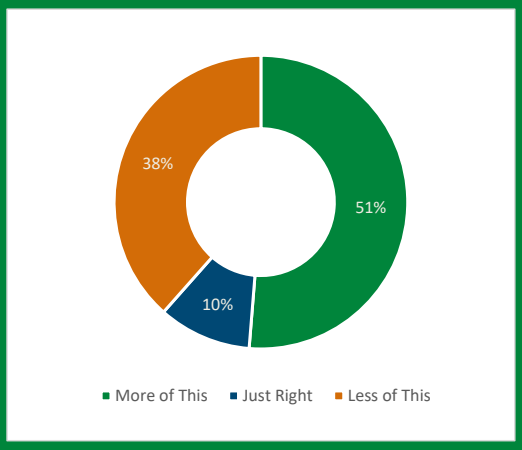




Mixed Use/High Density Residential:

51% of open house participants indicated that they would like to see more mixed use/ high density residential development. 38% indicated that they would like to see less of it while 10% indicated that Louisville already has the right amount.

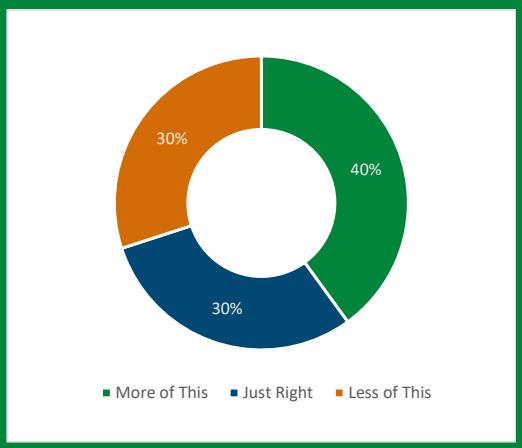




Commercial:

40% of open house participants indicated that they would like to see more commercial development. 30% indicated that they would like to see less of it while 30% indicated that Louisville already has the right amount.





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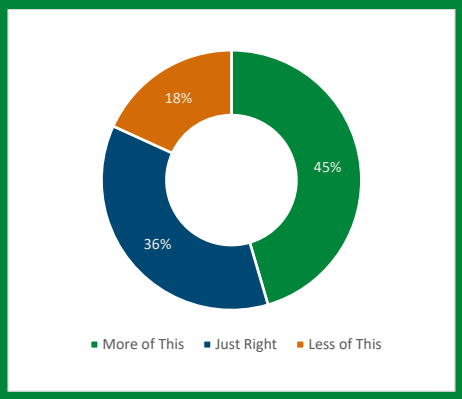
COMMUNITY VALUES

8. Which land uses would you like to see more or less of?

Industrial Mixed Use:

45% of open house participants indicated that they would like to see more industrial mixed use development in Louisville. 18% indicated that they would like to see less of it while 36% indicated that Louisville already has the right amount.

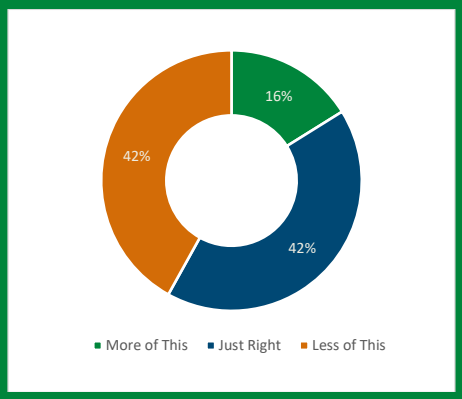




Industrial Office/R&D:

16% of open house participants indicated that they would like to see more industrial office/R&D development in Louisville. 42% indicated that they would like to see less of it while 42% indicated that Louisville already has the right amount.

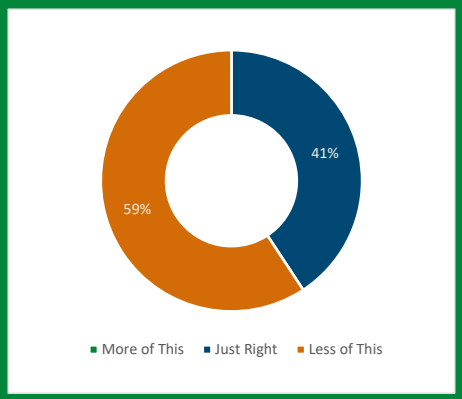




Office:

0% of open house participants indicated that they would like to see more office development in Louisville. 59% indicated that they would like to see less of it while 41% indicated that Louisville already has the right amount.

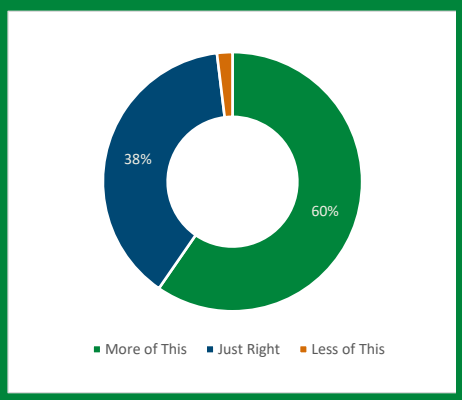




Park/Plaza/Open Space

60% of open house participants indicated that they would like to see more parks/plazas/open space in Louisville. 2% indicated that they would like to see less of it while 38% indicated that Louisville already has the right amount.





4. Scenarios

Scenario planning explores and evaluates potential future developments and outcomes in a city by creating multiple possible scenarios based on driving forces about key factors like population growth, economic trends, and the community vision. This effort engaged the Louisville community on three future growth and development scenarios to inform the Comprehensive Plan.



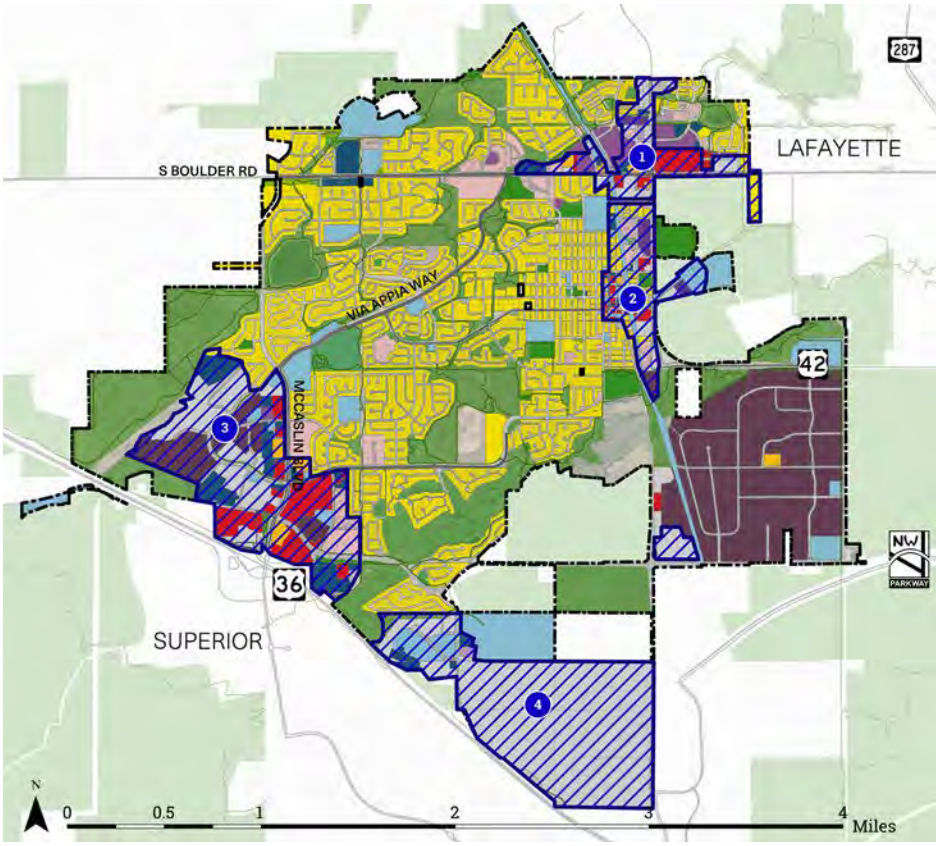
In an effort to create a shared vision for the city's growth, community members were presented with three distinct growth scenarios, each reflecting potential paths the city could take over the next several decades. These scenarios explored different priorities, such as housing density, transportation networks, green space preservation, and economic development strategies. Residents were encouraged to carefully consider the implications of each scenario, comparing their benefits and trade-offs.

LEGEND

- Louisville boundary
- Major road
- Trails
- Opportunity Areas
- 1 South Boulder Road Corridor
- 2 Downtown
- 3 McCaslin Corridor
- 4 Redtail Ridge

Existing Place Types

- Commercial
- Mixed Use Retail
- Low Density Residential (1-10 DU)
- Mid Density Residential (10-20 DU)
- Mixed Use/Mid Density Residential (20-30 DU)
- Mixed Use/High Density Residential (30-40 DU)
- Park/Plaza/Open Space
- Public Use
- Industrial Mixed Use
- Industrial Office/R&D
- Office



Areas of Opportunity map

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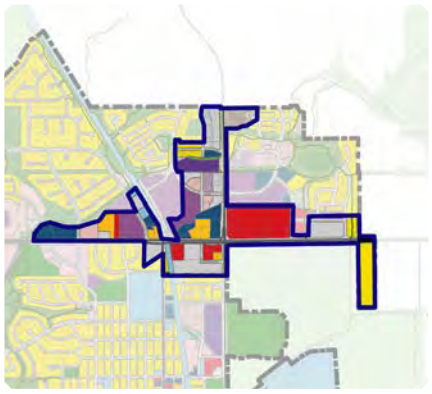
THE FOUR OPPORTUNITY AREAS

AREAS OF STABILITY AND AREAS OF CHANGE

Scenario planning focused on specific areas that are more likely to change, referred to as opportunity areas. For this exercise, other areas less likely to change are referred to as Areas of Stability. The scenario planning activities asked the Louisville community what should change look like within these Opportunity Areas.

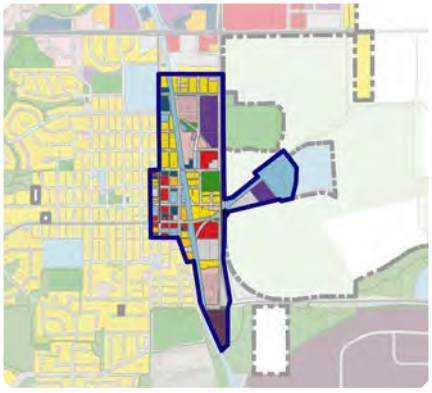
Opportunity Area 1: South Boulder Road Corridor

South Boulder Road has potential for infill/redevelopment. Scenario planning will explore trade-offs between increased housing, retail/ commercial uses, and connectivity.



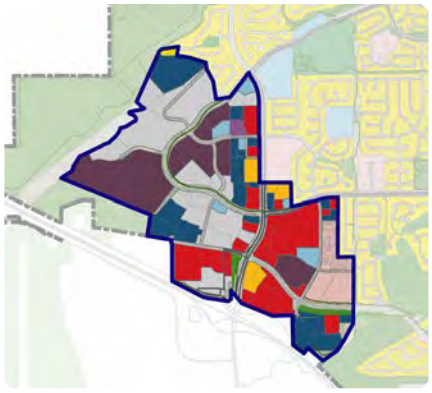
Opportunity Area 2: Downtown

Downtown Louisville is a mix of historic buildings and local businesses along Main Street. A future transit station north of Downtown is a central opportunity for redevelopment. As population in this area increases, the opportunity for successful retail also increases.



Opportunity Area 3: McCaslin Corridor

With current commercial vacancies, this area has potential to include infill/redevelopment. Scenario planning will explore trade-offs between increased housing, retail, commercial uses, and connectivity.



Opportunity Area 4: Redtail Ridge

Redtail Ridge can address potential opportunities for growth and density of different land uses. Adventist Hospital property may become a redevelopment site if the hospital moves to Redtail Ridge.

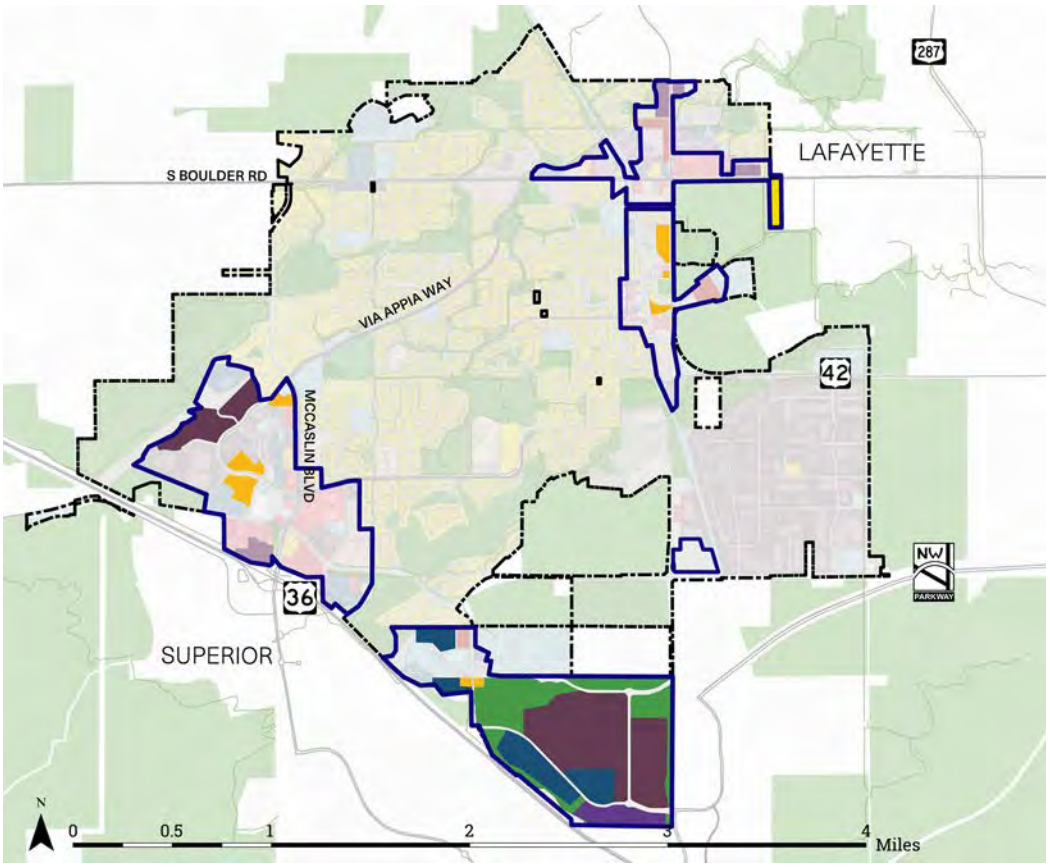


SCENARIOS

Scenario A: Stay the Course

Scenario A looked at a potential future where current trends continue with minimal intervention or change within the community. Based on these existing trends, in this scenario, jobs would continue increasing, but the population would grow minimally. Scenario A explored the following potential trade-offs based on interal assessment:

- **Housing:** This scenario would include limited housing growth and focus on single-family housing typologies with a few mid-density projects along commercial corridors. Potential trade-offs to maintaining a limited growth approach/less supply of inventory may continue the trend of out pricing for young families and an increasing ageing population.
- **Employment:** Current trends indicate significant job growth in R&D and industrial/manufacturing. Louisville would continue to attract employees who do not live in Louisville, but without addressing the housing supply, the trend of high commute numbers and possible loss of retail may continue.
- **Commercial Growth:** The current leakage of spending indicates more money being spent in adjacent communities and may continue to experience retail vacancy along commercial corridors and Downtown.
- **Scenario A Values Alignment:** Scenario A aligns with the community value to maintain the small-town character and the unique character of the neighborhoods. Connected transit options and environmental sustainability are lower alignment due to increased need for vehicle trips to surrounding communities.



Scenario B: A Stay the Course map

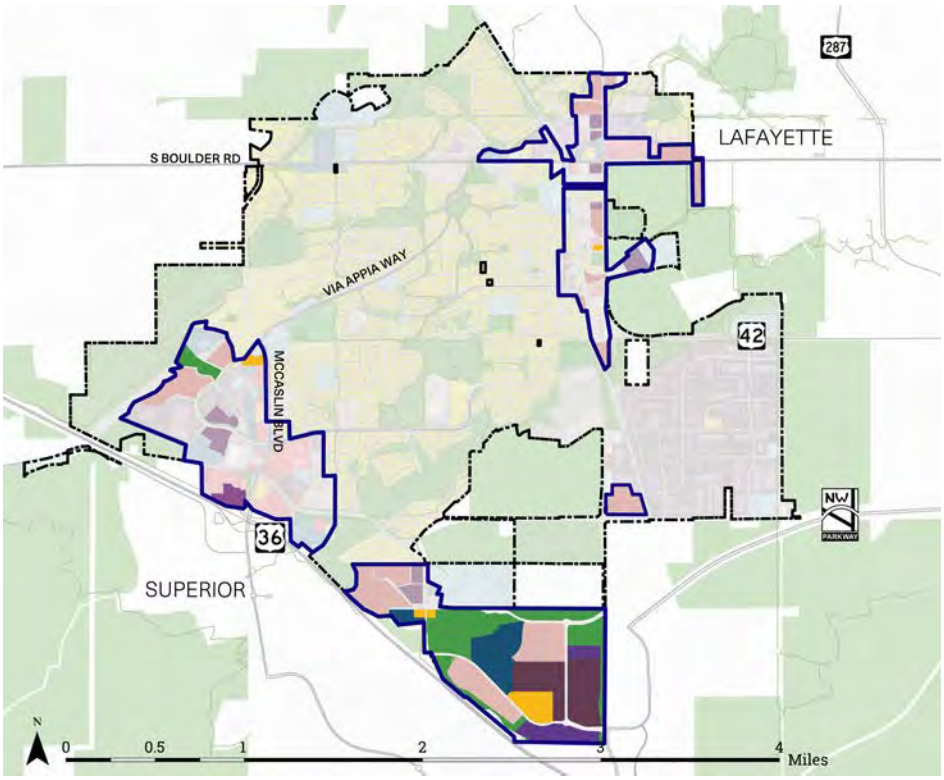
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SCENARIOS

Scenario B: A Home for Everyone

This scenario focused on economic stability. This included a decrease in the amount of commuting for employees as the job market increases in Louisville and an increase in housing supply, such as different housing types and choices. More affordable housing options for employees would support the future and current workforce to live in Louisville. This scenario also focused on increased retail spending and commercial growth. Mixed commercial centers would be concentrated along McCaslin Blvd. and South Boulder Road. Essential needs retail, like grocery, along with specialty sources would line these roads, creating easy access for locals and direct connections to bring in regional business. Local commercial growth would be focused on Downtown Louisville. This scenario would also consider the impacts of Redtail Ridge development- focused as a workforce center. Scenario B explored the following potential trade-offs based on internal assessment:

- **Housing:** This scenario explored a mix of housing types, with a focus on targeting the employment sector and proximity and access to jobs. The density in the opportunity areas was measured in this scenario and had an emphasis on community centers and transit-oriented development. This included an increased population in focused areas, looking at the number of possible units to capture potential employees. Traffic and connectivity in relation to increased units in key areas was also considered.
- **Employment:** This scenario explored the number of jobs created from increased focus on employment and retail centers. It also explored the redevelopment of Downtown Louisville and the number of housing units needed in certain areas of town to be walkable and connected. This resulted in a decrease in out-of-Louisville commute numbers and increased opportunities for biking and walking to local jobs.
- **Commercial Growth:** This scenario identified additional opportunities for commercial and retail space and anticipated number of jobs tied to it. It is anticipated that this would decrease retail and commercial leakage in Louisville. The possible impacts to Downtown Louisville were also considered.
- **Scenario B Values Alignment:** Scenario B aligns with the community values to support vibrant commercial areas and increase transportation options. This scenario would result in higher density in employment areas which may be lower in alignment with the small-town character and moderate alignment with the unique character of the neighborhoods.



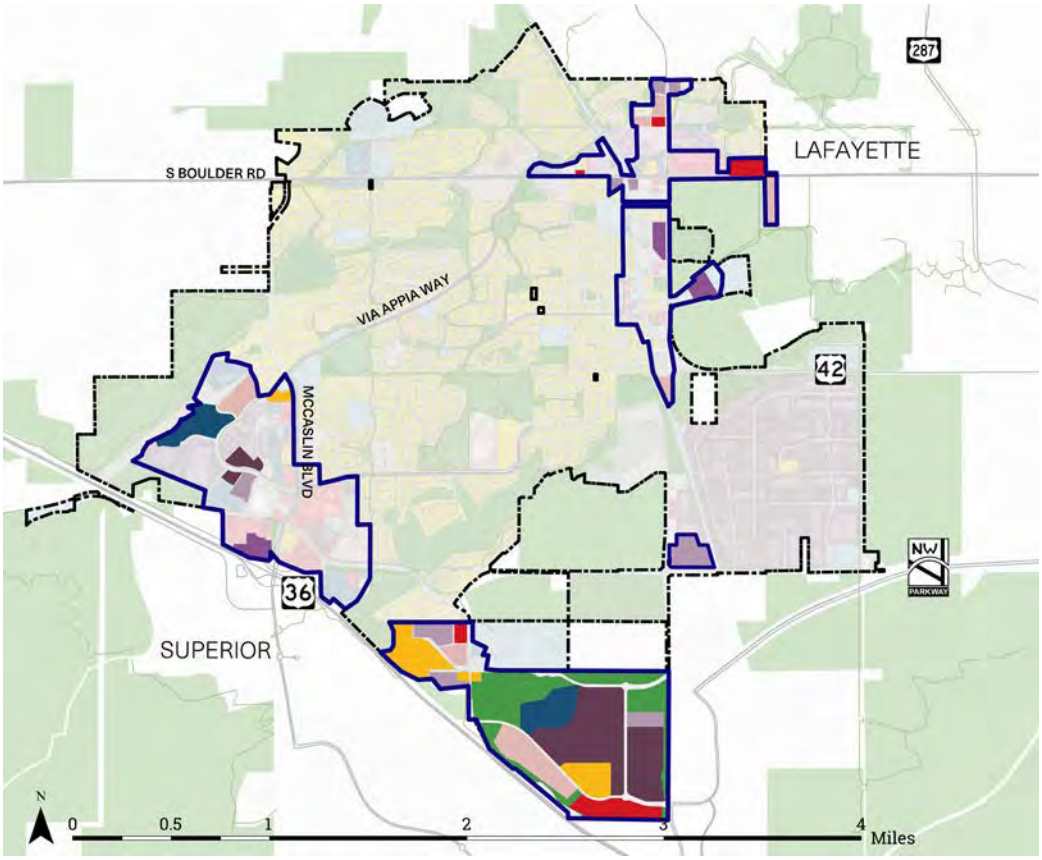
Scenario B: A Home for Everyone map

SCENARIOS

Scenario C: Live and Work in Louisville

Scenario C included different types of housing and density along McCaslin Blvd., Highway 42, and South Boulder Road and explored redevelopment scenario to encourage mixed-use districts to include both commercial and residential. Housing types concentrated in these areas included TOD, mixed-use of commercial-residential and office-residential. An opportunity existed to increase ADUs in existing residential areas as well as missing middle housing types such as duplexes and townhomes. To accommodate increased housing, the Redtail Ridge area presented the greatest opportunity. The focus on increasing housing supply would improve affordability and create opportunities for younger generations to call Louisville home. Scenario C explored the following potential trade-offs based on internal assessment:

- **Housing:** This scenario explored a mix of housing types, with a focus on increasing housing throughout the community, including Redtail Ridge and infill/redevelopment along McCaslin Blvd., South Boulder Road, and Highway 42. Density in the opportunity areas was measured by measuring units per acre in this scenario. To accommodate future growth, higher density or smaller housing types were necessary. Impacts on roadways and services which were right sized.
- **Employment:** This scenario maintained the current economic forecast as anticipated and measured the number jobs within the current and projected employment and retail centers and redevelopment of Downtown Louisville. The focus on housing would likely still result in result in a decrease in out-of-Louisville commute numbers and increased opportunities for biking and walking within the community.
- **Commercial Growth:** This scenario identified possible additional square footage of commercial and retail, anticipated number of jobs, and where in Louisville this may be captured, with a focus on local jobs and downtown revitalization.
- **Scenario C Values Alignment:** Scenario C aligns with the community values to support the unique quality of life, transportation and connectivity. This could result in a mix of housing types that are lower in alignment with the unique character of the neighborhoods.



Scenario C: Live and Work in Louisville

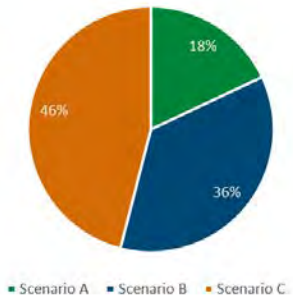
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SCENARIOS

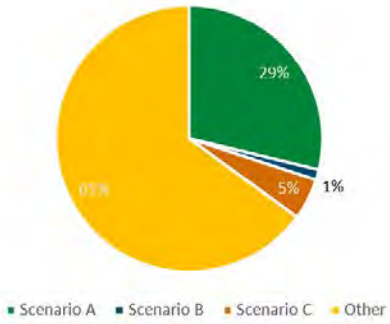
1. What is your preferred scenario and why did you choose this scenario?

The boards at the Open House, the scavenger hunt card, and the Online Survey asked participant to select their preferred scenario. The open house received 50 responses while the online survey received 80 responses. A total of 130 responses were collected.

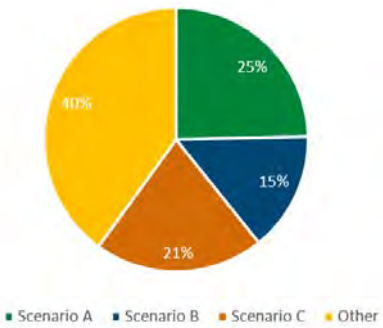
Open House Responses



Online Survey Responses



Total Responses



Key Understanding

Scenario A

(Open House) Supporters appreciate its alignment with Louisville's small-town scale, valuing minimal growth and its potential to maintain the city's character. Some see it as a plan that works well for jobs and aligns with their preference for "less is more" in community development. However, others find it uninspiring, with insufficient housing options and a failure to address key issues such as affordability, economic diversity, and transportation. Concerns include lack of vibrant commercial spaces and fears of creating a commuter city. Some call for a greater focus on inclusivity, housing affordability, and improved public infrastructure to better meet the city's future needs.

(Online Survey) Participants who preferred Scenario A emphasized their desire for lower residential/housing density and more open space, aligning with their reasons for moving to or appreciating the area. They valued features like fewer stoplights and less parking congestion, which contribute to the town's unique charm. Some appreciated the mixed-use focus but stressed preserving commercial zones to support fiscal health rather than adding residential developments. Additionally, they saw the scenario as a way to maintain livability and preserve the community's identity.

Scenario B

(Open House) Scenario B received more positive feedback, with many participants viewing it as their favorite option. Supporters appreciate its balance between housing and job growth, highlighting opportunities at Redtail Ridge and the McCaslin area. Suggestions include improving walkability through new urbanism, integrating housing near businesses, and including public spaces in higher-density areas. While some worry that high-density housing could erode community bonds, others argue that increased housing is essential for addressing affordability and attracting young families. Concerns about traffic and transportation infrastructure persist, but overall, Scenario B is praised for its forward-thinking approach and alignment with Louisville's growth needs.

(Online Survey) Participants who favored Scenario B highlighted its perceived balance between housing and job growth, with many appreciating its realistic approach to development. They supported the inclusion of more housing, especially affordable options and better distribution, but preferred a limit of no more than three stories to maintain a lower-density feel. Some noted the importance of walkability and open space integration, such as "ribbons" of green areas, while others emphasized the need for housing where people can easily access jobs and services. Specific mentions included updates to McCaslin Boulevard, keeping Redtail Ridge commercial, and avoiding additional office space.

SCENARIOS

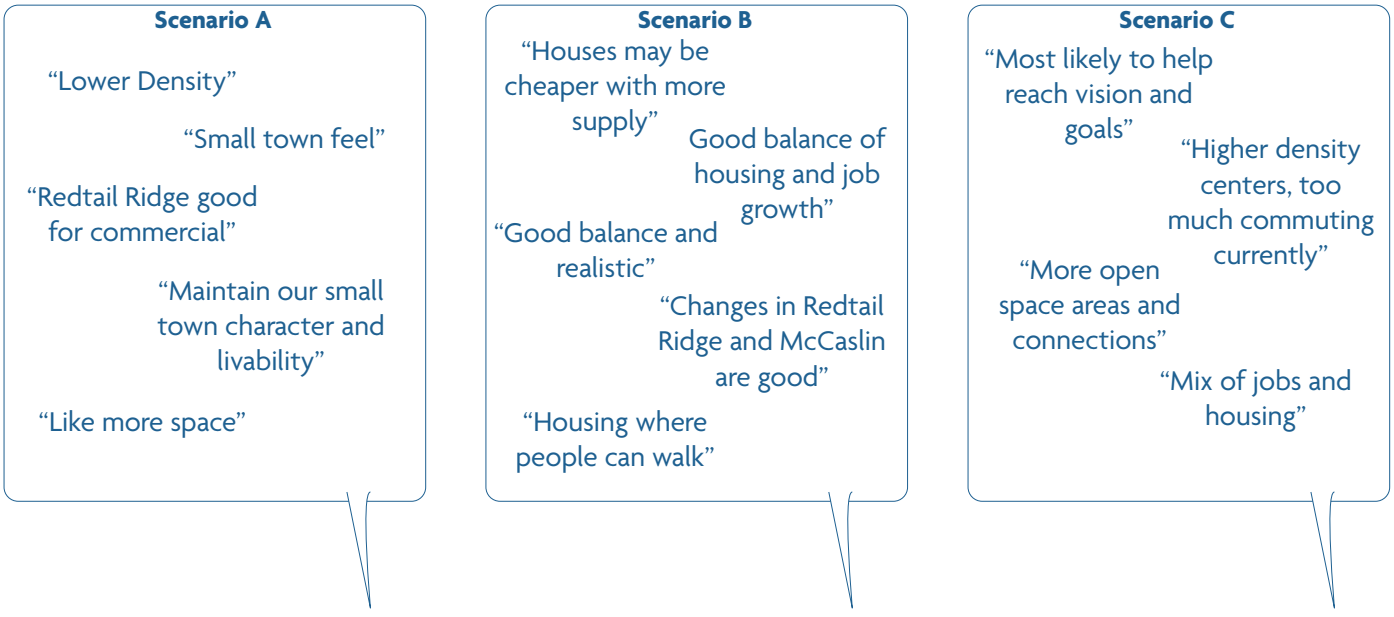
Scenario C

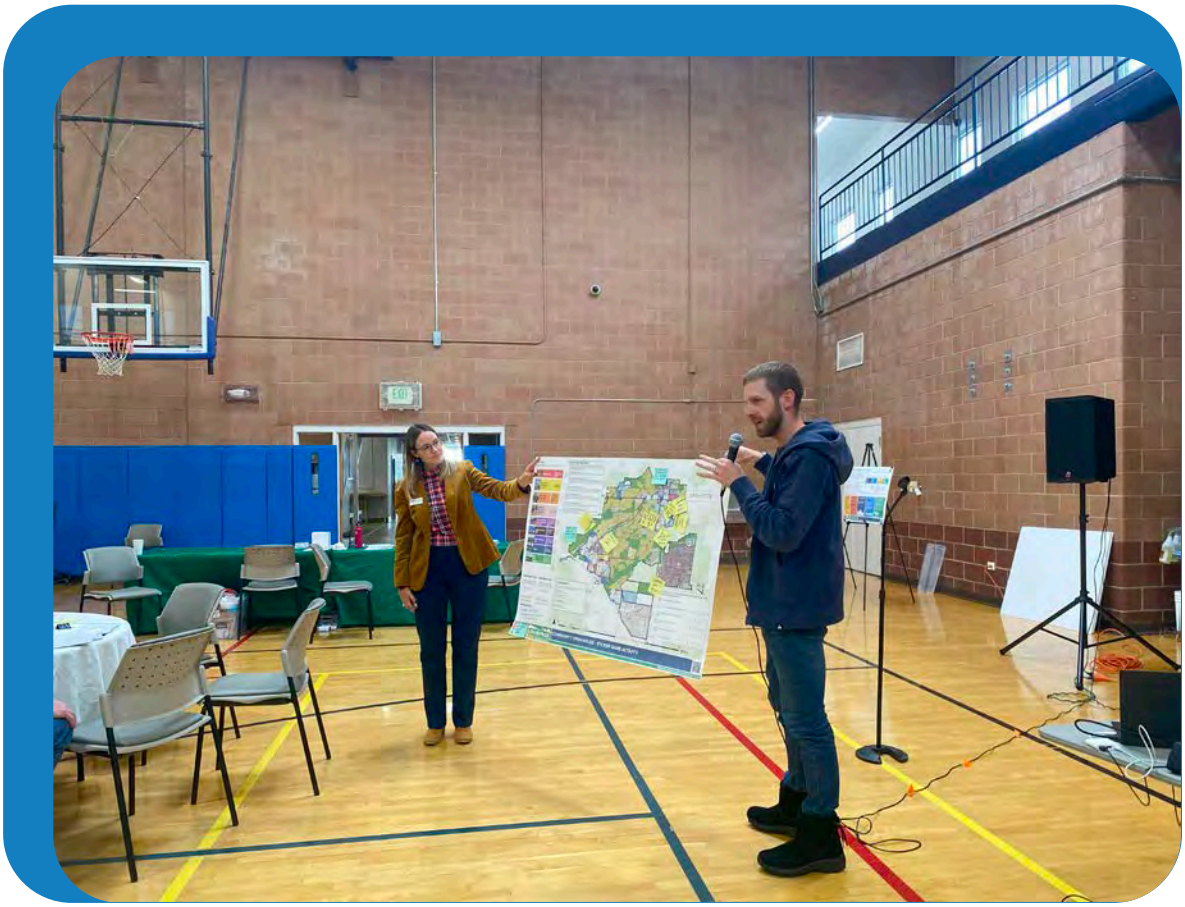
(Open House) Supporters admire its emphasis on climate action, economic vitality, and sustainability, viewing higher-density housing as a way to promote inclusivity and reduce the city's carbon footprint. They appreciate the focus on place-making and fostering diversity. However, some argue that the proposal for over 4,000 new housing units is excessive and incompatible with Louisville's low-density character and quality of life. Many are opposed to housing development at Redtail Ridge, preferring infill opportunities near existing areas such as South Boulder and the North End.

(Online Survey) Participants who chose Scenario C valued its alignment with broader goals like economic vitality, sustainability, and community vision. This scenario was seen as a balanced approach to integrating housing and job growth while addressing critical issues such as climate change, economic and cultural diversity, and affordability. Many appreciated its focus on clustering higher-density development near public transit and mixed-use areas to reduce commuting and improve efficiency in utilities. The intentional inclusion of green space and path connections, especially along the McCaslin corridor, was also a key factor. Participants saw Scenario C as a way to create a more vibrant and diverse Louisville, supporting local businesses, accommodating population growth sustainably, and fostering a stronger sense of community.

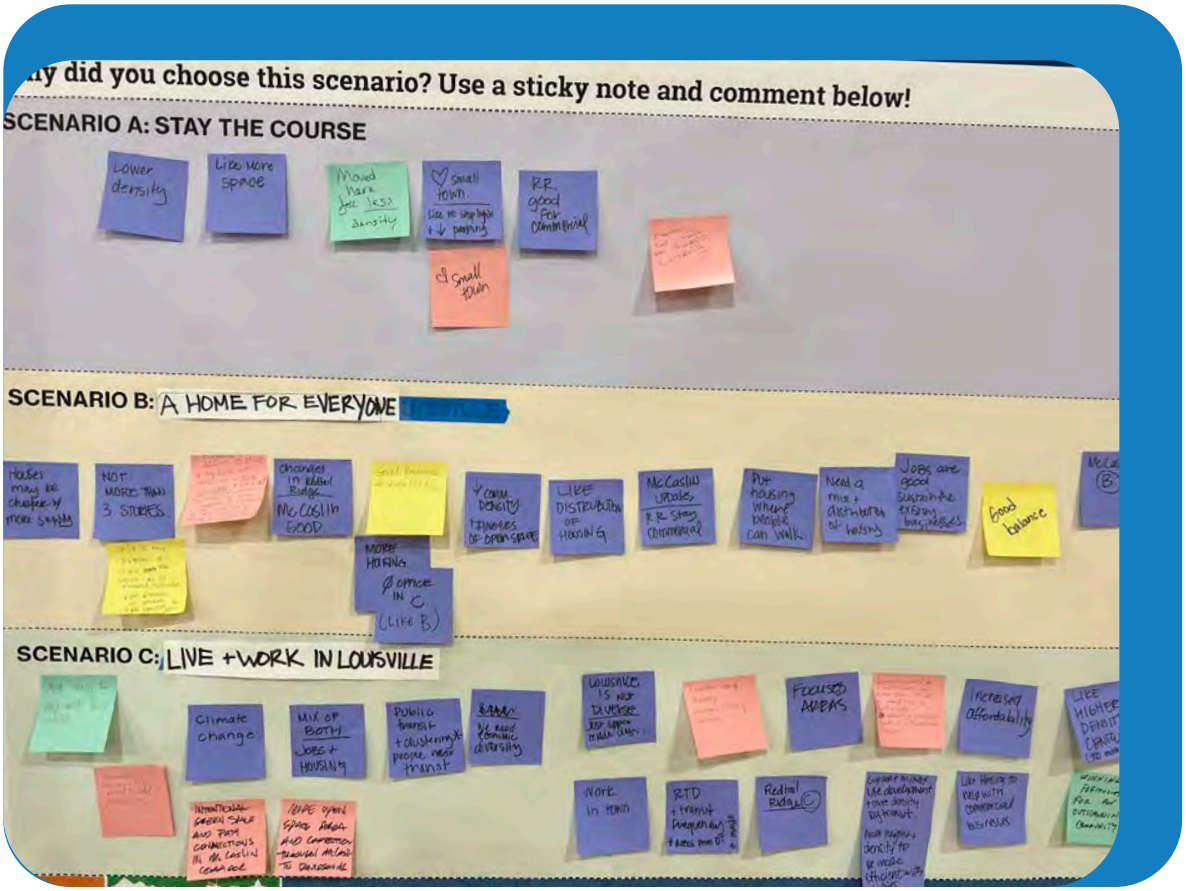
Other

(Only available on the Survey) Participants who selected "Other" within the online survey generally expressed dissatisfaction with the proposed scenarios, citing concerns about overdevelopment, urban sprawl, and a departure from Louisville's small-town character. Many preferred preserving green space and wildlife habitats, particularly at Redtail Ridge, and advocated for limiting growth to within already developed areas. Infrastructure capacity, such as traffic congestion and city services, was a frequent concern, with participants emphasizing the inability to support additional housing or jobs without degrading quality of life. Suggestions included focusing on infill development along transit corridors, maintaining affordability, and ensuring sustainability.





Open House Participants from November 8th, 2024



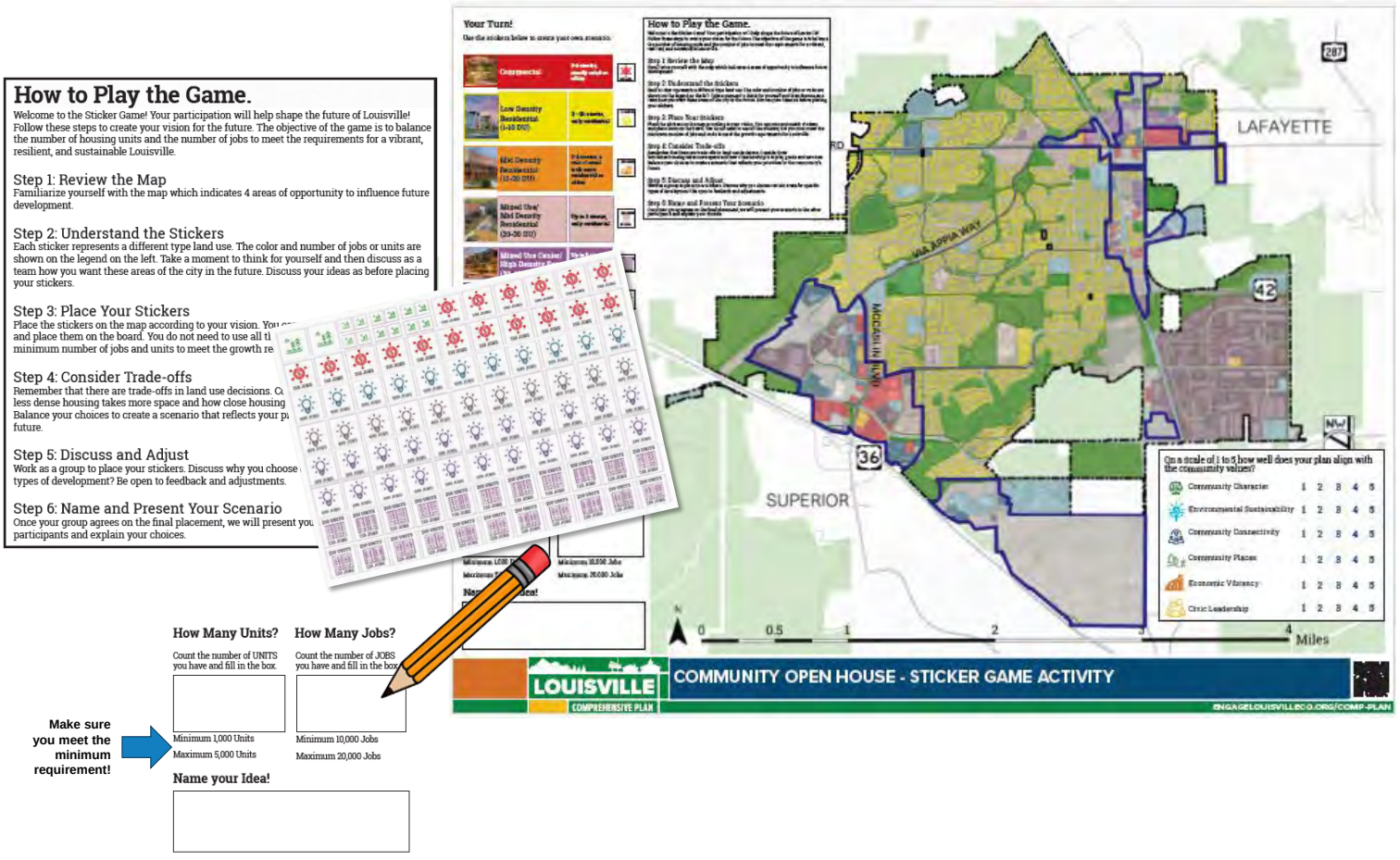
Comments on Scenarios from Open House

5. Scenario Planning Workshops

During the November Workshops, Louisville residents participated in a mapping activity focused on scenario planning to help shape the city's future. Scenario planning was introduced as a strategic process that explored and evaluated potential developments and outcomes by creating scenarios based on key driving forces such as population growth, economic trends, and the community's vision. By considering various possibilities, this approach provided a framework to think critically about how Louisville could evolve over time.

The workshop activity began with a presentation that provided participants with essential background information, context, and updates on the planning process. This ensured everyone was informed and aligned on the purpose of the upcoming activities. The presentation set the stage for the rest of the workshop by outlining key objectives and insights. Residents were introduced to two key concepts: Areas of Stability and Opportunity Areas. Areas of Stability referred to parts of Louisville expected to experience minimal change, such as established neighborhoods or preserved green spaces, while Opportunity Areas represented places more likely to evolve and develop, such as underutilized commercial corridors or areas with potential for redevelopment. There were four identified Opportunity Areas for the scenario planning activity, these area are described on the adjacent page.

Following this, a chip game/sticker activity engaged participants in exploring future development scenarios for the city. A large map of the planning area was displayed, and participants worked corroboratively at tables to allocate stickers, each representing different land uses or development types, on the map. Guided by facilitators and instructional materials, participants prioritized and placed the stickers to reflect their preferences for development, ensuring alignment with community values. After the allocation, participants discussed the implications of their choices, considering factors such as infrastructure, environmental impacts, social equity, and economic feasibility. Facilitators led these discussions to encourage diverse perspectives and address critical issues. The exercise promoted collaborative decision-making and provided valuable insights for the planning process.



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SCENARIO PLANNING KEY

Each participant was provided with a set of stickers, each representing a different type of land use, scaled to 1-acre increments. The stickers allowed residents to visualize and actively plan options such as residential single-family, residential multi-family, retail/commercial, mixed-use, parks/open space, and employment/industrial, each clearly marked with corresponding units or jobs.

The stickers represented a variety of land uses, including:



Commercial
Areas with three to four establishments, primarily consisting of retail stores or office spaces, designed to serve the community's shopping and professional needs.



Office
Buildings with three to four stories, primarily dedicated to office spaces, providing workplaces for businesses and professional services.



Industrial Office/R&D
Facilities designed for light industrial use combined with office spaces, research areas, or laboratory environments, supporting innovation and specialized industries.



Industrial Mixed Use
Areas that incorporate light industrial uses alongside limited retail or office spaces, blending industrial functions with commercial or professional activities in a flexible environment.



Mixed Use Center/High Density Residential (30-40 DU)
Buildings of up to five stories, featuring high-density residential units (30-40 dwelling units per acre) alongside some retail or office spaces, creating a vibrant, multi-functional environment.



Mixed Use/Mid Density Residential (20-30 DU)
Buildings of up to three stories, primarily residential with a density of 20-30 dwelling units per acre, designed to provide a balanced, community-oriented living space.



Mid Density Residential (10-20 DU)
Buildings of three to four stories, featuring a mix of residential units, retail spaces, and some office areas, creating a balanced environment with both living and commercial opportunities.

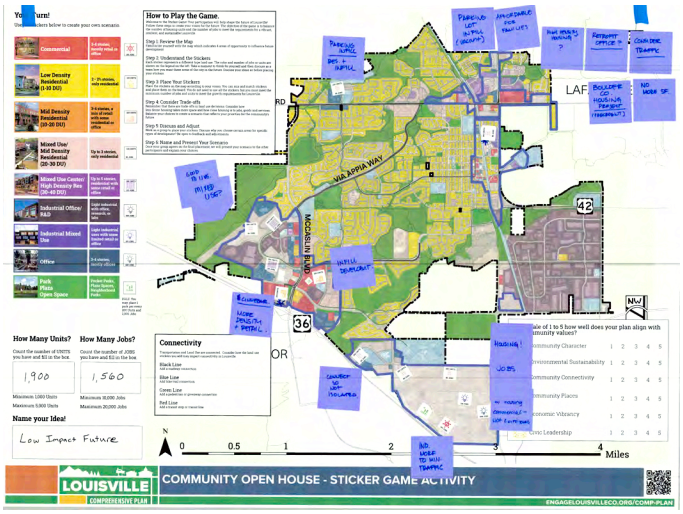


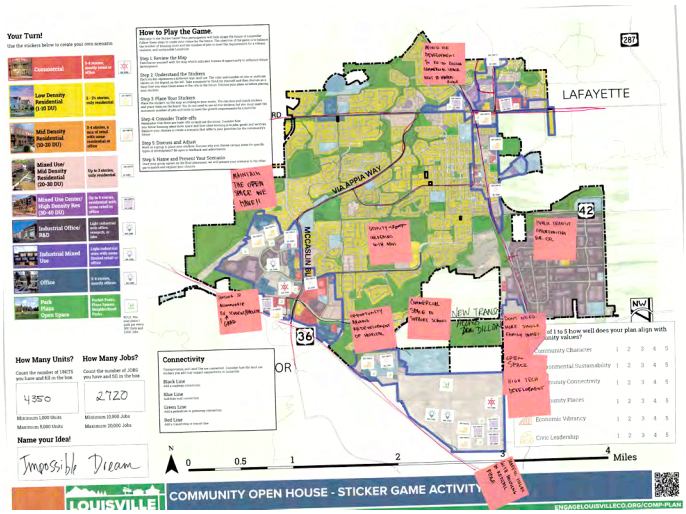
Low Density Residential (1-10 DU)
Buildings of two to two-and-a-half stories, consisting solely of residential units with a density of 1-10 dwelling units per acre, offering a more suburban, single-family or small multi-family living environment.

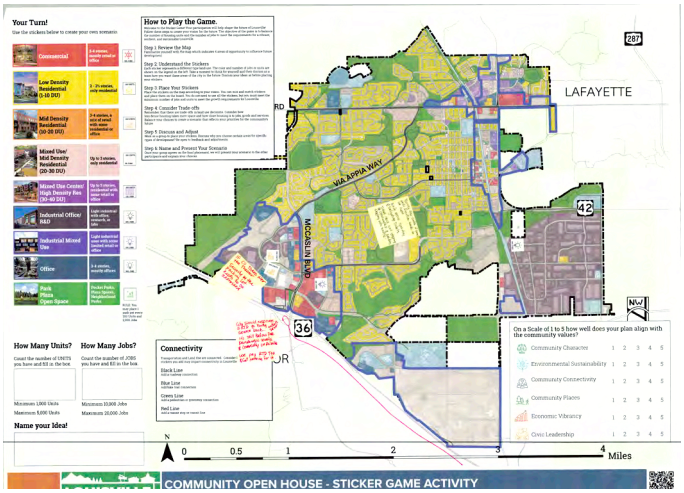


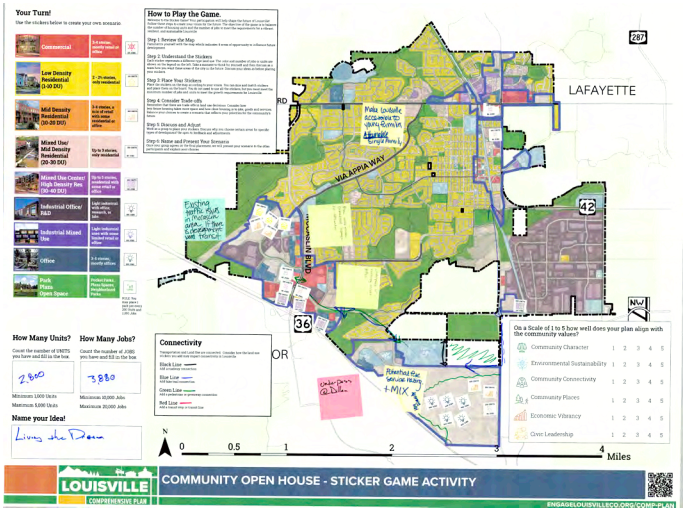
Park, Plaza, Open Space
Areas designated for pocket parks, plaza spaces, or neighborhood parks, providing green, recreational spaces for the community to relax, gather, and engage in outdoor activities.

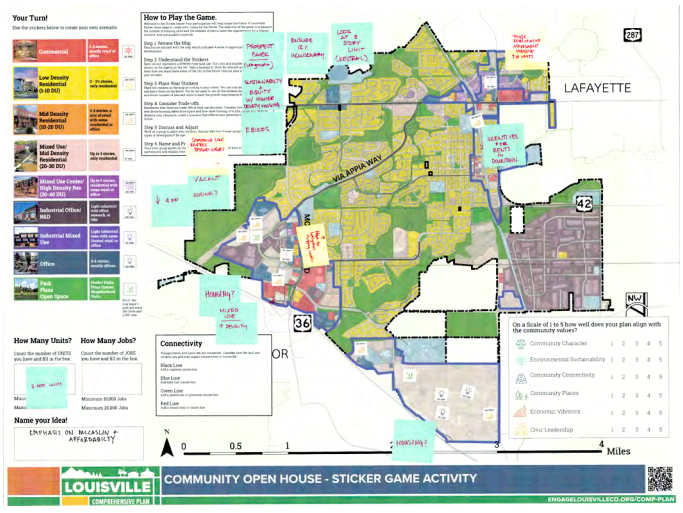
STICKER ACTIVITY RESULTS

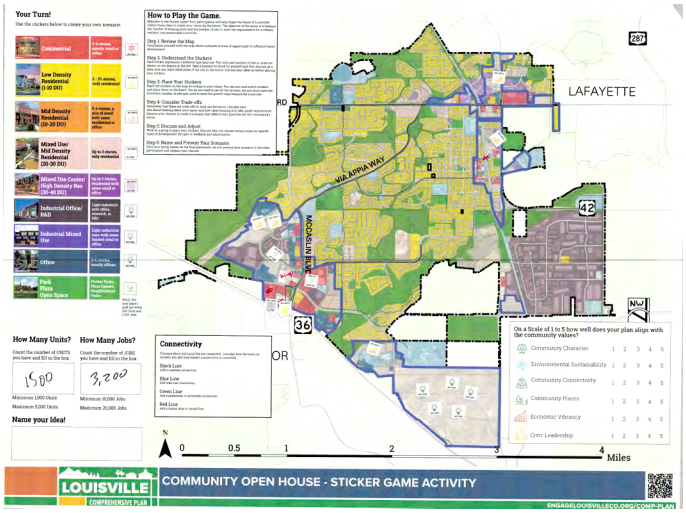








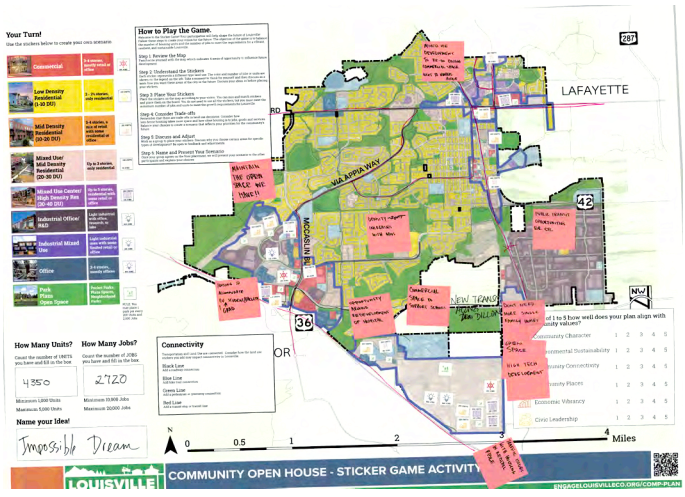


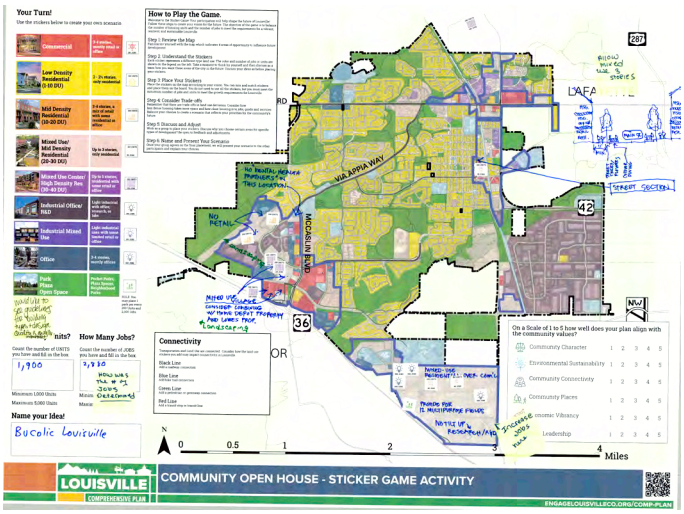


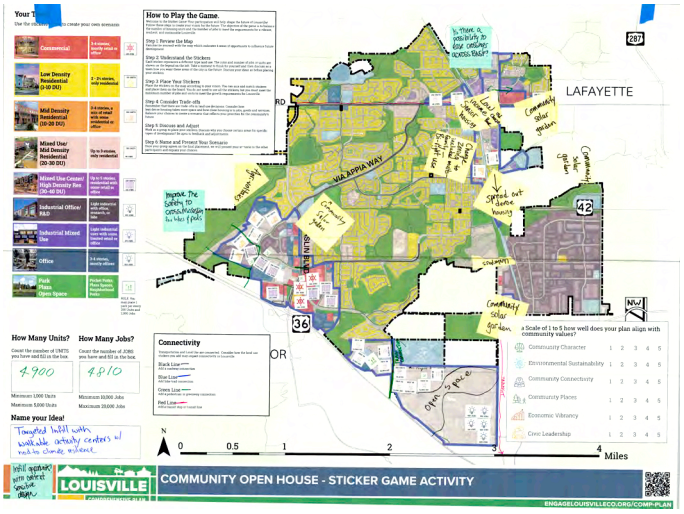
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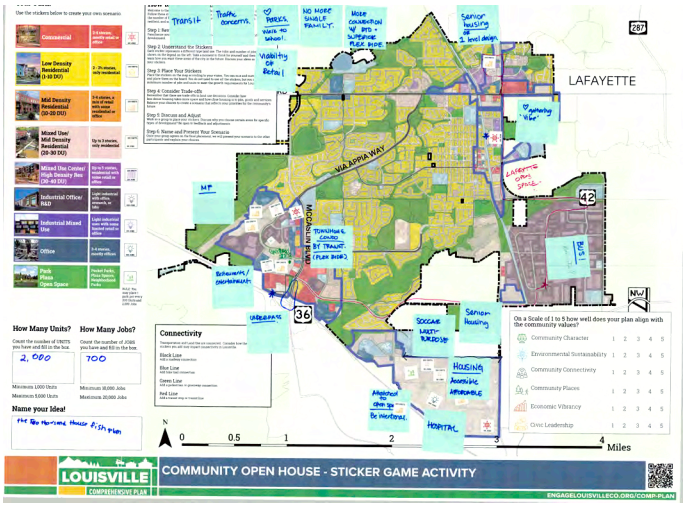
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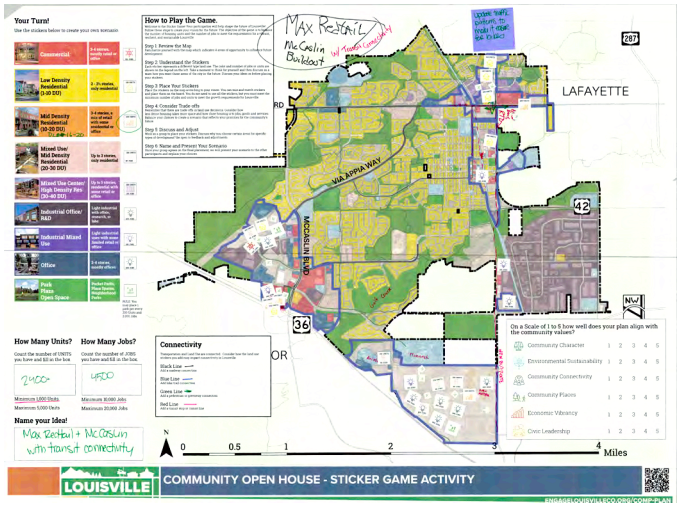
STICKER ACTIVITY RESULTS

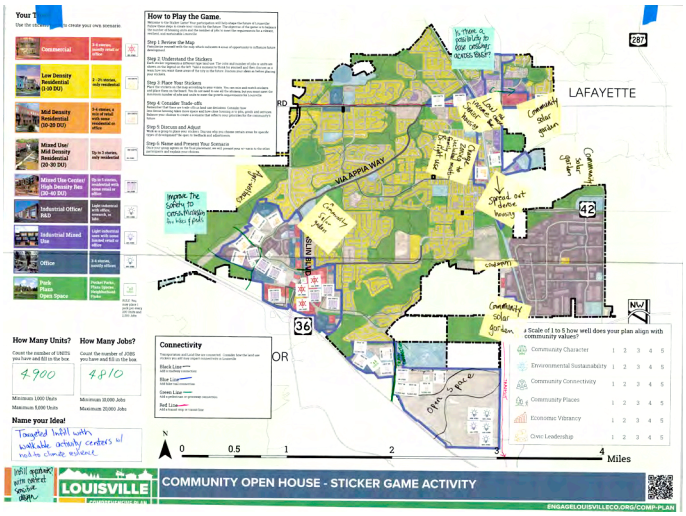












OPEN RESPONSE FEEDBACK

The chip/sticker activity provided an opportunity for participants to voice specific thoughts, concerns, and action items in support of their decisions for the mapping activity with sticky notes. These ideas were recorded and are as follows.

Land Uses

"More affordable housing"

"No more single family homes"

"Low income senior housing"

"Rent incentives for downtown businesses"

"Give incentives for renting downtown"

"Change zoning to allow for more multi-family housing"

"Change zoning to allow for multi-family housing as a by right use"

"Mixed-use development to re-do existing commercial space next to Hunters Ridge"

"More density, more retail"

"Senior housing"

Transportation

"Consider traffic with high density"

"Improved traffic safety"

"Update traffic patterns to make it easier for bikes"

"Public transit opportunities for CTC"

"Need better transportation networks for bikes and pedestrians"

"More RTD connections"

"New RTD bus stop at intersection of 42 and South Boulder Road"

"Underpass crossing across Dillon"

"Connect areas of Louisville versus isolating them"

Parks, Recreation, and Open Space

"Provide 12 multi-purpose fields"

"Community Gardens"

"Maintain open space"

"Invest in wayfinding for trails"

"More Parks"

"Dedicated open space in Redtail Ridge"

"Community Solar Gardens"

"Integrate open space into developments"

"Soccer/multi-purpose fields in Redtail Ridge"

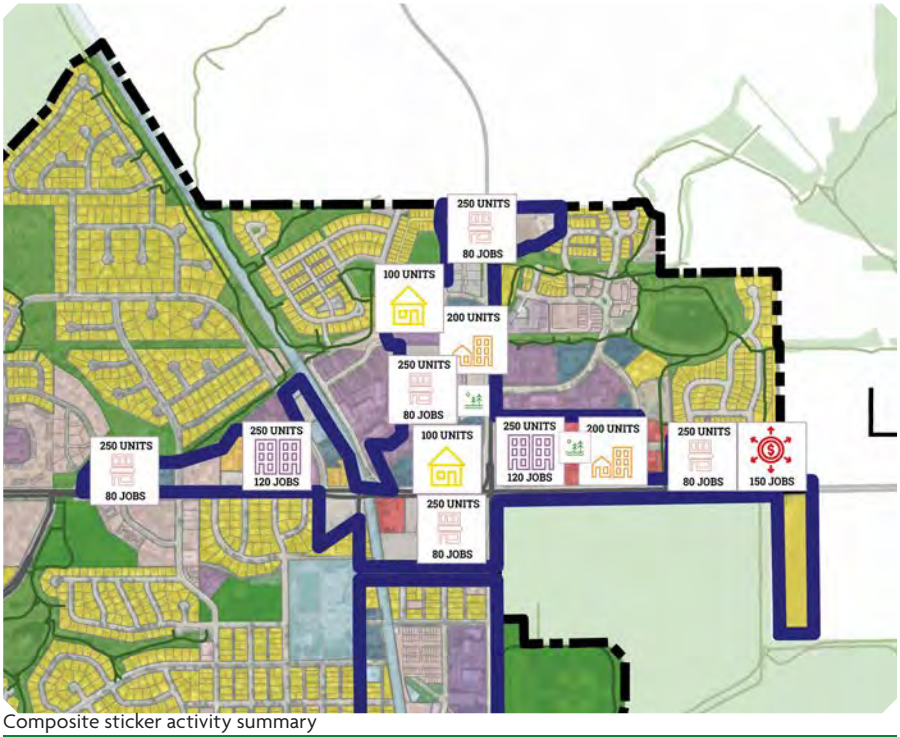
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OPPORTUNITY AREA 1: SOUTH BOULDER ROAD CORRIDOR FEEDBACK

The sticker activity results for Opportunity Area 1: South Boulder Road Corridor highlighted a strong preference for a mix of residential and mixed-use development, with a particular emphasis on integrating housing, open space, and some commercial elements. The majority of participants favored mixed-use/mid-density residential (20-30 dwelling units per acre) and mixed-use center/high-density residential (30-40 DU) as key land uses, aiming to provide a blend of housing types along with retail or office space. There was also strong support for low-density residential options to maintain a balance with more urban development while preserving some residential character in the area. An overarching theme throughout the feedback was the desire to incorporate parks and open space throughout the area, creating a walkable and family-friendly environment, with some commercial uses along South Boulder Road to serve local needs.

In terms of redevelopment, there was significant interest in utilizing vacant parking lots for infill development. This approach would repurpose underused spaces to accommodate the growing demand for both residential and commercial spaces. The community also expressed a clear need for affordable housing, with particular support for low-income senior housing and housing options suitable for families. Multiple participants agreed with this need, along with eliminating single-family housing options, which helps stress the importance of creating diverse housing opportunities to ensure that the development is inclusive and accessible to all segments of the population. Residents also voiced strong support for high-density housing, emphasizing the need for well-planned vertical development to make efficient use of available space. A number of participants advocated for retrofit office spaces, suggesting that existing commercial buildings could be repurposed to meet the needs of the community.

Traffic concerns were raised, with several participants urging the Plan to consider the impact of increased density on traffic flow and overall mobility in the area. The Boulder Colorado Housing Project was cited as a precedent for integrating sustainable housing and community-focused development.



Composite sticker activity summary

Key Understanding

Housing Focus: Mixed-use/mid-density (20-30 DU) and high-density (30-40 DU) residential, with low-density options. Desire to see less single-family housing.

Parks & Open Space: Integrate parks, open space, and commercial along South Boulder Road.

Affordable Housing: Support for low-income senior and family housing.

Redevelopment: Parking lot infill and retrofit office spaces.

Community: Gathering spaces to promote community.

OPPORTUNITY AREA 2: DOWNTOWN FEEDBACK

Results from the sticker activity revealed a vision for Opportunity Area 2: Downtown, emphasizing a vibrant, dynamic district that balances residential, commercial, and mixed-use development. Feedback highlighted a desire to create a downtown that is inviting, with diverse housing options, thriving businesses, and a focus on sustainability. Participants desired the downtown to remain a central hub for the community.

Participants gave the suggestion to change zoning regulations to permit multi-family housing and by-right uses, which reflect a desire to streamline development, accommodate diverse housing needs, and encourage innovative projects. To maintain a balanced urban layout, participants stressed the importance of spreading out dense housing, ensuring no single area becomes overly congested.

Mixed-use development also emerged as a priority, with broad support for allowing three-story mixed-use buildings that would help blend residential and commercial spaces. Such developments would attract foot traffic, foster economic vitality, and create a sense of community. Incentives for renting downtown spaces, both for residential and commercial purposes, were also strongly encouraged. These incentives could play a pivotal role in drawing businesses and residents to the area, further solidifying downtown as a thriving, multi-functional space.

Land use preferences focused on a mix of commercial and mid-density residential developments to create a balanced and lively downtown. Proposed housing options ranged from mid-density residential units (10-20 dwelling units per acre) to higher-density residential within mixed-use centers (20-30 dwelling units per acre). The community expressed a clear vision for a downtown that integrates vibrant commercial activity, accessible housing, and sustainability features, creating a dynamic environment that serves diverse community needs and enhances the city's overall appeal.



Composite sticker activity summary

Key Understanding

Sustainability Focus: Promote eco-friendly initiatives and position downtown as a progressive, sustainable hub.

Flexible Zoning: Update zoning to allow multi-family housing and by-right uses, encouraging diverse and innovative development opportunities.

Mixed-Use Development: Prioritize three-story mixed-use buildings that combine residential and commercial spaces to boost vibrancy and economic activity.

Incentives for Growth: Introduce incentives to attract renters for both residential and commercial spaces, ensuring a thriving and balanced downtown community.

Balanced Land Use: Emphasize mid-density residential (10-20 du/ac) and mixed-use developments (20-30 du/ac) alongside increased commercial activity for a dynamic urban core.

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OPPORTUNITY AREA 3: MCCASLIN CORRIDOR FEEDBACK

Participants envisioned Opportunity Area 3: McCaslin Corridor, as a dynamic, well-connected area with a focus on mixed-use development, sustainability, and integrated open spaces. The proposed land uses reflect a thoughtful balance between density, functionality, and preserving natural elements, creating a versatile corridor that accommodates both growth and community priorities.

There was a strong emphasis for mixed-use development, particularly along Centennial Parkway, which participants supported for higher-density land uses such as Mixed-Use Center/High-Density Residential (30-40 dwelling units per acre), complemented by commercial and industrial mixed uses. The western side of the corridor transitions into mid-density residential areas, blending with the adjacent open space. Areas adjacent to Highway 36 focus on commercial uses, while open spaces were integrated throughout the corridor to enhance livability and maintain connections to nature.

Participants also emphasized strategic infill development, particularly in the Cinebarre site, along with increased density and expanded retail opportunities. Support for higher-density residential options designed to promote inclusivity and environmental stewardship are desired. A community solar garden was also proposed, aligning with the area's sustainability goals. However, some participants supported additional community-focused uses in the area.

With the anticipated increase in development, safety and security were prominent concerns. Participants stressed the importance of improving pedestrian and bicycle safety along McCaslin Boulevard, advocating for infrastructure enhancements that promote accessibility and connectivity. Additionally, calls for better security measures with new developments underscored the need to maintain a safe, welcoming environment. Support to increase the presence of RTD services to enhance mobility and reduce reliance on personal vehicles, reinforce the participant's desire to make McCaslin Corridor a connected, accessible hub.



Composite sticker activity summary

Key Understanding

Strategic Land Use: Prioritize mixed-use development along Centennial Parkway, transition to mid-density housing near open spaces, and emphasize commercial activity near Highway 36.

Sustainability and Inclusivity: Promote higher-density housing with a focus on equity and sustainability, and preserve open spaces throughout the corridor.

Improved Connectivity: Enhance pedestrian and bicycle safety on McCaslin Boulevard and advocate for the return of RTD regional transit to strengthen regional accessibility.

Targeted Growth and Security: Encourage infill development with increased density in areas like Cinebarre while implementing measures to ensure safety and align new projects with community priorities.

OPPORTUNITY AREA 4: REDTAIL RIDGE FEEDBACK

Sticker activity feedback showed that participants envisioned Opportunity Area 4: Redtail Ridge, as a hub for balanced development that promotes job growth, diverse housing options, and open space preservation, while maintaining strong connections to the broader Louisville community.

A strong emphasis was placed on creating employment opportunities through office, industrial, and mixed-use developments. These spaces were seen as integral to fostering economic vitality in the area. The southern portion of Redtail Ridge near US 36, and the existing location of the AdventHealth Avista site on the northwest, were identified as a prime location for mixed-use developments that blend residential and commercial uses. This area was viewed as ideal for mid-density residential housing (20-30 dwelling units per acre), mixed-use/mid-density housing, and high-density residential housing (30-40 dwelling units per acre), with an emphasis on multi-family options to address growing housing demands.

Participants also highlighted the need to ensure Redtail Ridge is not an isolated enclave but fully integrated into the rest of Louisville. Connectivity was seen as essential, with calls for improved transportation planning to minimize traffic congestion while ensuring accessibility for all residents. Preserving open spaces and integrating green areas throughout the development were recurring themes, reflecting the community's desire to maintain Louisville's character and environmental integrity.

Sustainability was another significant focus, with participants proposing innovative ideas such as a community solar garden to promote renewable energy use within the development. Commercial development was emphasized as a key factor in supporting the local economy, schools, and community needs. Additionally, participants called for senior housing to address the needs of Louisville's aging population, emphasizing the importance of inclusivity in the area's design.



Composite sticker activity summary

Key Understanding

Balanced Development: Redtail Ridge should integrate job-generating uses, diverse housing options, and open spaces to create a vibrant and sustainable community.

Housing Diversity: The community prioritizes multi-family, mixed-use, and mid- to high-density residential developments to address growing housing needs.

Connectivity and Accessibility: Ensuring strong connections to Louisville while minimizing traffic is essential to avoid isolation and enhance integration.

Sustainability and Supportive Services: Open space preservation, renewable energy initiatives, and commercial developments are critical to supporting schools, seniors, and the broader community.

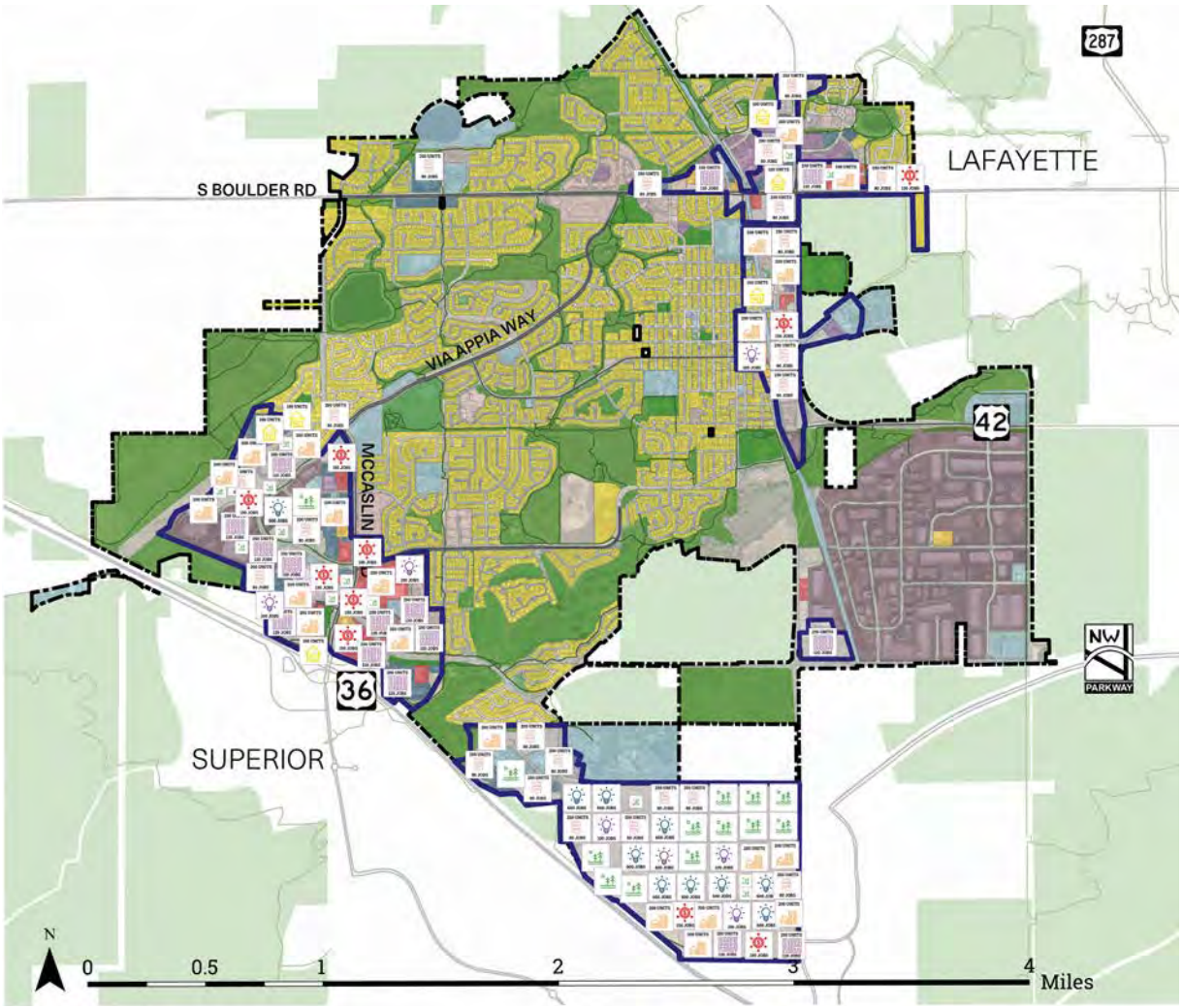
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OVERALL RESULTS

Feedback from the activity highlighted varying preferences for growth, with some participants prioritizing residential development while others emphasized expanding employment opportunities. This balance of perspectives showcased the community's diverse needs and priorities, setting a foundation for a comprehensive approach to planning Louisville's future.

In addition to engaging in a sticker activity where participants visually indicated their preferences, residents contributed detailed feedback through sticky note comments. Common themes that emerged from these notes included strong support for mixed-use and infill development, reflecting a desire to optimize land use and encourage vibrant, multi-functional spaces. Many participants advocated for increased density paired with retail opportunities but expressed concerns about the potential traffic issues that could accompany high-density development. Maintaining open space while pursuing denser urban environments was another priority for many residents. Connectivity and safety were frequently mentioned as critical considerations in the face of potential growth. Residents called for improvements to transportation infrastructure, increasing the presence Regional Transportation District (RTD) services and enhancing safety measures for pedestrians and cyclists. Ideas for creating a more interconnected city included expanding multi-family zoning, utilizing parking lot infill for vacant areas, and providing incentives to strengthen the downtown core. There was also a strong emphasis on making Louisville feel more cohesive, ensuring that all areas are well-integrated and accessible rather than isolated.

Overall, the feedback emphasized a forward-thinking approach to development, with calls for innovative zoning changes, sustainable land use, and investment in connectivity. Participants expressed a clear vision of a vibrant, inclusive Louisville where growth is carefully planned to balance residential and employment needs, improve accessibility, and maintain the city's unique character and sense of community.



6. Key Findings

The three scenarios presented in community Engagement Window #2 provide feedback from the community on their preferred direction. These possible outcomes explore how different decisions may impact land use and development. When applied to the creation of a Future Land Use Map (FLUM), the feedback will help to inform a shared vision for the community's future. A review of the comments indicate the communities desire for a combination of the three scenarios. Several themes have emerged from the community to inform the next stages of the Comprehensive Plan. Community input supports the Future Land Use Map (FLUM) addressing the following:

Land Use: Support increased housing options and focus on density toward centers in appropriate locations. This includes encouraging mid-to-high density housing along McCaslin Boulevard with the potential for up to 5-stories in certain areas by Hwy 36, mid-density infill in downtown with the potential for up to 3-stories for multi-family development, and a mix of housing types in Retail Ridge and along South Boulder Road. Continue to maintain existing single-family neighborhoods, while allowing gentle infill for contextually appropriate Accessory Dwelling Units (ADUs), duplexes and triplexes.

Circulation: Promote transit centers and encourage connectivity through transit, bus lines, and micro-transit options. Improve pedestrian crossings, including those over rail lines, and consider adding flashing lights for pedestrian safety. Enhance signage and wayfinding along trail corridors, and add more underpasses to improve accessibility. There is a desire for an pedestrian underpass at Coal Creek and Dillon Road.

Economy: Support increased job opportunities and a retail balance along McCaslin Boulevard. Focus on job and commercial development in Redtail Ridge and along McCaslin, as appropriate. Promote increased job opportunities in downtown to enhance vitality and consider events or programs to attract people to the area.

Parks and Open Space: Encourage the development of gathering spaces, particularly in downtown, and explore the addition of a soccer field. Maintain and improve open space, with particular emphasis on preserving habitat. Comments suggest maintaining some open space in Retail Ridge, such as a large community green.

Sustainability: Ensure future housing and development is efficient and sustainable. Identify locations for solar energy infrastructure. Integrate transit connections into new developments to reduce commuting and vehicle miles traveled (VMT). Encourage sustainable building practices, including smaller and more compact development. Increase focus on disaster planning and response.

Equity: Support the development of senior housing and affordable housing for families. Ensure transit stops and connections are available to support new development.

Next Steps

Future Land Use Map (FLUM) is a critical component of comprehensive planning to guide long-term development and land use decisions. It serves as a visual representation of how land is intended to be used in the future, based on the community's goals and vision. To support the uses on the map, Future Land Use Classifications (e.g., residential, commercial, industrial, open space) outline the types of development that are encouraged for the future. This is not zoning but can help to support future decisions related to zoning and policy.

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KEY FINDINGS

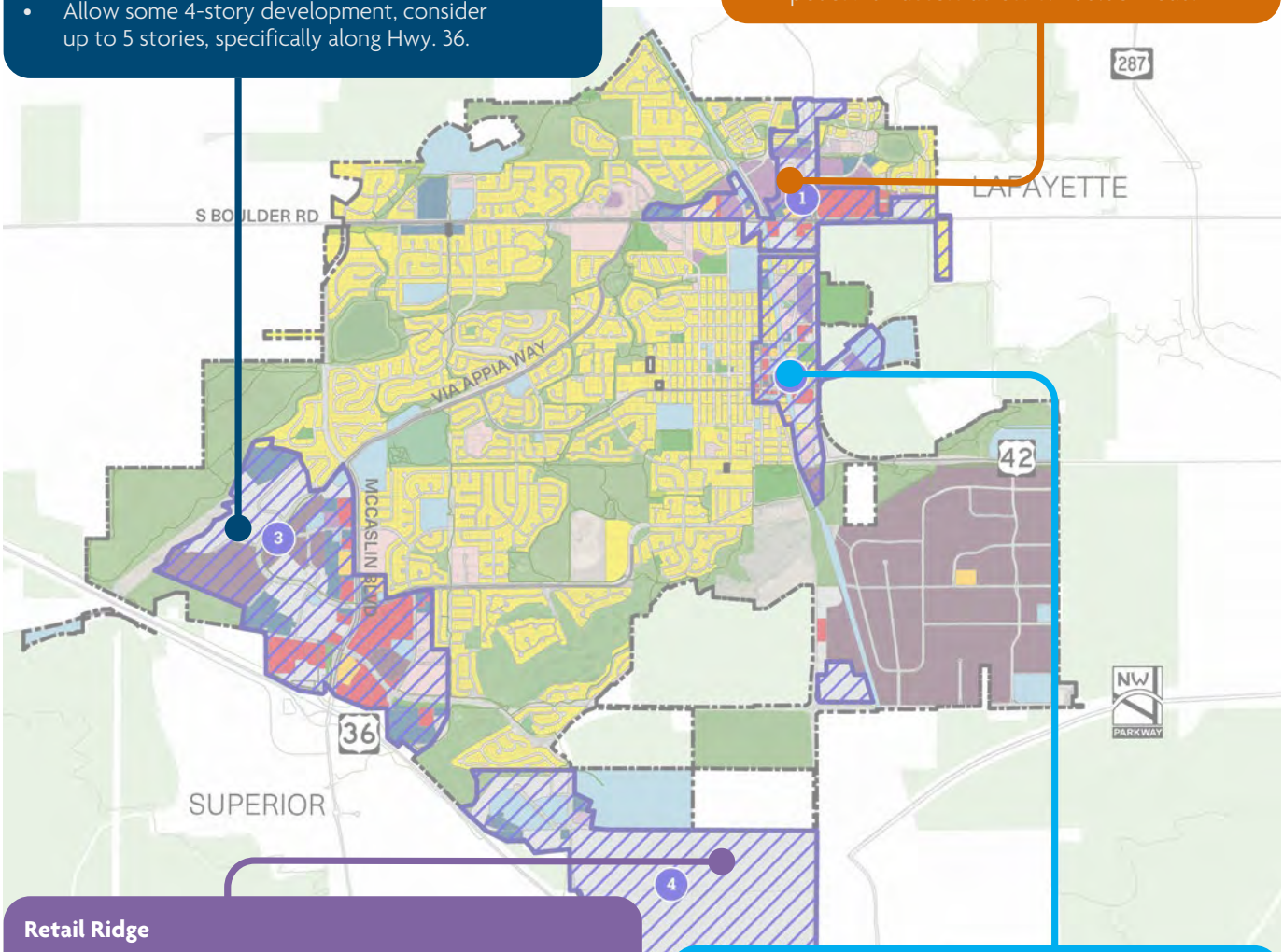
Future Land Use Map Framework. The following indicates general direction for the Future Land Use Map, based on areas of alignment from the community.

McCaslin Blvd..

- Infill, higher density residential along Hwy. 36/ Cinnebarre site.
- Mid-density housing along Centennial Blvd..
- Increased pedestrian-bike connectivity and gathering-green space.
- Allow some 4-story development, consider up to 5 stories, specifically along Hwy. 36.

South Boulder Road

- Mid-density infill, good location for affordable and/or senior housing.
- Encourage mixed retail/commercial along roadways.
- Improve infrastructure that enables safe pedestrian access across S. Boulder Road.



Retail Ridge

- Jobs and retail-commercial should be prioritized.
- Some limited housing, mid-to higher density may be appropriate.
- Housing on former Adventist site.
- Desire to see some open space maintained.
- Traffic and circulation needs to be studied with future development.
- Support for higher-density 4-story development, specifically along Hwy. 36.

Downtown

- Incentives for infill housing in Downtown.
- Encourage increased retail opportunities.
- Increased programs, events and gathering spaces.
- Encourage bike-pedestrian connectivity to downtown to and from other areas of the community.
- Higher density, 3-story residential development in some areas of downtown.

Appendix

The following indicates additional information included as appendices.

1) Open House Engagement Boards

2) Copy of Online Survey and Story Map

3) Open Response Comments from Open House

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Jeff Hirt

From: tamar krantz <tamarkrantz@gmail.com>
Sent: Saturday, January 4, 2025 1:09 PM
To: Planning Commission
Cc: Steve Brauneis
Subject: Please revise Future Land Use Map Recommendations. The Community Wants Something New.

Dear Planning Commissioners,

Thanks for your continued volunteer service to Louisville.

The Community Engagement Summary of December 2024 in your packet includes an important message: ***Participants were not satisfied with the scenarios presented and want to see something new.*** Please ask for survey results to be included in the consultants conclusions and ask staff to revise the Future Land Use Map Recommendations to reflect survey results.

The first sentence of the Community Engagement Summary says:

"The City of Louisville has conducted community-wide engagement to understand the community's preferred growth scenarios as a part of the process to create a new Comprehensive Plan. Once understood, these will inform the City's Future Land Use Map."

Please take the time to understand the feedback on the growth scenarios before diving into the Future Land Use Map recommendations.

The community's preferred growth scenarios were "none of the above" followed by the lowest growth scenario, scenario A.

When asked "What is your preferred scenario? A, B,C, or none", 40% selected "none ". Since the largest number of participants chose neither A, B, or C, it seems clear to me that residents are looking for something new. Please look at the pie charts on page 21 of the community engagement summary and copied below. The survey included a long answer box for respondents to say why they preferred their selected scenario. These answers are summarized on page 21 and 22 and copied below. A new scenario should be developed to represent the majority who chose "none of the above".

The overall results presented on page 33 and the "key findings" on page 34 of the Community Engagement Summary ignore these results. **Please review the data and ask the consultant to revise their conclusions to better reflect the data.**

I would expect the future land use map recommendations to incorporate the findings of community engagement. However, the recommendations included in the table on page 3 of your staff packet also ignore the survey results.

For example, the recommendations focus heavily on the density and number of stories while the scenarios were presented in terms of the number of new housing units and jobs. One of the recommendations for the McCaslin area is " High-density residential/mixed use near US 36; consider 4 stories, possibly up to 5 stories at locations along US 36." The scenario descriptions in the survey did not include any mention of the number of stories. For the map activity, participants did place stickers that had a picture of two purple buildings with the

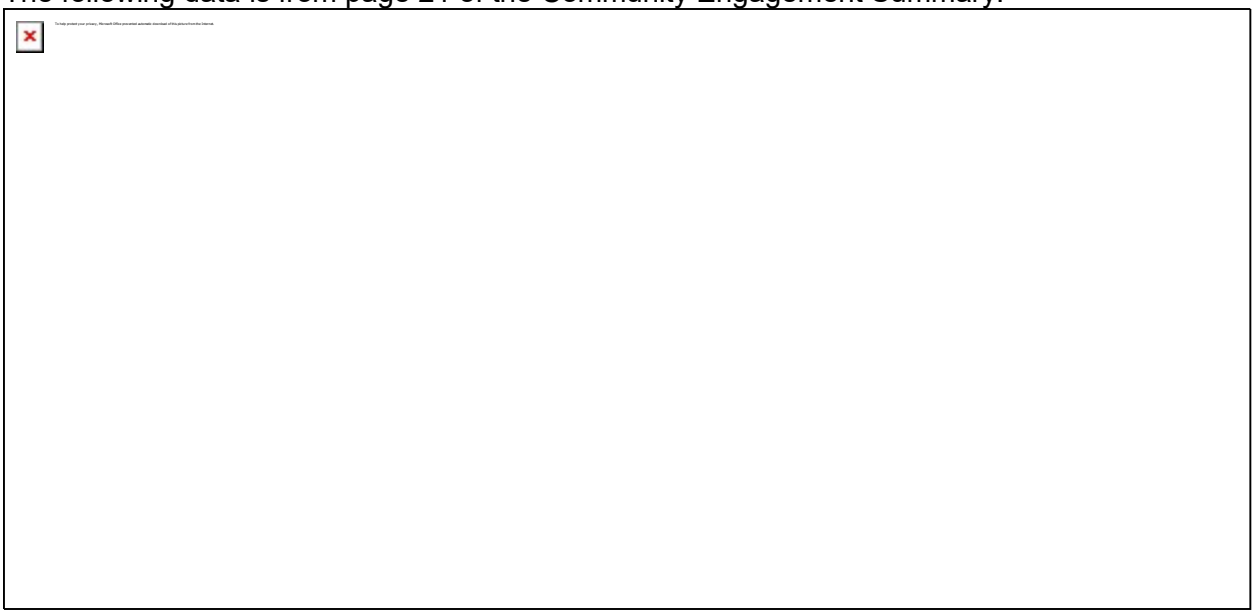
text “250 units/120 Jobs.” but the sticker didn't show density or height. The placement of stickers by map activity participants cannot lead to the conclusion that most residents are in favor of up to 5 stories in the McCaslin area. If the Future Land Use Map recommendations are going to focus on the number of stories allowed in each area, this should have been one of the questions asked in the survey! The scenarios did include specifics on jobs and housing. This information should be included in the recommendations. The most popular growth scenario included 234 new housing units and 2,230 new jobs in the McCaslin area. This should be in Table 1.

Please request a new table of Future Land Use Map recommendations reflective of survey results and community desires.

Respectfully,

Tamar Krantz.
Ward 3.

The following data is from page 21 of the Community Engagement Summary:



WHY THE MOST PREFERED SCENARIOS WERE SELECTED (page 21 and 22)

“Participants who selected “Other” within the online survey generally expressed dissatisfaction with the proposed scenarios, citing concerns about overdevelopment, urban sprawl, and a departure from Louisville’s small-town character. Many preferred preserving green space and wildlife habitats, particularly at Redtail Ridge, and advocated for limiting growth to within already developed areas. Infrastructure capacity, such as traffic congestion and city services, was a frequent concern, with participants emphasizing the inability to support additional housing or jobs without degrading quality of life. Suggestions included focusing on infill development along transit corridors, maintaining affordability, and ensuring sustainability.”

“Scenario A (Open House) Supporters appreciate its alignment with Louisville’s small-town scale, valuing minimal growth and its potential to maintain the city’s character. Some see it as a plan that works well for jobs and aligns with their preference for “less is more” in community development. However, others find it uninspiring, with insufficient housing options and a failure to address key issues such as affordability, economic diversity, and transportation. Concerns include lack of vibrant commercial spaces and fears of creating a commuter city. Some call for a greater focus on inclusivity, housing affordability, and improved public

infrastructure to better meet the city's future needs. (Online Survey) Participants who preferred Scenario A emphasized their desire for lower residential/housing density and more open space, aligning with their reasons for moving to or appreciating the area. They valued features like fewer stoplights and less parking congestion, which contribute to the town's unique charm. Some appreciated the mixed-use focus but stressed preserving commercial zones to support fiscal health rather than adding residential developments. Additionally, they saw the scenario as a way to maintain livability and preserve the community's identity."

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Jeff Hirt

From: Jeff Hirt
Sent: Wednesday, January 8, 2025 11:23 AM
To: Planning Commission
Subject: FW: Comp Plan Process

This was intended for the Planning Commission inbox FYI.

Jeff Hirt

From: John Leary <johntleary@comcast.net>
Sent: Wednesday, January 8, 2025 10:56 AM
To: Planning <planning@Louisvilleco.gov>
Cc: City Council <Council@louisvilleco.gov>
Subject: Comp Plan Process

Members of the Planning Commission,

As an elder citizen of our town, my well-being is something I need to protect. I don't need to get involved in things I lose sleep over. I Initially intended to observe the housing and comprehensive plan processes from a distance and stay on the "sidelines." However, I did go to an early meeting that was ostensibly set up, as part of the public process, for the purpose of giving input to the consultants doing the housing study. I left the meeting frustrated. The meeting was with a couple of the consultant company's staff who, while being open and friendly, clearly had no understanding of my concerns. I said to myself "enough is enough," and quit participating in the process, until now.

I have reviewed the information for your January 9th meeting and I am very concerned about the process being used to evaluate potential comp plan land-use alternatives. Different land-use scenarios have been created for the public to prioritize, but absent is the information needed by the public to make intelligent judgments about the scenarios. This needed information is driven by a combination of statutory requirements and common-sense factors for assessing land-use impacts. Exercises with sticky colored dots may be interesting and engaging, but they are no substitute for data-based decision making.

Here are a few examples of needed information:

1) Impacts from traffic congestion. Levels of service changes should be assessed for each scenario.
2) Impacts on the historical character of our downtown. This should be done in the context of the downtown design guidelines which have been incorporated into the City Code.

3) Parking impacts. Will adjoining neighborhoods bear the "costs" of new developments? How would underground parking impact already high construction costs? What would be the costs of building and maintaining parking structures?
4) Market studies for varying land uses. Would mixed-use commercial components be feasible? Some of you favored an inward facing retail component of the DELO apartment development. The applicant refused, arguing the vast majority of business would come from Highway 42. The City Council agreed with the applicant. I also note, the original plan developed by the Commission called for a core area which would have 1st floor commercial with residential above. This was also deemed to be economically infeasible.
5) View impairment. For over 140 years, Louisville has gone without more than three story buildings. This has given Louisville a special character by preserving views, tree top canopies, and protected against the many impacts of overcrowding. We need to know which view corridors would be threatened. I note that the City survey found that 2/3's of the public opposes allowing 4 and 5 story buildings.
6) Short and long-term fiscal sustainability. Each scenario needs to be modeled for fiscal impacts. But, only after the model is updated to reflect lasting COVID impacts and the repeal of the Gallagher Amendment. I cringe every time I hear some say use the term "under-performing" commercial property. It takes years to develop commercial property. Years ago, the possibility of building residential units on "under- performing" land in the Colorado Technological Center was discussed. It was rejected because of its long term negative fiscal impacts. It has taken over 40 years to develop the CTC. Vacant commercial land is like money in the bank.

Some may say that the above types of analyses should be left to be done in the subdivision approval process. That would be after the fact, and the antithesis of comprehensive planning. It would not be fair to the development community nor the public. Most importantly, our Municipal Code requires that a development must be consistent with the Comprehensive Plan. The Plan must give meaningful guidance upon which the public can rely. We cannot make it up as we go along. Doing so would not be "comprehensive."

Now, the provision of affordable housing and the desire for live/work possibilities seem to be driving forces in the comp plan process. Affordable housing is a credible goal that may require tradeoffs if this endeavor is to be successful. We need to know what these tradeoffs will be so we can choose wisely.

Live/work is a much more complicated, and therefore more questionable goal. As background for this issue, in the last 40 plus years, Louisville's population has roughly grown 4 times. During this same period job growth has increase roughly 5 times. During this period the percentage of people who live and work in the city has stayed around 10%. People live in Louisville for a number of reasons. Live/work is not near the top. A couple of years ago I had a conversation with a person who heads one of the consulting firms the City has used for market studies and other fiscal issues. He told me that Broomfield, who seems to subscribe to a "build, build, build" philosophy for everything (my view not his), has a live/work percentage of 13. In Boulder it is 18%. How much should we give up in pursuit of an ambiguous goal?

In sum, in striving for more affordable housing, our land-use goals must be made on the basis of data and information, not on speculative ideologies. Ideological based change may or may not serve our interests well. Good data and information will.

Thanks,

John Leary
1116 LaFarge Ave

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Jeff Hirt

From: Laura Pederson <lppederson@comcast.net>
Sent: Thursday, January 9, 2025 8:06 AM
To: Planning Commission; Planning
Subject: No More Changes to RTR Development Plan

Why is it that no matter how clearly the residents of Louisville make their preferences known about RTR, the development plan is continuously under pressure to increase density and erode the green space provisions?
The answer is corporate greed and increased profits.

PLEASE respect the wishes of the citizens of Louisville:

No increased building height allowances.

No rezoning to allow residential development.

Thanks and Regards,

Laura Parks-Pederson

2297 Cliffrose Lane

Louisville, Co. 80027

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Jeff Hirt

From: Kat Anderson <kat.little99@gmail.com>
Sent: Thursday, January 9, 2025 10:43 AM
To: Planning
Subject: Redtail Ridge

Dear Planning Commission,

I'm in favor of plan A which allows 45 residences at at RedTail Ridge. I'm in agreement with Preserve Louisville's suggestion below.
Thank you,
Katherine Anderson
Louisville resident

- No height increases unless they are very clearly coupled a requirement to cluster buildings and parking lots, thus increasing green space at the site.
- No rezoning to allow residential development at RTR unless it is 1) coupled with clear affordability requirements, and 2) unless overall site density is maintained.

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Jeff Hirt

From: richardtarde@gmail.com
Sent: Wednesday, January 8, 2025 11:21 PM
To: Planning
Subject: Comments on Redtail Ridge

Categories: Jeff Reviewing

Hi,
I have been a resident of Louisville for more than 40 years. I have watched the trails and tribulations of the Storage Tech property with much concern. Our city has always prioritized quality of life, and we need to continue this.

I would like to weigh in on the Comprehensive Plan growth scenarios. I support the lowest growth we can do, that is Scenario A, 1.500 units. I do not support excess growth.

Also, I do not support residential development or the increase of maximum height on the redtail ridge property. We need to concentrate the residential units where they are needed, i.e. in the McCaslin corridor. We need lower income housing to support our business.

If you need to add residential growth to Redtail Ridge, the green space needs to be maximized. This area is a beautiful resource for the city, lets no ruin it in the misguided pursuit of commercialization.

Richard Tarde
421 W. Sycamore CT
Louisville, CO 80027
720-903-6206

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Jeff Hirt

From: Laura Page <lpage53@gmail.com>
Sent: Wednesday, January 8, 2025 9:39 PM
To: Planning
Subject: Redtail Ridge

Categories: Jeff Reviewing

Dear Members of the Planning Commission,

Regarding possible changes to development standards on the Redtail Ridge property, we are opposed to any increase in allowed height from three stories to four unless the grading plan is adjusted such that the horizontal height of a 4-story building would match that of a 3-story building on the same development. ConocoPhillips' plan was going to work with the natural topography. The current plans for Redtail Ridge call for essentially bulldozing the terrain flat.

We are also opposed to residential development on the property because the detached nature of the property from the core of Louisville will likely result in most of the purchasing power of any future residents going to closer retail in Broomfield. Louisville will be stuck with the costs of residential growth without revenues from retail.

Better to add residential units nearer the transit center, as the State calls for. There appear to be many undeveloped lots or unused buildings in the Centennial Valley Business Park. Why not change zoning there to allow for residential development? It makes sense to add it near retail and potential employers.

If you do pursue residential growth at Redtail Ridge, we ask that you restrict it to the type of senior housing that is in high demand in Louisville, and mandate affordability. The juxtaposition to existing and future health services would be beneficial as would the proximity to schools that could foster intergenerational interactions.

If we *had* to choose to add any residential units, of the three scenarios proposed by the Comprehensive Plan Project Team, we would select Scenario A.

Please do NOT allow for any more building coverage on the property than was promised by the developers when the development of Redtail Ridge was approved. Do not allow any less solar energy development nor any other backpedaling on environmental standards.

Thank you for your consideration.

Laura Page
Celeste Niehaus
920 Rex St

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Jeff Hirt

From: joy brook <joyalbrook@hotmail.com>
Sent: Thursday, January 9, 2025 1:07 PM
To: Planning
Subject: No more destruction!

Please do my make any changes which will create more destruction of our town. The citizens voted to limit red tail Ridge and the council has refused to listen to our citizens. This used to be such a beautiful town and continues to be densified and destroyed creating horrible traffic and air pollution. Please do not give control to the developers and do not make anything more dense.

No height increases!!
Increase green space.

No rezoning to allow residential development at RTR!

When buildings are put right on the street and height is increased, It destroys any view of the mountains we might have. Having the parking lot on the street and the building back with low height at least gives us some view of the mountains.

Help preserve our small town character!!

I worked hard all my life to retire and enjoy my home and now my town is being destroyed and my quality of life diminished.

Please think of the citizens and their needs, not the developers. They continue to take more and more and lie.

🌲Tane Mahuta E Tu! 🌲
🌎Blessings to the Creator, trees! Stand Tall!🌊⛰️💥

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Jeff Hirt

From: Annie Parnell <parnell.sisterhood@gmail.com>
Sent: Thursday, January 9, 2025 4:16 PM
To: Planning
Subject: City Planning

Categories: Jeff Reviewing

Dear Council-
This is preposterous and infuriating. You represent us, the citizens, and the future citizens of this community. My family and I would support
your actions if:

- **No** height increases unless they are very clearly coupled a requirement to cluster buildings and parking lots, thus increasing green space at the site.

- **No** rezoning to allow residential development at RTR unless it is 1) coupled with clear affordability requirements, and 2) unless overall site density is maintained.

Regards,
C. Horst
136 Hoover Avenue
Louisville, CO

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Jeff Hirt

From: Dani Coleman <dani.coleman@gmail.com>
Sent: Thursday, January 9, 2025 5:47 PM
To: Planning
Subject: Comment on comprehensive plan discussion

Categories: Jeff Reviewing

As I drive out of Louisville, whether past Broomfield or Superior, I see all the new construction of housing and I admire how these cities are doing their part to alleviate the housing crisis in our county, state and country.

I'm sure you'll be hearing from a lot of Louisvillians tonight who are against growth. Please realize that they, and the people who filled out the survey for anti-growth, are the motivated few in a community filled with others who don't mind sharing our wonderful town but might not have the motivation or time to come to meetings or even fill out surveys. Indeed, the harder people have to work to keep up with increasing rent, the less control they have over their time, and the less voice they get in community decisions, a feedback that has led to the housing crisis. I'm sure you're aware that you are not hearing from the residents who had to move away after a divorce or illness made Louisville housing inaccessible.

Instead of justifying our financial interest as homeowners by exacerbating scarcity, I want us to use our land to build housing. Imagine the difference our town could make by permitting climate-friendly high-density housing in proximity to the jobs in our community. Imagine our schools full again instead of spending resources recruiting students from nearby areas. Imagine if we added a circle bus route to deal with increased traffic and connect the parts of our town to regional transportation (much like the City of Boulder revolutionized bus service with the Hop in the 1990s).

Imagine the positive difference we could make in the world, rather than denying our responsibility as part of the larger community and pushing the consequences elsewhere.

Thank you all for the time and energy you put in to making the city a better and better place to live.

Sincerely,
Danielle Coleman

278 Jackson Cir
25 year resident of Louisville

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Jeff Hirt

From: d ervin <debra.c.ervin@gmail.com>
Sent: Thursday, January 9, 2025 5:06 PM
To: Planning
Subject: Red Tail Ridge

Categories: Jeff Reviewing

I would like to emphasize that that I favor Scenario A of the planning committees Comprehensive Site Plan Project Teams growth scenarios.

I would like to voice my concern about traffic management under any scenario. I do not favor paying for any traffic management under these scenarios. The developers should be paying for that, and city leadership should be strenuously advocating for that AND low cost housing as part of all of these scenarios.

I will also exercise my right to free speech, which I have defended with my US Army active duty service. I will use my free speech right to inquire what exactly is the benefit to Louisville city government to continue to ignore the majority of Louisville citizens when they indicate they really wish to preserve the small town ambiance of Louisville.

Please discontinue the californication of Louisville for the benefit of the few. Reconsider the scope of these projects, especially in view of climate change and dwindling local water supplies.

Debra Ervin

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Jeff Hirt

From: Diane Shepard <dmshepard@comcast.net>
Sent: Thursday, January 9, 2025 12:14 PM
To: Planning
Subject: Comprehensive Plan 2025

Categories: Jeff Reviewing

Hello,

I'm writing my views regarding your discussion tonight about future land use in Louisville and Redtail Ridge (RTR) development guidelines. First, thank you for your attention to how we will build out RTR. I live very close to that area and do appreciate your efforts.

There are a couple items I want to speak on.

1. Whether to increase the maximum height at RTR from 3 to 4 stories.

I'm not in favor of increasing height allowance from 3 to 4 stories and do want any 3 story buildings, and parking lots, to be clustered together so that there is more open/green space left at the site. I am an avid photographer and I can tell you that any buildings on that property will block one of our city's best view of sunrises. This may seem inconsequential to you, though it is of great importance to me and others who value the wonder of our natural spaces.

2. Whether to Aalow residential development.

I am not in favor of rezoning to allow residential development at RTR unless it is coupled with clear affordability requirements, and unless overall site density is maintained. I find it hard to believe any developer will complete new housing units that are truly affordable in this area. We have enough impact still rebuilding homes from the Marshall fire and this includes to our infrastructure/roads increased use with all the construction trucks. I can't walk down my own street without smelling diesel fuel even before 7am in the morning. I can hear trucks traveling along Dillon Road at those same wee hours of the morning. This is more disruptive than you may realize.

I do think that the housing proposal for the old Cinebarre site, near mass transit coridor along McCaslin and Hwy 36, is a useful plan. Part of my reasoning for this is that they will redevelopment an area that is already paved over with concrete and that new resident traffic would be very near entrance/exit to Louisville and shopping areas along McCaslin. So, they can go in/out of their new neighborhood without increasing traffic in more established neighborhoods.

Overall, I am most in favor of Scenario A in the proposed plan with 1,150 new residential units; including 45 at RTR.

Thanks again for listening and keeping your current residents, who have lived in Louisviile 30 years, in mind.

--
Diane Shepard
Louisville, Colorado

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Jeff Hirt

From: Sal <sal@bitstream.net>
Sent: Thursday, January 9, 2025 4:18 PM
To: Planning
Subject: New housing

Categories: Jeff Reviewing

Dear Planning Commission,

It seems like people are always talking about the need for affordable housing, but nobody is building it! Can you please be sure include plenty of affordable housing in the new comp plan?

I support scenario A. Let's keep Louisville small. If people want density, they can move to Boulder!

Thanks,
Sally Bruggeman

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Louisville Comprehensive Plan
City Council Meeting
January 21, 2025

Agenda

Updates

Presentation & Community Engagement Scenarios Summary

Public Comment

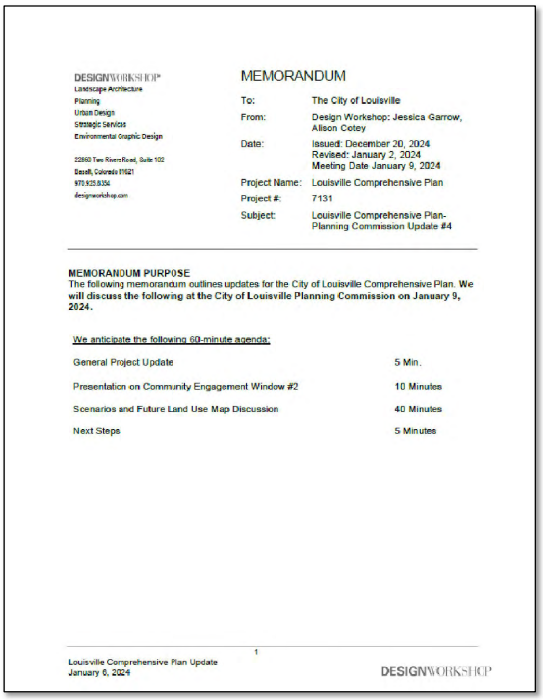
Presentation & Future Land Use Map Discussion

Next Steps



Follow Along

Page # Here



DESIGNWORKSHOP
Landscape Architecture
Planning
Urban Design
Strategic Services
Environmental Graphic Design

22860 Two Rivers Road, Suite 102
Basalt, Colorado 81621
970.923.5356
designworkshop.com

MEMORANDUM

To: The City of Louisville
From: Design Workshop: Jessica Garrow, Alison Cotey
Date: Issued: December 20, 2024
Revised: January 2, 2024
Meeting Date January 9, 2024
Project Name: Louisville Comprehensive Plan
Project #: 7131
Subject: Louisville Comprehensive Plan- Planning Commission Update #4

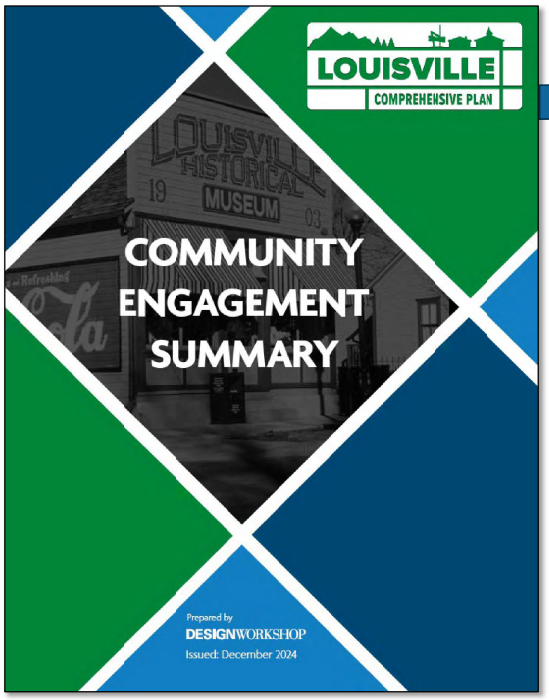
MEMORANDUM PURPOSE
The following memorandum outlines updates for the City of Louisville Comprehensive Plan. We will discuss the following at the City of Louisville Planning Commission on January 9, 2024.

We anticipate the following 60-minute agenda:

General Project Update	5 Min.
Presentation on Community Engagement Window #2	10 Minutes
Scenarios and Future Land Use Map Discussion	40 Minutes
Next Steps	5 Minutes

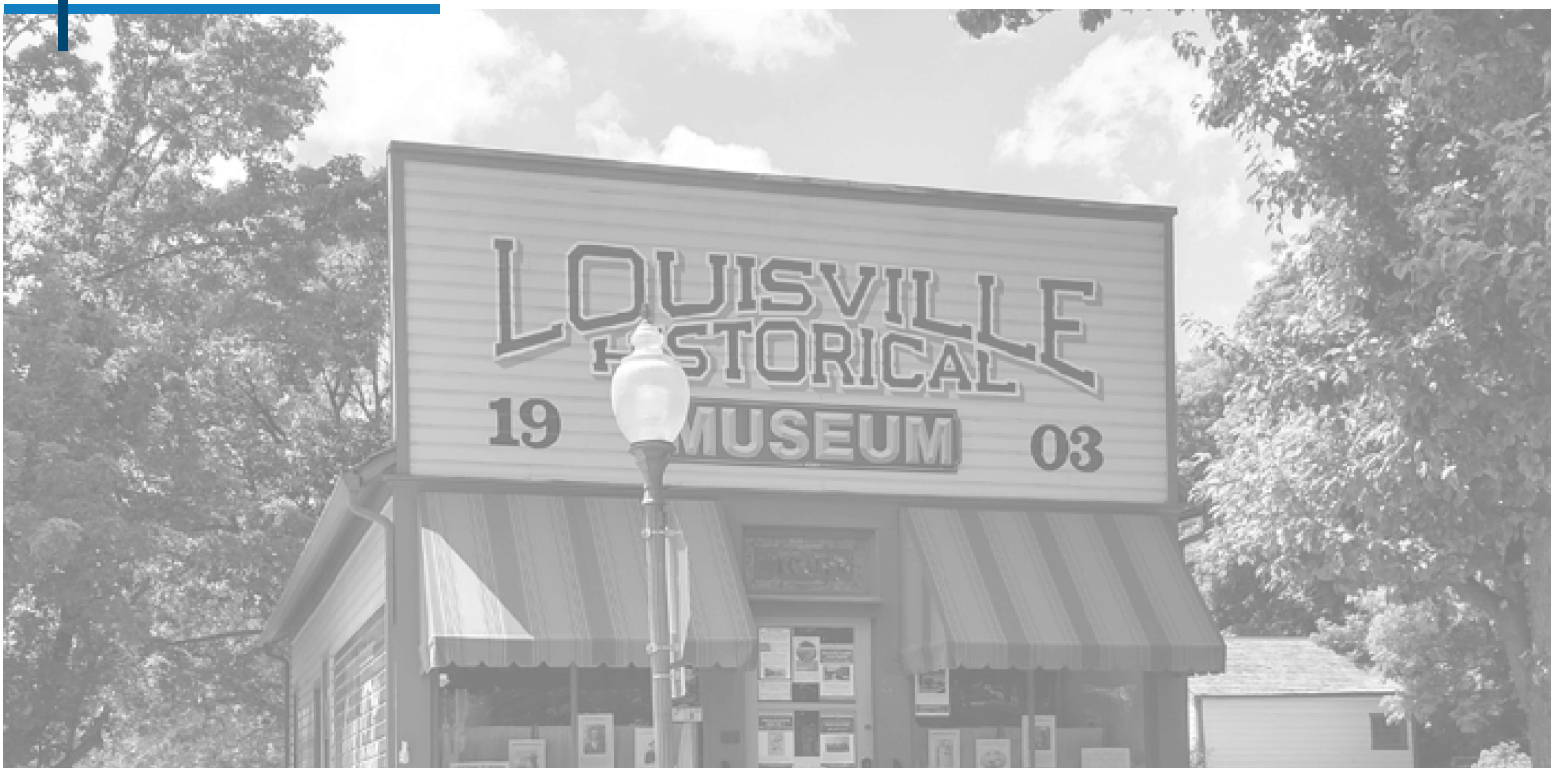
1
Louisville Comprehensive Plan Update
January 6, 2024
DESIGNWORKSHOP

Memorandum

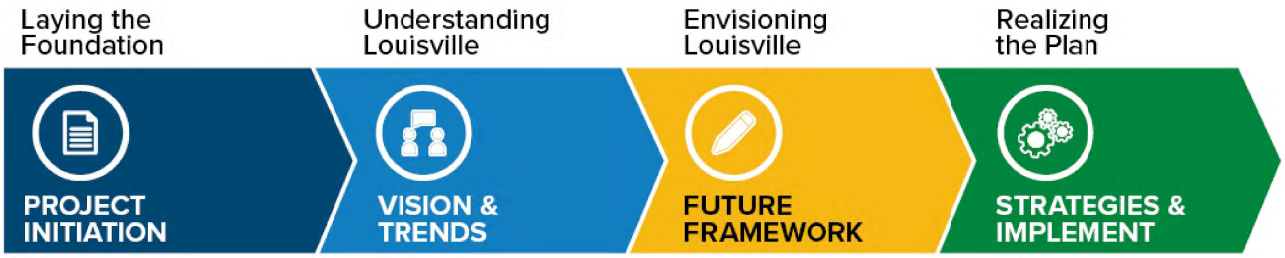


Community Engagement Summary

Where Are We Now?



Plan Process



January 2024

Project Kick Off

Project Launch

February-May

Plan Reviews and Existing Conditions Assessments

Community Visioning Pop Ups & Workshops

June-September

Vision & Core Values

Land Use & Strategy Framework

Community Choices and Priorities

Open Houses

Summer 2025

Draft & Final Plan

Community Presentation & Poster Roadshow

Plan Adoption

We are Here!

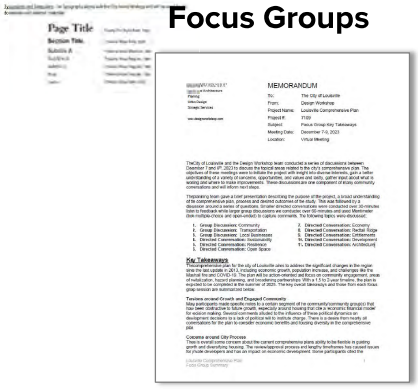
What have we done so far?

Project Launch

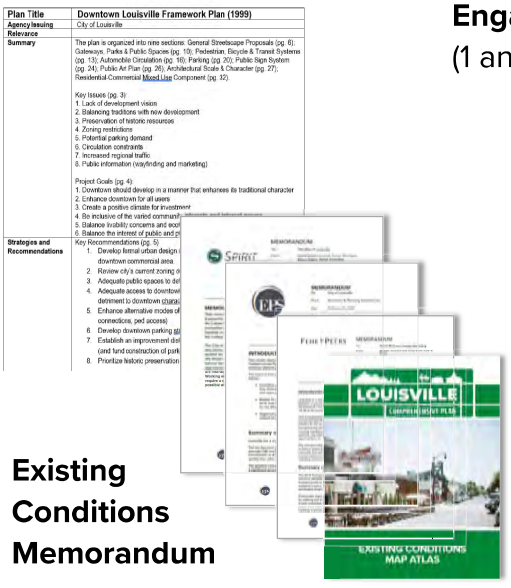




Focus Groups



Past Plans Review



Existing Conditions Memorandum

Community Engagement (1 and 1.5)



Supporting Memorandum (TOC and Plan Precedents, Core Values Scenarios)

Phase 4: Strategies and Implementation

Memo Page 2

15% Complete



- This phase included project templates and Table of Contents and plan framework



- Refining three scenarios to a single Future Land Use Map (FLUM) and Three Mile Plan, the development of goals and strategies to support the FLUM.
- This will constitute a 50% Draft.



- We will format an 80% of the plan for commission/council comment and feedback. (March-April 2025)
- Revisions will be made, and a 95% Draft will be shared with the community and presented for adoption. (May-June 2025)

Community Engagement Update

Memo Page 3

Project Launch	Engagement Window #1	Engagement Window 1.5	Engagement Window #2	Engagement Window #3
Complete Nov. to Dec. 2023	Complete Dec. 2023 to Mar. 2024	Complete June 2024 to July 2024	In Progress Oct. 2024 to Dec. 2024	Pending March to June 2025
Technical Content • Branding and Communications	Technical Content • Past Plan Review • Technical Assessment	Technical Content • Plan Vision, Values, and Goals	Technical Content • Plan Opportunities • Future Land Use Map and Three Mile Plan • Strategy Framework	Technical Content • Draft Plan • Final Plan

Public Participation
• Project FAQ & Q&A
• Advisory Committee SKO
• Council and Commission SKO
	Public Participation
	• Community Vision
	  • Focus Groups
	  • Community Survey
	  • Vision Open House
	• Advisory Committee PC Meeting
	• Council Presentation
	• Engagement Summary
		Public Participation
		• Sharing Community Vision and Core Values
		  • Pop Up Events
		• Advisory Committee PC Meeting
		• Council Presentation
			Public Participation
			• Community Choices
			  • Community Workshop
			  • Open House
			  • Engagement Summary
			  • PC Meeting
			  • Council Presentation
				Public Participation
				• Plan Review – Public Draft Review
				• Strategy Roadshows – City Boards and Commissions
				• PC Meeting
				• Adoption Meetings

Engagement Summary



Open House, Workshops, and Online Activity

Engagement Summary Pages 2-5

Engagement Activities



Events held Nov. 8 including 3 90-minute Workshops and 2-hour Open House.

Over 40 Workshop participants and 150 Open House participants.

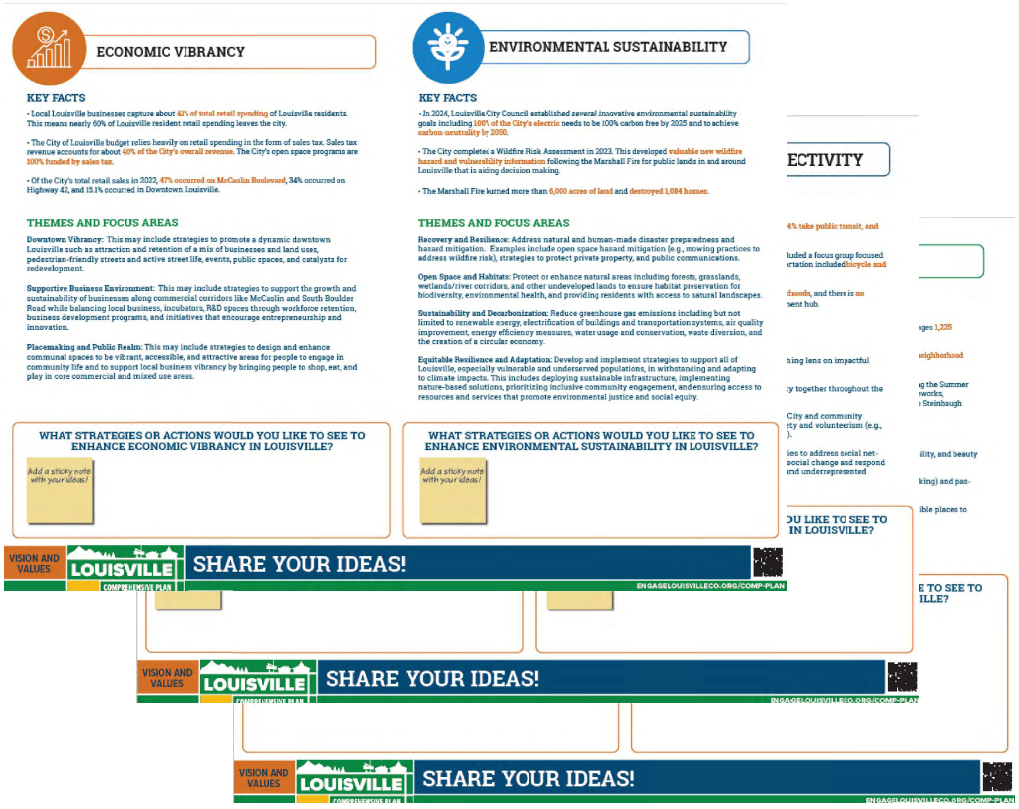
Online storymap and survey hosted on EngageLouisville from Nov. 8 to Dec. 3 with over **80 responses.**

Mailer sent to every Louisville resident, notice went out through all City communications channels.

Core Values

These core values will serve as the foundation of the Plan.

The boards at the open house offered and opportunity to provide feedback and suggestions for the future of Louisville.



Core Values Feedback Summary

Engagement Summary Pages 6-12

Key Findings
- Affordable Housing
- Downtown Revitalization
- Preservation of Small-Town Charm

Key Findings
- Fire Mitigation/Disaster Planning
- Climate Considerations
- Incentivize Decarbonization

Key Findings
- Regional Trail Coordination
- Bike Lanes
- Public Transit



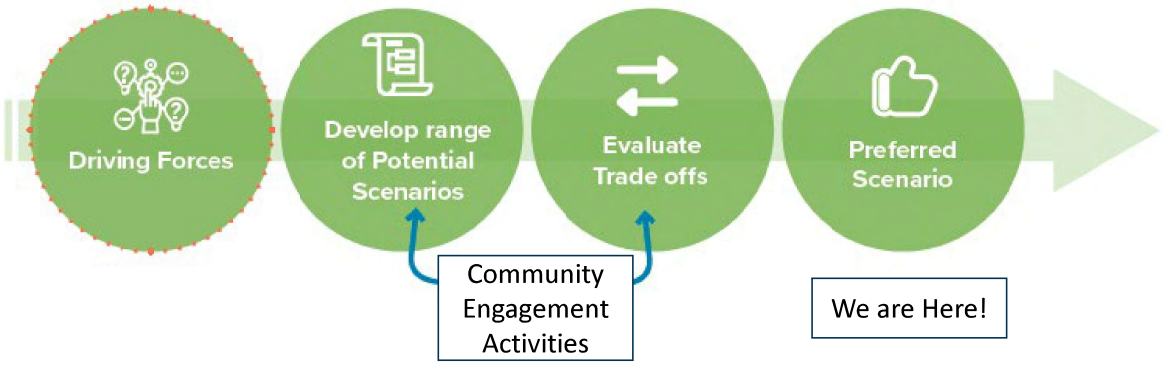
Key Findings
- Mixed-use Development
- Local Businesses
- Enhance McCaslin
- Diverse Retail

Key Findings
- City Council Engagement
- Civic Leadership Opportunities
- Regional Collaboration

Key Findings
- Senior Housing
- Natural Areas
- Parks, Plazas, and Programming
- Recreation Facilities

Scenario Planning Overview

Engagement Summary Page 18



Scenario planning explores and evaluates potential future developments and outcomes in a city by creating multiple possible scenarios based on driving forces about key factors like population growth, economic trends, and the community vision. The City is asking for Louisville community input on three future growth and development scenarios to inform the Comprehensive Plan.

Areas of Stability and Areas of Change

Engagement Summary Page 18

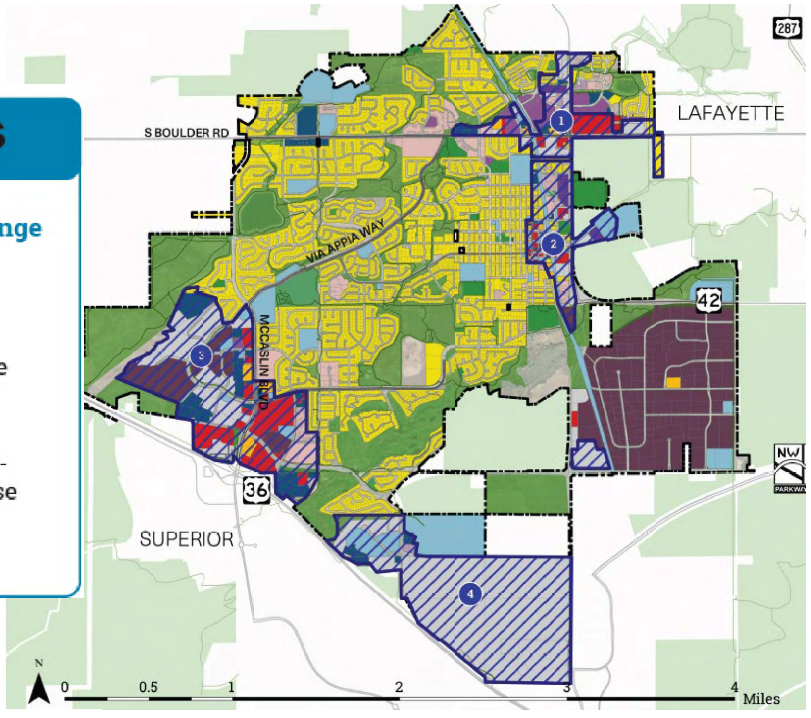
OPPORTUNITY AREAS

Areas of Stability and Areas of Change

Scenario planning will focus on specific areas that are more likely to change, referred to as Opportunity Areas.

For this exercise, other areas of Louisville less likely to change are referred to as Areas of Stability.

We are asking the Louisville community - what should change look like within these Opportunity Areas.

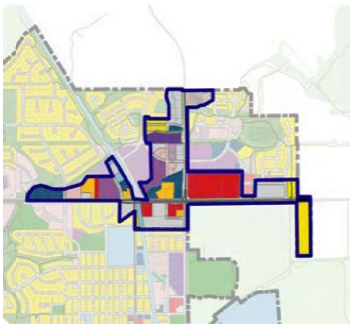


Opportunity Areas Overview

Intended to inform and support decisions but there are no guarantees relative to units and jobs.

The approach to each scenario was to focus on four core opportunity areas where there is the most potential for land use changes.

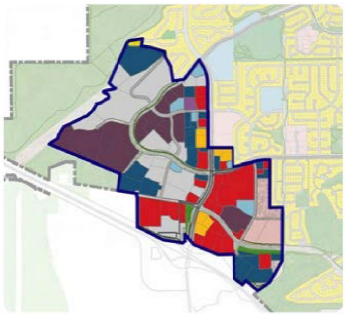
Within each opportunity area, three potential future scenarios were explored with the community.



Opportunity Area 1: S Boulder Road



Opportunity Area 2: Downtown

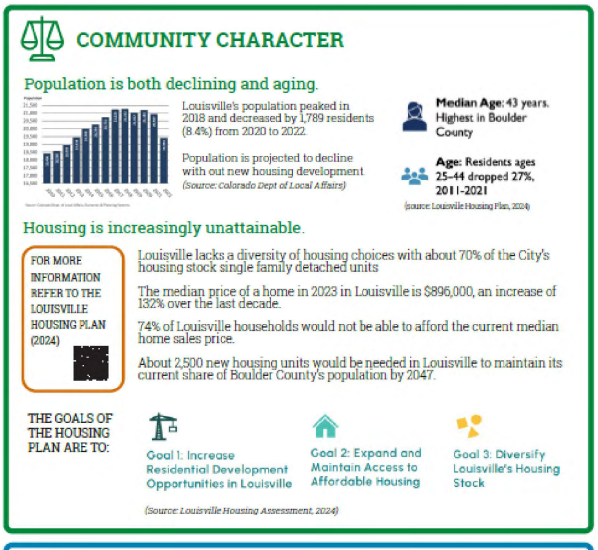


Opportunity Area 3: McCaslin Corridor



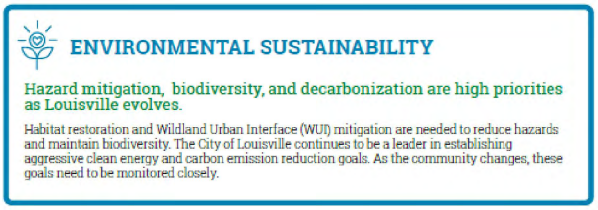
Opportunity Area 4: Redtail Ridge

Driving Forces











Scenario A: Stay the Course

Engagement Summary Page 18

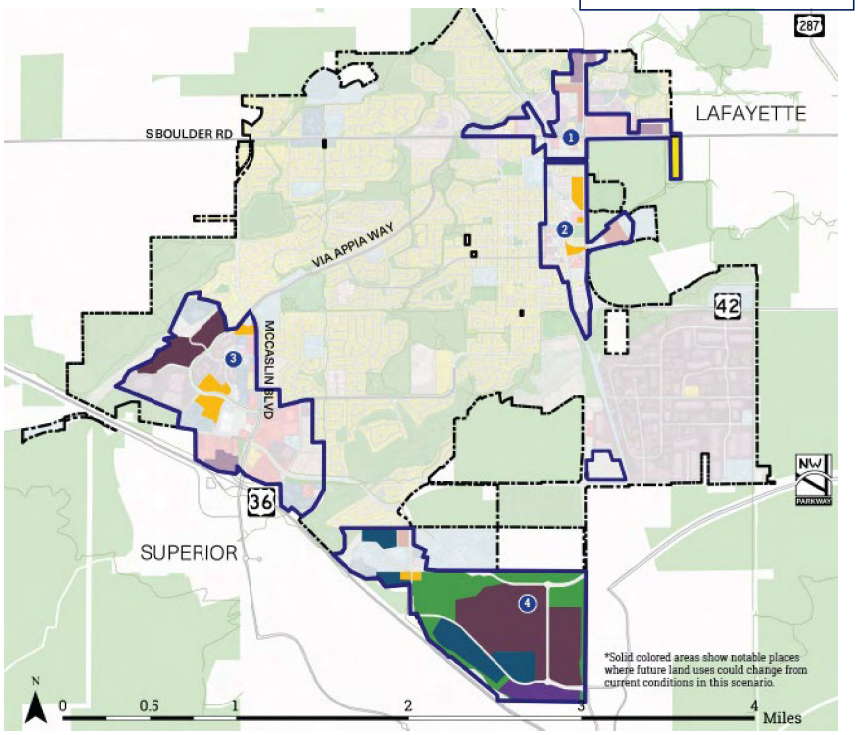
Scenario A projects a future where minimal intervention leads to job growth, but limited population increases, reflecting current trends.

1,150 new housing units

Area 1 South Boulder Road Corridor	Area 2 Dowtown	Area 3 McCaslin Corridor	Area 4 Redtail Ridge
695 units	176 units	234 units	45 units

16,281 new jobs total

Area 1 South Boulder Road Corridor	Area 2 Dowtown	Area 3 McCaslin Corridor	Area 4 Redtail Ridge
66 jobs	226 jobs	2,330 jobs	13,659 jobs

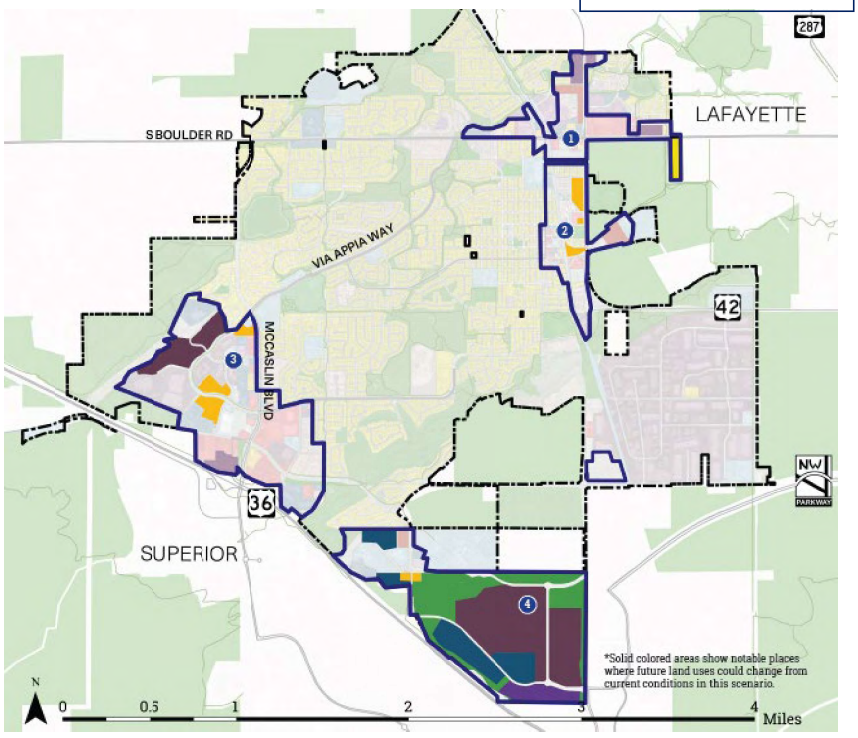


Scenario A: Stay the Course

Engagement Summary Page 18

Key Findings

- Support for small-town scale, minimal growth, and job-friendly planning.
- Concerns about housing affordability, inclusivity, and vibrant commercial spaces.
- Preference for low density, open space, charm preservation, and mixed-use focus



Scenario B: A Home for Everyone

Engagement Summary Page 19

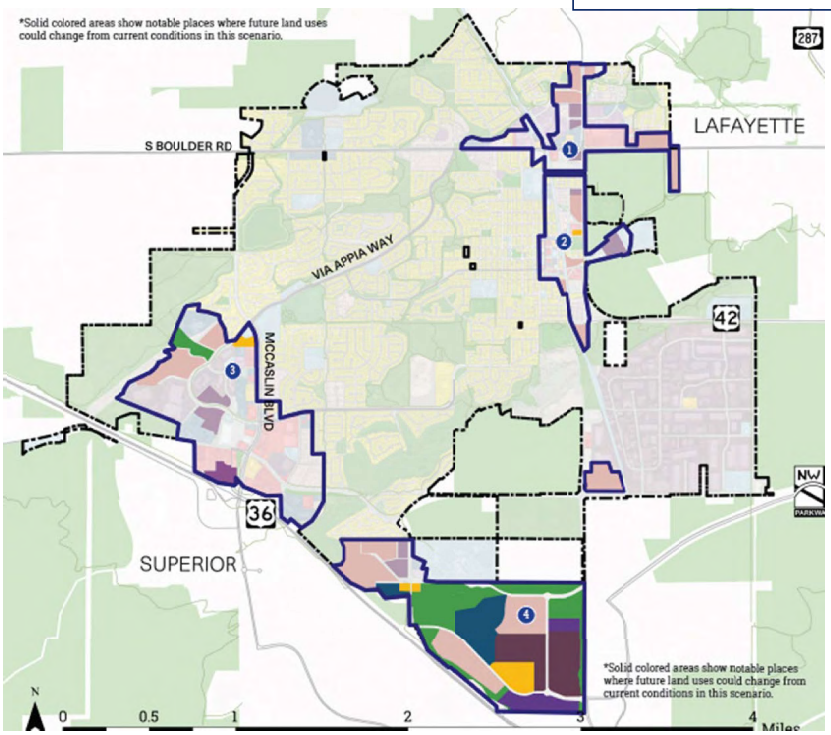
Scenario B envisions significant housing and population growth, affordable workforce housing, mixed-use commercial centers on McCaslin and South Boulder, and local commercial growth downtown.

5,608 new housing units

Area 1 South Boulder Road Corridor	Area 2 Dowtown	Area 3 McCaslin Corridor	Area 4 Redtail Ridge
812 units	482 units	1,548 units	2,766 units

9,414 new jobs total

Area 1 South Boulder Road Corridor	Area 2 Dowtown	Area 3 McCaslin Corridor	Area 4 Redtail Ridge
30 jobs	63 jobs	338 jobs	8,983 jobs

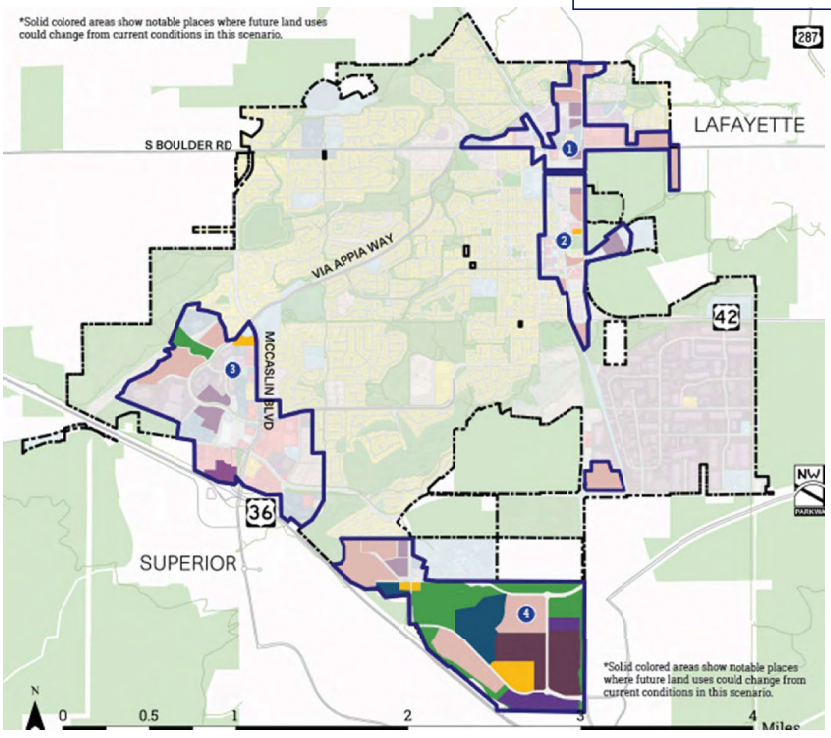


Scenario B: A Home for Everyone

Engagement Summary Page 19

Open House Feedback

- Support for balancing housing and job growth, especially at Redtail Ridge and McCaslin.
- Emphasis on walkability, public spaces, open space integration, and housing near businesses.
- Concerns about high-density housing but recognized as key for affordability and attracting families.



Scenario C: Live and Work in Louisville

Engagement Summary Page 20

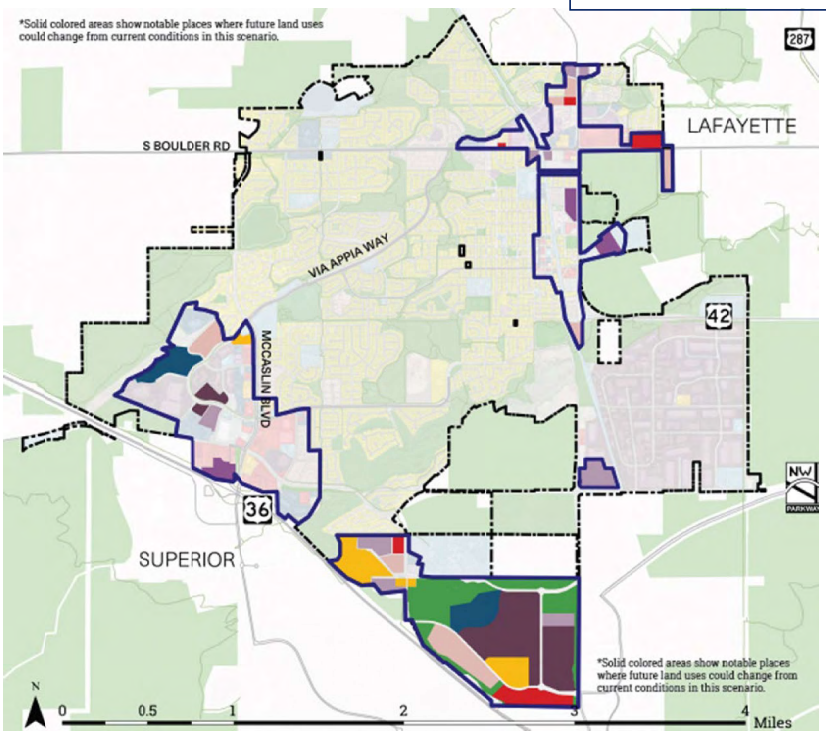
Scenario C emphasizes economic stability with job and housing growth, mixed-use and transit-oriented development, diverse housing options, and Redtail Ridge as a hub for affordability and younger residents.

3,741 new housing units

Area 1 South Boulder Road Corridor	Area 2 Dowtown	Area 3 McCaslin Corridor	Area 4 Redtail Ridge
685 units	526 units	768 units	1,762 units

13,941 new jobs total

Area 1 South Boulder Road Corridor	Area 2 Dowtown	Area 3 McCaslin Corridor	Area 4 Redtail Ridge
225 jobs	109 jobs	2,971 jobs	10,636 jobs

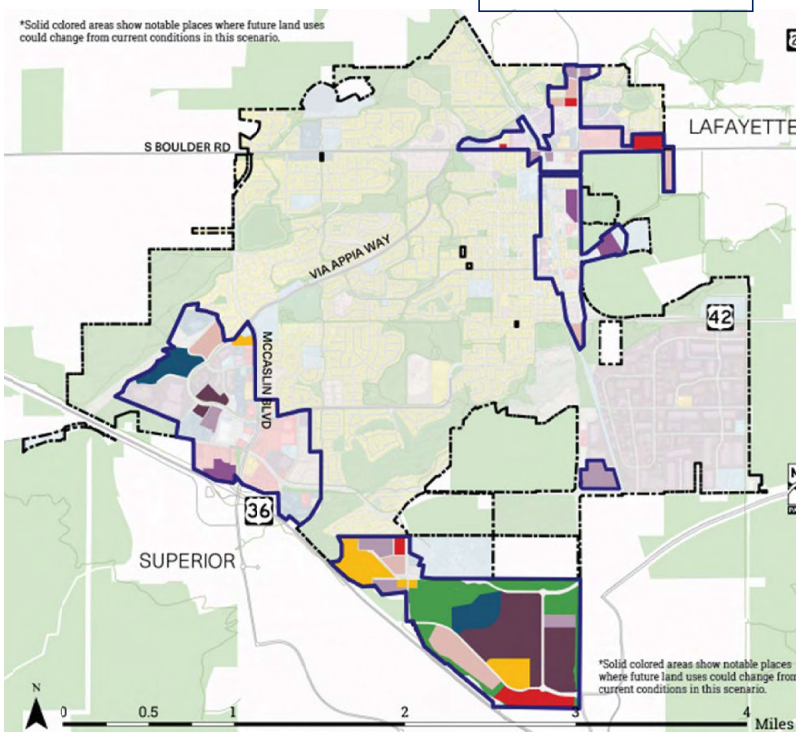


Scenario C: Live and Work in Louisville

Engagement Summary Page 20

Open House Feedback

- Praised for climate action, sustainability, economic vitality, and inclusivity through higher-density housing.
- Concerns over excessive housing units, Redtail Ridge development, and compatibility with low-density character.
- Support for clustering housing near transit, mixed-use areas, and incorporating green spaces along McCaslin.



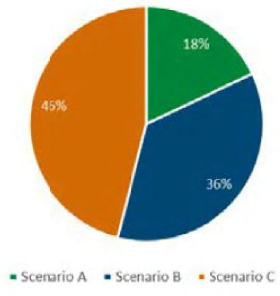
SCENARIOS AND VALUES ALIGNMENT

	COMMUNITY CHARACTER	COMMUNITY PLACES	COMMUNITY CONNECTIVITY	ECONOMIC VIBRANCY	ENVIRONMENTAL SUSTAINABILITY
SCENARIO A: STAY THE COURSE Place a dot in the box if this is your preferred scenario!	Maintain slow population growth through continued development of single-family and lower density homes, but may also continue trends of population decline, declining school enrollment, and higher retail vacancies that puts this character at risk.	Current parks, trail systems, recreation amenities are maintained.	More vehicle-oriented travel.	As housing growth remains low, retail is less thriving. Office and Research and Development continues to drive job growth. Minimum growth of good and service businesses without additional population to support retail.	Lower density housing maintains high commutership and reliance on person vehicles, increasing carbon emissions.
SCENARIO B: A HOME FOR EVERYONE Place a dot in the box if this is your preferred scenario!	Increased focus on a mixture of housing types to address housing attainability challenges and offer more options for families and the local workforce. Changes are focused on select areas with densities and building types that are sensitive to existing neighborhood character.	Improve downtown plazas and parks to support more active street life. Opportunity for increased events and gathering.	Increase transportation options with a focus on overall connectivity for walkablity and bikeabilty.	Increase in mid-density housing supports workforce and entry level housing options. This in turn supports neighborhood centers with access to retail, goods and services.	Missing middle and more compact housing choices can support in a reduction of vehicle miles traveled and support and increase to transit connection, decreasing carbon emissions.
SCENARIO C: LIVE AND WORK IN LOUISVILLE	Focused areas of medium and higher density housing to create vibrant places with retail centers and transit access, increasing proximity to goods and serves while supporting retail vitality and transit options. Changes are focused on select areas with densities and building types	Increase overall parks system, trails and linkages to support new development densities. Ability to support additional programs, services, and events for all ages (from youth to seniors).	Increased transit frequency with higher density housing centers and provide multimodal linkages to access housing and jobs within the community.	Higher-density centers also serve as a hub for jobs and services. With higher employment growth, there is a need to increase housing for all incomes and ages beyond the curren: gap.	Higher density centers support increased transit, a reduction of commuting and an overall decreasing carbon emissions. Mixed use centers allow for goods and service available by walking or biking to support increased community health and more vibrant places.

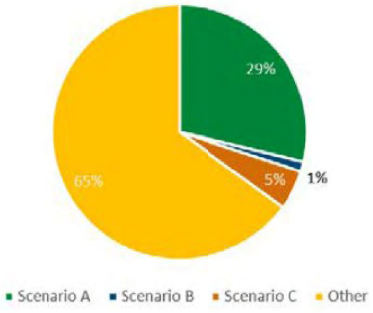
Community Preferences

Engagement Summary Page 21

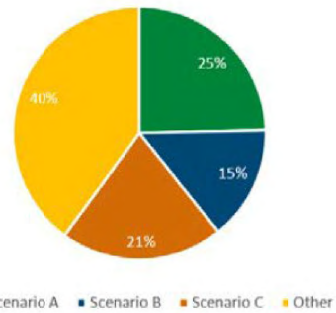
Open House Responses



Online Survey Responses



Total Responses



Scenario Open Comment Summary

Participants who selected "Other" within the online survey generally cited concerns for urban sprawl, and a departure from Louisville's small-town character.

Infrastructure capacity was a frequent concern, with participants emphasizing the inability to support additional housing or jobs without degrading quality of life.

Suggestions included focusing on infill development along transit corridors, maintaining affordability, and ensuring sustainability.

Many comments indicate a desire to see a "middle-ground" Scenario.



Open Comment Sample

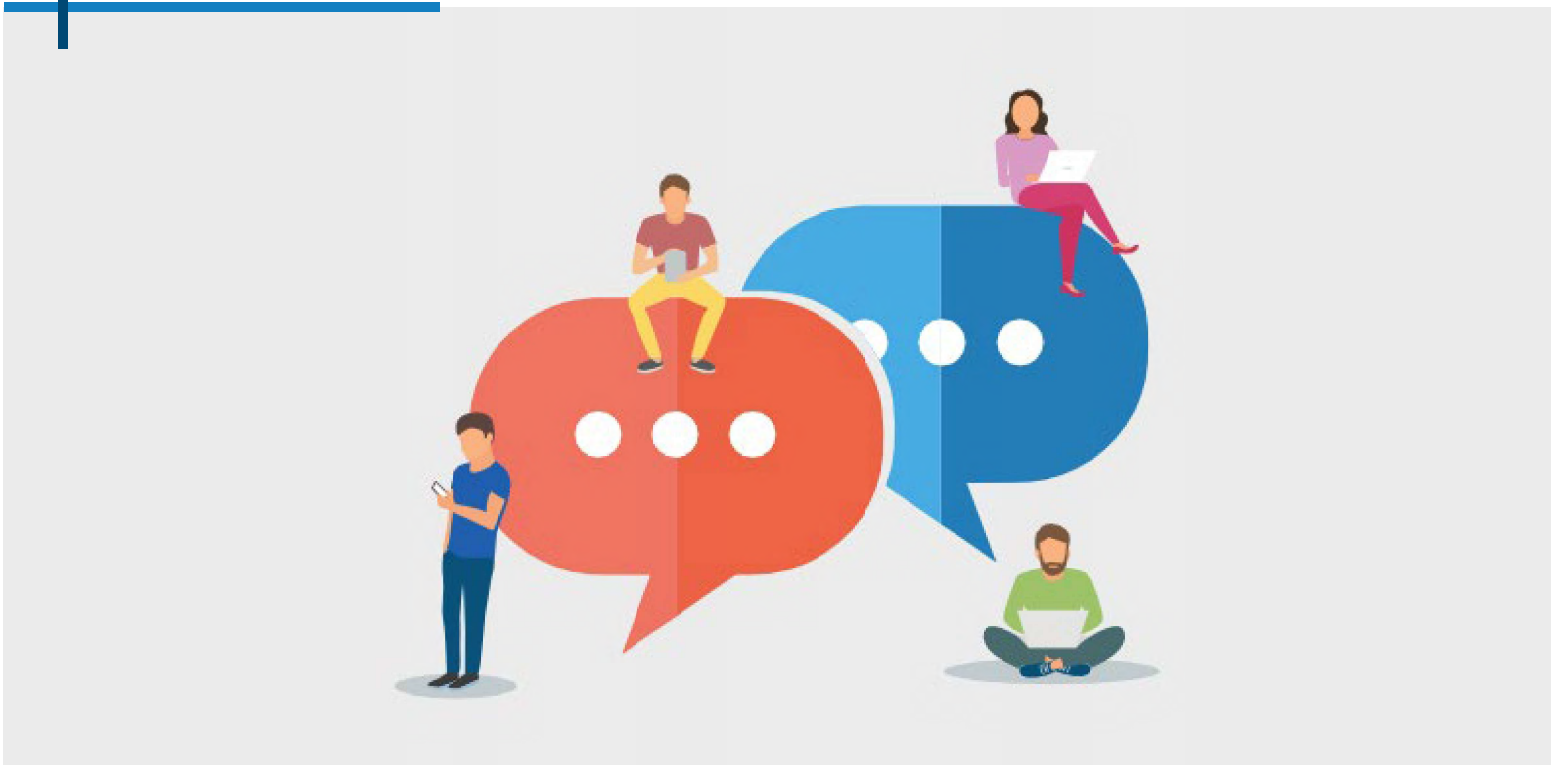
Planning Commission Comment Summary

- Need to 'Move the Needle', Louisville is changing, and we need to be proactive and intentional about future development.
- Opportunity areas focus on the 'edges'
- Consider targeted, neighborhood context-sensitive development within existing neighborhoods as well, maybe ADU's.
- Transition of opportunity areas to neighborhoods.
- Ensure transportation and connectivity is included, the interface between the different uses.
- Consider TOD and reduction on VMT.
- Concern that A is not deliberate for how to plan for change.
- A combination of B and C.

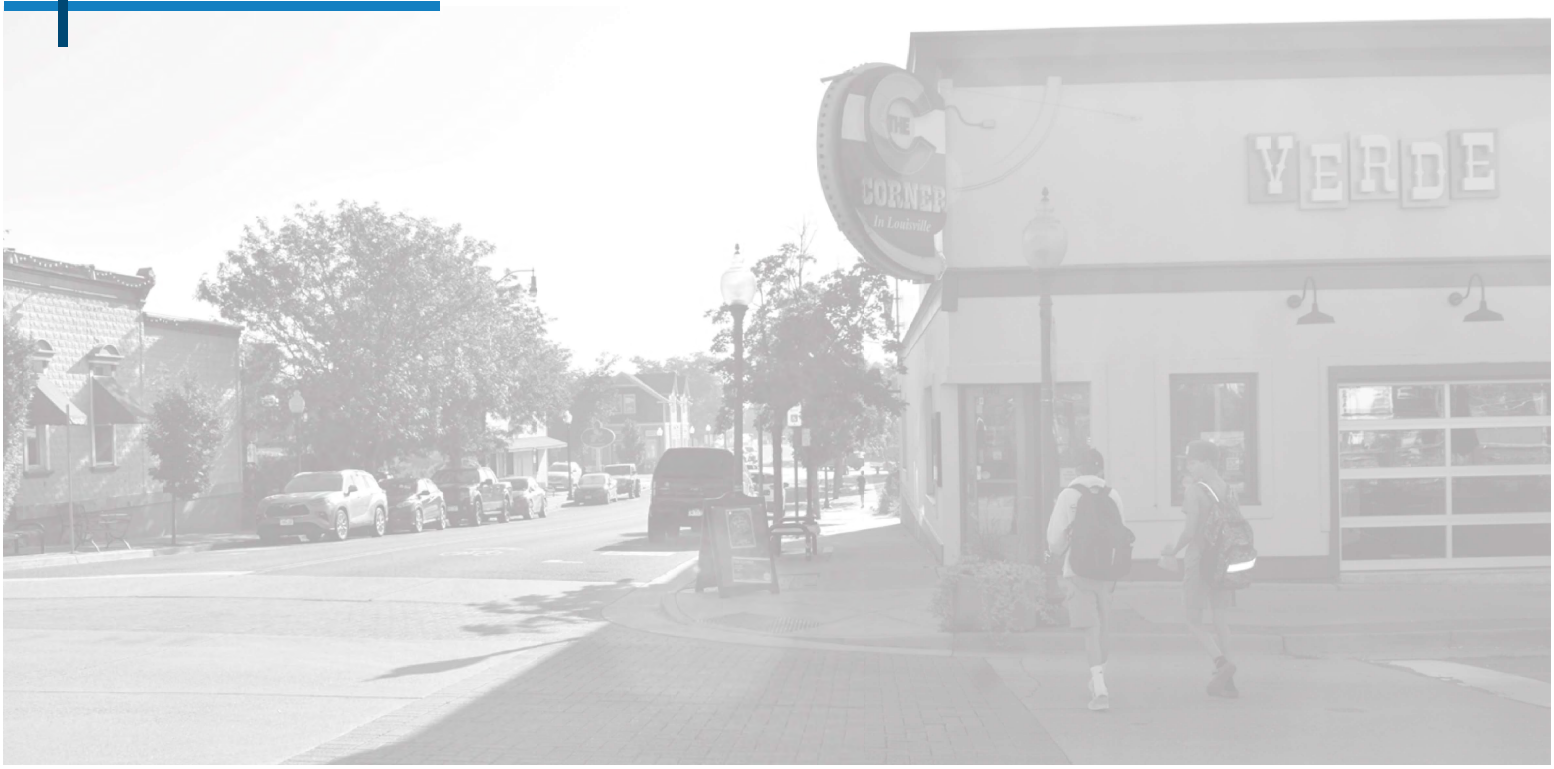
5- Minute Reflection

Q1. Preferred Scenario. Based on the three scenarios presented to the community, which of these, or which combinations, most closely align with your vision for the future? The community's vision?

Public Comment



Future Land Use

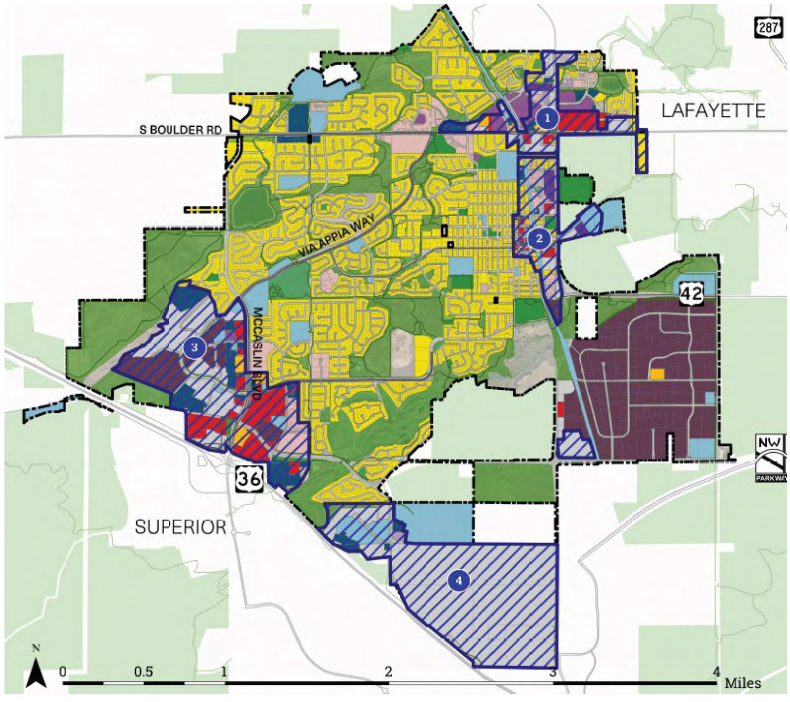


Future Land Use Map

Memo Page 4

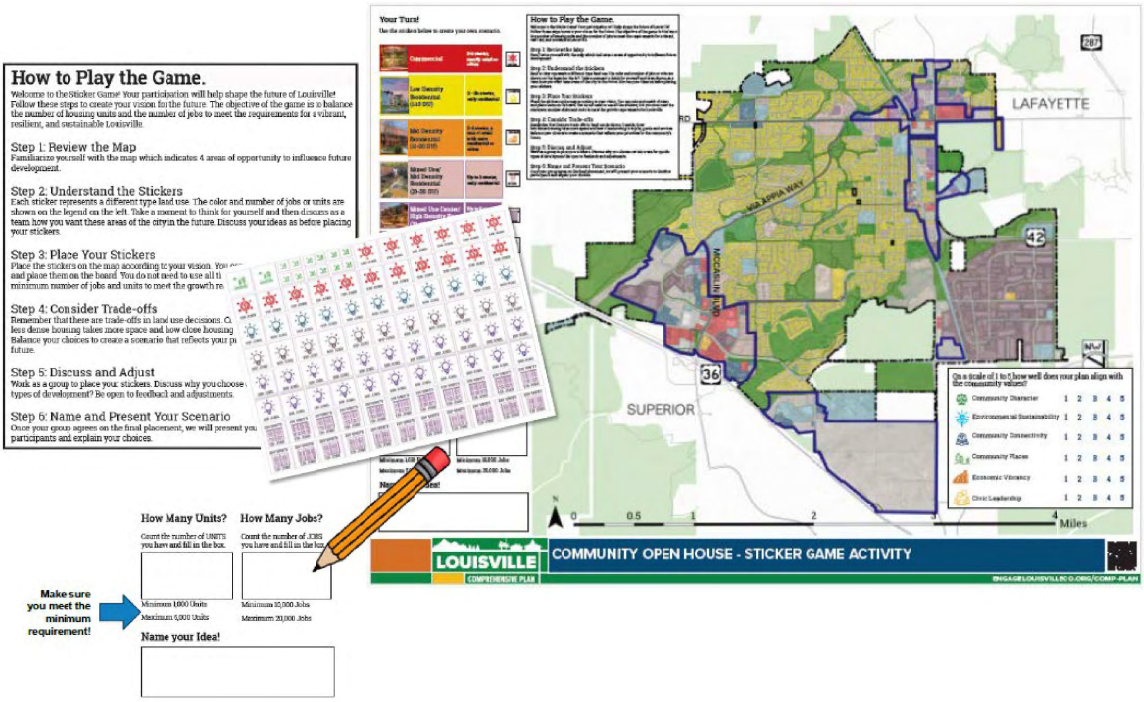
- A Future Land Use Map (FLUM) is a critical component of comprehensive planning to guide long-term development and land use decisions.

- It serves as a visual representation of how land is intended to be used in the future, based on the community's goals and vision.



Community Engagement

Memo Page 4



Community Engagement

Memo Page 4







Opportunity Area 1: South Boulder Road Corridor

Memo Page 5-6

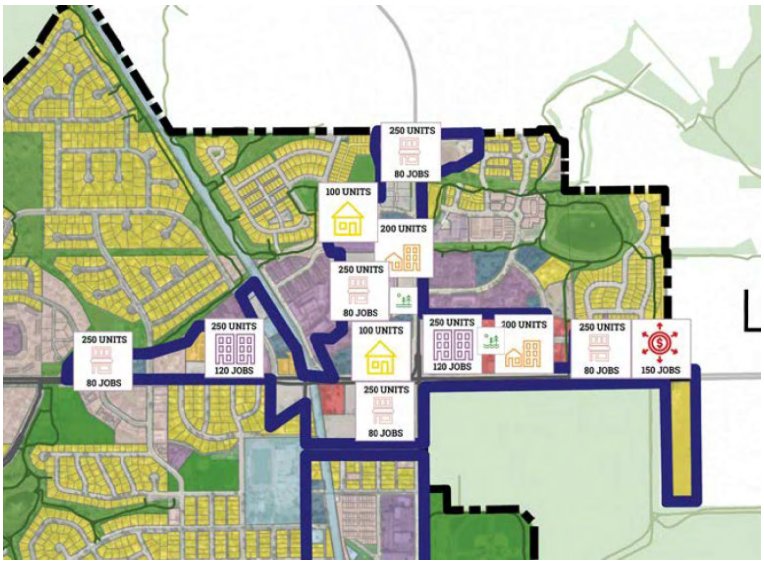
Engagement Summary Page 29

Community Feedback:

- Mixed-use preference.
- Affordable and senior housing.
- Parks and connectivity.
- Adaptive reuse for infill.

Future Land Use Approach:

- Mid-density, 3-story residential in some locations close to S Boulder Rd and Highway 42.
- Mixed-use with residential by-right.



Opportunity Area 2: Downtown Louisville

Memo Page 5-6

Engagement Summary Page 30

Community Feedback:

- Thriving, vibrant downtown as a central hub.
- Mixed-use, 3-story buildings with diverse uses.
- Promote commercial and retail activity.

Future Land Use Approach:

- Mid-density and mixed-use residential, up to 3 stories in some locations.
- Infill development with residential by-right.
- Create gathering spaces for retail vibrancy.



Opportunity Area 3: McCaslin Corridor

Memo Page 5-6

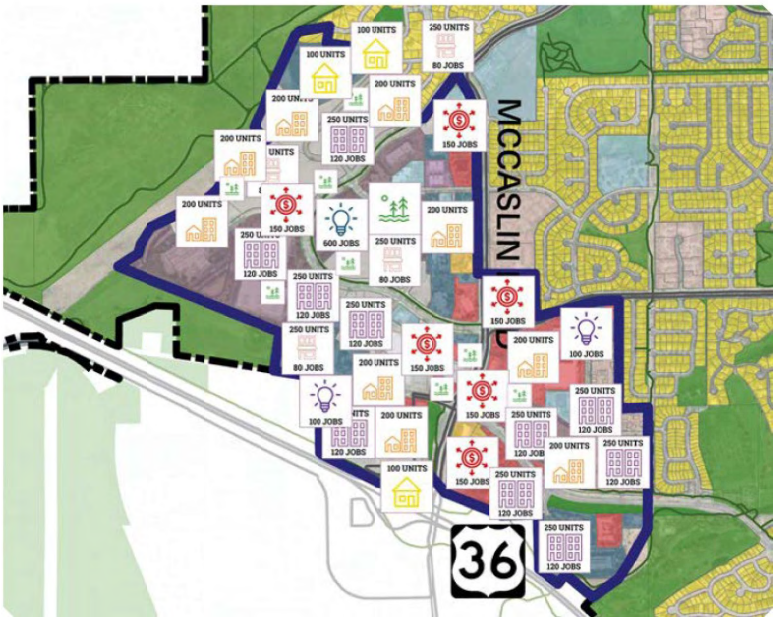
Engagement Summary Page 31

Community Feedback:

- Vibrant, mixed-use spaces with connectivity.
- Mid-density on Centennial, high-density on Hwy 36.
- Safe, accessible streets and pathways.

Future Land Use Approach:

- Mid-density residential on Centennial (rezone from office).
- High-density on Hwy 36 4 stories; consider up to 5 stories in some locations
- Add parks and trail connections.



Opportunity Area 4: Redtail Ridge

Memo Page 5-6

Engagement Summary Page 32

Community Feedback:

- Balance jobs, housing, and open space.
- Integrated, self-sufficient development.
- Improve connectivity and reduce congestion.

Future Land Use Approach:

- Mid-/high-density housing (3-4 stories).
- Transit connections near hospital site.
- Mix housing with office and industrial uses.
- Add green spaces and trails.



Overall Key Findings

Land Use: Focus density in key areas; support diverse housing types.

Circulation: Improve transit, safety, and trails.

Economy: Promote jobs, retail, and events.

Parks & Open Space: Add spaces, preserve open areas.

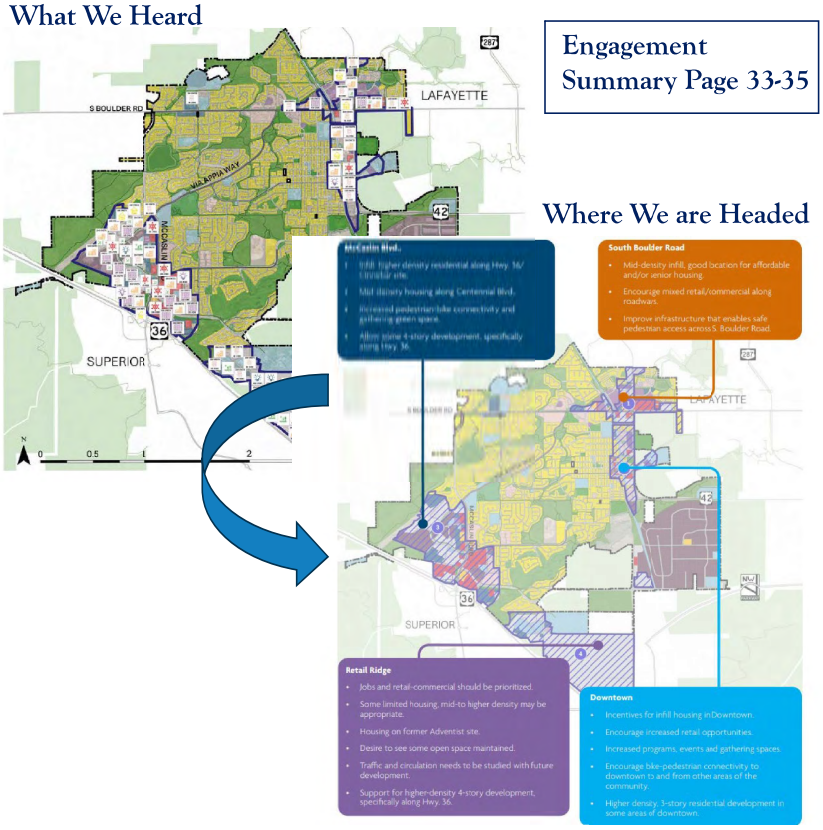
Sustainability: Encourage efficient, resilient development.

Equity: Support affordable, senior housing with transit.

What We Heard

Engagement Summary Page 33-35

Where We are Headed



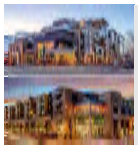
Future Land Use Classifications (Placetypes)

Memo Page 7

Engagement Summary Page 13-16



Low Density Residential
- Only Detached Single Family Residential
- 1-10 DU/AC
- Up to 2-2.5 stories



Mixed Use/High Density Residential
- Residential with some ground floor retail or office
- 30-40 DU/AC
- 4 stories, up to 5 in some locations



Office
- Mostly offices
- 3-4 stories



Mid Density Residential
- Only residential with some attached units (e.g., townhomes)
- 10-20 DU/AC
- Up to 3 stories



Commercial
- Mostly retail, office
- 3-4 stories



Park
- Public parks or other community gathering places



Mid Density Residential Mixed Use
- Residential with mostly attached units (e.g., multifamily); some retail or office allowed
- 20-30 DU/AC
- Up to 3 stories



Industrial Mixed Use
- Light industrial with some limited retail or office
- 3-4 stories



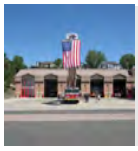
Open Space
- Open Space areas as defined in the City Charter



Mixed Use Retail
- Mix of retail with some residential or office
- 3-4 stories



Industrial Office/Research & Development
- Light industrial with office, research, or labs
- 3-4 stories



Public/Institutional
- Government facilities and other institutional uses

Planning Commission Comment Summary

South Boulder Road

- Agree with opportunity for housing.
- Transportation and Connectivity.
- Connection to Downtown.

Downtown

- Consider sub-districts for building heights. 1-2 Downtown, maybe 3 in DELO.
- This is the areas to preserve character.

McCaslin Blvd.

- Think of this area as a neighborhood, with mixed use and housing.
- Ensure connectivity for bikes and pedestrians.
- Be sensitive to existing neighborhoods, transition development density away from Hwy. 36.

Redtail Ridge

- Think of this area as a self-sustaining extension of Louisville, with residential to support hospital and High School.
- Ensure open space connectivity.
- 'Right' balance of development, opportunity for affordable housing, live-work, jobs with appropriate neighborhood-context.

Discussion

Do you agree with the approach for the Plan's Future Land Use Map (FLUM)? When evaluating the FLUM, consider the following:



Q2. FLUM. Based on community feedback, what should be carried forward to a preferred FLUM? What should not be considered?

Q3. Classifications. Are these the right future land use categories?

Q4. Decision making. How should the FLUM be used to influence future zoning decisions? What flexibility should exist to allow for changing conditions?

Next Steps



Comprehensive Plan Timeline

Memo Page 8

Deliverable	January	February	March	April	May	June	July
50% Draft Document (MS Word)		Staff Review					
FLUM and Placetypes		Staff Worksession					
Goals and Strategies			Roadshow PC and Council Review	Roadshow PC and Council Review			
80% Draft (Formatted PDF)					Staff Review		
95% Draft (Formatted PDF)						Public Comment PC and Council Review	
Final Adoption							PC Council

City Staff Review Timeframe

Consultant Production Timeframe

Document Table of Contents

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Cover

Letter from the Mayor or City Manager (2-page spread)

Acknowledgements (2-page spread)

Table of Contents (2-page spread)

Chapter 1: Introduction (Approx. 6 Pages)

Chapter 2: Current Understanding (Approx. 10 Pages)

Chapter 3: Vision and Values (Approx. 6 Pages)

Chapter 4: Plan Elements (Approx. 25 Pages)

Chapter 5: Future Land Use (Approx. 14 Pages)

Chapter 6: Next Steps (Approx. 4 Pages)

Glossary and List of Acronyms (Approx. 3 Pages)

Appendix

Discussion



Q5. Plan Outline. Do you have any comments about the Plan's proposed table of contents (see Attachment 1) .

Thank you for coming!



Keep in Touch!

EngageLouisvilleCO.org/comp-plan

Discussion Questions

Q4. Plan Elements.

- How much housing is right for the future of Louisville?
- How and where should there be a focus on economic vibrancy?
- How can housing and mixed-use housing be used to strategically influence economic vibrancy?
- What needs to be considered from an equity, sustainability and resilience perspective in these plans?
- What are critical infrastructure aspects including transportation, utilities and services?

SUBJECT: **ORDINANCE NO. 1876, SERIES 2024 – AN ORDINANCE AMENDING LOUISVILLE MUNICIPAL CODE SECTION 15.18.030 CONCERNING THE 2021 INTERNATIONAL ENERGY CONSERVATION CODE – 2nd READING, PUBLIC HEARING (advertised *Daily Camera* 12/22/2024)**

DATE: **JANUARY 21, 2025**

PRESENTED BY: **ROB ZUCCARO, AICP, COMMUNITY DEVELOPMENT DIRECTOR**
CHAD ROOT, CHIEF BUILDING OFFICIAL

SUMMARY:
Staff is presenting an ordinance amending Louisville Municipal Code Section 15.18.030 for the purpose of modifying the adopted amendments to the 2021 International Energy Conservation Code (IECC) (Attachment No. 1). Following first reading on December 17, 2024, staff has added a new definition of *Residential Development* to the proposed ordinance. This does not change the intent of the code draft presented for first reading and only provides further clarification in the code that R-2 occupancies (e.g. apartments) are subject to Appendix PT- Modeling to a Performance Target.

> *Residential Building: For this code, includes detached one- and two-family dwellings and multiple single-family dwellings (townhouses) R-3 and R-4 buildings three stories or less in height above grade plane.*

Council reviewed the previously adopted strengthening amendments to the 2021 IECC at their September 17, 2024 meeting in order to provide staff direction on how to proceed with the current proposal. The focus of the review was on the three primary strengthening amendments, which include:

- Amendment 1: Adoption of IECC Appendix RC – Zero Energy Residential Building Provisions, which established a residential net-zero energy use building standard.
- Amendment 2: Adoption of mandatory all-electric heat pump systems for space and water heating for commercial development.
- Amendment 3: Adoption of custom Appendix PT – Modeling to a Performance Target, which established minimum Energy Use Index (EUI) building performance standards for certain types of commercial development.

LINK: September 17, 2024 Council Communication

Council directed staff to bring back an ordinance that deletes the requirement to meet IECC Appendix RC – Zero Energy Residential Building Provisions (Amendment 1) and maintain the requirement for mandatory all-electric heat pump systems for space and

water heating for commercial development (Amendment 2) and Appendix PT – Modeling to a Performance Target (Amendments 3).

Council also directed staff to bring back a series of amendments that staff previously developed based on feedback from the public, design professionals, and developers. The proposed amendments are intended to address feasibility issues and concerns that were raised with the previously adopted amendments to the code. These amendments include:

- Specifying commercial all-electric heat pump space and water heating requirement only applies to all new construction and removing any standards for additions and alternations to existing commercial buildings.
- Allowing gas backup space heating equipment for the commercial all-electric space heating standards.
- Removing post-construction documentation, one-year compliance check, monitoring and metering requirements for new commercial construction subject to Appendix PT, Energy Use Intensity (EUI) modeling standards.
- Clarifying the EUI standards applicable to small office development between 0-5,000 sq. ft.
- Amending the commercial door U-value to match market availability of commercial type doors.
- Correcting missing commercial R-values for insulation of metal buildings and for piping and ducting.
- Adding minimum heat pump standards for both commercial and residential development to ensure that they are climate appropriate.
- Updating furnace efficiency standards to match product availability.
- Allowing a Home Energy Rating System (HERS) rating of 50 in lieu of meeting the prescriptive code for residential development.
- Removing the requirement to install electric vehicle charging infrastructure for commercial development when parking spaces are added or reconfigured if not part of a new building or building addition.

The Building Code Board of Appeal (BCBOA) reviewed an earlier draft of the ordinance amendments and provided a recommendation to City Council that would effectively eliminate Amendments 1, 2, and 3. The BCBOA alternative recommended draft is included as Attachment No. 2 and meeting minutes are included as Attachment Nos. 3 and 4. The BCBOA recommendations were also provided to City Council at the September 17, 2024 discussion and direction.

The Louisville Sustainability Advisory Board (LSAB) has provided an updated memorandum with their recommendations to City Council as Attachment No. 5. Included in the recommendations is to maintain Amendments 1 and 2. The letter is silent on Amendment 3.

BACKGROUND:

Ordinance 1816, Series 2021 – Adoption of 2021 IECC, EV Charging, and Residential Net Zero Code

On October 29, 2021, the City Council adopted the 2021 IECC with amendments, including the adoption of Appendix RC that provides net-zero development standards for new residential development. The 2021 IECC includes minimum energy efficiency standards above that found in the International Residential Code (IRC) and International Building Code (IBC). The ordinance also included electric vehicle (EV) charging standards for all new developments. Ordinance No. 1816, Series 2021 and the minutes from the adoption hearing are included as Attachment Nos. 6 and 7.

Council Discussion/Direction on Commercial Net Zero Code Options

The 2022 City Council workplan included consideration of a Commercial net zero code or other commercial code to strengthen the provision of the 2021 IECC. The City hired Group 14 Engineering and Lotus Engineering and Sustainability to conduct a study and gather community input on policy options. The final report was presented to City Council at their September 27, 2022 meeting for discussion and direction (see Attachment No. 8 for final report and Attachment No. 9 for meeting minutes). The final Group 14/Lotus report included three options:

- Align with the Regional Cohort, which was supporting a regional adoption of the 2021 IECC with strengthening amendments.
- Policy Option 1: Set a minimum Energy Use Index (EUI) modeling standards for commercial buildings, that could include incentives for building electrification. New construction would more easily meet EUI standards with electric or electric ready infrastructure included. *This was the consultant and staff's recommended option, as it resulted in the promotion of high efficiency building construction, but did not mandate all-electric construction due to feasibility and cost concerns.*
- Policy Option 2: Adoption of the 2021 IECC commercial net zero appendix. This option was not recommended by the consultant and staff because it did not require increased building efficiency above the 2021 IECC base code and only relies on renewable energy offsets to achieve net zero. An all-electric option was also considered as a subset of this policy option.

Council directed staff to draft a commercial code with minimum EUI standards and mandatory all-electric space and water heating standards.

Ordinance 1845, Series 2022 – Adoption of Commercial EUI and All Electric Space and Water Heating

This ordinance implemented Council's direction and included the adoption of minimum commercial EUI standards and requirements for electric heat pump space heating and domestic water heating, with exemptions for commercial kitchens and a broad range of commercial, industrial and institutional processes. The EUI standards included requirements for submetering and a one-year compliance check after occupancy of the

building. Ordinance 1845, Series 2022 and the minutes from the adoption hearing are included as Attachment Nos. 10 and 11.

Stakeholder Feedback Following Commercia Code Adoption
Following the adoption of Ordinance 1845, Series 2022, City Council asked staff to conduct outreach on the adopted codes after hearing concerns over the feasibility and stringency of some of the code standards. In August of 2023 City staff and a City consultant with Shums Coda Associates held a public open house to gather feedback on the adopted codes. Staff received feedback from residents, business owners, landowners, developers and their design consultants on specific issues of concern. The feedback received at the open house is the basis for several of the proposed updates to the code.

State Energy Code Requirements
On June 6, 2022, the Governor signed into law HB22-1362, Building Greenhouse Gas Emissions. HB22-1362 requires municipalities that adopt new building codes after July 1, 2023 to adopt the 2021 IECC and the State's Model Electric Ready and Solar Ready Codes, or codes with equal or better energy performance.

HB22-1362:
https://leg.colorado.gov/bills/hb22-1362

State Model Electric Ready and Solar Ready Codes:
https://energyoffice.colorado.gov/buildings/building-energy-codes/energy-code-board

With the adoption of the proposed code amendments, the City must verify continued compliance with the minimum energy performance standards required by HB22-1362. The City's Building Official has reviewed the recommended code update to verify compliance with the minimum 2021 IECC and State Model Electric Ready and Solar Ready Code standards.

ANALYSIS:
Electric Heat Pump Appliance Cost and Availability
While technology is generally available to meet the adopted heat pump standards, the feedback received from designers and contractors is that the equipment is often difficult to obtain and substantially more expensive. The additional costs and delays in obtaining compliant equipment could negatively impact business attraction and expansion opportunities for the City. The proposal includes some amendments to widen the types of electric heat pump space heating equipment that can be used, specifically allowing natural gas back up to electric heat pump units. The proposal also specifies that all electric heat pump space and water heating is only required for all-new construction and is not mandated for building additions or modifications of any kind.

EUI Targets

While EUI standards do not require all-electric infrastructure, in some instances it may be difficult to meet the EUI targets without including all-electric appliances since they rate better on energy use in the modeling. The EUI targets also incentivize the use of renewable energy, such as on-site solar, to meet the standards. Adoption of EUI targets was the primary recommendation by Group 14/Lotus Engineering's 2022 report to City Council due to the flexibility of the performance-based approach and the built-in incentives for electric infrastructure and on-site renewable production. The amendments proposed to Appendix PT are to remove post-construction documentation, the one-year compliance check, and monitoring and metering requirements. The intent of the amendments is to continue to require a more energy efficient building design but remove some the burdensome post-construction compliance requirements.

Local All-Electric Codes

Two notable local jurisdictions, Boulder and Lafayette, have also adopted all-electric construction standards. Both jurisdictions have adopted both residential and commercial standards. The following are links to those codes for reference.

Lafayette Code Links:
Building Code Update | Lafayette Listens
2023-Lafayette-Colorado-Building-Code-Final

Boulder Code Link:
Energy Conservation Code | City of Boulder

Regional Building Code Cohort

City staff have been engaged with a regional building code "cohort" of 15 jurisdictions that are working on an adoption package with amendments for the 2024 IECC and a roadmap for future code adoptions with increasing strengthening provisions over time. The adoption package for the 2024 IECC is expected to be finalized in early 2025. The amendments are designed to avoid federal preemption issues on regulating gas-fired appliances while still strengthening the base 2024 IECC provisions. The cohort is also now working with the Denver Regional Council of Governments (DRCOG) to promote adoption of the 2024 IECC code package across the 58 DRCOG member communities. Through DRCOG there are grants to support adoption, enforcement and implementation of the 2024 IECC, totaling $35M for the DRCOG region.

2024 IECC Adoption

The City will be considering adoption of the 2024 I-Code series in 2025. This series of codes includes an updated 2024 IECC. As a base code, the 2024 IECC does not include all-electric building standards or EUI modeling standards included in Appendix PT – Modeling to a Performance Target. However, the code does represent the most up-to-date version of the energy conservation code that has been vetted nationally to

ensure legal compliance with all federal regulations and for feasibility with current industry practices.

PUBLIC COMMENTS:
Public comments are included as Attachment No. 12.

FISCAL IMPACT:
No fiscal impact is anticipated from the changes to the code.

STAFF RECOMMENDATION:
Staff recommends consideration of the following options:

- Approval of Ordinance 1876, Series 2024 as drafted with no further action. This would maintain the 2021 IECC for the near term, and the staff would proceed with a proposal for adoption of the other 2024 I-Codes later in 2025 without adoption of the 2024 IECC.
- Approval of Ordinance 1876, Series 2024 as drafted and direct staff to align with the regional cohort to consider adoption of the 2024 IECC later in 2025 with the cohort suite of amendments. This path would likely not include commercial all-electric heat pump requirements and EUI targets but would include other strengthening amendments to the base 2024 IECC code.
- Approval of Ordinance 1876, Series 2024 as drafted and direct staff to bring back a proposal for adoption of the 2024 IECC later in 2025 with Louisville-specific amendments. Council could further consider whether to maintain commercial all-electric heat pump requirements and EUI targets as part of the development of the Louisville-specific amendments.

ATTACHMENTS:

1. Ordinance No. 1876, Series 2024
2. BCBOA Recommended Code Draft
3. May 2, 2024 BCBOA Meeting Minutes
4. May 16, 2024 BCBOA Meeting Minutes
5. Louisville Sustainability Advisory Board Memo
6. Ordinance 1816, Series 2021
7. October 19, 2021 City Council Minutes
8. Group 14/Lotus Energy Code Update Recommendation Report
9. September 27, 2022 City Council Minutes
10. Ordinance 1845, Series 2022
11. December 20, 2022 City Council Minutes
12. Public Comments
13. Staff Presentation
14. Questions from City Council

STRATEGIC PLAN IMPACT:

☐	**Financial Stewardship & Asset Management**	☐	**Reliable Core Services**
☒	**Vibrant Economic Climate**	☐	**Quality Programs & Amenities**
☒	**Engaged Community**	☐	**Healthy Workforce**
☐	**Supportive Technology**	☐	**Collaborative Regional Partner**

ORDINANCE NO. 1876, SERIES 2024

AN ORDINANCE AMENDING CHAPTER 15.18.030 OF THE LOUISVILLE MUNICIPAL CODE CONCERNING THE 2021 INTERNATIONAL ENERGY CONSERVATION CODE

WHEREAS, the City Council has adopted from time-to-time certain building and construction standards; and

WHEREAS, it is deemed to be in the interest of the public health, safety and general welfare to adopt by reference thereto the 2021 edition of the International Energy Conservation Code with amendments and additions to such code; and

WHEREAS, the City Council adopted Ordinance No. 1816, Series 2021 and Ordinance No. 1845, Series 2022, provisions for electric space and water heating provisions for commercial development, and Appendix PT setting standards for energy ratings for certain commercial development; and

WHEREAS, following additional research and public input on the provisions adopted in Ordinance No. 1816, Series 2021 and Ordinance No. 1845, Series 2022, the City desires to make certain amendments to such codes to ensure the feasibility of implementation of the codes; and

WHEREAS, the City of Louisville remains committed to its adopted goals to reduce energy consumption, increase clean energy sources, and support the transition to a low-carbon community as outlined in the Sustainability Action Plan and Resolution 25, Series 2019, A Resolution Setting Clean Energy and Carbon Reduction Goals; and

WHEREAS, reducing building energy consumption is an effective strategy to reduce community-wide energy consumption and increase long-term cost savings for businesses; and

WHEREAS, the City Council is committed to environmental, economic and social sustainability, ensuring the International Energy Conservation Code is attainable for current and future business owners and tenants, supporting affordable housing and local businesses development; and

WHEREAS, the City Council, after proper notice as required by law, has held a public hearing on this ordinance providing for amendments to said codes.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF LOUISVILLE, COLORADO:

Section 1. Section 15.18.020 of the Louisville Municipal Code, concerning adoption of appendices to the 2021 International Energy Conservation Code, is hereby amended as follows (deleted text in ~~strikethrough~~ and new text underlined):

The following appendices of the 2021 International Energy Conservation Code are hereby specifically adopted; any appendices not listed are not adopted: ~~Appendix RC, Zero Energy Residential Building Provisions,~~ Appendix CB, Solar Ready Zone - Commercial (as amended herein) and Appendix RB, Solar Ready Provisions - Detached One and Two-Family Dwellings and Townhouses. ~~Group R2, R3, and R4, three stories or less shall comply with Appendix RB. A building permit applicant may request not to comply with Appendix RC, Zero Energy Residential Building Provisions, for major structural repair or rebuilding of a residential property that sustained fire damage from the Marshall Fire, which request shall be approved by the chief building official upon finding the criteria in section 15.18.010.B.1—3 are all met and the applicant certifies that a financial hardship prevents completion of the work to be performed in accordance with Appendix RC of the 2021 IECC due to inadequate insurance coverage.~~

Section 2. Section 15.18.030 of the Louisville Municipal Code, concerning amendments and deletions to the 2021 International Energy Conservation Code, is hereby amended and renumbered as follows (deleted text in ~~strikethrough~~ and new text underlined):

1. *Section C101.1 Title*, is amended to insert "the City of Louisville" so the section will read:

   C101.1 Title. These regulations shall be known as the Energy Conservation Code of the City of Louisville, and shall be cited as such. It is referred to herein as "this code."

2. *Section C103.2 Information on construction documents*, is hereby amended to read as follows:

   C103.2 Information on construction documents. Construction documents shall be drawn to scale upon suitable material. Electronic media documents are permitted to be submitted when *approved* by the *code official*. Construction documents shall be of sufficient clarity to indicate the location, nature and extent of the work proposed, and show in sufficient detail pertinent data and features of the building, systems and equipment herein governed. Details shall include the following as applicable:

1. Energy compliance path.
2. Insulation materials and their *R*-values
3. Fenestration *U*-factor and solar heat gain coefficients (SHGCs).
4. Area-weighted *U*-factor and solar heat gain coefficient (SHGC) calculations.
5. Mechanical system design criteria.
6. Mechanical and service water heating systems and equipment types, sizes, fuel source and efficiencies.
7. Economizer description.
8. Equipment and system controls.
9. Fan motor horsepower (hp) and controls.
10. Duct sealing, duct and pipe insulation and location.
11. Lighting fixture schedule with wattage and control narrative.
12. Location and *daylight* zones on floor plans.
13. Air barrier and air sealing details, including the location of the air barrier.
14. Details of additional electric infrastructure, including branch circuits, conduit, or pre-wiring, and panel capacity in compliance with the provisions of this code.
15. Location of pathways for routing of raceways or cable from the solar ready zone to the electrical service panel.

3. *Section C202 General Definitions*, is hereby amended by adding or replacing, in alphabetical order, the following definitions:

All-Electric Building: A building that contains no combustion equipment~~,~~ and no piping or plumbing for combustion equipment~~,~~ installed within the building or building site, except that for existing buildings that contain piping and plumbing for combustion equipment, the piping and plumbing may remain but must be abandoned and capped. An All-Electric building may have a fuel fired back up generator.

Combustion Equipment: Any equipment or appliance used for space heating, service water heating, cooking, clothes drying, and/or lighting that uses fuel gas or fuel oil.

~~*Electric Vehicle (EV):* A vehicle registered for on-road use, primarily powered by an electric motor that draws current from a rechargeable storage source that is charged by being plugged into an electrical current source.~~

~~*Electric Vehicle Supply Equipment (EVSE):* The electrical conductors and associated equipment external to the electric vehicle that provide a connection between the premises wiring and the electric vehicle to provide electric vehicle charging.~~

~~*Electric Vehicle Capable Space:* A designated parking space that is provided with conduit sized and rated for a minimum 40-amp, 208/240-Volt dedicated branch circuit and shall be no less than 1" in size. Conduit must be continuous from the future or existing electrical panelboard or switchboard location(s) and end at a junction box or receptacle located within close proximity of the parking space. The electrical panel serving the parking space shall have sufficient capacity and physical space for a dual-pole, 40-amp breaker. The conduit shall be sealed at the junction or outlet box that is capped off, with the conduit sealed and the cap labeled as "For future electric vehicle charging".~~

~~*Electric Vehicle Ready Space:* A designated parking space that is provided with a dedicated branch circuit with wiring capable of supporting a minimum 40-ampere, 208/240- Volt circuit that terminates at a receptacle, plug, junction box, or an installed electric vehicle supply equipment within close proximity of the parking space. There shall be adequate reserved space in an electrical panelboard or switchboard to meet the electric vehicle requirements.~~

~~*Electric Vehicle Supply Equipment (EVSE) Installed Space:* A designated parking space with dedicated electric vehicle supply equipment capable of supplying a minimum 40-amp, dedicated circuit rated at 208/240 Volt from a building electrical panelboard.~~

Emergency Power System: A source of automatic electric power of a required capacity and duration to operate required life safety, fire alarm, detection, and ventilation systems in the event of a failure of the primary power. Emergency power systems are those required for electrical loads where interruption of the primary power could result in loss of human life or serious injuries.

Energy Use Intensity (EUI): The annual building site energy use per square foot of gross floor area in units of kBTU/sq ft.

Mixed-fuel Building. A building that contains combustion equipment, or plumbing or piping for combustion equipment.

Residential Building: For this code, includes detached one- and two-family dwellings and multiple single-family dwellings (townhouses) R-3 and R-4 buildings three stories or less in height above grade plane.

Standby Power System: A source of automatic electric power of a required capacity and duration to operate required building, hazardous materials or ventilation systems in the event of a failure of the primary power. Standby power systems are those required for electrical loads where interruption of the primary power could create hazards or hamper rescue or fire-fighting operations.

Tenant Finish: The first tenant occupying a space(s) in a core and shell. Multiple tenants may be considered as a tenant finish until the entire space within the core and shell has had a tenant. Once a space within a core and shell has been occupied it becomes an existing building.

4. *C401.2.* Commercial buildings shall comply with ~~Section C401.2.1~~ one of the following, as applicable

   C401.2.1 Performance targets. New commercial building types included in the scope of Appendix PT shall comply with Appendix PT and Sections C403.2.4 and C404.10.

   C401.2.2 Core and shell. Core and shell buildings shall comply with the provisions of Section C402.1.3 through C402.5. When mechanical systems are installed, core and shell buildings shall also meet the provisions in C403.2.4, C404.10, and Section C408.

   C401.2.2.1 Core and shell buildings shall submit a letter of agreement to the City stating the tenant spaces included in the scope of Appendix PT shall meet the EUI target established in Table PT103 and shall include these requirements in their lease or purchase agreements.

   C401.2.3 Tenant finish. Tenant finishes included in the scope of Appendix PT shall comply with Appendix PT and C403.2.4 and C404.10. All other tenant finishes shall comply with the Prescriptive Compliance option, which requires compliance with Sections C401.3, C401.4, C402 through C406, and C408.

   C401.2.4 Other commercial building types. Commercial building types not included above, including additions, shall comply with the Prescriptive Compliance option, which requires compliance with Sections C401.3, C401.4, C402 through C406, and C408.

   Exception: ~~Additions, alterations,~~ Alterations, repairs, and changes of occupancy to existing buildings complying with Chapter 5.

5. *Section C401.2.1 International Energy Conservation Code*, is hereby deleted and replaced to read as follows:

   C401.2.1 International Energy Conservation Code

   Commercial buildings shall be built all-electric unless the fuel gas options of C403.3.2 and the additional electric infrastructure requirements of C405.14 are met. All buildings must comply with the following:

   City of Louisville's Prescriptive Compliance. The Prescriptive Compliance option requires compliance with Sections C401.3, C401.4, C402 through C406, and Section C408.

   Core and shell buildings shall be required to comply with the provisions of Section C402.1.3 through C402.5 of the 2021 International Energy Conservation Code.

6. *Section C401.2.2 ASHRAE 90.1*, is hereby deleted in its entirety.

7. A new *Section C401.4 Mandatory Requirements for Commercial Buildings*, is hereby added to read as follows:

   C401.4 Mandatory Requirements for Commercial Buildings. Commercial buildings must comply with Table C401.4.

Table C401.4 (Mandatory)
Requirements for Commercial Buildings

Title	IECC Section
Air leakage	C402.5
Calculation of heating and cooling loads	C403.1.1
Data centers	C403.1.2
System Design	C403.2
Heating and cooling equipment efficiency	C403.3
Heating and cooling system controls	C403.4, except C403.4.3, C403.4.4, C403.4.5
Economizer fault detection and diagnostics	C403.5.5
Ventilation and exhaust systems	C403.7, except C403.7.4.1
Fan and fan controls	C403.8, except C403.8.6

Large diameter ceiling fans	C403.9
Refrigeration equipment performance	C403.11, except C403.11.3
Construction of HVAC system elements	C403.12
Mechanical systems located outside of the building thermal envelope	C403.13
Service water heating	C404
Electrical power and lighting systems	C405, except C405.3
Maintenance information and system commissioning	C408

8. *Table C402.1.3 Opaque Thermal Envelope Insulation Component Minimum Requirements, R-Value Method*, is hereby deleted and replaced with the following:

Table C402.1.3 (Mandatory)
Opaque Thermal Envelope Insulation Component of an Average Minimum Requirements, *R*-Value Method in following locations:

Roof C402.2.3	
Insulation entirely above roof deck	R-49
Metal buildings[a]	R-21 + R-11 LS
Attic and other	R-49
Walls. Above grade C402.2.2	
Mass[d]	R-21
Metal buildings	R-21 + R-10ci
Metal framed	R-21+ R-10ci
Wood framed and other	R-21
Walls, Below grade C402.2.5	
Below-grade wall[b]	R-10
Floors C402.2.3	
Mass[c]	R-21
Joist/framing	R-38
Slab-on-grade floors C402.2.4	
Unheated	R-20 for 24" below
Heated[e]	R-15 for 36" below + R-5 full slab

For SI: 1 inch = 25.4 mm, 1 pound per square foot = 4.88 kg/m^2, 1 pound per cubic foot = 16 kg/m^3.
NR = No Requirement, LS = Liner System.

a.Where using *R*-value compliance method, a thermal spacer block shall be provided,
b.Where heated slabs are below grade, below-grade walls shall comply with the exterior insulation requirements for heated slabs.
c.“Mass floors” shall be in accordance with Section C402.2.3.

d.“Mass walls” shall be in accordance with Section C402.2.2.
e. The first value is for perimeter insulation and the second value is for full, under-slab insulation.

9. *Section C402.1.4 Assembly U-factor, C-factor or F-factor-based method,* is hereby deleted in its entirety.

10. *Section C402.1.5 Component performance alternative,* is hereby deleted in its entirety.

11. *Table C402.4 Building Envelope Fenestration Maximum U-Factor and SHGC Requirements,* is hereby deleted and replaced with the following:

Table C402.4
Building Envelope Fenestration

Vertical Fenestration	
Maximum U-Factor	0.45
Maximum SHGC	0.33
Maximum air leakage rate for all fenestration except curtain walls and storefront glazing	.20 cfm/ft2
Maximum air leakage rate for curtain walls and storefront glazing	.06 cfm/ft2
Skylights	
Maximum U-Factor	0.50
Maximum SHGC	0.40
Maximum Air leakage rate	.20 cfm/ft2

~~12. *Section C402.4.1 Maximum area*, is hereby deleted and replaced with the following:~~

~~C402.4.1 Minimum area of natural lighting. Not less than eight percent of the floor area shall be glazed.~~

~~13. *Section C402.4.2 Minimum skylight fenestration area*, is hereby deleted and replaced with the following:~~

~~**C402.4.2 Minimum area of natural lighting.** A minimum skylight area of three percent of the roof area shall be provided for all roofs.~~

~~Exception: Roof areas designated for solar ready zones shall not be included in roof area calculation.~~

12. **C403.2** *System design.* Mechanical systems shall be designed to comply with Sections C403.2.1 through ~~403.2.3~~ C403.2.4. Where elements of a building’s

mechanical systems are addressed in Sections C403 through C403.14, such elements shall comply with the applicable provisions of those sections.

13. *Section C403.2.4 Space heating equipment* is hereby added as follows:

C403.2.4 Space heating equipment. Fossil-fuel warm air furnaces appliances and electric resistance space heating equipment shall not be permitted for space heating <u>in new construction</u>.

Exceptions:

1. *Emergency backup.* Where it is required by an applicable law or regulation to provide space heating with an emergency power system or a standby power system.
2. *Certain make-up air systems.* Electric resistance in make-up air systems where energy recovery ventilation is prohibited by the International Mechanical Code.
3. *Supplementary heat.* Electric resistance <u>and natural gas/ propane</u> heat used for supplementary heat in accordance with Section C403.4.1.1
4. *Electric resistance budget.* In addition to any exceptions in this section, Up to 5 W of electric resistance space heating per square foot of conditioned floor area in the building, not including supplementary heat.
5. *Integrated units.* Electric resistance heating elements<u>, natural gas, propane supplemental heating</u> integrated into heat pump equipment.
6. *Heated plenums.* Electric resistance in heated plenums.
7. *Temporary systems.* Temporary electric resistance heating systems are permitted where serving future tenant spaces that are unfinished and unoccupied, provided that the heating equipment is sized and controlled to achieve interior space temperatures no higher than needed to prevent freezing.
8. *Freeze protection.* Electric resistance in heating systems intended for freeze protection.
9. *Outdoor systems.* Equipment used for outdoor heating.
10. *Specific conditions.* Portions of buildings that require fossil fuel or electric resistance space heating for specific conditions approved by the Building Official for research, health care, process or other specific needs that cannot practicably be served by heat pump or other space heating systems. This does not constitute a blanket exception for any occupancy type.
11. *Replacements.* Replacement fuel-fired appliances.
12. <u>*Backup heat.* For back up heat to operate when the heat pump cannot adequately heat the space/buildings due to extreme cold weather.</u>
13. <u>Where cfm/sq. ft. ventilation requirements result in conditions where the Building Official determines that space heating requirements cannot reasonably be met without combustion space heating systems.</u>

14. *Section C403.2.5 Heat pump temperature performance criteria*, is hereby added as follows:

    Air source heat pumps shall meet the low ambient temperature performance criteria in the most recent version of the ENERGY STAR cold climate heat pump designation, the highest tier of the Consortium for Energy Efficiency's northern air source heat Pump specifications (not including an advanced tier), or the Northeast Energy Efficiency Partnership's cold climate air source heat pump specification.

15. *Section C403.3.2 HVAC equipment performance requirements*, is hereby ~~deleted in its entirety and replaced~~ amended by adding the following at the beginning of the section with remainder of section to remain ~~to read as follows~~:

    C403.3.2 When HVAC fuel fired equipment is permitted to be installed, equipment shall meet the minimum efficiency requirements of Tables C403.3.2(1) through C403.3.2(16) when tested and rated in accordance with the applicable test procedure. Plate-type liquid-to-liquid heat exchangers shall meet the minimum requirements of AHRI 400. The efficiency shall be verified through certification under an approved certification program or, where a certification program does not exist, the equipment efficiency ratings shall be supported by data furnished by the manufacturer. Where multiple rating conditions or performance requirements are provided, the equipment shall satisfy all stated requirements. Where components, such as indoor or outdoor coils, from different manufacturers are used, calculations and supporting data shall be furnished by the designer that demonstrates that the combined efficiency of the specified components meets the requirements herein.

    ~~HVAC/fuel fired equipment performance requirements. Unless built all-electric, all new combustion equipment shall comply with the more efficient HVAC equipment performance of Sections C406.2, C406.2.3, and C406.2.4 and the additional electric infrastructure requirements in Section C405.14. A mechanical compliance certificate demonstrating compliance with section C406.2.3 and/or C406.2.4 shall be required for all HVAC, fuel fired and Service Water Heating equipment.~~

    ~~The efficiency shall be verified through certification under an approved certification program or, where a certification program does not exist, the equipment efficiency ratings shall be supported by data furnished by the manufacturer. Where multiple rating conditions or performance requirements are provided, the equipment shall satisfy all stated requirements. Where components, such as indoor or outdoor coils, from different manufacturers are used, calculations and supporting data shall be furnished by the designer that demonstrates that the combined efficiency of the specified components meets the requirements herein. (Tables C403.2.(1) through (16) are expressly retained and remain applicable to HVAC equipment performance.)~~

~~Exceptions:~~

~~1. Factory, laboratory, and high hazard occupancy combustion equipment, except for HVAC and domestic water heating.~~

~~2. Commercial Kitchens.~~

~~3. Other combustion equipment approved by the Building Official based on demonstration by the applicant that compliance with this section is not feasible and the equipment proposed is the most efficient appliance reasonably available.~~

16. *Section C403.4.1 Thermostatic controls*, is hereby deleted and replaced with the following:

C403.4.1 Thermostatic controls. The supply of heating and cooling energy to each *zone* shall be controlled by individual thermostatic controls capable of responding to temperature within the *zone*. Where humidification or dehumidification or both is provided, no fewer than one humidity control device shall be provided for each humidity control system. Occupancy sensors shall be provided on the thermostat to setback in accordance with C403.4.2.1

Exception: Independent perimeter systems that are designed to offset only building envelope heat losses, gains or both serving one or more perimeter *zones* also served by an interior system provided that both of the following conditions are met:

1. The perimeter system includes not fewer than one thermostatic control *zone* for each building exposure having exterior walls facing only one orientation (within ±45 degrees) (0.8 rad) for more than 50 contiguous feet (15 240 mm).
2. The perimeter system heating and cooling supply is controlled by thermostats located within the *zones* served by the system.

17. *Section C403.12.1 Duct and plenum insulation and sealing*, is hereby deleted and replaced with the following:

C403.12.1 Duct and plenum insulation and sealing. All supply and return air ducts and plenums shall be insulated with not less than R-12 <u>if located outside the thermal envelope</u>. Ducts, air handlers and filter boxes shall be sealed. Joints and seams shall comply with Section 603.9 of the International Mechanical Code.

18. *Section C403.12.3 Piping insulation*, is hereby amended to read as follows:

C403.12.3 Piping insulation. Piping serving as part of a heating or cooling system shall be thermally insulated to R-5.

19. *Section C404.4 Insulation of piping*, is hereby amended to read as follows:

C404.4 Insulation of piping. Piping from a water heater to the termination of the heated water fixture supply pipe shall be insulated to R-3. On both the inlet and outlet piping of a storage water heater or heated water storage tank, the piping to a heat trap or the first 8 feet (2438 mm) of piping, whichever is less, shall be insulated. Piping that is heat traced shall be insulated to R-3 or the heat trace manufacturer's instructions.

20. Section C404.10 Water heating equipment is added as follows:

C404.10 Water heating equipment. Fossil fuel and electric resistance instantaneous and storage water heaters shall not be used to provide hot water <u>in new construction.</u>

Exceptions:

1. *Emergency backup.* Where it is required by an applicable law or regulation to provide water heating with an emergency power system or a standby power system.
2. *Integrated units*. Resistance heating elements integrated into heat pump water heating equipment.
3. *Recirculation loops*. Electric resistance elements used for recirculation loop temperature maintenance.
4. *Small systems.* Electric storage water heaters with a rated water storage volume no greater than 20 gallons.
5. *Point-of-use systems.* Instantaneous electric water heaters located within 10 feet of the point of use.
6. *Renewable electricity*. Electric resistance equipment where not less than 100 percent of the annual service water-heating requirement is provided by an *on-site renewable energy system* not used to meet any other provision of this code.
7. *Renewable or waste thermal energy*. Electric resistance storage water heating equipment in *buildings* where not less than 75% of the annual service water heating requirement is met by a solar thermal system or other renewable thermal system.
8. *High-temperature requirements*. Water heating systems that serve end-uses or have a storage requirement that necessitates a water temperature of 141°F (55°C) or hotter.

9. *Electric resistance budget.* In addition to any exceptions in this section, a budget of 24 kW plus 0.1 watts per square foot of building area of electric resistance service water heating capacity per building.
10. *Commercial kitchens*. Electric booster-heaters serving commercial dishwashers, commercial food service equipment, and other approved process equipment that require supply water temperatures of 120°F (49°C) or higher.
11. *Replacements.* Replacement of gas-fired storage water heaters or instantaneous water heaters.

21. Section C405.2.1 Occupant sensor controls, is hereby amended to read as follows:

    C405.2.1 Occupant sensor controls. Occupant *sensor controls* shall be installed to control lighting.

22. *Section C405.2.2 Time-switch controls*, is hereby deleted in its entirety.

23. *Section C405.2.2.1 Time-switch control function*, is hereby deleted in its entirety.

24. *Section C405.2.3 Light-reduction controls*, is renumbered to C405.2.2.

25. *Section C405.2.3.1 Light-reduction function*, is renumbered to C405.2.2.1.

26. *Section C405.2.4 Daylight-responsive controls*, is renumbered to C405.2.3.

27. *Section C405.2.4.1 Daylight-responsive control function*, is renumbered to C405.2.3.1.

28. *Section C405.2.4.2 Sidelit daylight zone*, is renumbered to C405.2.3.2.

29. *Section C405.2.4.3 Toplit daylight zone,* is renumbered to C405.2.3.3.

30. *Section C405.2.4.4 Atriums,* is renumbered to C405.2.3.4.

31. *Section C405.2.5 Specific application controls,* is renumbered to C405.2.4.

32. *Section C405.2.6 Manual controls,* is renumbered to C405.2.5.

33. *Section C405.2.7 Exterior lighting controls,* is renumber to C405.2.6.

34. *Section C405.2.7.1 Daylight shut off,* is renumbered to C405.2.6.1.

35. *Section C405.2.7.2 Building façade and landscape lighting,* is renumbered to C405.2.6.2.

36. *Section C405.2.7.3 Lighting setback,* is renumbered to C405.2.6.3.

37. *Section C405.2.7.4 Exterior time-switch control function,* is renumbered to C405.2.6.4.

38. *Section C405.2.8 Parking garage lighting control*, is renumbered to C405.2.7.

39. *Section C405.4.3 Gas lighting, is hereby amended to read as follows:*

C405.4.3 Gas lighting. Gas-fired lighting appliances shall not be permitted.

40. A new *Section C405.13 Electric vehicle charging infrastructure for new construction and building addition of 256 or more of original square footage*, is hereby added to read as follows:

Section C405.13.1 Electric vehicle charging infrastructure for new construction and building addition of 25% or more of original square footage. Electric vehicle charging shall be provided and installed in accordance with this section, National Electrical Code (NFPA 70), and Section 17.20.170 of the Louisville Municipal Code. ~~When parking spaces are added or modified without an increase in building floor area, only the new parking spaces are subject to this requirement.~~ All *EVSE Installed*, *EV Ready* and *EV Capable* spaces are to be included in the calculation for the number of minimum vehicle spaces required, as provided by the applicable article of the Louisville Zoning Code.

Section C405.13.2 Identification. The circuit breakers or circuit breaker spaces reserved for the *EVSE Installed, EV Ready*, and *EV Capable* spaces shall be clearly identified in the panelboard directory. The conduit for electric vehicle capable spaces shall be clearly identified at both the panelboard and the termination point at the parking space~~.~~

41. A new *Section C405.14 Additional electric infrastructure*, is hereby added to read as follows:

Section C405.14 Additional electric infrastructure. All *combustion equipment* and end-uses shall be installed in accordance with this section.

C405.14.1 Electric infrastructure for dwelling and sleeping units. *Combustion equipment* and end-uses serving individual dwelling units or sleeping units shall comply with Section R404.5.

C405.14.2 Combustion equipment. *Combustion equipment* shall be provided with conduit that is continuous between a junction box located within 3 feet (914 mm) of the appliance or equipment and an electrical panel. The junction box, conduit and bus bar in the electrical panel shall be rated and sized to accommodate a branch circuit with sufficient capacity for an equivalent electric appliance, equipment or end use with an equivalent equipment capacity. The electrical junction box and electrical panel shall have labels stating, "For Future Electric Equipment".

Exception: Industrial and manufacturing uses are exempt from Section C405.14.

42. *Section C502.1.1 General,* is hereby amended to read as follows:

Additions to an existing building, building system or portion thereof shall conform to the provisions of Section C401.2.4 as those provisions relate to new construction without requiring the unaltered portion of the existing building or building system to comply with this code. Additions shall not create unsafe or hazardous condition or overload existing building systems. An addition shall be deemed to comply with this code if the addition alone complies or if the existing building and addition comply with this code as a single building.

43. *Section C503.1 General* Exception 3 is deleted in its entirety.

44. *Section C503.2 Building Envelope,* is amended with exception remaining to read as follows:

New building envelope assemblies that are part of the alteration shall comply with Sections C402.1 through C402.5. Existing ceilings, roofs, all wall types, or floors exposed during construction shall comply with Table C402.1.3.

45. *Section C505.1 General*, is hereby amended to read as follows:

C505.1 General. Where the use in a space changes from one use in Table C405.3.2(1) or C405.3.2(2) to another use in Table C405.3.2(1)

or C405.3.2(2), the installed lighting wattage shall comply with Section C405.3. Where the space undergoing a change in occupancy or use is in a building with a fenestration area that exceeds the limitations of Section C402.4.1, the space is exempt from Section C402.4.1 provided that there is not an increase in fenestration area.

Exception: Egress doors with fenestration are allowed to bring total fenestration percentages over the allowed maximum amount of vertical fenestration.

46. A new *Appendix PT, Modeling to a performance target*, is hereby added to read as follows.

APPENDIX PT
MODELING TO A PERFORMANCE TARGET

PT101 Scope. This section establishes criteria for demonstrating compliance with a performance target, and is required for new hotels (occupancy R-1), multifamily (occupancy R-2), offices, primary and secondary schools, and warehouses. All end use load components within and associated with the building and their building sites shall be modeled.

PT102 Mandatory requirements. The requirements in this section are mandatory requirements and shall be required in addition to the provisions of ASHRAE 90.1 Appendix G.

PT103 Performance target. Projects of the types listed in Table PT103 shall demonstrate that the proposed design reaches a fixed energy use intensity (EUI) less than or equal to the values in Table PT103, calculated utilizing the energy modeling procedures of Appendix G of ASHRAE 90.1. For *buildings* with multiple occupancy types, the modeled performance target shall be a weighted average of the floor area of each occupancy type.

Exception: Energy used for electric vehicle charging, data centers, and process loads shall be excluded from compliance modeling.

TABLE PT103
PERFORMANCE TARGETS

BUILDING TYPE	PERFORMANCE TARGET (kBTU/ft2)

Hotel (Occupancy R-1)	32
Multifamily (Occupancy R-2)	32
Office, small (≥ 0 - 5,000 ft2)	19
Office, medium (5,000 – 50,000 ft2)	23
Office, large (>50,000 ft2)	28
School, primary	34
School, secondary	31
Warehouse	11

PT104 Renewable Energy. On-site renewable energy generated by a system installed as part of this project that is used by the building shall be subtracted from the proposed design energy consumption prior to calculating the proposed building performance.

PT105 Performance documentation. Documentation to verify compliance with this section shall be provided to the code official.

PT105.1 Projected compliance report. Permit submittals shall include a report documenting the proposed design is projected to meet the EUI target. The compliance report shall include the following specific information beyond the information required in ASHRAE 90.1 Appendix G:

1. Address of the building.
2. An inspection checklist documenting the building component characteristics of the proposed design.
3. Name of individual completing the report.
4. Name and version of compliance software tool.
5. Documentation of the reduction in energy use associated with on-site energy.

PT105.2 Construction plan requirements. Construction plans shall depict all component characteristics of the proposed design utilized for the EUI in accordance with ASHRAE 90.1 Appendix G.

~~**PT105.3 Measured performance report.** Projects shall demonstrate compliance with this code by documenting that the building has achieved~~

the EUI performance calculated based on 12 months of metered energy use after occupancy.

PT105.3.1 Demonstration of operating energy use. Metered energy data demonstrating compliance with the EUI target shall be reported to the building official using Energy Star Portfolio Manager and adjusted for the percentage of floor area occupied. While at least 75 percent occupied, the building shall operate at or below its assigned energy use target established in Section PT103 for any recording period of 12 consecutive months that is completed within three years of the date of the Certificate of Occupancy. The owner shall notify the building official when this 12-month period has been successfully completed.

PT106 Energy metering and monitoring. All projects must install submetering or monitoring capabilities to support building energy performance analysis. The project must include capabilities to store and access a 24-month continuous data set on an ongoing basis.

PT106.1 End-use monitoring. Measurement devices shall be installed in new *buildings* to monitor the electric energy use of each of the following separately:

1. Total electric energy.
2. HVAC systems energy use.
3. Interior lighting.
4. Exterior lighting.
5. Receptacle circuits.
6. Data centers representing over 10 percent of total building load or 5 percent of building floor area.
7. Other process loads that represent 10 percent or more of total building energy use based on building energy use modeling.

PT106.2 Independent metering. The following items shall be independently metered. Individual meters used to comply with this section may not serve multiple *buildings*.

1. All fuel sources serving the building.
2. Energy production from on-site renewable energy systems.
3. Electric vehicle (EV) supply equipment.
4. Data centers representing over 10 percent of total building load or 5 percent of building floor area.
5. Other process loads that represent 10 percent or more of total building energy use based on building energy use modeling.
6. Individual tenant energy loads.

47. *Appendix Section CB103.1 General,* first sentence, is amended to read as follows, with the exceptions to remain:

CB103.1 General. A solar-ready zone shall be located on the roof of all new buildings that are subject to the commercial provisions of the IECC and that are oriented between 110 degrees and 270 degrees of true north or have low-slope roofs. Solar-ready zones shall comply with Sections CB103.2 through CB103.9.

48. *Section R101.1 Title,* is amended to insert "the City of Louisville" so the section will read:

R101.1 Title. These regulations shall be known as the Energy Conservation Code of the City of Louisville and shall be cited as such. It is referred to herein as "this code."

49. *Section R103.2 Information on construction documents,* is amended to read as follows:

R103.2 Information on construction documents. Construction documents shall be drawn to scale upon suitable material. Electronic media documented are permitted to be submitted when *approved* by the *code official*. Construction documents shall be of sufficient clarity to indicate the location, nature and extent of the work proposed, and show in sufficient detail pertinent data and features of the building, systems and equipment herein governed. Details shall include the following as applicable:

1. Energy compliance path.
2. Insulation materials and their *R*-values
3. Fenestration *U*-factor and solar heat gain coefficients (SHGCs).
4. Area-weighted *U*-factor and solar heat gain coefficient (SHGC) calculations.
5. Mechanical system design criteria.
6. Mechanical and service water heating systems and equipment types, sizes, fuel source and efficiencies.
7. Equipment and system controls.
8. Duct sealing, duct and pipe insulation and location.
9. Air sealing detail.
10. Location of pathways for routing of raceways or cable from the solar ready zone to the electrical service panel.

50. *Section R202 General Definitions*, is hereby amended by adding, in alphabetical order, the following definitions:

All-Electric Building: A building that contains no combustion equipment~~,~~ and no piping or plumbing for combustion equipment~~,~~ installed within the building or building site, except that for existing buildings that contain piping and plumbing for combustion equipment, the piping and plumbing may remain but must be abandoned and capped. An all-electric building may have a fuel fired back up generator.

Combustion Equipment: Any equipment or appliance used for space heating, service water heating, cooking, clothes drying and/or lighting that uses fuel gas or fuel oil.

~~*Electric Vehicle (EV):* A vehicle registered for on-road use, primarily powered by an electric motor that draws current from a rechargeable storage source that is charged by being plugged into an electrical current source.~~

~~*Electric Vehicle Supply Equipment (EVSE):* The electrical conductors and associated equipment external to the electric vehicle that provide a connection between the premises wiring and the electric vehicle to provide electric vehicle charging.~~

~~*Electric Vehicle Capable Space:* A designated parking space that is provided with conduit sized and rated for a minimum 40-amp, 208/240-Volt dedicated branch circuit and shall be no less than 1" in size. Conduit must be continuous from the future or existing electrical panel board or switchboard location(s) and end at a junction box or receptacle located within close proximity of the parking space. The electrical panel serving the parking space shall have sufficient capacity and physical space for a dual-pole, 40-amp breaker. The conduit shall be sealed at the junction or outlet box that is capped off, with the conduit sealed and the cap labeled as "For future electric vehicle charging".~~

~~*Electric Vehicle Ready Space:* A designated parking space that is provided with a dedicated branch circuit with wiring capable of supporting a minimum 40-ampere, 208/240- Volt circuit that terminates at a receptacle, plug, junction box, or an installed electric vehicle supply equipment within close proximity of the parking space. There shall be adequate reserved space in an electrical panel board or switchboard to meet the electric vehicle requirements~~.

Residential Building: For this code, includes detached one- and two-family dwellings and multiple single-family dwellings (townhouses) R-3 and R-4 buildings three stories or less in height above grade plane.

Mixed-fuel Building: A building that contains combustion equipment.

51. *Section R401.2 Application,* exceptions, are hereby amended as follows:

R401.2 Application. Residential buildings shall be built all-electric unless the fuel gas options of R403.7 and additional electric infrastructure requirements of R404.5 are met. All residential buildings shall comply with ~~the R401.2.1 City of Louisville's Prescriptive Compliance or~~ R406 Energy Rating Index with a maximum rating index of 50 or Home Energy Rating Index (HERS) of 50 before the installation of solar panels.

Exceptions:

1. New residential buildings certified through the Passive House Institute US, Inc. (PHIUS) program
2. Additions and remodels shall comply with R401.2.1 and Chapter 5
3. ~~Additions,~~ ~~a~~Alterations, repairs and changes of occupancy to existing buildings complying with Chapter 5.

52. *Section R401.2.1 Prescriptive Compliance Option,* is hereby deleted and replaced with the following:

R401.2.1 City of Louisville's Prescriptive Compliance. The City of Louisville's Prescriptive compliance requires compliance with Sections R401 through R404.

53. *Section R401.2.4 Tropical Climate Region*, is hereby deleted in its entirety.

54. *Section R401.2.5 Additional energy efficiency*, is amended as follows:

R401.2.5 Additional energy efficiency. Building shall comply with one of the additional efficiency options and shall be installed in according to Section R408.2.

55. A new *Section R401.4 Mandatory requirements for residential buildings*, is hereby added to read as follows:

R401.4 Mandatory requirements for residential buildings. Residential building must comply with the following sections from the 2021 International Energy Conservation Code found in Table R401.4 and Section R401.2.

Table R401.~~3~~4
Mandatory requirements for residential buildings

Title	IECC Section
Vapor retarder	R402.1.1
Eave baffle	R402.2.3
Access hatches and doors	R402.2.4.1
Crawl space wall insulation	R402.4.1.2
Maximum fenestration U-factor and SHGC	R402.5
Mechanical controls	R403.1
Ducts	R403.3 except R403.3.2, R403.3.3, and R403.6
Mechanical system piping insulation	R403.4
Heated water circulation and temperature maintenance systems	R403.5.1
Drain water heat recovery units	R403.5.3
Mechanical ventilation	R403.6 including E403.6.1
Equipment sizing and efficiency rating	R403.7
Systems serving multiple dwelling units	R403.8
Snow melt and ice systems	R403.9
Energy consumption of pools and spas	R403.10
Portable spas	R403.11
Residential pools and permanent residential spas	R403.12
Lighting equipment	R404.1
Interior lighting controls	R404.2

56. *Section R402.1 General*, is hereby amended to read as follows:

R402.1 General. The building thermal envelope shall comply with the requirements of Section R402.1.1 and R402.1.2.

57. *Section R402.1.2 Insulation and fenestration criteria*, is hereby deleted and replaced with the following*:*

R402.1.2 Insulation and fenestration criteria. New and replacement ~~A~~assemblies shall have an ~~average~~ R-value of insulation materials per component equal to or greater than that specified in Table R402.1.2 unless an alternative path is specified while using HERS energy rating index of 50.

Table R402.1.2
Average Insulation and Fenestration Requirements by Component

Roof	R-60
Above grade walls	~~R-21~~ R-30 or R-20 & R-5 ci

Below grade walls	R-21
Floors	R-38
Non heated slab on grade	R-10 for 4ft
Heated slab on grade	R-15 for 4 ft + R-5 under full slab
Fenestration U-Factor	.30
Fenestration SHGC	.33
Skylight U-Factor	.50
Skylight SHGC	.40
Hot Water Pipes	R-3
Warm Air Ducts	R-8

58. *Section R402.1.5 Total UA alternative,* is hereby deleted in its entirety.

59. *Section R402.3.3 Glazed fenestration exemption*, is hereby amended to read as follows:

R402.3.3 Glazed fenestration exemption. Not greater than 15 square feet (1.4 m^2) of glazed fenestration per dwelling unit shall be exempt from the U-factor and SHGC requirements in Section R402.1.2.

60. *Section R402.4.1.2 Testing*, is hereby deleted and replaced to read as follows:

Section R402.4.1.2 Testing. All new buildings or dwelling units that are heated or cooled, and additions over 500 square feet shall be tested for air leakage.

61. *Section R402.5 Maximum fenestration U-factor and SHGC*, is hereby deleted and replaced with the following*:*

Section R402.5 Maximum fenestration U-factor and SHGC. The maximum U-factor and solar heat gain coefficient (SHGC) for fenestration shall not be required in storm shelters complying with ICC 500.

62. *Section R403.3.1 Ducts located outside conditioned space*, is hereby deleted and replaced with the following*:*

R403.3.1 Ducts located outside conditioned space. All supply and return ducts shall be insulated to a minimum R-8 if located outside a conditioned space.

63. *Section R403.5 Service hot water systems*, is hereby amended to read as follows:

R403.5 Service hot water systems. Energy conservation measures for service hot water systems shall be in accordance with Sections R403.5.1 through ~~R403.5.3~~R403.5.4.

64. *Section R403.5.4 Water heating equipment location,* is added as follows:

R403.5.4 Water heating equipment location. Water heaters with *combustion equipment* shall be located in a space with the following characteristics:

1. Minimum dimensions of 3 feet by 3 feet by 7 feet high.
2. Minimum volume of 760 cubic feet, or the equivalent of one 16-inch by 24-inch grill to a heated space and one 8-inch duct of no more than 10 feet in length for cool exhaust air.
3. Contains a condensate drain that is no more than 2 inches higher than the base of the installed water heater and allows natural draining without pump assistance, installed within 3 feet of the water heater.

Exceptions:

1. Water heaters with an input capacity of greater than 300,000 Btu/h that serves multiple *dwelling units* or *sleeping units.*

65. *Section R403.5.2 Hot water pipe insulation*, is hereby deleted and replaced with the following*:*

R403.5.2 Hot water pipe insulation. All service hot water piping shall be insulated to a minimum ~~R-5~~ R-3.

66. *Section R403.6.1 Heat and recovery ventilation*, is hereby deleted and replaced in its entirety and the following is hereby added in lieu thereof:

R403.5.2 Heat and recovery ventilation. All new buildings and additions over 500 square feet shall be provided with a heat recovery or energy recovery ventilation system. The system shall be balanced with a minimum sensible heat recovery efficiency of 65 percent at 32°F (0°C) at a flow greater than or equal to the design airflow.

67. *Section R403.7 Equipment sizing and efficiency rating*, is hereby deleted and replaced with the following*:*

R403.7 Equipment sizing and efficiency rating. All new buildings and additions greater than 500 square feet with heating and cooling equipment shall be sized in accordance with ACCA Manual S based on building loads calculated in accordance with ACCA Manual J or other approved heating and cooling calculation methodologies. In addition to complying with Sec. R404.6 Additional Electric Infrastructure, new and replacement electrical heating and cooling equipment shall have an efficiency rating equal to or greater than the minimum required by federal law for the geographic location where the equipment is installed. New gas heating equipment shall comply with the following efficiencies:

1. Gas furnaces shall have a minimum of 96% efficiency.
2. Gas boilers shall have a minimum of 90% AFUE.
3. On demand water heaters shall have greater than .92 uniform energy factor.

Exception: Solid fuel stoves/gas fireplaces, outdoor fire pits, gas stoves and ovens.

Air source heat pumps shall meet the low ambient temperature performance criteria in the most recent version of the ENERGY STAR cold climate heat pump designation, the highest tier of the Consortium for Energy Efficiency's northern air source heat Pump specifications (not including an advanced tier), or the Northeast Energy Efficiency Partnership's cold climate air source heat pump specification.

68. *Section R404.1.1 Fuel gas lighting equipment, is hereby amended to read as follows:*

R404.1.1 Fuel gas lighting equipment. Fuel gas lighting systems shall not be installed.

69. A new *Section R404.4 Electric vehicle charging infrastructure for new construction and building addition of 50% or more of original square footage*, is hereby added to read as follows:

Section R404.4 Electric vehicle charging infrastructure for new construction and building addition of 50% or more of original square footage. Electric infrastructure for the current and future charging of *electric vehicles* shall be installed in accordance with this section per Section 17.20.170 of the Louisville Municipal Code*. EV ready spaces and EV capable spaces* are permitted to be counted toward meeting minimum parking requirements.

R404.4.1 One- and two- family dwellings and townhouses. One- and two-family dwellings and townhouses with a dedicated attached or detached garage or on-site parking spaces shall be provided with electric vehicle charging in accordance with Section 17.20.170 of the Louisville Municipal Code.

R404.4.1.1 Minimum EV Ready infrastructure. Minimum EV Ready Space infrastructure shall require the following:

1. Installation of conductors:
    a. Conductors shall be installed of sufficient size to accommodate a minimum 240VAC 40Amp branch circuit to each parking space where required.
    b. Conductors shall terminate in either a receptacle, plug, junction or outlet box, or an *EVSE* installed in the parking space.
2. The electrical panel directory shall designate the branch circuit as “EV Ready” and the junction box or receptacle shall be labelled “EV Ready.”

R404.4.1.2 Construction documents. Construction documents shall graphically indicate and label all EV ready spaces and associated termination locations. For all Townhouses and one- and two-family dwellings with an electrical utility service of 200 Amps or greater, a panelboard schedule shall be provided indicating the EV Ready circuit breaker space(s) and the circuit designation(s).

R404.4.2 Group R occupancies. Group-R occupancies (~~R-2,~~ R-3, and R-4 buildings three stories and less) with three or more dwelling units and/or sleeping units shall be provided with electric vehicle charging in accordance with Section 17.20.170 of the Louisville Municipal Code.

Electric vehicle charging shall be provided and installed in accordance with this section and the National Electrical Code (NFPA 70). When parking spaces are added or modified without an increase in building floor area, only the new parking spaces are subject to this requirement.

70. A new *Section R404.5 Additional electric infrastructure*, is hereby added to read as follows:

R404.5 Additional electric infrastructure. *Combustion equipment* shall be installed in accordance with this section.

R404.5.1 Combustion equipment and end-uses. *Combustion equipment* shall be provided with a dedicated, appropriately phased circuit that shall have a minimum amperage requirement for a comparable electric appliance, equipment or end use, an electrical receptacle or junction box that is connected to the electric panel, and conductors of adequate capacity within 6 feet (1829 mm) of the appliance or equipment.

Each such circuit shall be accessible with no obstructions. A reserved circuit breaker space shall be installed in the electrical panel adjacent to the circuit breaker for the branch circuit and labeled for each circuit. Both ends of the unused conductor or conduit shall be labeled "For Future Electric Equipment" and be electrically isolated.

71. *Section R405 Total building performance*, is deleted in its entirety.

72. *Section R406.3 Building thermal envelope*, is hereby deleted in its entirety and replaced with the following:

R406.3 Building thermal envelope. ~~Building and portions thereof shall comply with Table R406.3.~~ The building thermal envelope shall be greater or equal to the standards in Table R406.3.

Exception: For remodels, the Building Official may grant an exception to the minimum standards of this table if demonstrated by the applicant that there are practical difficulties that cannot be reasonably overcome to meet the standards and that the highest standard possible is achieved.

Table R406.3
~~Average of the~~ Minimum Insulation and Maximum Fenestration Requirements by Component

Roof	R-60
Above grade walls	~~R-21~~ R-30 or R-20 &R-5 ci
Below grade walls	R-21
Floors	R-38
Non heated slab on grade	R-10 for 4ft
Heated slab on grade	R-15 for 4 ft + R-5 under full slab
Fenestration U-Factor	.30
Fenestration SHGC	.33
Skylight U-Factor	.50
Skylight SHGC	.40

Heated Water Pipes	R-3
Heated air Ducts	R-8

73. *Section R406.3.1 On-site renewables are not included,* is deleted in its entirety.

74. *Section R406.3.2 On-site renewables are included,* is deleted in its entirety.

75. *Section ~~406.3.2~~ R407 Tropical Climate Region Compliance Path,* is deleted in its entirety.

76. *Section R502.1.1 General,* is hereby amended to read as follows:

Additions to an existing building, building system or portion thereof shall conform to the provisions of R401.2.1 as those provisions relate to new construction without requiring the unaltered portion of the existing building or building system to comply with this code. Additions shall not create unsafe or hazardous conditions or overload existing building systems. An addition shall be deemed to comply with this code where the addition alone complies, where the existing building and addition comply with this code as a single building, or where the building with the addition does not use more energy than the existing building. Additions shall be in accordance with Section R502.2 or R502.3.

77. *Section R503.1.1 Building Envelope* is amended to read as follows:

Building envelope assemblies that are part of the alteration shall comply with Section R401.2.1

78. Section R503.1.1 Building Envelop Exception 2 is deleted in its entirety ad replaced with the following.

2. Existing ceiling, wall or floor cavities exposed during construction provided that these cavities remain filled with the original insulation, insulation that has been removed must be replaced with new insulation meeting current code.

79. *Section R505.1 General* is hereby amended to remove the exception.

80. *Section R505.1.1 Unconditioned space,* is hereby deleted and replaced with the following:

R505.1.1 Unconditioned space. Any unconditioned or low-energy space that is altered to become a conditioned space shall comply with Section R503.

Section 2. If any article, section, paragraph, sentence, clause, or phrase of this ordinance is held to be unconstitutional or invalid for any reason, such decision shall not affect the validity or constitutionality of the remaining portions of this ordinance. The City Council hereby declares that it would have passed this ordinance and each part or parts hereof irrespective of the fact that any one part or parts be declared unconstitutional or invalid.

Section 3. The repeal or modification of any provision of any prior ordinance by this ordinance shall not release, extinguish, alter, modify, or change in whole or in part any penalty, forfeiture or liability, either civil or criminal, which shall have been incurred under such provision, and each provision shall be treated and held as still remaining in force for the purpose of sustaining any judgment, decree, or order which can or may be rendered, entered, or made in such actions, suits, proceedings, or prosecutions.

Section 4. All other ordinances or portions thereof inconsistent or conflicting with this ordinance or any portion hereof are hereby repealed to the extent of such inconsistency or conflict.

INTRODUCED, READ, PASSED ON FIRST READING, AND ORDERED PUBLISHED this 17th day of December 2024.

_____
Christopher M. Leh, Mayor

ATTEST:

_____
Genny Kline, Interim City Clerk

APPROVED AS TO FORM:

_____
Kelly PC, City Attorney

DRAFT

PASSED AND ADOPTED ON SECOND AND FINAL READING, this _____ day of _____, 2024.

_____
Christopher M. Leh, Mayor

ATTEST:

_____
Genny Kline, Interim City Clerk

DRAFT

ORDINANCE NO. _____, SERIES 2024

AN ORDINANCE AMENDING CHAPTER 15.18.030 OF THE LOUISVILLE MUNICIPAL CODE CONCERNING THE 2021 INTERNATIONAL ENERGY CONSERVATION

WHEREAS, the City Council has adopted from time-to-time certain building and construction standards; and

WHEREAS, it is deemed to be in the interest of the public health, safety and general welfare to adopt by reference thereto the 2021 edition of the International Energy Conservation Code; and

WHEREAS, the City of Louisville remains committed to its adopted goals to reduce energy consumption, increase clean energy sources, and support the transition to a low-carbon community as outlined in the Sustainability Action Plan and Resolution 25, Series 2019, "A Resolution Setting Clean Energy and Carbon Reduction Goals"; and

WHEREAS, reducing building energy consumption is an effective strategy to reduce community-wide energy consumption and increase long-term cost savings for businesses; and

WHEREAS, the City Council is committed to environmental, economic and social sustainability, ensuring the International Energy Conservation Code is attainable for current and future business owners and tenants, supporting affordable housing and local businesses development.

WHEREAS, the City Council, after proper notice as required by law, has held a public hearing on this ordinance providing for the adoption of said codes; and

WHEREAS, the 2021 edition of the International Energy Conservation Code, with amendments, has been submitted to the City Council in writing and the City Council has determined that such codes should be adopted as herein set forth.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF LOUISVILLE, COLORADO:

Section 15.18.030 of the Louisville Municipal Code, concerning amendments and deletions to the 2021 International Energy Conservation Code, is hereby amended as follows (deleted text in ~~strikethrough~~ and new text <u>underlined</u>):

1. *Section C101.1 Title*, is amended to insert "the City of Louisville" so the section will read:

C101.1 Title. These regulations shall be known as the Energy Conservation Code of the City of Louisville, and shall be cited as such. It is referred to herein as "this code."

2. *Section C103.2 Information on construction documents*, is hereby amended to read as follows:

C103.2 Information on construction documents. Construction documents shall be drawn to scale upon suitable material. Electronic media documented are permitted to be submitted when *approved* by the *code official*. Construction documents shall be of sufficient clarity to indicate the location, nature and extent of the work proposed, and show in sufficient detail pertinent data and features of the building, systems and equipment herein governed. Details shall include the following as applicable:

1. Energy compliance path.
2. Insulation materials and their *R*-values
3. Fenestration *U*-factor and solar heat gain coefficients (SHGCs).
4. Area-weighted *U*-factor and solar heat gain coefficient (SHGC) calculations.
5. Mechanical system design criteria.
6. Mechanical and service water heating systems and equipment types, sizes, fuel source and efficiencies.
7. Economizer description.
8. Equipment and system controls.
9. Fan motor horsepower (hp) and controls.
10. Duct sealing, duct and pipe insulation and location.
11. Lighting fixture schedule with wattage and control narrative.
12. Location and *daylight* zones on floor plans.
13. Air barrier and air sealing details, including the location of the air barrier.
14. Location of pathways for routing of raceways or cable from the solar ready zone to the electrical service panel.

3. *Section C202 General Definitions*, is hereby amended by adding, in alphabetical order, the following definitions:

All-Electric Building: A building that contains no combustion equipment for primary heating~~, or piping or plumbing for combustion equipment, installed within the building or building site.~~

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Combustion Equipment: Any equipment or appliance used for space heating, service water heating, cooking, clothes drying and/or lighting that uses fuel gas or fuel oil.

~~*Electric Vehicle (EV):* A vehicle registered for on-road use, primarily powered by an electric motor that draws current from a rechargeable storage source that is charged by being plugged into an electrical current source.~~

~~*Electric Vehicle Supply Equipment (EVSE):* The electrical conductors and associated equipment external to the electric vehicle that provide a connection between the premises wiring and the electric vehicle to provide electric vehicle charging.~~

~~*Electric Vehicle Capable Space:* A designated parking space that is provided with conduit sized and rated for a minimum 40-amp, 208/240-Volt dedicated branch circuit and shall be no less than 1" in size. Conduit must be continuous from the future or existing electrical panelboard or switchboard location(s) and end at a junction box or receptacle located within close proximity of the parking space. The electrical panel serving the parking space shall have sufficient capacity and physical space for a dual-pole, 40-amp breaker. The conduit shall be sealed at the junction or outlet box that is capped off, with the conduit sealed and the cap labeled as "For future electric vehicle charging".~~

~~*Electric Vehicle Ready Space:* A designated parking space that is provided with a dedicated branch circuit with wiring capable of supporting a minimum 40-ampere, 208/240-Volt circuit that terminates at a receptacle, plug, junction box, or an installed electric vehicle supply equipment within close proximity of the parking space. There shall be adequate reserved space in an electrical panelboard or switchboard to meet the electric vehicle requirements.~~

~~*Electric Vehicle Supply Equipment (EVSE) Installed Space:* A designated parking space with dedicated electric vehicle supply equipment capable of supplying a minimum 40-amp, dedicated circuit rated at 208/240-Volt from a building electrical panelboard.~~

Emergency Power System: A source of automatic electric power of a required capacity and duration to operate required life safety, fire alarm, detection, and ventilation systems in the event of a failure of the primary power. Emergency power systems are those required for electrical loads where interruption of the primary power could result in loss of human life or serious injuries.

Energy Use Intensity (EUI): The annual building site energy use per square foot of gross floor area in units of kBTU/sq ft.

Residential Building: For this code, includes detached one- and two-family dwellings and multiple single-family dwellings (townhouses) R-3 and R-4 buildings three stories or less in height above grade plane.

Standby Power System: A source of automatic electric power of a required capacity and duration to operate required building, hazardous materials or

ventilation systems in the event of a failure of the primary power. Standby power systems are those required for electrical loads where interruption of the primary power could create hazards or hamper rescue or fire-fighting operations.

Tenant Finish: The first tenant occupying a space(s) in a core and shell. Multiple tenants may be considered as a tenant finish until the entire space within the core and shell has had a tenant. Once a space within a core and shell has been occupied it becomes an existing building.

4. *C401.2.* Commercial buildings shall comply with ~~Section C401.2.1~~ one of the following, as applicable

   C401.2.1 Performance targets. New commercial building types included in the scope of Appendix PT shall comply with Appendix PT and/or Sections C403.2.4 and C404.10.

   C401.2.2 Core and shell. Core and shell buildings shall comply with the provisions of Section C402.1.3 through C402.5. When mechanical systems are installed, core and shell buildings shall also meet the provisions in C403.2.4, C404.10, and Section C408.

   C401.2.2.1 Core and shell buildings shall submit a letter of agreement to the City stating the tenant spaces included in the scope of Appendix PT shall meet the EUI target established in Table PT103 and shall include these requirements in their lease or purchase agreements.

   C401.2.3 Tenant finish. Tenant finishes included in the scope of Appendix PT shall comply with Appendix PT and/or C403.2.4 and C404.10. All other tenant finishes shall comply with the Prescriptive Compliance option, which requires compliance with Sections C401.3, C401.4, C402 through C406, and C408.

   C401.2.4 ~~Other commercial building types.~~ Commercial building ~~types not included above~~, including additions, shall comply with the Prescriptive Compliance option, which requires compliance with Sections C401.3, C401.4, C402 through C406, and C408.

   Exception: ~~Additions, alterations,~~ Alterations, repairs, and changes of occupancy to existing buildings complying with Chapter 5.

5. *Section C401.2.1 International Energy Conservation Code*, is hereby deleted and replaced to read as follows:

   C401.2.1 International Energy Conservation Code

Commercial buildings shall be built all-electric unless the fuel gas options of C403.3.2 and the additional electric infrastructure requirements of C405.14 are met. All buildings must comply with the following:

City of Louisville's Prescriptive Compliance. The Prescriptive Compliance option requires compliance with Sections C401.3, C401.4, C402 through C406, and Section C408.

Core and shell buildings shall be required to comply with the provisions of Section C402.1.3 through C402.5 of the 2021 International Energy Conservation Code.

6. *Section C401.2.2 ASHRAE 90.1*, is hereby deleted in its entirety.

7. A new *Section C401.4 Mandatory Requirements for Commercial Buildings*, is hereby added to read as follows:

C401.4 Mandatory Requirements for Commercial Buildings. Commercial buildings must comply with Table C401.4.

Table C401.4 (Mandatory)
Requirements for Commercial Buildings

Title	IECC Section
Air leakage	C402.5
Calculation of heating and cooling loads	C403.1.1
Data centers	C403.1.2
System Design	C403.2
Heating and cooling equipment efficiency	C403.3
Heating and cooling system controls	C403.4, except C403.4.3, C403.4.4, C403.4.5
Economizer fault detection and diagnostics	C403.5.5
Ventilation and exhaust systems	C403.7, except C403.7.4.1
Fan and fan controls	C403.8, except C403.8.6
Large diameter ceiling fans	C403.9
Refrigeration equipment performance	C403.11, except C403.11.3
Construction of HVAC system elements	C403.12
Mechanical systems located outside of the building thermal envelope	C403.13
Service water heating	C404
Electrical power and lighting systems	C405, except C405.3

Maintenance information and system commissioning	C408

8. *Table C402.1.3 Opaque Thermal Envelope Insulation Component Minimum Requirements, R-Value Method*, is hereby deleted and replaced with the following:

Table C402.1.3 (Mandatory)
Opaque Thermal Envelope Insulation Component of an Average Minimum Requirements, *R*-Value Method in following locations:

Roof C402.2.1	
Insulation entirely above roof deck	R-49
Metal buildings[a]	R-21 + R-11 LS
Attic and other	R-49
Walls. Above grade C402.2.2	
Mass[d]	R-21
Metal buildings	R-21 + R-10ci
Metal framed	R-21+ R-10ci
Wood framed and other	R-21
Walls, Below grade C402.2.5	
Below-grade wall[b]	R-10
Floors C402.2.3	
Mass[c]	R-21
Joist/framing	R-38
Slab-on-grade floors C402.2.4	
Unheated	R-20 for 24" below
Heated[e]	R-15 for 36" below + R-5 full slab

For SI: 1 inch = 25.4 mm, 1 pound per square foot = 4.88 kg/m^2, 1 pound per cubic foot = 16 kg/m^3.
NR = No Requirement, LS = Liner System.

a.Where using *R*-value compliance method, a thermal spacer block shall be provided,
b.Where heated slabs are below grade, below-grade walls shall comply with the exterior insulation requirements for heated slabs.
c."Mass floors" shall be in accordance with Section C402.2.3.
d."Mass walls" shall be in accordance with Section C402.2.2.
e. The first value is for perimeter insulation and the second value is for full, under-slab insulation.

9. *Section C402.1.4 Assembly U-factor, C-factor or F-factor-based method,* is hereby deleted in its entirety.

10. *Section C402.1.5 Component performance alternative,* is hereby deleted in its entirety.

11. *Table C402.4 Building Envelope Fenestration Maximum U-Factor and SHGC Requirements,* is hereby deleted and replaced with the following:

Table C402.4
Building Envelope Fenestration

Vertical Fenestration	
Maximum U-Factor	0.45
Maximum SHGC	0.33
Maximum Air leakage rate for all fenestration except curtain walls and storefront glazing	.20 cfm/ft2
Maximum air leakage rate for curtain walls and storefront glazing	.06 cfm/ft
Skylights	
Maximum U-Factor	0.50
Maximum SHGC	0.40
Maximum Air leakage rate	.20 cfm/ft2

~~12. *Section C402.4.1 Maximum area*, is hereby deleted and replaced with the following:~~

~~C402.4.1 Minimum area of natural lighting. Not less than eight percent of the floor area shall be glazed.~~

12. *Section C402.4.1.2* is deleted and replaced with the following:

C402.4.1 Minimum area of natural lighting. Not less than 8% of wall area for warehouses~~,~~ and industrial shall be glazed.

~~13. *Section C402.4.2 Minimum skylight fenestration area*, is hereby deleted and replaced with the following:~~

~~**C402.4.2 Minimum area of natural lighting.** A minimum skylight area of three percent of the roof area shall be provided for all roofs.~~

~~Exception: Roof areas designated for solar ready zones shall not be included in roof area calculation.~~

13. **C403.2** *System design.* Mechanical systems shall be designed to comply with Sections C403.2.1 through ~~403.2.3~~ C403.2.4. Where elements of a building's mechanical systems are addressed in Sections C403 through C403.14, such elements shall comply with the applicable provisions of those sections.

14. Section C403.2.4 Space heating equipment is added as follows:

~~C403.2.4 Space heating equipment. Fossil-fuel warm-air furnaces appliances and electric resistance space heating equipment shall not be permitted for space heating in new construction.~~

C403.2.4. Heat pump efficiencies:

a. Ductless System
   1. 14.3 SEER2
   2. 7.5 HSPF2
   3. Or EnergyStar Cold Climate certified

b. Ducted System
   1. 15.2 SEER2
   2. 9 HSPF2
   3. Or EnergyStar Cold Climate certified

~~Exceptions:~~

~~1. *Emergency backup.* Where it is required by an applicable law or regulation to provide space heating with an emergency power system or a standby power system.~~

~~2. *Certain make-up air systems.* Electric resistance in make-up air systems where energy recovery ventilation is prohibited by the International Mechanical Code.~~

~~3. *Supplementary heat.* Electric resistance and natural gas/ propane heat used for supplementary heat in accordance with Section C403.4.1.1~~

~~4. *Electric resistance budget.* In addition to any exceptions in this section, Up to 5 W of electric resistance space heating per square foot of conditioned floor area in the building, not including supplementary heat.~~

~~5. *Integrated units.* Electric resistance heating elements, natural gas, propane supplemental heating integrated into heat pump equipment.~~

~~6. *Heated plenums.* Electric resistance in heated plenums.~~

~~7. *Temporary systems.* Temporary electric resistance heating systems are permitted where serving future tenant spaces that are unfinished and unoccupied, provided that the heating equipment is sized and controlled to achieve interior space temperatures no higher than needed to prevent freezing.~~

~~8. *Freeze protection.* Electric resistance in heating systems intended for freeze protection.~~

~~9. Outdoor systems. Equipment used for outdoor heating.~~

~~10. Specific conditions. Portions of buildings that require fossil-fuel or electric resistance space heating for specific conditions approved by the Building Official for research, health care, process or other specific needs that cannot practicably be served by heat pump or other space heating systems. This does not constitute a blanket exception for any occupancy type.~~

~~11. Replacements. Replacement fuel-fired appliances.~~

12. Backup heat. For back up heat to operate when the heat pump cannot adequately heat the space/buildings due to extreme cold weather.
13. Where cfm/sq. ft. ventilation requirements result in conditions where the Building Official determines that space heating requirements cannot reasonably be met without combustion space heating systems.

14.1. *Section C403.3.2 HVAC equipment performance requirements*, is hereby deleted in its entirety and replaced amended by adding the following at the beginning of the section with remainder of section to remain to read as follows:

C403.3.2 When HVAC fuel fired equipment is permitted to be installed, equipment shall meet the minimum efficiency requirements of Tables C403.3.2(1) through C403.3.2(16) when tested and rated in accordance with the applicable test procedure. Plate-type liquid-to-liquid heat exchangers shall meet the minimum requirements of AHRI 400. The efficiency shall be verified through certification under an approved certification program or, where a certification program does not exist, the equipment efficiency ratings shall be supported by data furnished by the manufacturer. Where multiple rating conditions or performance requirements are provided, the equipment shall satisfy all stated requirements. Where components, such as indoor or outdoor coils, from different manufacturers are used, calculations and supporting data shall be furnished by the designer that demonstrates that the combined efficiency of the specified components meets the requirements herein.

HVAC/fuel fired equipment performance requirements. Unless built all-electric, all new combustion equipment shall comply with the more efficient HVAC equipment performance of Sections C406.2, C406.2.3, and C406.2.4 and the additional electric infrastructure requirements in Section C405.14. A mechanical compliance certificate demonstrating compliance with section C406.2.3 and/or C406.2.4 shall be required for all HVAC, fuel fired and Service Water Heating equipment.

The efficiency shall be verified through certification under an approved certification program or, where a certification program does not exist, the equipment efficiency ratings shall be supported by data furnished by the manufacturer. Where multiple rating conditions or performance requirements are provided, the equipment shall satisfy all stated requirements. Where components, such as indoor or outdoor coils, from different manufacturers are used, calculations and supporting data shall be furnished by the designer that demonstrates that the combined efficiency of the specified components meets the requirements herein. (Tables C403.2.(1) through (16) are expressly retained and remain applicable to HVAC equipment performance.)

Exceptions:

1. Factory, laboratory, and high hazard occupancy combustion equipment, except for HVAC and domestic water heating.

2. Commercial Kitchens.

3. Other combustion equipment approved by the Building Official based on demonstration by the applicant that compliance with this section

~~is not feasible and the equipment proposed is the most efficient appliance reasonably available.~~

16. *Section C403.4.1 Thermostatic controls*, is hereby deleted and replaced with the following:

C403.4.1 Thermostatic controls. The supply of heating and cooling energy to each *zone* shall be controlled by individual thermostatic controls capable of responding to temperature within the *zone*. Where humidification or dehumidification or both is provided, no fewer than one humidity control device shall be provided for each humidity control system. Occupancy sensors shall be provided on the thermostat to setback in accordance with C403.4.2.1

Exception: Independent perimeter systems that are designed to offset only building envelope heat losses, gains or both serving one or more perimeter *zones* also served by an interior system provided that both of the following conditions are met:

1. The perimeter system includes not fewer than one thermostatic control *zone* for each building exposure having exterior walls facing only one orientation (within ±45 degrees) (0.8 rad) for more than 50 contiguous feet (15 240 mm).
2. The perimeter system heating and cooling supply is controlled by thermostats located within the *zones* served by the system.

17. *Section C403.12.1 Duct and plenum insulation and sealing*, is hereby deleted and replaced with the following:

C403.12.1 Duct and plenum insulation and sealing. All supply and return air ducts and plenums shall be insulated with not less than R-12. Ducts, air handlers and filter boxes shall be sealed. Joints and seams shall comply with Section 603.9 of the International Mechanical Code.

18. *Section C403.12.3 Piping insulation*, is hereby amended to read as follows:

C403.12.3 Piping insulation. Piping serving as part of a heating or cooling system shall be thermally insulated to R-3.

19. *Section C404.4 Insulation of piping*, is hereby amended to read as follows:

C404.4 Insulation of piping. Piping from a water heater to the termination of the heated water fixture supply pipe shall be insulated to R-3. On both the inlet and outlet piping of a storage water heater or heated water storage tank, the piping to a heat trap or the first 8 feet (2438 mm) of piping, whichever is less, shall be insulated. Piping that is heat traced shall be insulated to R-3 or the heat trace manufacturer's instructions.

~~20. Section C404.10 Water heating equipment is added as follows:~~

C404.10 Water heating equipment. Fossil fuel and electric resistance instantaneous and storage water heaters shall not be used to provide hot water in new construction.

Exceptions:

1. *Emergency backup.* Where it is required by an applicable law or regulation to provide water heating with an emergency power system or a standby power system.
2. *Integrated units.* Resistance heating elements integrated into heat pump water heating equipment.
3. *Recirculation loops.* Electric resistance elements used for recirculation loop temperature maintenance.
4. *Small systems.* Electric storage water heaters with a rated water storage volume no greater than 20 gallons.
5. *Point-of-use systems.* Instantaneous electric water heaters located within 10 feet of the point of use.
6. *Renewable electricity*. Electric resistance equipment where not less than 100 percent of the annual service water heating requirement is provided by an *on-site renewable energy system* not used to meet any other provision of this code.
7. *Renewable or waste thermal energy*. Electric resistance storage water heating equipment in *buildings* where not less than 75% of the annual service water heating requirement is met by a solar thermal system or other renewable thermal system.
8. *High-temperature requirements*. Water heating systems that serve end uses or have a storage requirement that necessitates a water temperature of 141°F (55°C) or hotter.
9. *Electric resistance budget.* In addition to any exceptions in this section, a budget of 24 kW plus 0.1 watts per square foot of building area of electric resistance service water heating capacity per building.
10. *Commercial kitchens.* Electric booster heaters serving commercial dishwashers, commercial food service equipment, and other approved process equipment that require supply water temperatures of 120°F (49°C) or higher.
11. *Replacements.* Replacement of gas-fired storage water heaters or instantaneous water heaters.

21. Section C405.2.1 Occupant sensor controls, is hereby amended to read as follows:

C405.2.1 Occupant sensor controls. Occupant *sensor controls* shall be installed to control lighting.

22. *Section C405.2.2 Time-switch controls*, is hereby deleted in its entirety.

23. *Section C405.2.2.1 Time-switch control function*, is hereby deleted in its entirety.

39. *Section C405.4.3 Gas lighting, is hereby amended to read as follows:*

C405.4.3 Gas lighting. Gas-fired lighting appliances shall not be permitted.

40. A new *Section C405.14 Additional electric infrastructure*, is hereby added to read as follows:

Section C405.14 Additional electric infrastructure. All *combustion equipment* and end-uses shall be installed in accordance with this section.

C405.14.1 Electric infrastructure for dwelling and sleeping units. *Combustion equipment* and end-uses serving individual dwelling units or sleeping units shall comply with Section R404.5.

C405.14.2 Combustion equipment. *Combustion equipment* shall be provided with conduit that is continuous between a junction box located within 3 feet (914 mm) of the appliance or equipment and an electrical panel. The junction box, conduit and bus bar in the electrical panel shall be rated and sized to accommodate a branch circuit with sufficient capacity for an equivalent electric appliance, equipment or end use with an equivalent equipment capacity. The electrical junction box and electrical panel shall have labels stating, "For Future Electric Equipment".

Exception: Industrial and manufacturing uses are exempt from Section C405.14.

41. *Section C502.1.1 General,* is hereby amended to read as follows:

Additions to an existing building, building system or portion thereof shall conform to the provisions of Section C401.2.4 as those provisions relate to new construction without requiring the unaltered portion of the existing building or building system to comply with this code. Additions shall not create unsafe or hazardous condition or overload existing building systems. An addition shall be deemed to comply with this code if the addition alone complies or if the existing building and addition comply with this code as a single building.

43. *Section C503.2 Building Envelope* is amended with exception remaining to read as follows:

New building envelope assemblies that are part of the alteration shall comply with Sections C402.1 through C402.5. Existing ceilings, roofs, all wall types, or floors exposed during construction shall comply with Table C402.1.3.

44. *Section C505.1 General*, is hereby amended to read as follows:

C505.1 General. Where the use in a space changes from one use in Table C405.3.2(1) or C405.3.2(2) to another use in Table C405.3.2(1) or C405.3.2(2), the installed lighting wattage shall comply with Section C405.3. Where the space

undergoing a change in occupancy or use is in a building with a fenestration area that exceeds the limitations of Section C402.4.1, the space is exempt from Section C402.4.1 provided that there is not an increase in fenestration area.

Exception: Egress doors with fenestration are allowed to bring total fenestration percentages over the allowed maximum amount of vertical fenestration.

APPENDIX PT
MODELING TO A PERFORMANCE TARGET

PT101 Scope. This section establishes criteria for demonstrating compliance with a performance target, and is required for new hotels (occupancy R-1), multifamily (occupancy R-2), offices, primary and secondary schools, and warehouses. All end use load components within and associated with the building and their building sites shall be modeled.

PT102 Mandatory requirements. The requirements in this section are mandatory requirements and shall be required in addition to the provisions of ASHRAE 90.1 Appendix G.

PT103 Performance target. Projects of the types listed in Table PT103 shall demonstrate that the proposed design reaches a fixed energy use intensity (EUI) less than or equal to the values in Table PT103, calculated utilizing the energy modeling procedures of Appendix G of ASHRAE 90.1. For *buildings* with multiple occupancy types, the modeled performance target shall be a weighted average of the floor area of each occupancy type.

Exception: Energy used for electric vehicle charging, data centers, and process loads shall be excluded from compliance modeling.

TABLE PT103
PERFORMANCE TARGETS

BUILDING TYPE	PERFORMANCE TARGET (kBTU/ft2)
Hotel (Occupancy R-1)	32
Multifamily (Occupancy R-2)	32
Office, small (≥ 0 - 5,000 ft2)	19

Office, medium (5,000 – 50,000 ft2)	23
Office, large (>50,000 ft2)	28
School, primary	34
School, secondary	31
Warehouse	11

PT104 Renewable Energy. On-site renewable energy generated by a system installed as part of this project that is used by the building shall be subtracted from the proposed design energy consumption prior to calculating the proposed building performance.

PT105 Performance documentation. Documentation to verify compliance with this section shall be provided to the code official.

PT105.1 Projected compliance report. Permit submittals shall include a report documenting the proposed design is projected to meet the EUI target. The compliance report shall include the following specific information beyond the information required in ASHRAE 90.1 Appendix G:

1. Address of the building.
2. An inspection checklist documenting the building component characteristics of the proposed design.
3. Name of individual completing the report.
4. Name and version of compliance software tool.
5. Documentation of the reduction in energy use associated with on-site energy.

PT105.2 Construction plan requirements. Construction plans shall depict all component characteristics of the proposed design utilized for the EUI in accordance with ASHRAE 90.1 Appendix G.

~~**PT105.3 Measured performance report.** Projects shall demonstrate compliance with this code by documenting that the building has achieved the EUI performance calculated based on 12 months of metered energy use after occupancy.~~

~~**PT105.3.1 Demonstration of operating energy use.** Metered energy data demonstrating compliance with the EUI target shall be reported to the building official using Energy Star Portfolio Manager and adjusted for the percentage of floor area occupied. While at least 75 percent occupied, the building shall operate at or below its assigned energy use target established in Section PT103 for any recording period of 12 consecutive months that is~~

~~completed within three years of the date of the Certificate of Occupancy. The owner shall notify the building official when this 12-month period has been successfully completed.~~

~~**PT106 Energy metering and monitoring.** All projects must install submetering or monitoring capabilities to support building energy performance analysis. The project must include capabilities to store and access a 24-month continuous data set on an ongoing basis.~~

~~**PT106.1 End-use monitoring.** Measurement devices shall be installed in new *buildings* to monitor the electric energy use of each of the following separately:~~

1. ~~Total electric energy.~~
2. ~~HVAC systems energy use.~~
3. ~~Interior lighting.~~
4. ~~Exterior lighting.~~
5. ~~Receptacle circuits.~~
6. ~~Data centers representing over 10 percent of total building load or 5 percent of building floor area.~~
7. ~~Other process loads that represent 10 percent or more of total building energy use based on building energy use modeling.~~

~~**PT106.2 Independent metering.** The following items shall be independently metered. Individual meters used to comply with this section may not serve multiple *buildings*.~~

1. ~~All fuel sources serving the building.~~
2. ~~Energy production from on-site renewable energy systems.~~
3. ~~Electric vehicle (EV) supply equipment.~~
4. ~~Data centers representing over 10 percent of total building load or 5 percent of building floor area.~~
5. ~~Other process loads that represent 10 percent or more of total building energy use based on building energy use modeling.~~
6. ~~Individual tenant energy loads.~~

45. *Section R101.1 Title,* is amended to insert "the City of Louisville" so the section will read:

R101.1 Title. These regulations shall be known as the Energy Conservation Code of the City of Louisville and shall be cited as such. It is referred to herein as "this code."

46. *Section R103.2 Information on construction documents,* is amended to read as follows:

R103.2 Information on construction documents. Construction documents shall be drawn to scale upon suitable material. Electronic media documented are permitted to be submitted when *approved* by the *code official*. Construction documents shall be of sufficient clarity to indicate the location, nature and extent of the work proposed, and show in sufficient detail pertinent data and features of the building, systems and equipment herein governed. Details shall include the following as applicable:

1. Energy compliance path.
2. Insulation materials and their *R*-values
3. Fenestration *U*-factor and solar heat gain coefficients (SHGCs).
4. Area-weighted *U*-factor and solar heat gain coefficient (SHGC) calculations.
5. Mechanical system design criteria.
6. Mechanical and service water heating systems and equipment types, sizes, fuel source and efficiencies.
7. Equipment and system controls.
8. Duct sealing, duct and pipe insulation and location.
9. Air sealing detail.
10. Location of pathways for routing of raceways or cable from the solar ready zone to the electrical service panel.

47. *Section R202 General Definitions*, is hereby amended by adding, in alphabetical order, the following definitions:

All-Electric Building: A building that contains no combustion equipment for primary heating, ~~or plumbing or piping for combustion equipment, installed within the building or building site.~~

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Combustion Equipment: Any equipment or appliance used for space heating, service water heating, cooking, clothes drying and/or lighting that uses fuel gas or fuel oil.

~~*Electric Vehicle (EV):* A vehicle registered for on-road use, primarily powered by an electric motor that draws current from a rechargeable storage source that is charged by being plugged into an electrical current source.~~

~~*Electric Vehicle Supply Equipment (EVSE):* The electrical conductors and associated equipment external to the electric vehicle that provide a connection between the premises wiring and the electric vehicle to provide electric vehicle charging.~~

~~*Electric Vehicle Capable Space:* A designated parking space that is provided with conduit sized and rated for a minimum 40 amp, 208/240 Volt dedicated branch circuit and shall be no less than 1" in size. Conduit must be continuous from the future or existing electrical panel board or switchboard location(s) and end at a junction box or receptacle located within close proximity of the parking space.~~

~~The electrical panel serving the parking space shall have sufficient capacity and physical space for a dual-pole, 40-amp breaker. The conduit shall be sealed at the junction or outlet box that is capped off, with the conduit sealed and the cap labeled as "For future electric vehicle charging".~~

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~~*Electric Vehicle Ready Space:* A designated parking space that is provided with a dedicated branch circuit with wiring capable of supporting a minimum 40-ampere, 208/240- Volt circuit that terminates at a receptacle, plug, junction box, or an installed electric vehicle supply equipment within close proximity of the parking space. There shall be adequate reserved space in an electrical panel board or switchboard to meet the electric vehicle requirements~~.

Residential Building. For this code, includes detached one- and two-family dwellings and multiple single-family dwellings (townhouses) and R-3 and R-4 buildings three stories or less in height above grade plane.

48. *Section R401.2 Application,* is hereby deleted and replaced with the following:

R401.2 Application. New ~~R~~residential buildings shall be built using appendix RB or RC and shall be built all-electric unless the fuel gas options of R403.7 and additional electric infrastructure requirements of R404.5 are met. ~~All residential buildings shall comply with the R401.2.1 City of Louisville's Prescriptive Compliance or R406 Energy Rating Index with a maximum rating index of 50 before the installation of solar panels~~

Exceptions:

1. New residential buildings certified through the Passive House Institute US, Inc. (PHIUS) program
2. Additions shall comply with R401.2.1 and Chapter 5
3. ~~Additions,~~ ~~a~~Alterations, repairs and changes of occupancy to existing buildings complying with Chapter 5.

49. *Section R401.2.1 Prescriptive Compliance Option,* is hereby deleted and replaced with the following:

R401.2.1 City of Louisville's Prescriptive Compliance. The City of Louisville's Prescriptive compliance requires compliance with Sections R401 through R404.

50. Section R401.2.2 Total Building Performance Option, is hereby deleted in its entirety.

51. Section R401.2.4 Tropical Climate Region, is hereby deleted in its entirety.

52. *Section R401.2.5 Additional Energy Efficiency*, is hereby amended to read as follows:

Section R401.2.5 Additional Energy Efficiency. Building shall comply with one of the additional efficiency options and shall be installed in according to Section R408.2.

53. A new *Section R401.4 Mandatory requirements for residential buildings*, is hereby added to read as follows:

R401.4 Mandatory requirements for residential buildings. Residential building must comply with the following sections from the 2021 International Energy Conservation Code found in Table R401.4 and Section R401.2.

Table R401.~~3~~4
Mandatory requirements for residential buildings

Title	IECC Section
Vapor retarder	R402.1.1
Eave baffle	R402.2.3
Access hatches and doors	R402.2.4.1
Crawl space wall insulation	R402.4.1.2
Maximum fenestration U-factor and SHGC	R402.5
Mechanical Controls	R403.1
Ducts	R403.3 except R403.3.2, R403.3.3, and R403.6
Mechanical system piping insulation	R403.4
Heated water circulation and temperature maintenance systems	R403.5.1
Drain Water heat recovery units	R403.5.3
Mechanical ventilation	R403.6 including E403.6.1
Equipment sizing and efficiency rating	R403.7
Systems serving multiple dwelling units	R403.8
Snow melt and ice systems	R403.9
Energy consumption of pools and spas	R403.10
Portable spas	R403.11
Residential pools and permanent residential spas	R403.12
Lighting equipment	R404.1
Interior lighting controls	R404.2

54. *Section R402.1 General*, is hereby amended to read as follows:

R402.1 General. The building thermal envelope shall comply with the requirements of Section R402.1.1 and R402.1.2.

55. *Section R402.1.2 Insulation ~~and fenestration~~*, is hereby deleted and replaced with the following*:*

R402.1.2 Insulation ~~and fenestration~~. New and replacement ~~A~~assemblies shall have R-value of insulation materials equal to or greater than that specified in Table

R402.1.2 unless an alternative path is specified while using HERS energy rating index of 50.

Exception: New Construction complying with R401.2 or exception 1

56. *Section R402.1.2.1 Fenestration* is hereby added to read as following:

R402.1.2.1 Fenestration. New and replacement assemblies shall not exceed the value specified in Table R402.1.2.

Exception: New Construction complying with R401.2 or exception 1

Table R402.1.2
Average Insulation and Fenestration Requirements by Component

Roof	R-60
Above grade walls	R-21
Below grade walls	R-19
Floors	R-38
Non heated slab on grade	R-10 for 4ft
Heated slab on grade	R-15 for 4 ft + R-5 under full slab
Fenestration U-Factor	.30
Fenestration SHGC	.33
Skylight U-Factor	.50
Skylight SHGC	.40
Hot Water Pipes	R-3
Warm Air Ducts	R-8

55. Section R402.1.5 Total UA alternative, is hereby deleted in its entirety.

56. Section R402.3.3 Glazed fenestration exemption, is hereby amended to read as follows:

R402.3.3 Glazed fenestration exemption. Not greater than 15 square feet (1.4 m^2) of glazed fenestration per dwelling unit shall be exempt from the U-factor and SHGC requirements in Section R402.1.2.

57. *Section R402.4.1.2 Testing*, is hereby deleted and replaced to read as follows:

Section R402.4.1.2 Testing. All new buildings or dwelling units that are heated or cooled, and additions over 500 square feet shall be tested for air leakage.

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58. *Section R402.5 Maximum fenestration U-factor and SHGC*, is hereby deleted and replaced with the following*:*

Section R402.5 Maximum fenestration U-factor and SHGC. The maximum U-factor and solar heat gain coefficient (SHGC) for fenestration shall not be required in storm shelters complying with ICC 500.

59. *Section R403.3.1 Ducts located outside conditioned space*, is hereby deleted and replaced with the following*:*

R403.3.1 ***Ducts located outside conditioned space.*** All supply and return ducts shall be insulated to a minimum R-8 if located outside a conditioned space.

60. *Section R403.5.2 Hot water pipe insulation*, is hereby deleted and replaced with the following*:*

R403.5.2 Hot water pipe insulation. All service hot water piping shall be insulated to a minimum R-3.

~~61. *Section R403.6.1 Heat and recovery ventilation*, is hereby deleted and replaced in its entirety and the following is hereby added in lieu thereof:~~

~~**R403.5.2 Heat and recovery ventilation**. All new buildings and additions over 500 square feet shall be provided with a heat recovery or energy recovery ventilation system. The system shall be balanced with a minimum sensible heat recovery efficiency of 65 percent at 32°F (0°C) at a flow greater than or equal to the design airflow.~~

62. *Section R403.7 Equipment sizing and efficiency rating*, is hereby deleted and replaced with the following*:*

R403.7 Equipment sizing and efficiency rating. All new buildings and additions greater than 500 square feet with heating and cooling equipment shall be sized in accordance with ACCA Manual S based on building loads calculated in accordance with ACCA Manual J or other approved heating and cooling calculation methodologies. In addition to complying with Sec. R404.6 Additional Electric Infrastructure, new and replacement electrical heating and cooling equipment shall have an efficiency rating equal to or greater than the minimum required by federal law for the geographic location where the equipment is installed. New gas heating equipment shall comply with the following efficiencies:

1. Gas furnaces shall have a minimum of 95% efficiency.
2. Gas boilers shall have a minimum of 95% AFUE.
3. On demand water heaters shall have a greater than .92 uniform energy factor.
4. Heat pump efficiencies:

~~a.~~c. Ductless System
1. 14.3 SEER2
2. 7.5 HSPF2
3. Or EnergyStar Cold Climate certified

~~b.~~d. Ducted System
1. 15.2 SEER2
2. 9 HSPF2
3. Or EnergyStar Cold Climate certified

Exception: Solid fuel stoves/gas fireplaces, outdoor fire pits, gas stoves and ovens.

63. *Section R404.1.1 Fuel gas lighting equipment, is hereby amended to read as follows:*

R404.1.1 Fuel gas lighting equipment. Fuel gas lighting systems shall not be installed.

~~64. A new *Section R404.4 Electric vehicle charging infrastructure for new construction and building addition of 50% or more of original square footage*, is hereby added to read as follows:~~

~~**Section R404.4 Electric vehicle charging infrastructure for new construction and building addition of 50% or more of original square footage**. Electric infrastructure for the current and future charging of *electric vehicles* shall be installed in accordance with this section per Section 17.20.170 of the Louisville Municipal Code. *EV ready spaces and EV capable spaces* are permitted to be counted toward meeting minimum parking requirements.~~

~~R404.4.1 One- and two- family dwellings and townhouses. One- and two-family dwellings and townhouses with a dedicated attached or detached garage or on-site parking spaces shall be provided with electric vehicle charging in accordance with Section 17.20.170 of the Louisville Municipal Code.~~

~~R404.4.1.1 Minimum EV Ready infrastructure. Minimum EV Ready Space infrastructure shall require the following:~~
~~1. Installation of conductors:~~
~~a. Conductors shall be installed of sufficient size to accommodate a minimum 240VAC 40Amp branch circuit to each parking space where required.~~
~~b. Conductors shall terminate in either a receptacle, plug, junction or outlet box, or an *EVSE* installed in the parking space.~~
~~2. The electrical panel directory shall designate the branch circuit as "EV Ready" and the junction box or receptacle shall be labelled "EV Ready."~~

~~R404.4.1.2 Construction documents. Construction documents shall graphically indicate and label all EV ready spaces and associated termination locations. For all Townhouses and one- and two-family dwellings with an electrical utility service of 200 Amps or greater, a panelboard schedule shall be provided indicating the EV Ready circuit breaker space(s) and the circuit designation(s).~~

~~R404.4.2 Group R occupancies. Group R occupancies (R-2, R-3, and R-4 buildings three stories and less) with three or more dwelling units and/or sleeping units shall be provided with electric vehicle charging in accordance with Section 17.20.170 of the Louisville Municipal Code.~~

~~Electric vehicle charging shall be provided and installed in accordance with this section and the National Electrical Code (NFPA 70). When parking spaces are added or modified without an increase in building floor area, only the new parking spaces are subject to this requirement.~~

65. A new *Section R404.5 Additional electric infrastructure*, is hereby added to read as follows:

R404.5 Additional electric infrastructure. *Combustion equipment* shall be installed in accordance with this section.

R404.5.1 Combustion equipment and end-uses. *Combustion equipment* shall be provided with a dedicated, appropriately phased circuit that shall have a minimum amperage requirement for a comparable electric appliance, equipment or end use, an electrical receptacle or junction box that is connected to the electric panel, and conductors of adequate capacity within 6 feet (1829 mm) of the appliance or equipment.

Each such circuit shall be accessible with no obstructions. A reserved circuit breaker space shall be installed in the electrical panel adjacent to the circuit breaker for the branch circuit and labeled for each circuit. Both ends of the unused conductor or conduit shall be labeled “For Future Electric Equipment” and be electrically isolated.

66. *Section R405 Total building performance*, is deleted in its entirety.

67. *Section R406.3 Building thermal envelope*, is hereby deleted in its entirety and replaced with the following*:*

R406.3 Building thermal envelope. ~~Building and portions thereof shall comply with Table R406.3.~~ The building thermal envelope shall be greater or equal to the levels of efficiency and SHGC in Table R402.1.2~~06.3~~.

~~Table R406.3~~
~~Average of the Minimum Insulation and Maximum Fenestration Requirements by Component~~

~~Roof~~	~~R-60~~
~~Above grade walls~~	~~R-21~~
~~Below grade walls~~	~~R-21~~
~~Floors~~	~~R-38~~
~~Non heated slab on grade~~	~~R-10 for 4ft~~
~~Heated slab on grade~~	~~R-15 for 4 ft + R-5 under full slab~~
~~Fenestration U-Factor~~	~~.30~~
~~Fenestration SHGC~~	~~.33~~
~~Skylight U-Factor~~	~~.50~~
~~Skylight SHGC~~	~~.40~~
~~Heated Water Pipes~~	~~R-5~~
~~Heated air Ducts~~	~~R-8~~

68. *Section R406.3.1 On-site renewables are not included,* is deleted in its entirety.

69. *Section R406.3.2 On-site renewables are included,* is deleted in its entirety.

70. *Section ~~406.3.2~~* R407 *Tropical Climate Region Compliance Path,* is deleted in its entirety.

71. *Section R502.1.1 General*, is hereby amended to read as follows:

Additions to an existing building, building system or portion thereof shall conform to the provisions of R401.2.1 as those provisions relate to new construction without requiring the unaltered portion of the existing building or building system to comply with this code. Additions shall not create unsafe or hazardous condition or overload existing building systems. An addition shall be

deemed to comply with this code where the addition alone complies, where the existing building and addition comply with this code as a single building, or where the building with the addition does not use more energy than the existing building. Additions shall be in accordance with Section R502.2 or R502.3.

72. *Section R503.1.1 Building Envelope* is amended to read as follows:
Building envelope assemblies that are part of the alteration shall comply with Section R401.2.1

Section R503.1.1 Building envelope Exception 2 is deleted in its entirety and replaced with the following.

2. Section R402.4.1.2 Testing

73. *Section R505.1 General* is hereby amended to remove the exception.

74. *Section R505.1.1 Unconditioned space,* is hereby deleted and replaced with the following:

R505.1.1 Unconditioned space. Any unconditioned or low-energy space that is altered to become a conditioned space shall comply with Section R503.

75. RC102.1 General is amended to read as follows.

RC102.1 General. New residential buildings shall comply with Sections RC102.2 through RC102.9.

76. RC102.2 Energy Rating Index zero energy score is amended to read as follows.

RC102.2 Energy Rating Index zero energy score.
Compliance with this section requires that the rated design be shown to have a Home Energy Rating System (HERS) score of 5047 before solar and 0 with solar when compared to the Energy Rating Index (ERI) reference design determined in accordance with RESNET/ICC 301 for both of the following:

1. ERI value not including on-site power production (OPP) calculated in accordance with RESNET/~~ICC 301~~ HERS~~.~~
2. ERI value including on-site power production calculated in accordance with RESNET/~~ICC 301~~ HERS with the OPP in Equation 4.1.2 of RESNET/~~ICC 301~~ HERS adjusted in accordance with Equation RC-1.

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Adjusted OPP = OPP + CREF + REPC (Equation RC-1)

where:
CREF = Community Renewable Energy Facility power production—the yearly energy, in kilowatt hour equivalent (kWheq), contracted from a community

renewable energy facility that is qualified under applicable state and local utility statutes and rules, and that allocates bill credits to the rated home.
REPC = Renewable Energy Purchase Contract power production—the yearly energy, in kilowatt hour equivalent (kWheq), contracted from an energy facility that generates energy with photovoltaic, solar thermal, geothermal energy or wind systems, and that is demonstrated by an energy purchase contract or lease with a duration of not less than 15 years.

RC102.2.1 HERS Score. Buildings shall comply with the scores in Table RC102.2.1.

Table RC102.2.1.

HERS SCORE NOT INCLUDING OPP	HERS SCORE INCLUDING OPP
5047	0

76. RC102.3 through RC102.9 are added to Appendix RC to read as follows.

RC102.3 Mandatory Sections. All projects shall comply with all sections within Table RC102.3.

Table RC102.3
Mandatory requirements for residential buildings

Title	IECC Section
Vapor retarder	R402.1.1
Eave baffle	R402.2.3
Access hatches and doors	R402.2.4.1
Crawl space wall insulation	R402.4.1.2
Maximum fenestration U-factor and SHGC	R402.5
Mechanical Controls	R403.1
Ducts	R403.3 except R403.3.2, R403.3.3, and R403.6
Mechanical system piping insulation	R403.4
Heated water circulation and temperature maintenance systems	R403.5.1
Drain Water heat recovery units	R403.5.3
Mechanical ventilation	R403.6 including E403.6.1
Equipment sizing and efficiency rating	R403.7
Systems serving multiple dwelling units	R403.8
Snow melt and ice systems	R403.9

Energy consumption of pools and spas	R403.10
Portable spas	R403.11
Residential pools and permanent residential spas	R403.12
Lighting equipment	R404.1
Interior lighting controls	R404.2

RC102.4 Building Envelope. The building thermal envelope shall be greater or equal to the levels of efficiency and SHGC in Table R402.1.2~~C102.4~~.

~~Table RC102.4~~
~~Average of the Minimum Insulation and Maximum Fenestration Requirements by Component~~

~~Roof~~	~~R-60~~
~~Above grade walls~~	~~R-21~~
~~Below grade walls~~	~~R-21~~
~~Floors~~	~~R-38~~
~~Non heated slab on grade~~	~~R-10 for 4ft~~
~~Heated slab on grade~~	~~R-15 for 4 ft + R-5 under full slab~~
~~Fenestration U-Factor~~	~~.30~~
~~Fenestration SHGC~~	~~.33~~
~~Skylight U-Factor~~	~~.50~~
~~Skylight SHGC~~	~~.40~~

RC102.5 Verification by approved agency.
Verification of compliance with Section R102.4 as outlined in Sections of this appendix shall be completed by an approved third party. Verification of compliance with Section R102.3 shall be completed by the authority having jurisdiction or an approved third-party inspection agency in accordance with Section R105.4.

RC102.6 Documentation.
Documentation of the software used to determine the ERI and the parameters for the residential building shall be in accordance with Sections RC102.6.1 through RC102.6.4

RC102.6.1 Compliance software tools.
Software tools used for determining HERS shall be Approved Software Rating Tools in accordance with RESNET/ICC 301.

RC102.6.2 Compliance report.

Compliance software tools shall generate a report that documents that the home and the HERS score of the rated design complies with RC102. Compliance documentation shall be created for the proposed design and shall be submitted with the application for the building permit. Confirmed compliance documents of the built dwelling unit shall be created and submitted to the code official for review before a certificate of occupancy is issued. Compliance reports shall include information in accordance with Sections RC102.6.3 and RC102.6.4.

RC102.7 Additional documentation.
The code official shall be permitted to require the following documents:

1. Documentation of the building component characteristics of the ERI reference design.

2. A certification signed by the builder providing the building component characteristics of the rated design.

3. Documentation of the actual values used in the software calculations for the rated design.

RC102.8 Specific approval.
Performance analysis tools meeting the applicable subsections of Section RC102 shall be approved. Documentation demonstrating the approval of performance analysis tools in accordance with Section RC102shall be provided.

RC102.9 Input values.
Where calculations require input values not specified by Sections RC 102, those input values shall be taken from HERS RESNET/ICC 301.

INTRODUCED, READ, PASSED ON FIRST READING, AND ORDERED PUBLISHED this _____ day of _____, 2024.

_____
Chris Leh, Mayor

ATTEST:

_____
Meredyth Muth, City Clerk

APPROVED AS TO FORM:

_____
Kelly PC, City Attorney

PASSED AND ADOPTED ON SECOND AND FINAL READING, this _____ day of _____, 2024.

_____
Chris Leh, Mayor

ATTEST:

_____
Meredyth Muth, City Clerk

DRAFT

City of Louisville
COLORADO • SINCE 1878

Building Code Board of Appeals

Meeting Minutes

May 2, 2024
City Hall, Spruce Room
749 Main Street
6:30pm

DRAFT

Call to Order – Chairperson Christian Dino called the meeting to order at 6:40pm.

Roll Call was taken and the following members were present:

Board Members Present:
- Matt Berry
- Christian Dino
- Mason Gatto
- Peter Geise

Board Members Absent:
- Steve Knapp

Staff Members Present:
- Jenny Lane, Permit Technician

Approval of Agenda –
The agenda was approved by all members present.

Approval of Meeting Minutes from 3/20/24 and 4/18/24

Approved by all members present.

Public Comments on Items Not on the Agenda –
None

Discussion and voting of changes to the proposed 2021 IECC ordinance

The Board discussed changes to the proposed 2021 IECC ordinance.
Top discussion items:

a. Definition of All-electric building; consolidating definitions

b. Tenant finish: what constitutes a “change” that would be subject to energy code compliance.
c. Discussed going back to code discussion and adoption from 2021 time period and striking the subsequent ordinances, and making some changes as well.
d. Should EV charging be part of the energy code?
e. Performance Targets: What are they and is this a good idea? What does City and County of Denver do?
f. Discussion of ERI ratings and what is net zero; what should the rating be before solar is added? Discussion of Andy Johnson’s email suggesting somewhere between 48-50 instead of 47 and cost savings implications.
g. Furnace change to 95%, boilers up to 92% efficient.

Discussion Items for Next Meeting –
Continue discussion of changes proposed to the 2021 IECC ordinance.

Next meeting on May 16, 2024

Adjourn – The meeting was adjourned at ____9:15pm_____.

City of Louisville
COLORADO • SINCE 1878

Building Code Board of Appeals

Meeting Minutes

May 16, 2024
City Hall, Spruce Room
749 Main Street
6:30pm

DRAFT

Call to Order – Chairperson Christian Dino called the meeting to order at 6:45pm.

Roll Call was taken and the following members were present:

Board Members Present:
Matt Berry
Christian Dino
Mason Gatto
Peter Geise

Board Members Absent:
Steve Knapp

Staff Members Present:
Jenny Lane, Permit Technician
Chad Root, Chief Building Official

Approval of Agenda –
The agenda was approved by all members present.

Public Comments on Items Not on the Agenda –
None

Discussion of changes to the proposed 2021 IECC ordinance

The Board discussed changes to the proposed 2021 IECC ordinance.

Top discussion items:

a. Intention of new proposed IECC ordinance is to replace all prior IECC amendments.

b. Appendix PT (Performance Target): the one we are proposing came from the City of Boulder since Denver's was too extensive and the Code Consultants proposed using Boulder's PT program.
    a. PT is adopted differently with different municipalities.
    b. Denver has five PT (PT 103) categories: apartment/multi-family=38, hotel/motel=55, office=43, retail=39, restaurant/bar=175
    c. Question by Board of how hard is it to meet these numbers?
    d. Root discussed that he does not know how to meet the numbers or how the numbers were decided.
    e. Geise pointed out that there are consultant groups that could be hired to do an evaluation for PT compliance and this is what Boulder does; Root agreed that Louisville would need to contract for this work since we do not have the staff or training to check compliance.
    f. If Board removes the PT compliance then multi-family would need to fall under the IECC code instead of the IBC code.
    g. Chad explained that the PT is more of an energy auditing system and that City of Boulder has a monitor and escrow that developers and owners have to put in to modify the buildings.
    h. Board is ok having the PT table be an option, not a requirement.

c. Discussed insulation minimums; R-3 for pipes

d. Berry brought up that the code is being manipulated but not necessarily for the better. He proposed for the record that the changes being proposed are not necessarily blessed by the Board nor it is making any significant change or improvement.

e. EV has been removed from the proposed changes to the 2021 IECC. Not part of energy code and was above the state requirement, so will bring it down to the state code. It was moved to the Land Use code since the charging stations are in the parking lot for commercial/multi-family buildings.

f. Berry mentioned that structural changes with roof insulation are increasing snow load on existing buildings. SEAC has a committee studying the effect of added insulation on snow load. Berry suggested to wait until the study is complete before making changes to the insulation values.

g. Occupancy R-2 was requested to be part of the Commercial IBC code instead by multi-family developer.

h. Commercial buildings can have gas lines and gas appliances installed for heating water and heating spaces; but the electrical conduit must be in place as well so that a building can be all-electric. Board discussed

striking the all-electric requirements since the equipment is either still not available or is too far out to order. Suggested having gas appliances as an option and specifying that the gas appliance would need to be at least 92% efficient.

i. Exceptions would be fossil fuel for MAU systems or supplementary heat systems.

j. Commercial gas: electric resistance and storage is currently not allowed. Board would like to change to allow more options.

Discussion Items for Next Meeting –
None at this time.

Next meeting has not been determined.

Adjourn – The meeting was adjourned at ____8:45pm_____.

City of Louisville
COLORADO • SINCE 1878

Memorandum

To: **Louisville City Council Members**

From: **Louisville Sustainability Advisory Board**

Date: **January 15, 2025**

Re: **2021 IECC Energy Code**

Dear Louisville City Councilors,

The Louisville Sustainability Advisory Board understands that City Council will consider several amendments to the IECC 2021 code and appendixes on January 21, 2025. While we recognize that these amendments have been carefully examined and reviewed at the direction of City Council, we would like to take this opportunity to reiterate our advice from our May 22, 2024 memo where we supported retention of several key provisions of the building codes.

First, we would like to remind City Council of the City's Community Decarbonization Plan and the Climate Action Goals for greenhouse gas (GHG) emission reductions of 60% below 2016 levels by 2030, and net-zero GHG emissions by 2050. Buildings contribute over 35% of GHG emissions, and it is critical that we continue to prioritize building the most efficient and sustainable buildings possible. This includes utilizing the best available technologies and offsetting energy consumption with renewable energy to the largest extent feasible. Additionally, we note that a variety of rebates and incentives are available from federal, state, county, local governments, and utilities, both now and continuing throughout 2025, make these building requirements within reach for many homeowners and businesses.

It is imperative that this work accelerate now. Delaying progress will only increase the costs for cities, businesses, and homeowners. As recently stated by Exxon Mobil CEO Darren Woods in November 2024, “I don’t think the challenge or the need to address global emissions is going to go away. Anything that happens in the short term would just make the longer term that much more challenging.” The longer we wait to act, the harder and more expensive it will be to meet our decarbonization goals.

The Board’s most critical recommendations remain as follows:

- *Retention of the RC Appendix*: The Board strongly supports keeping the RC Appendix requirement as-is. Many properties, particularly in the Marshall Fire rebuild area, have already adopted the IECC 2021 code with the RC Appendix or better by installing on-site solar or subscribing to community solar programs. These efforts, supported by a combination of policy

and incentives, demonstrate that we are on the right path to reducing GHG emissions. Eliminating this requirement now would place the City's Climate Action Goals in jeopardy.

- *Passive House Certification:* The Board recommends that the City allow Passive House certification from both PHI and PHIUS as an alternative to Appendix RC of the 2021 IECC. Passive House certification is a proven and effective way to ensure the highest levels of energy efficiency and sustainability in buildings, while also saving homeowners money in the long term.
- *All-Electric Requirements for Commercial Space and Water Heating*: The Board recommends retaining the all-electric space and water heating requirements for alterations and additions when existing equipment is replaced or when additional heating units are installed. We support allowing the continued use of existing equipment for the duration of its useful life, regardless of its energy source.
- *Natural Gas Backup for Commercial Space Heating*: The Board recommends that natural gas backups for commercial space heating only be permitted if existing natural gas heating equipment is being retained for this purpose.
- *Furnace Efficiency Standards*: The Board recommends maintaining furnace efficiency standards, with a waiver provision for cases where products meeting these standards are not readily available. This ensures that the City's building codes continue to support energy-efficient technologies while providing flexibility in cases of product availability issues.

We anticipate that future legislation will increasingly require the electrification of buildings in the near future. Property owners who electrify their buildings during new construction, renovations, or expansions will almost certainly save money in the long term compared to waiting for future retrofit mandates.

Additionally, the Board strongly supports any additional assistance or incentives the City can offer to residents and businesses to help with efficiency upgrades and electrification. Such support would help offset some of the initial costs associated with electrification, while also contributing to the City's efforts to meet our Climate Action Goals.

Thank you for considering our advice and for your ongoing commitment to a sustainable future.

Sincerely,
The Louisville Sustainability Advisory Board

Second Reading Amendments

Ordinance No. 1816, Series 2021 is revised to read as follows (amendments are shown in **bold underline** and ~~**bold strikeout**~~):

ORDINANCE NO. 1816

AN ORDINANCE ADOPTING BY REFERENCE THE 2021 INTERNATIONAL ENERGY CONSERVATION CODE, WITH AMENDMENTS, REPEALING CHAPTER 15.60 OF THE LOUISVILLE MUNICIPAL CODE CONCERNING THE PRESCRIPTIVE ENERGY CODE AND DESIGN CRITERIA, AND AMENDING TITLE 17 OF THE LOUISVILLE MUNICIPAL CODE CONCERNING ELECTRIC VEHICLE CHARGING INFRASTRUCTURE

WHEREAS, the City Council has adopted from time to time certain building and construction standards; and

WHEREAS, it is deemed to be in the interest of the public health, safety and general welfare to adopt by reference thereto the 2021 edition of the International Energy Conservation Code; and

WHEREAS, the City of Louisville remains committed to its adopted goals to reduce energy consumption, increase clean energy sources, and support the transition to a low-carbon community as outlined in the Sustainability Action Plan and Resolution 25, Series 2019, "A Resolution Setting Clean Energy and Carbon Reduction Goals"; and

WHEREAS, reducing building energy consumption is an effective strategy to reduce community-wide energy consumption and increase long-term cost savings for residents and businesses; and

WHEREAS, the City Council desires to add requirements for solar readiness, electric vehicle charging infrastructure, and building electrification to build a more resilient building stock and support future building and transportation electrification efforts pursued by residents and businesses; and

WHEREAS, the City Council, after proper notice as required by law, has held a public hearing on this ordinance providing for the adoption of said codes; and

WHEREAS, the 2021 edition of the International Energy Conservation Code has been submitted to the City Council in writing and the City Council has determined that such codes should be adopted as herein set forth.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF LOUISVILLE, COLORADO:

Section 1. Chapter 15.18 of the Louisville Municipal Code is hereby repealed and reenacted to read as follows:

INTERNATIONAL ENERGY CONSERVATION CODE

Sec. 15.18.010. Adoption.
Sec. 15.18.020. Appendices adopted.
Sec. 15.18.030. Amendments and Deletions to the 2021 International Energy Conservation Code.
Sec. 15.18.040. Design criteria.
Sec. 15.18.050. Applicability.
Sec. 15.18.060. Copies available.
Sec. 15.18.070. Violations and penalties.

Sec. 15.18.010. - Adoption.

The International Energy Conservation Code, 2021 Edition, published by the International Code Council, 4051 West Flossmoor Road, Country Club Hills, Illinois, 60478-5795, is hereby adopted by reference thereto and incorporated into and made a part of the Louisville Municipal Code. The subject matter of the International Energy Conservation Code is to regulate and govern energy efficient building envelopes and the installation of energy efficient mechanical, lighting and power systems in the City of Louisville, and to provide for the issuance of permits and collection of fees therefor. The International Energy Conservation Code, 2021 Edition, is adopted as amended by the City, including the outline table of contents and index, for the minimum requirements for minimum energy efficiency.

Sec. 15.18.20. Appendices adopted.

The following appendices of the 2021 International Energy Conservation Code are hereby specifically adopted; any appendices not listed are not adopted: **Appendix RC, Zero Energy Residential Building Provisions,** Appendix CB, Solar Ready Zone – Commercial and Appendix RB, Solar Ready Provisions – Detached One and Two-Family Dwellings and Townhouses. Group R2, R3, and R4, three stories or less shall comply with Appendix RB.

Sec. 15.18.030. - Amendments and Deletions to the 2021 International Energy Conservation Code

The 2021 International Energy Conservation Code adopted in Section 15.18.010 is hereby amended in the following respects. An ellipsis (…) indicates when the remainder of a section of the 2021 International Energy Conservation Code is to remain unchanged and in full force and effect.

1. ***Section C101.1 Title***, is amended to insert "the City of Louisville" so the section will read:

C101.1 Title. These regulations shall be known as the Energy Conservation Code of the City of Louisville, and shall be cited as such. It is referred to herein as "this code."

2. *Section C103.2 Information on construction documents*, is hereby amended to read as follows:

C103.2 Information on construction documents. Construction documents shall be drawn to scale upon suitable material. Electronic media documented are permitted to be submitted when *approved* by the *code official*. Construction documents shall be of sufficient clarity to indicate the location, nature and extent of the work proposed, and show in sufficient detail pertinent data and features of the building, systems and equipment herein governed. Details shall include the following as applicable:

1. **Energy compliance path.**
2. **Insulation materials and their *R*-values**
3. **Fenestration *U*-factor and solar heat gain coefficients (SHGCs).**
4. **Area-weighted *U*-factor and solar heat gain coefficient (SHGC) calculations.**
5. **Mechanical system design criteria.**
6. **Mechanical and service water heating systems and equipment types, sizes, fuel source and efficiencies.**
7. **Economizer description.**
8. **Equipment and system controls.**
9. **Fan motor horsepower (hp) and controls.**
10. **Duct sealing, duct and pipe insulation and location.**
11. **Lighting fixture schedule with wattage and control narrative.**
12. **Location and *daylight* zones on floor plans.**
13. **Air barrier and air sealing details, including the location of the air barrier.**
14. **Location of pathways for routing of raceways or cable from the solar ready zone to the electrical service panel.**

~~2.~~ **3.** ***Section C202 General Definitions***, is hereby amended by adding, in alphabetical order, the following definitions:

All-Electric Building: **A building that contains no combustion equipment, or plumbing for combustion equipment, installed within the building or building site.**

Combustion Equipment: Any equipment or appliance used for space heating, service water heating, cooking, clothes drying and/or lighting that uses fuel gas or fuel oil.

Electric Vehicle (EV): A vehicle registered for on-road use, primarily powered by an electric motor that draws current from a rechargeable storage source that is charged by being plugged into an electrical current source.

Electric Vehicle Supply Equipment (EVSE): The electrical conductors and associated equipment external to the electric vehicle that provide a connection between the premises wiring and the electric vehicle to provide electric vehicle charging.

Electric Vehicle Capable Space: A designated parking space that is provided with conduit sized and rated for a minimum 40-amp, 208/240-Volt dedicated branch circuit and shall be no less than 1" in size. Conduit must be continuous from the future or existing electrical panelboard or switchboard location(s) and end at a junction box or receptacle located within close proximity of the parking space. The electrical panel serving the parking space shall have sufficient capacity and physical space for a dual-pole, 40-amp breaker. The conduit shall be sealed at the junction or outlet box that is capped off, with the conduit sealed and the cap labeled as "For future electric vehicle charging".

Electric Vehicle Ready Space: A designated parking space that is provided with a dedicated branch circuit with wiring capable of supporting a minimum 40-ampere, 208/240- Volt circuit that terminates at a receptacle, plug, junction box, or an installed electric vehicle supply equipment within close proximity of the parking space. There shall be adequate reserved space in an electrical panelboard or switchboard to meet the electric vehicle requirements.

Electric Vehicle Supply Equipment (EVSE) Installed Space: A designated parking space with dedicated electric vehicle supply equipment capable of supplying a minimum 40-amp, dedicated circuit rated at 208/240 Volt from a building electrical panelboard.

~~3.~~ **4.** ***Section C401.2 Application*****,** is hereby amended to read as follows:

C401.2 Application
Commercial buildings shall comply with Section C401.2.1

~~4.~~ **5.** ***Section C401.2.1 International Energy Conservation Code*****,** is hereby deleted and replaced to read as follows:

C401.2.1 International Energy Conservation Code

Commercial buildings shall **be built all-electric unless the fuel gas options of C403.3.2 and the additional electric infrastructure requirements of C405.14 are met. All buildings must comply** with the following:

City of Louisville's Prescriptive Compliance. The Prescriptive Compliance option requires compliance with Sections C401.3, C401.4, C402 through C406, and Section C408.

Core and shell buildings shall be required to comply with the provisions of Section C402.1.3 through C402.5 of the 2021 International Energy Conservation Code.

~~5.~~ **6.** ***Section C401.2.2 ASHRAE 90.1***, is hereby deleted in its entirety.

~~6.~~ **7.** A new ***Section C401.4 Mandatory Requirements for Commercial Buildings***, is hereby added to read as follows:

C401.4 Mandatory Requirements for Commercial Buildings. Commercial buildings must comply with Table C401.4.

Table C401.4 (Mandatory)
Requirements for Commercial Buildings

Title	IECC Section
Air leakage	C402.5
Calculation of heating and cooling loads	C403.1.1
Data centers	C403.1.2
System Design	C403.2
Heating and cooling equipment efficiency	C403.3
Heating and cooling system controls	C403.4, except C403.4.3, C403.4.4, C403.4.5
Economizer fault detection and diagnostics	C403.5.5
Ventilation and exhaust systems	C403.7, except C403.7.4.1
Fan and fan controls	C403.8, except C403.8.6
Large diameter ceiling fans	C403.9
Refrigeration equipment performance	C403.11, except C403.11.3
Construction of HVAC system elements	C403.12
Mechanical systems located outside of the building thermal envelope	C403.13
Service water heating	C404
Electrical power and lighting systems	C405, except C405.3

Maintenance information and system commissioning	C408

~~7.~~ **8.** ***Table C402.1.3 Opaque Thermal Envelope Insulation Component Minimum Requirements, R-Value Method,*** is hereby deleted and replaced with the following:

Table C402.1.3 (Mandatory)
Opaque Thermal Envelope Insulation Component of an Average Minimum Requirements, *R*-Value Method in following locations:

Roof C402.2.1	
Insulation entirely above roof deck	R-49
Metal buildings[a]	R-21 + R-11 LS
Attic and other	R-49
Walls. Above grade C402.2.2	
Mass[d]	R-21
Metal buildings	R-21
Metal framed	R-21
Wood framed and other	R-21
Walls, Below grade C402.2.5	
Below-grade wall[b]	R-10
Floors C402.2.3	
Mass[c]	R-21
Joist/framing	R-38
Slab-on-grade floors C402.2.4	
Unheated	R-20 for 24”
Heated[e]	R-15 for 36" below + R-5 full slab

For SI: 1 inch = 25.4 mm, 1 pound per square foot = 4.88 kg/m^2, 1 pound per cubic foot = 16 kg/m^3.
NR = No Requirement, LS = Liner System.

a.Where using *R*-value compliance method, a thermal spacer block shall be provided,
b.Where heated slabs are below grade, below-grade walls shall comply with the exterior insulation requirements for heated slabs.
c.“Mass floors” shall be in accordance with Section C402.2.3.
d.“Mass walls” shall be in accordance with Section C402.2.2.
e. The first value is for perimeter insulation and the second value is for full, under-slab insulation.

~~8.~~ **9.** ***Section C402.1.4 Assembly U-factor, C-factor or F-factor-based method,*** is hereby deleted in its entirety.

~~9.~~ **10.** ***Section C402.1.5 Component performance alternative,*** is hereby deleted in its entirety.

~~10.~~ **11.** ***Table C402.4 Building Envelope Fenestration Maximum U-Factor and SHGC Requirements,*** is hereby deleted and replaced with the following:

Table C402.4
Building Envelope Fenestration

Vertical Fenestration	
Maximum U-Factor	0.30
Maximum SHGC	0.33
Maximum Air leakage rate for all fenestration except curtain walls and storefront glazing	.20 cfm/ft2
Maximum air leakage rate for curtain walls and storefront glazing	.06 cfm/ft
Skylights	
Maximum U-Factor	0.50
Maximum SHGC	0.40
Maximum Air leakage rate	.20 cfm/ft2

~~11.~~ **12.** ***Section C402.4.1 Maximum area***, is hereby deleted and replaced with the following:

C402.4.1 Minimum area of natural lighting. Not less than eight percent of the floor area shall be glazed.

~~12.~~ **13.** ***Section C402.4.2 Minimum skylight fenestration area***, is hereby deleted and replaced with the following:

C402.4.2 Minimum area of natural lighting. A minimum skylight area of three percent of the roof area shall be provided for all roofs.

Exception: Roof areas designated for solar ready zones shall not be included in roof area calculation.

~~13.~~ **14.** ***Section C403.3.2 HVAC equipment performance requirements*****, is hereby deleted in its entirety and replaced to read as follows:**

~~**A. The first paragraph is hereby deleted in its entirety and replaced to read as follows:**~~

C403.3.2 HVAC/fuel fired equipment performance requirements. Unless built all-electric, all new combustion equipment shall comply with the more efficient HVAC equipment performance of Sections C406.2, C406.2.3, and C406.2.4 and the additional electric infrastructure requirements in Section C405.14. A mechanical compliance certificate demonstrating compliance with section C406.2.3 and/or C406.2.4 shall be required for all HVAC, fuel fired and Service Water Heating equipment.

The efficiency shall be verified through certification under an approved certification program or, where a certification program does not exist, the equipment efficiency ratings shall be supported by data furnished by the manufacturer. Where multiple rating conditions or performance requirements are provided, the equipment shall satisfy all stated requirements. Where components, such as indoor or outdoor coils, from different manufacturers are used, calculations and supporting data shall be furnished by the designer that demonstrates that the combined efficiency of the specified components meets the requirements herein. (Tables C403.2.(1) through (16) are expressly retained and remain applicable to HVAC equipment performance.)

Exceptions:

1. Factory, laboratory, and high hazard occupancy combustion equipment, except for HVAC and domestic water heating.

2. Commercial Kitchens.

3. Other combustion equipment approved by the Building Official based on demonstration by the applicant that compliance with this section is not feasible and the equipment proposed is the most efficient appliance reasonably available.

~~13.~~ **15.** ***Section C403.4.1 Thermostatic controls***, is hereby deleted and replaced with the following:

C403.4.1 Thermostatic controls. The supply of heating and cooling energy to each *zone* shall be controlled by individual thermostatic controls capable of responding to temperature within the *zone*. Where humidification or dehumidification or both is provided, no fewer than one humidity control device shall be provided for each humidity control system. Occupancy sensors shall be provided on the thermostat to setback in accordance with C403.4.2.1

Exception: Independent perimeter systems that are designed to offset only building envelope heat losses, gains or both serving one or more perimeter *zones* also served by an interior system provided that both of the following conditions are met:

1. The perimeter system includes not fewer than one thermostatic control *zone* for each building exposure having exterior walls facing only one orientation (within ±45 degrees) (0.8 rad) for more than 50 contiguous feet (15 240 mm).
2. The perimeter system heating and cooling supply is controlled by thermostats located within the *zones* served by the system.

~~14.~~ **16.** ***Section C403.12.1 Duct and plenum insulation and sealing***, is hereby deleted and replaced with the following:

C403.12.1 Duct and plenum insulation and sealing. All supply and return air ducts and plenums shall be insulated with not less than R-12. Ducts, air handlers and filter boxes shall be sealed. Joints and seams shall comply with Section 603.9 of the International Mechanical Code.

~~15.~~ **17.** ***Section C403.12.3 Piping insulation***, is hereby amended to read as follows:

C403.12.3 Piping insulation. Piping serving as part of a heating or cooling system shall be thermally insulated to R-5.

~~16.~~ **18.** ***Section C404.4 Insulation of piping***, is hereby amended to read as follows:

C404.4 Insulation of piping. Piping from a water heater to the termination of the heated water fixture supply pipe shall be insulated to R-3. On both the inlet and outlet piping of a storage water heater or heated water storage tank, the piping to a heat trap or the first 8 feet (2438 mm) of piping, whichever is less, shall be insulated. Piping that is heat traced shall be insulated to R-3 or the heat trace manufacturer's instructions.

~~17.~~ **19.** ***Section C405.2.1 Occupant sensor controls***, is hereby amended to read as follows:

C405.2.1 Occupant sensor controls. Occupant *sensor controls* shall be installed to control lighting.

~~18.~~ **20.** ***Section C405.2.2 Time-switch controls***, is hereby deleted in its entirety.

~~19.~~ **21.** ***Section C405.2.2.1 Time-switch control function***, is hereby deleted in its entirety.

~~20.~~ **22.** ***Section C405.2.3 Light-reduction controls***, is renumbered to C405.2.2.

~~21.~~ **23.** ***Section C405.2.3.1 Light-reduction function***, is renumbered to C405.2.2.1.

~~22.~~ **24.** ***Section C405.2.4 Daylight-responsive controls***, is renumbered to C405.2.3.

~~23.~~ **25.** ***Section C405.2.4.1 Daylight-responsive control function***, is renumbered to C405.2.3.1.

~~24.~~ **26.** ***Section C405.2.4.2 Sidelit daylight zone***, is renumbered to C405.2.3.2.

~~25.~~ **27.** ***Section C405.2.4.3 Toplit daylight zone,*** is renumbered to C405.2.3.3.

~~26.~~ **28.** ***Section C405.2.4.4 Atriums,*** is renumbered to C405.2.3.4.

~~27.~~ **29.** ***Section C405.2.5 Specific application controls,*** is renumbered to C405.2.4.

~~28.~~ **30.** ***Section C405.2.6 Manual controls,*** is renumbered to C405.2.5.

~~29.~~ **31.** ***Section C405.2.7 Exterior lighting controls,*** is renumber to C405.2.6.

~~30.~~ **32.** ***Section C405.2.7.1 Daylight shut off,*** is renumbered to C405.2.6.1.

~~31.~~ **33.** ***Section C405.2.7.2 Building façade and landscape lighting,*** is renumbered to C405.2.6.2.

~~32.~~ **34.** ***Section C405.2.7.3 Lighting setback,*** is renumbered to C405.2.6.3.

~~33.~~ **35.** ***Section C405.2.7.4 Exterior time-switch control function,*** is renumbered to C405.2.6.4.

~~34.~~ **36.** ***Section C405.2.8 Parking garage lighting control***, is renumbered to C405.2.7.

37. ***Section C405.4.3 Gas lighting, is hereby amended to read as follows:***

> **C405.4.3 Gas lighting. Gas-fired lighting appliances shall not be permitted.**

~~35.~~ **38.** A new ***Section C405.13 Electric vehicle charging infrastructure for new construction and building addition of 25% or more of original square footage***, is hereby added to read as follows:

> **Section C405.13.1 Electric vehicle charging infrastructure for new construction and building addition of 25% or more of original square footage.** Electric vehicle charging shall be provided and installed in accordance with this section, National Electrical Code (NFPA 70), and Section 17.20.170 of the Louisville Municipal Code. When parking spaces are added or modified without an increase in building floor area, only the new parking spaces are subject to this requirement. All *EVSE Installed*, *EV Ready* and *EV Capable* spaces are to be included in the calculation for the number of minimum vehicle spaces required, as provided by the applicable article of the Louisville Zoning Code.
>
> **Section C405.13.2 Identification.** The circuit breakers or circuit breaker spaces reserved for the *EVSE Installed, EV Ready*, and *EV Capable* spaces shall be clearly identified in the panelboard directory. The conduit for electric vehicle capable spaces shall be clearly identified at both the panelboard and the termination point at the parking space.

~~36.~~ **39.** A new ***Section C405.14 Additional electric infrastructure***, is hereby added to read as follows:

Section C405.14 Additional electric infrastructure. All *combustion equipment* and end-uses shall be installed in accordance with this section.

C405.14.1 Electric infrastructure for dwelling and sleeping units. *Combustion equipment* and end-uses serving individual dwelling units or sleeping units shall comply with Section R404.5.

C405.14.2 Combustion equipment. *Combustion equipment* shall be provided with conduit that is continuous between a junction box located within 3 feet (914 mm) of the appliance or equipment and an electrical panel. The junction box, conduit and bus bar in the electrical panel shall be rated and sized to accommodate a branch circuit with sufficient capacity for an equivalent electric appliance, equipment or end use with an equivalent equipment capacity. The electrical junction box and electrical panel shall have labels stating, "For Future Electric Equipment".

Exception: Industrial and manufacturing uses are exempt from Section C405.14.

~~37.~~ **40.** ***Section C505.1 General***, is hereby amended to read as follows:

C505.1 General. Where the use in a space changes from one use in Table C405.3.2(1) or C405.3.2(2) to another use in Table C405.3.2(1) or C405.3.2(2), the installed lighting wattage shall comply with Section C405.3. Where the space undergoing a change in occupancy or use is in a building with a fenestration area that exceeds the limitations of Section C402.4.1, the space is exempt from Section C402.4.1 provided that there is not an increase in fenestration area.

Exception: Egress doors with fenestration are allowed to bring total fenestration percentages over the allowed maximum amount of vertical fenestration.

~~38.~~ **41.** ***Section R101.1 Title,*** is amended to insert "the City of Louisville" so the section will read:

R101.1 Title. These regulations shall be known as the Energy Conservation Code of the City of Louisville and shall be cited as such. It is referred to herein as "this code."

42. *Section R103.2 Information on construction documents*, is amended to read as follows:

R103.2 Information on construction documents. Construction documents shall be drawn to scale upon suitable material. Electronic

media documented are permitted to be submitted when *approved* by the *code official*. Construction documents shall be of sufficient clarity to indicate the location, nature and extent of the work proposed, and show in sufficient detail pertinent data and features of the building, systems and equipment herein governed. Details shall include the following as applicable:

1. **Energy compliance path.**
2. **Insulation materials and their *R*-values**
3. **Fenestration *U*-factor and solar heat gain coefficients (SHGCs).**
4. **Area-weighted *U*-factor and solar heat gain coefficient (SHGC) calculations.**
5. **Mechanical system design criteria.**
6. **Mechanical and service water heating systems and equipment types, sizes, fuel source and efficiencies.**
7. **Equipment and system controls.**
8. **Duct sealing, duct and pipe insulation and location.**
9. **Air sealing detail.**
10. **Location of pathways for routing of raceways or cable from the solar ready zone to the electrical service panel.**

~~39.~~ **43.** ***Section R202 General Definitions***, is hereby amended by adding, in alphabetical order, the following definitions:

All-Electric Building: **A building that contains no combustion equipment, or plumbing for combustion equipment, installed within the building or building site.**

Combustion Equipment: Any equipment or appliance used for space heating, service water heating, cooking, clothes drying and/or lighting that uses fuel gas or fuel oil.

Electric Vehicle (EV): A vehicle registered for on-road use, primarily powered by an electric motor that draws current from a rechargeable storage source that is charged by being plugged into an electrical current source.

Electric Vehicle Supply Equipment (EVSE): The electrical conductors and associated equipment external to the electric vehicle that provide a connection between the premises wiring and the electric vehicle to provide electric vehicle charging.

Electric Vehicle Capable Space: A designated parking space that is provided with conduit sized and rated for a minimum 40-amp, 208/240-Volt dedicated branch circuit and shall be no less than 1" in size. Conduit must be continuous from the future or existing electrical panel board or switchboard

location(s) and end at a junction box or receptacle located within close proximity of the parking space. The electrical panel serving the parking space shall have sufficient capacity and physical space for a dual-pole, 40-amp breaker. The conduit shall be sealed at the junction or outlet box that is capped off, with the conduit sealed and the cap labeled as "For future electric vehicle charging".

Electric Vehicle Ready Space: A designated parking space that is provided with a dedicated branch circuit with wiring capable of supporting a minimum 40-ampere, 208/240- Volt circuit that terminates at a receptacle, plug, junction box, or an installed electric vehicle supply equipment within close proximity of the parking space. There shall be adequate reserved space in an electrical panel board or switchboard to meet the electric vehicle requirements.

~~40.~~ **44.** ***Section R401.2 Application,*** is hereby deleted and replaced with the following:

> **R401.2 Application.** Residential buildings shall be **built ~~100%~~** all-electric unless **the** fuel gas **options of R403.7 and additional electric infrastructure requirements of R404.5** are met. **~~and all~~ All** residential buildings shall comply with the R401.2.1 City of Louisville's Prescriptive Compliance or R406 Energy Rating Index with a maximum rating index of 50 before the installation of solar panels.
>
> **Exception:** Additions, alterations, repairs and changes of occupancy to existing buildings complying with Chapter 5.

~~41.~~ **45.** ***Section R401.2.1 Prescriptive Compliance Option,*** is hereby deleted and replaced with the following:

> **R401.2.1 City of Louisville's Prescriptive Compliance.** The City of Louisville's Prescriptive compliance requires compliance with Sections R401 through R404.

~~42.~~ **46.** ***Section R401.2.2 Total Building Performance Option***, is hereby deleted in its entirety.

~~43.~~ **47.** ***Section R401.2.4 Tropical Climate Region***, is hereby deleted in its entirety.

~~44.~~ **48.** ***Section R401.2.5 Additional Energy Efficiency***, is hereby amended to read as follows:

> **Section R401.2.5 Additional Energy Efficiency.** Building shall comply with one of the additional efficiency options and shall be installed in according to Section R408.2.

~~45.~~ **49.** A new ***Section R401.4 Mandatory requirements for residential buildings***, is hereby added to read as follows:

R401.3 Mandatory requirements for residential buildings. Residential building must comply with the following sections from the 2021 International Energy Conservation Code.

Table R401.3
Mandatory requirements for residential buildings

Title	IECC Section
Vapor retarder	R402.1.1
Eave baffle	R402.2.3
Access hatches and doors	R402.2.4.1
Crawl space wall insulation	R402.4.1.2
Maximum fenestration U-factor and SHGC	R402.5
Mechanical Controls	R403.1
Ducts	R403.3 except R403.3.2, R403.3.3, and R403.6
Mechanical system piping insulation	R403.4
Heated water circulation and temperature maintenance systems	R403.5.1
Drain Water heat recovery units	R403.5.3
Mechanical ventilation	R403.6 including E403.6.1
Equipment sizing and efficiency rating	R403.7
Systems serving multiple dwelling units	R403.8
Snow melt and ice systems	R403.9
Energy consumption of pools and spas	R403.10
Portable spas	R403.11
Residential pools and permanent residential spas	R403.12
Lighting equipment	R404.1
Interior lighting controls	R404.2

~~46.~~ **50.** ***Section R402.1 General***, is hereby amended to read as follows:

R402.1 General. The building thermal envelope shall comply with the requirements of Section R402.1.1 and R402.1.2.

~~47.~~ **51.** ***Section R402.1.2 Insulation and fenestration***, is hereby deleted and replaced with the following***:***

R402.1.2 Insulation and fenestration. Assemblies shall have R-value of insulation materials equal to or greater than that specified in Table R402.1.2 unless an alternative path is specified while using HERS energy rating index of 50.

Table R402.1.2
Average Insulation and Fenestration Requirements by Component

Roof	R-60
Above grade walls	R-21
Below grade walls	R-21
Floors	R-38
Non heated slab on grade	R-10 for 4ft
Heated slab on grade[a]	R-15 for 4 ft + R-5 under full slab
Fenestration U-Factor	.30
Fenestration SHGC	.33
Skylight U-Factor	.50
Skylight SHGC	.40

a. The first value is for perimeter insulation and the second value is for full, under-slab insulation.

~~48.~~ **52.** ***Section R402.1.5 Total UA alternative***, is hereby deleted in its entirety.

~~49.~~ **53.** ***Section R402.3.3 Glazed fenestration exemption***, is hereby amended to read as follows:

> **R402.3.3 Glazed fenestration exemption**. Not greater than 15 square feet (1.4 m^2) of glazed fenestration per dwelling unit shall be exempt from the U-factor and SHGC requirements in Section R402.1.2.

~~50.~~ **54.** ***Section R402.4.1.2 Testing***, is hereby deleted and replaced to read as follows:

> **Section R402.4.1.2 Testing.** All new buildings or dwelling units that are heated or cooled, and additions over 500 square feet shall be tested for air leakage.

~~51.~~ **55.** ***Section R402.5 Maximum fenestration U-factor and SHGC***, is hereby deleted and replaced with the following***:***

> **Section R402.5 Maximum fenestration U-factor and SHGC.** The maximum U-factor and solar heat gain coefficient (SHGC) for fenestration shall not be required in storm shelters complying with ICC 500.

~~52.~~ **56.** ***Section R403.3.1 Ducts located outside conditioned space*****,** is hereby deleted and replaced with the following*:*

R403.3.1 ***Ducts located outside conditioned space.*** All supply and return ducts shall be insulated to a minimum R-8 if located outside a conditioned space.

~~53.~~ **57.** ***Section R403.5.2 Hot water pipe insulation*****,** is hereby deleted and replaced with the following*:*

R403.5.2 Hot water pipe insulation. All service hot water piping shall be insulated to a minimum R-5.

~~54.~~ **58.** ***Section R403.6.1 Heat and recovery ventilation*****,** is hereby deleted and replaced in its entirety and the following is hereby added in lieu thereof*:*

R403.5.2 Heat and recovery ventilation. All new buildings and additions over 500 square feet shall be provided with a heat recovery or energy recovery ventilation system. The system shall be balanced with a minimum sensible heat recovery efficiency of 65 percent at 32°F (0°C) at a flow greater than or equal to the design airflow.

~~55.~~ **59.** ***Section R403.7 Equipment sizing and efficiency rating*****,** is hereby deleted and replaced with the following*:*

R403.7 Equipment sizing and efficiency rating. All new buildings and additions greater than 500 square feet with heating and cooling equipment shall be sized in accordance with ACCA Manual S based on building loads calculated in accordance with ACCA Manual J or other approved heating and cooling calculation methodologies. In addition to complying with Sec. R404.6 Additional Electric Infrastructure, new and replacement **electrical** heating and cooling equipment shall have an efficiency rating equal to or greater than the minimum required by federal law for the geographic location where the equipment is installed. **New gas heating equipment shall comply with the following efficiencies:**

1. Gas furnaces shall have a minimum of 96% efficiency.
2. Gas boilers shall have a minimum of 90% AFUE.
3. On demand water heaters shall have greater than .92 uniform energy factor.

Exception: Solid fuel stoves/gas fireplaces, outdoor fire pits, gas stoves and ovens.

60. Section R404.1.1 Fuel gas lighting equipment, is hereby amended to read as follows:

R404.1.1 Fuel gas lighting equipment. Fuel gas lighting systems shall not be installed.

~~56.~~ **61.** A new ***Section R404.4 Electric vehicle charging infrastructure for new construction and building addition of 50% or more of original square footage*****,** is hereby added to read as follows:

Section R404.4 Electric vehicle charging infrastructure for new construction and building addition of 50% or more of original square footage. Electric infrastructure for the current and future charging of *electric vehicles* shall be installed in accordance with this section per Section 17.20.170 of the Louisville Municipal Code. *EV ready spaces and EV capable spaces* are permitted to be counted toward meeting minimum parking requirements.

R404.4.1 One- and two- family dwellings and townhouses. One- and two-family dwellings and townhouses with a dedicated attached or detached garage or on-site parking spaces shall be provided with electric vehicle charging in accordance with Section 17.20.170 of the Louisville Municipal Code.

R404.4.1.1 Minimum EV Ready infrastructure. Minimum EV Ready Space infrastructure shall require the following:

1. Installation of conductors:
    a. Conductors shall be installed of sufficient size to accommodate a minimum 240VAC 40Amp branch circuit to each parking space where required.
    b. Conductors shall terminate in either a receptacle, plug, junction or outlet box, or an *EVSE* installed in the parking space.
2. The electrical panel directory shall designate the branch circuit as "EV Ready" and the junction box or receptacle shall be labelled "EV Ready."

R404.4.1.2 Construction documents. Construction documents shall graphically indicate and label all EV ready spaces and associated termination locations. For all Townhouses and one- and two-family dwellings with an electrical utility service 200 Amps or greater, a panelboard schedule shall be provided indicating the EV Ready circuit breaker space(s) and the circuit designation(s).

R404.4.2 Group R occupancies. Group-R occupancies (R-2, R-3, and R-4 buildings three stories and less) with three or more dwelling units and/or sleeping units shall be provided with electric vehicle

charging in accordance with Section 17.20.170 of the Louisville Municipal Code.

Electric vehicle charging shall be provided and installed in accordance with this section and the National Electrical Code (NFPA 70). When parking spaces are added or modified without an increase in building floor area, only the new parking spaces are subject to this requirement.

~~57.~~ **62.** A new ***Section R404.5 Additional electric infrastructure*****,** is hereby added to read as follows:

R404.5 Additional electric infrastructure. *Combustion equipment* shall be installed in accordance with this section.

R404.5.1 Combustion equipment and end-uses. *Combustion equipment* shall be provided with a dedicated, appropriately phased circuit that shall have a minimum amperage requirement for a comparable electric appliance, equipment or end use, an electrical receptacle or junction box that is connected to the electric panel, and conductors of adequate capacity within 6 feet (1829 mm) of the appliance or equipment.

Each such circuit shall be accessible with no obstructions. A reserved circuit breaker space shall be installed in the electrical panel adjacent to the circuit breaker for the branch circuit and labeled for each circuit. Both ends of the unused conductor or conduit shall be labeled "For Future Electric Equipment" and be electrically isolated.

~~58.~~ **63.** ***Section R405 Total building performance*****,** is deleted in its entirety.

~~59.~~ **64.** ***Section R406.3 Building thermal envelope*****,** is hereby deleted and replaced with the following:

R406.3 Building thermal envelope. Building and portions thereof shall comply with Table R406.3.

Table R406.3
Average of the Insulation and Fenestration Requirements by Component

Roof	R-60
Above grade walls	R-21
Below grade walls	R-21
Floors	R-38
Non heated slab on grade	R-10 for 4ft

Heated slab on grade	R-15 for 4 ft + R-5 under full slab
Fenestration U-Factor	.30
Fenestration SHGC	.33
Skylight U-Factor	.50
Skylight SHGC	.40

~~60.~~ **65.** ***Section R406.3.1 On-site renewables are not included,*** is deleted in its entirety.

~~61.~~ **66.** ***Section R406.3.2 On-site renewables are included,*** is deleted in its entirety.

~~62.~~ **67.** ***Section R406.3.2 Tropical Climate Region Compliance Path,*** is deleted in its entirety.

~~63.~~ **68.** ***Section R505.1 General,*** is hereby amended to remove the exception.

~~64.~~ **69.** ***Section R505.1.1 Unconditioned space,*** is hereby deleted and replaced with the following:

> **R505.1.1** Unconditioned space. Any unconditioned or low-energy space that is altered to become a conditioned space shall comply with Section R503.

Sec.15.18.040. – Design criteria.

All new heated commercial and residential heated structures shall meet the following design criteria:

1. **Non-reducible ~~Snow~~ roof snow load**: 30 pounds per square foot.

2. Wind speed:

   a. 145 miles per hour three second gust ASCE-7-10;

   b. ASTM D3161 test with Class F Application.

3. Wind exposure: "C", unless in the opinion of the Chief Building Official greater restrictions are needed to protect public safety.

4. Seismic zone: B.

5. Frost line depth: 36 inches below finished grade.

6. Weathering: Severe – Climate Zone 5B.

7. Termite: Slight.

8. Decay: Slight.

9. Winter design temperature: one degree.

10. Anticipated snow: six inches.

11. Ice and water shield: required on all shingled roofs – eaves only. Shields must extend from the lowest edges to a point at least 24 inches inside the exterior wall line of the building.

12. Drip edge: required on both eaves and rakes of roof.

13. Air freezing index: less than 1000.

14. Mean annual temperature: 47 degrees.

15. Elevation: 5,337 feet above sea level.

16. Sump pumps:

a. Cannot drain into sanitary or storm sewer;

b. Must daylight into lawn away from foundation;

c. Perimeter foundation systems must day light or drain into sump pit and then sump pump, and sump pump must drain into lawn.

17. Drainage from house: slope at least six inches in the first ten feet.

18. Retaining walls:

a. Less than 48 inches from the bottom of the footing to the top of the retaining wall with no surcharge: no permit required.

b. More than 48 inches from bottom of footing to top of retaining wall, or any wall with surcharge: requires stamped engineering plans.

19. Backflow preventer: required on all residential irrigation systems (see cross connection control regulations).

20. Hot water heaters:

a. Expansion tanks required for all hot water heaters;

b. Drain pan required if placed on wood floor.

Sec.15.18.050. - Applicability.

Notwithstanding anything in the International Energy Conservation Code to the contrary, a developer/owner of a residential or commercial building may elect an inspection in accordance with the policies and procedures of the International Energy Conservation Code, as amended herein.

Sec. 15.18.060. - Copies available.

At least one copy of the International Energy Conservation Code, 2021 Edition, as amended herein, certified to be true and accurate, shall be available for public inspection at the office of the Building Safety Division, during business hours. The city clerk shall at all times maintain a reasonable supply of copies of the code available for purchase by the public at a moderate price. Electronic copies are available, without amendment, at https://codes.iccsafe.org/public/collections/I-Codes.

Sec. 15.18.070. - Violations and penalties.

It shall be unlawful for any person, firm, or corporation to erect, construct, enlarge, alter, repair, move, improve, remove, convert or demolish, equip, use, occupy or maintain any building or structure or cause or permit the work to be done, in violation of the provisions of this chapter or the terms of the code or standards adopted and incorporated in this chapter. Any person convicted of a violation of any provision of this chapter or of the provisions of the code or standards adopted and incorporated in this chapter shall be subject to the penalty provided in section 1.28.010.

Section 2. Chapter 15.60 of the Louisville Municipal Code is hereby repealed.

Section 3. Title 17 the Louisville Municipal Code is hereby amended by the addition of a new Section 17.20.170 to read as follows:

Sec. 17.20.170. – Electric vehicle charging infrastructure. ~~Vehicle Charging Infrastructure.~~

A. Purpose and Intent. The purpose and intent of this section is to facilitate and encourage the use of electric vehicles, to expedite the establishment of convenient and cost-effective electric vehicle infrastructure, and establish the minimum requirements for such infrastructure to serve both short and long-term parking needs.

B. Definitions. The following definitions shall apply to this Section:

Electric vehicle charging stations (EVCS) means a public or private parking space that is served by battery charging station equipment that has as its primary purpose the transfer of electric energy (by conductive or inductive means) to a battery or other energy storage device in an electric vehicle.

Electric vehicle charging station – private restricted use means an electric vehicle charging station that is:

1. Privately owned and restricted access (e.g., single-family dwelling unit, executive parking, designated employee parking, assigned parking at multi-family residential building); or

2. Publicly owned and restricted (e.g., fleet parking with no access to the general public).

Electric vehicle charging station – public use means an electric vehicle charging station that is:

1. Publicly owned and publicly available (e.g., Park-n-ride, public library parking lot, Recreation and Senior Center lot, etc); or

2. Privately owned and available to visitors of the use (e.g., shopping center, hotel, office, etc.)

Electric vehicle parking space means any marked parking space that identifies the use to be exclusively for the parking of an electric vehicle.

C. Number of required electric vehicle charging stations. The following table sets forth the number of required charging stations for all new development or redevelopments as required in Chapter 15.18 of the Louisville Municipal Code. This list is not intended to be exhaustive of each use category, however is intended to establish general categories of use tiers. The Director of Planning and Building Safety shall determine the appropriate tier if the use is not identified in the table below.

1. Requirements will be rounded up to the nearest whole number.

2. Minimum electrical and hardware requirements for EVSE Installed, EV Ready, and EV Capable are set forth in Chapter 15.18 of the Louisville Municipal Code.

	EV Installed	EV- Ready	EV Capable
Residential Uses			
Single-Family unit		1 space	1 space

Multi-Family unit, with dedicated parking spaces or garages		1 space	1 space
Tier 1			
Multi-Family, without dedicated parking spaces or garages	10% of spaces	10% of spaces	50% of spaces
Hotel, Motel, Extended Stay Lodging Facility			
Tier 2 – Employment oriented uses	7% of spaces	10% of spaces	15% of spaces
Business and Professional Offices			
General research facilities, light industrial facilities including manufacturing, assembly, warehouse and fabrication			
Hospital			
Tier 3 – Service and Sales oriented uses	5% of spaces	10% of spaces	10% of spaces
Private and public recreational and social facilities, membership clubs, lodges, and fraternal organizations			
Religious institution			
Commercial amusement, indoor and outdoor			
Schools, including public, private, vocational or business			
Restaurant			
Retail			
Personal service			
Medical and dental clinics			

D. Permitted locations.

1. EVCS are permitted in every zoning district when accessory to a principal permitted use. Such stations located a single-family and designated multi-family units shall be private restricted use only.

2. If the primary use of the parcel is the retail electric charging of vehicles, then the use shall be considered an automotive fueling station for zoning purposes. Installation shall be located in zone districts which permit this use.

E. General requirements.

1. Accessible spaces. A charging station will be considered accessible if it is located adjacent to, and can serve, an accessible parking space as

defined and required by the ADA. It is not necessary to designate the EVSE exclusively for the use of vehicles parked in the accessible space.

2. EVCS – public use shall be subject to the following requirements.

a. The EVCSs shall be located in a manner that will be easily seen by the public for informational and security purposes.

b. The EVCSs shall be located in desirable and convenient parking locations will serve as an incentive for the use of electric vehicles.

c. The EVCSs must be operational during the normal business hours of the use(s) that it serves.

d. The EVSE shall be maintained in all respects, including the functioning of equipment. A phone number or other contact information shall be provided on the equipment for reporting problems with the equipment or access to it.

e. The property owner may collect a service fee for the use of EVSE.

F. The requirements of this section shall be shall be implemented through the building permit process and shall apply to:

1. All new construction, expansion or modification projects for which a building permit has not been issued as of November 24, 2021; and

2. All planned unit developments for which a building permit has not been issued as of November 24, 2021, irrespective of whether such planned unit development was approved or approved and recorded prior to such date, unless a waiver was expressly granted through the planned unit development review process set forth in Chapter 17.28.

Section 4. If any article, section, paragraph, sentence, clause, or phrase of this ordinance is held to be unconstitutional or invalid for any reason, such decision shall not affect the validity or constitutionality of the remaining portions of this ordinance. The City Council hereby declares that it would have passed this ordinance and each part or parts hereof irrespective of the fact that any one part or parts be declared unconstitutional or invalid.

Section 5. The repeal or modification of any provision of any prior ordinance by this ordinance shall not release, extinguish, alter, modify, or change in whole or in part any penalty, forfeiture or liability, either civil or criminal, which shall have been incurred under such provision, and each provision shall be treated and held as still remaining in force for the purpose of sustaining

any judgment, decree, or order which can or may be rendered, entered, or made in such actions, suits, proceedings, or prosecutions.

Section 6. All other ordinances or portions thereof inconsistent or conflicting with this ordinance or any portion hereof are hereby repealed to the extent of such inconsistency or conflict.

INTRODUCED, READ, PASSED ON FIRST READING, AND ORDERED PUBLISHED this 21st day of September, 2021.

Ashley Stolzmann, Mayor

ATTEST:

Meredyth Muth, City Clerk

CITY OF LOUISVILLE SEAL COLORADO

APPROVED AS TO FORM:

Kelly PC, City Attorney

PASSED AND ADOPTED ON SECOND AND FINAL READING, this 19th day of October, 2021.

Ashley Stolzmann, Mayor

ATTEST:

Meredyth Muth, City Clerk

CITY OF LOUISVILLE SEAL COLORADO

Kim Bauer, Preservation Planner, reviewed the site and history of the building. It meets the criteria for landmark designation by age, architectural significance, cultural significance, and physical integrity. She reviewed the criteria for a preservation grant noting how this construction fits into the preservation, rehabilitation, and restoration areas.

The Historic Preservation Commission reviewed both requests and recommends approval; staff also recommends approval of both the landmark designation and grant resolution.

Public Comments - None

Mayor Stolzmann thanked the applicant for bringing this forward.

Mayor Pro Tem Maloney stated this is exactly the intention of the program and he supports it. Councilmember Fahey agreed.

Mayor Stolzmann closed the public hearing.

Motion: Mayor Pro Tem Maloney moved to approve Resolution No. 71; seconded by Councilmember Fahey

Vote: Motion passed by unanimous roll call vote.

Motion: Mayor Pro Tem Maloney moved to approved Resolution No. 72; seconded by Councilmember Dickinson

Vote: Motion passed by unanimous roll call vote

ORDINANCE NO. 1816, SERIES 2021 – AN ORDINANCE ADOPTING BY REFERENCE THE 2021 INTERNATIONAL ENERGY CONSERVATION CODE, WITH AMENDMENTS, REPEALING CHAPTER 15.60 OF THE LOUISVILLE MUNICIPAL CODE CONCERNING THE PRESCRIPTIVE ENERGY CODE AND DESIGN CRITERIA, AND AMENDING TITLE 17 OF THE LOUISVILLE MUNICIPAL CODE CONCERNING ELECTRIC VEHICLE CHARGING INFRASTRUCTURE – 2nd READING, PUBLIC HEARING (advertised *Daily Camera* 9/26/21)

Mayor Stolzmann introduced the item and asked for any disclosures; seeing none she opened the public hearing.

Katie Baum, Sustainability Coordinator, presented the IECC updates. The city is currently under the 2018 IECC with prescriptive energy and design criteria and solar readiness for residential and commercial buildings. The IECC is updated every three years, but this year is the first edition with significant efficiency gains since 2012. There are multiple changes from the 2018 IECC regarding residential structures in building insulation values,

HVAC systems and lighting and power. The changes to commercial buildings are in the building envelopes, HVAC, service water heating, lighting and power and renewables.

She advised Council there are some amendments to the ordinance since 1st reading. The ordinance presented tonight was updated to require fuel source and renewable systems pathways in construction documents. All residential and commercial new construction will be all-electric or be built with high efficiency HVAC equipment and with electric-ready infrastructure. EV charging will be enforced at the time of building permit, with a clarification that projects within a PUD approved prior to the ordinance, but which have not obtained a building permit, will be required to comply with the ordinance.

Solar readiness does not require that solar be installed on new construction, but space and capacity for installing such a system is required.

Electrical vehicle readiness requires the infrastructure for an EV ready parking space or EV charging station be included at time of construction for future buildout of EV charging. The ordinance details the requirements for EV readiness for each building type.

Council requested information on building electrification requirements in other Colorado municipalities and zero energy appendices. Those were included in the packet. Staff recommends approval of the ordinance as proposed this evening with the amendment to Table R402.1.2.

Councilmember Lipton asked what types of building permit actions would trigger the need to comply with the upgraded standards. Chad Root, Chief Building Official, responded the trigger would be adding over 50% of square footage to a home would require meeting the new requirements. Commercial permits would be set up in the same fashion.

Councilmember Lipton asked about gas fireplaces. Root stated those will be exempt.

Public Comments

Hazel Van Zale, a student at Louisville Elementary School, spoke in favor of adopting the 2021 IECC and appendix to reduce greenhouse gas emissions.

Weston Gano, a student at Louisville Elementary School, spoke in favor of adopting the 2021 IECC and appendix to reduce our energy footprint.

Baxter Case, a student at Louisville Elementary School, spoke in favor of adopting the IECC and appendix.

Peter Geise, 808 Spyglass Circle, stated he is hesitant on moving forward with some of the requirements of the IECC and appendix. He urged a more cautious approach.

Tess Weltzin, spoke in favor of adopting the IECC and the appendix to reduce greenhouse gas emissions for generations to come.

Sadie Gabriel, a student at Louisville Middle School, spoke in support of adopting the IECC and appendix to reduce greenhouse gas emissions and indoor air quality.

Evan Hiatt, a student at Louisville Elementary School, spoke in support of adopting the IECC and appendix as the building sector is a large polluter.

RJ Harrington, 457 East Raintree Court, spoke in support of approving the IECC and appendix.

Grady Gabriel, a student at Louisville Middle School, spoke in support of approving the IECC and appendix. New buildings need to be run by renewable energy and not fossil fuels.

Amelie Valliere, a student at Louisville Middle School, spoke in support of adopting the IECC and appendix to reduce greenhouse gas emissions.

Isabelle Valliere, a student at Louisville Middle School, spoke in support of adopting the IECC and appendix to reduce greenhouse gas emissions and improve indoor air quality.

Arthur Towber, a student at Louisville Middle School, spoke in support of adopting the IECC and appendix to stop global warming with stricter laws for building homes.

Caleb Forrester, a student at Louisville Middle School, spoke in support of adopting the IECC and appendix to make homes more energy efficient.

Andy Johnson, 920 Lincoln Avenue, spoke in support of adopting the IECC and appendix.

Tiffany Boyd, 550 Grant Avenue, spoke in support of adopting the IECC and appendix.

Tamar Krantz, 691 West Street, spoke in support of adopting the Zero Energy Homes appendix.

Mike Kranzdorf, spoke in support of some of the proposals, but stated he doesn't understand why EV chargers need to be installed in certain areas. He asked that consideration of the appendix be moved to phase 2 of adoption and expressed concern about raising costs for low income home owners.

Councilmember Fahey noted that when people spend more on these upgrades it can be long-term cost savings in other ways such as energy use.

Mayor Pro Tem Maloney stated he supports the ordinance.

Councilmember Dickinson stated he supports the ordinance and asked if any other cities in Colorado have adopted the 2021 IECC yet. Consultant Hope Medina stated many jurisdictions are working on adopting it but Louisville might be the first or one of the first if adopted this evening.

Mayor Stolzmann stated there is consensus on adopting the code this evening. She would like to do more than the proposal by adding Appendix CC. She also proposed striking out the alternatives for fuel gas options thereby requiring all new building be all electric.

Councilmember Brown expressed support for Mayor Stolzmann's proposals.

Councilmember Lipton asked what the practical impacts would be of these additions. He asked how long it would take to do further public engagement. Director Zuccaro stated it would likely take 3-6 months to do a full public process and research on the impacts.

Councilmember Lipton voiced support of the ordinance as presented by staff, but thinks that the appendices needs more research and deliberation.

Mayor Stolzmann stated there is clear support for this from the community and sustainability initiatives are a part of the Council's work plan. The minor proposals are a start but there is a lot more work to do.

Councilmember Leh stated he wants to move quickly but he also wants to avoid unintended consequences. He doesn't know the impact on affordable housing and would like additional public input.

Councilmember Brown stated he does not feel there is the need for additional public input; he feels residents support these moves.

Mayor Stolzmann noted there are unintended consequences of inaction. There is information in the packet about how switching to electric will lower costs in the long run.

Councilmember Brown reemphasized support of the appendices and striking the gas fuel option.

Mayor Pro Tem Maloney stated he doesn't hear disagreement about direction only timing. Staff has proposed a phase II which is part of Council's work plan. All electric is something Council supports, but there needs to be more information and discussion. Phase II might take a few months, but it's not years.

Public Comments

Mark Cathcart, 7017 Sweet Clover Lane, spoke in support of the ordinance and including the appendices.

RJ Harrington, 457 E Raintree Ct, spoke in support of passage of the ordinance and including the appendices.

Maxine Most, suggested Council consider a moratorium on new construction until this can be sorted out.

Tiffany Boyd, 550 Grant Ave, a member of the Louisville Sustainability Advisory Board read sections of the letter from the board included in the packet.

Mike Kranzdorf, noted his concerns that the business community is not being considered as part of the Louisville Community. He stated builders and property owners want to help and do the right thing, but asked Council to accept input and take some additional time.

Andy Johnson, encouraged adopting IECC, and stated the residential appendix is doable. He noted there are ways for residential construction to meet these requirements; commercial is going to be a harder switch to flip and there does need to be more time for the commercial appendices.

Councilmember Lipton stated his support for the ordinance as written and getting more public input on the appendices.

Mayor Stolzmann closed the public hearing.

Motion: Councilmember Lipton moved to approved Ordinance No. 1816 as presented tonight; Mayor Pro Tem Maloney seconded.

Substitute Motion: Mayor Stolzmann moved to approved Ordinance No. 1816 as presented, but also adding the zero energy residential and commercial appendices and striking fuel gas options for new commercial and new residential buildings; Councilmember Brown seconded.

Councilmember Dickinson asked what striking fuel gas option impact would have regarding backup systems. Mayor Stolzmann responded that her intent is that there would be no fossil infrastructure to new buildings.

Vote on the substitute motion failed 4-3 with Mayor Stolzmann and Councilmembers Brown and Fahey voting yes.

Substitute Motion: Councilmember Dickinson made a substitute motion to approve Ordinance No. 1816 but adding the residential appendix. Mayor Stolzmann seconded.

Vote on the substitute motion by Councilmember Dickinson passed 4-3 with Councilmembers Leh and Lipton and Mayor Pro Tem Maloney voting no.

Councilmember Leh expressed his hope that Council will vote on adding the commercial appendices in three months.

Mayor Stolzmann reiterated the items coming forward in coming months, such as construction waste diversion, green roofs, amortization on retro fits, and all electric requirements, as well as EV capable requirements and insulation requirements.

ORDINANCE NO. 1817, SERIES 2021 – AN ORDINANCE APPROVING THE VACATION OF A 125-FOOT BY 30.60-FOOT WIDE RIGHT-OF-WAY LYING SOUTH OF LOT 9, BLOCK 10, LOUISVILLE HEIGHTS SUBDIVISION IN THE CITY OF LOUISVILLE (601 MCKINLEY AVENUE) – 2nd READING, PUBLIC HEARING (advertised *Daily Camera* 10/10/21)

Mayor Stolzmann introduced the item and asked if there are any disclosures; seeing none she opened the public hearing.

Interim Director Ritchie stated this is a request for a right of way vacation for property adjacent to 601 McKinley Avenue. She reviewed the site and history of this piece of property. She noted this piece of land was to be used for an alley that was never developed and in 1984 the previous homeowners had entered into a license agreement with the City to put in a fence. The applicant coordinated with City staff and Xcel and the ordinance establishes a 7.9' wide utility easement on the southern portion of the vacated area to allow access for Xcel to the utility line and to the City to maintain the sanitary line to the south of the property.

Staff finds that retention of the area for right of way is not needed for any current or future City purpose. Approval of the vacation request will also not result in loss of access to any property. Staff recommends approval of the ordinance.

Cody Thompson, applicant, spoke to his request for the additional land to accommodate the home he is proposing for the parcel.

Public Comments – None

Councilmember Brown asked what the value of the property is. City Attorney Kelly stated that State Statute does not allow the City to be compensated for loss of the right of way.

Public Comments

RJ Harrington stated this is another example of a home being scraped and rebuilt.

Mayor Stolzmann stated there is likely no public purpose for the property. Additionally it has been fenced in for private use since 1984, and she feels vacation makes sense in this circumstance.



Energy Code Update Recommandation Report

AUGUST 2022

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Appendix A: Louisville IECC Energy Modeling and Policy Report, Group14

Appendix B: City of Louisville Energy Code Update Public Engagement Report, Lotus

Appendix C: Regional Code Cohort Amendment Fact Sheets, SWEEP

Executive Summary

The City of Louisville (the City) contracted with Group14 Engineering, PBC (Group14) and Lotus Engineering and Sustainability, LLC (Lotus) to explore updates to the City's current commercial energy code that would help the City reach their energy efficiency and greenhouse gas reduction goals. The City and consultant team examined commercial energy code policy options including higher efficiency requirements, all electric requirements, and net zero requirements. The scope of work included:

- Energy modeling of current code compliant heating, ventilation, and air conditioning systems in commercial and industrial building types to evaluate upfront cost, operational cost, and greenhouse gas (GHG) emissions. The energy modeling also included an analysis on the total solar PV required to make code compliant buildings (both mixed-fuel and all-electric) net zero. Finally, energy modeling was conducted to analyze the upfront cost, operational cost, and GHG emissions savings of buildings built to a higher efficiency performance standard.
- Research on existing commercial energy code policies from around the country.
- A public engagement process that solicited feedback on commercial code policy options via two City board meetings, two open-house style community meetings, and an online public engagement survey.

Three main policy options resulted from the project process:

- **Regional Code Cohort Alignment:** Aligning with a regional cohort of communities in and around Boulder County striving for consistent building code updates. Communities are adopting the 2021 International Energy Conservation Code (IECC) as the base code along with several supporting amendments to promote electrification and efficiency. Even though Louisville has already adopted the 2021 IECC, some of the anticipated cohort amendments would strengthen the Louisville code.
- **Policy Option 1:** Setting a minimum energy performance standard (through Energy Use Intensity (EUI) modeling at time of building permit) for commercial buildings. The energy performance standard would vary based on building type. A building owner could utilize onsite renewable energy to help reach the energy performance standard. This policy could include incentives for all building electrification.

- **Policy Option 2A & 2b:** Requiring net zero new commercial construction by adoption of Appendix CC of the 2021 IECC [2A]. The appendix does not require increased building efficiency above the 2021 IECC base code but does require renewable energy offsets to achieve net zero. Amendments to the appendix related to purchase of off-site renewable offsets would be needed to make implementation feasible. The City could also opt to add an all-electric new construction requirement to Appendix CC [2B].

Based on information and insight gleaned from the energy modeling and community input, the project team recommends the City adopt Policy Option 1, to set energy performance goals for commercial and industrial new construction. This option strikes a balance between Louisville's sustainability goals, economic considerations, and community needs.

1. Introduction

Climate change is impacting Colorado and the City of Louisville (the City / Louisville) today. This is evidenced by extreme weather events such as the Marshall Fire, an unusual and out-of-season wildfire exacerbated by a warming climate, long term drought, and statewide average temperature increases.

A press release published in April of 2022 by the Intergovernmental Panel on Climate Change begins with a sentence written in bold text: **"The evidence is clear: the time for action is now. We can halve emissions by 2030."**[i] It is short and demanding, yet hopeful. The press release emphasizes the weight held by choices made in this decade and the power held by decision makers to "secure a livable future" for their communities.

1.1 The City of Louisville's Sustainability Goals

The City of Louisville has recognized the need for climate action, and has made a strong commitment to public health and safety by way of the City's clean energy and carbon emissions reduction goals which are outlined in Resolution 25, Series 2019,[ii]:

1. Meet all of Louisville's municipal electric needs with 100% carbon-free sources by 2025.
2. Reduce core municipal GHG emissions[iii] annually below the 2016 baseline through 2025.
3. Generate 75% of Louisville's residential and commercial/industrial electric needs from carbon-free sources by 2030.
4. Reduce core community GHG emissions[iv] annually below the 2016 baseline through 2030.

As reported in Louisville's Sustainability Action Plan, electricity and natural gas are the City's largest sources of emissions.[v] Therefore, a crucial path forward for achieving these goals involves transforming energy use in the City's residential and commercial building stock. Reducing the energy consumption of buildings and transitioning away from fossil-fuel combustion equipment are effective strategies to decrease emissions and support meeting electricity needs with carbon-free sources. This report focuses on code options for new buildings, but future efforts should address existing build stock to help meet carbon emission reduction goals.

1.2 Current Commercial and Residential Code Standards for New Construction

The lifetime of buildings constructed today ranges from 30 to 130 years.[vi] If not built to a more stringent energy code, new construction can contribute to carbon pollution from less efficient buildings for generations, creating increasingly difficult conditions for climate change

mitigation. Model building codes for new construction present an opportunity for innovation, employing the built environment as a climate action tool, rather than an obstacle, that can support City goals. Building energy codes are an effective policy mechanism local government can utilize to decarbonize new construction, future-proof their building stock, and accelerate clean energy use.

The City of Louisville has already shown a commitment to climate action by adopting the 2021 International Energy Conservation Code (IECC) with amendments outlined in Table 1.

Commercial Buildings	**Residential Buildings***
• Increased insulation levels.	• Increased insulation levels.
• Increased doors and windows efficiency requirements.	• Increased ductwork and piping insulation requirements.
• Increased HVAC efficiency.	• Mandatory heat recovery.
• Electric vehicle charging and infrastructure.**	• Electric vehicle charging and infrastructure.**
• Electric-ready wherever gas appliances are installed.	• Electric-ready wherever gas appliances are installed.
• Solar-ready zone required (Appendix CB).	• Solar-ready provisions required (Appendix RB).
	• Net zero Appendix RC required.

*Marshall Fire rebuilds are exempt.
**Amendment to Municipal Code Chapter 17.20, Off-street Parking and Loading

Table 1: Overview of City of Louisville's current adopted code amendments.

2. Building for The Future: Energy Code Update

2.1 Project Overview

The current adopted code and accompanying amendments encourage energy efficiency and the implementation of future-proofing strategies into new construction. However, these efforts alone will not be enough to fully achieve the City's energy and emissions reduction goals.

In their 2022 Work Plan,[vii] Louisville City Council outlined Phase 2 of the 'Building for the Future' project, directing City Staff to "consider additional measures to code adopted in 2021, which could include the IECC Net Zero Commercial Appendix, other net zero goals and strategic implementation and all-electric construction requirements" specifically for new construction of single-family homes, multifamily buildings, and commercial buildings.

The City contracted with Group14 Engineering, PBC (Group14) and Lotus Engineering and Sustainability, LLC (Lotus) to identify policy options that would encourage higher efficiency, net zero development, and/or all electric development. The scope of work consisted of energy modeling of different building code scenarios, development of policy options based on research and the modeling results, and public engagement on the policy options developed.

A common framework used to create more effective sustainability strategies is consideration of the three pillars of sustainability: economy, environment, and equity. Creating a more sustainable Louisville requires consideration of the whole community, not just environmental impacts of the action being done. Recognizing this, the project team used the three pillars as guiding principles throughout this work.

2.1.1 Energy Modeling

For the first iteration of modeling, Group14 modeled four building types—multifamily, office, retail, and single-family home—with different heating, ventilation, and air conditioning (HVAC) designs that meet current Louisville energy codes. Each building type model consisted of mixed-fuel options that utilize natural gas and electricity, and all-electric options. All other variables such as insulation and lighting were modeled to meet the current code adopted by Louisville and remained constant for each system within each building type. The modeling examined upfront costs and annual costs of each HVAC system per building type, the amount of photovoltaics (PV) required for a building to be net zero with each HVAC system per building type, PV payback periods, and greenhouse gas (GHG) emissions at base code.

Additional modeling was conducted later in the project to investigate the upfront cost, operational cost, and GHG emissions from buildings complying with the finalized policy options.

2.1.2 Policy Research

Group14 examined existing frameworks for all-electric and net zero energy codes from the City of Boulder, several jurisdictions in California, City of Boston, and New York City. This policy landscape review aimed to complement the energy modeling conducted, and the consulting team utilized both resources to best inform the commercial energy code policies recommended to the City of Louisville. For more detail on the on the policy research and initial energy modeling results, see Group14's report in Appendix A.

2.3 Community Outreach

Public input is crucial to building community trust and ensuring feasibility when developing policies. Recognizing this, the consultant teams and City staff presented the project and energy code considerations to the public through multiple engagement opportunities:

1. Two open-house style community meetings.
2. An online survey that was open from June 27, 2022 to August 5, 2022.
3. Presentations to the Louisville Sustainability Advisory Board and the Building Code Board of Appeals.

Feedback from each engagement method was collected, data was cleaned and analyzed, and engagement results were incorporated into the final policy recommendation. For a full description of community outreach conducted and a summary of results, see Appendix B.

3. Project Results and Discussion

3.1 Refining the Project Scope

As the 'Building for the Future' project progressed, the consultant team and City Staff continuously refined the energy modeling and the policy options, carefully considering efficacy and relevance to City Council intent. One result of this iterative process was shifting the focus of the analysis away from single-family home policy, due to the City having already adopted Appendix RC of the 2021 IECC. Consequently, the subsequent sections address policy options for commercial and industrial building types only.

Based on public feedback, improved analyses, and internal conversations, the project team finalized three policy options for the City Council's review, each of which are discussed below.

3.2 Final Policy Options

Note: *All policy options presented are in addition to the current Louisville energy code which includes the following provisions: 2021 IECC base code; Louisville-specific energy efficiency amendments; electric vehicle (EV) ready requirements; the solar-ready Appendix for residential and commercial; and electric-ready requirements for residential and commercial new construction.*

3.2.1 Alignment with Regional Cohort

Policy Description

The City of Louisville could align with an existing regional cohort consisting of communities in and around Boulder County, working in a coordinated effort to adopt a regionally consistent building code (see Box 2). Louisville is a participant in the code cohort, but City Council direction led to an independent pursuit of community-specific options. Based on the City's current code, the primary changes Louisville would need to make are updating the City's current electric preferred standard to align with the cohort, updating the solar-ready appendix language to cover all buildings under the solar-ready requirements, and including additional code language to require cool roofs and high-efficiency horticulture lighting. Group14 did not conduct energy, cost, or greenhouse gas modeling for this code option, but the project team decided to include it due to expressed public interest in regional alignment. Additional detail on the amendments being considered by the Code Cohort are included in Appendix C.

Colorado Department of Local Affairs Code Cohort

Phase 1: Regional adoption of the 2021 IECC and supporting amendments including solar-ready requirements, EV-ready requirements, electric-preferred requirements, and additional efficiency requirements such as cool roofs and horticulture lighting. These amendments are applicable to residential and commercial buildings.

Phase 2: Beginning in August 2022, communities will work together to develop a roadmap to net zero new construction code for the region by 2030.

Participating communities include:

- City of Louisville
- Town of Superior
- Boulder County
- Town of Erie
- City of Lafayette
- City of Northglenn
- City and County of Broomfield
- City of Longmont

The City of Boulder, City of Westminster, and Town of Berthoud did not participate in Phase 1 but will participate in Phase 2.

Box 1: Code cohort overview.

DISCUSSION

Alignment with the regional code cohort's current IECC 2021 supporting amendments, and the future roadmap to net zero new construction would begin a code update process that increases stringency over time, allowing Council to take a stepped approach toward net zero code adoption by 2030. This approach would align Louisville with its neighboring communities and would provide Louisville an opportunity to co-develop a regional plan to get to net zero new construction. It's important to note that while a regional roadmap will be developed with the goal of consistency across the region, compliance, enforcement, and timelines for net zero code adoption may look unique to each community within the Cohort. Alignment with the Phase 1 code recommendations for the Cohort would increase efficiency requirements for mixed-fuel buildings but not all-electric buildings and does not require all-electric or net zero. This option represents the smallest step forward for above code policy options the City could consider and adopt.

3.2.2 POLICY OPTION 1: ENERGY PERFORMANCE STANDARDS FOR BUILDING TYPES

POLICY DESCRIPTION

New construction projects would be required to meet an energy performance standard that would be dictated by building type. The standards would be set using a metric called energy use intensity (EUI), which models the total energy consumption of a building for one year divided by the total square footage of the building. On-site PV could contribute to a building meeting the EUI target. Builders following a performance pathway for code compliance would need to meet their respective EUI targets and provide a modeling report as part of the building permit submittal.

If the builder were to pursue a prescriptive-based code compliance pathway, additional efficiency measures such as increased insulation levels and reduced lighting power densities would be required to deliver an equivalent level of efficiency as the energy performance standard.

PREDICTED ENERGY PERFORMANCE GOALS

The City of Boulder's building code[viii] and the New Buildings Institute (NBI)[ix] each have example energy performance standards, using site EUI as a metric, for various building types that the City of Louisville could look to (See Table 2). The City of Boulder standards were developed in 2018 off the previous code cycle. The City of Boulder is lowering these EUI targets ever few years to eventually achieve net zero. NBI's Zero Energy Performance Standards are based on the energy performance of best-in-class buildings for each building type. The NBI standards for Zero Energy Performance were developed with an 'efficiency only' lens, and do not consider the cost effectiveness of achieving the efficiency levels for all building types.

Building Type	City of Boulder Performance Standard (kBtu / sqft.)	NBI Zero Energy Performance Standard (kBtu / sqft.)
Medium office (5,000 – 50,000 sf)	23	21
Mid-rise apartment (Type R2)	32	23
Primary school	34	25
Small office (<5,000 sf)	19	17
Secondary school	31	29
Warehouse	11	9
Retail	NA	34

Table 2: Example energy performance goals for specific building types.

Group14 modeled predicted site EUI, upfront costs, and annual energy costs for each building type to achieve the NBI EUI targets (see Table 3) under this policy option. The Group14 model investigated the most cost-effective means of achieving the NBI standards using both efficiency and onsite PV to reach each standard. Note, this differs from the NBI methodology, which only incorporated energy efficiency measures to meet each target.

Building Type	HVAC Fuel Type	EUI targets modeled	Estimated Upfront Cost of HVAC without PV	EUI earned without PV	PV size required to reach EUI Target (kW)	Estimated Upfront Costs with PV	Annual Energy Cost Savings after PV
Multifamily	Mixed-Fuel	23	$206,661	36	111kW	$484,161	$12,432
	All-Electric		$182,500	23	4kW	$192,500	$448
Office	Mixed-Fuel	21	$4,180,608	29	185kW	$4,643,108	$20,720
	All-Electric		$4,353,828	29	177kW	$4,796,328	$19,824
Retail	Mixed-Fuel	34	$1,123,500	103	310kW	$1,898,500	$34,720
	All-Electric		$1,232,200	63	223kW	$1,789,700	$24,976

Table 3: EUI target modeling and associated costs for buildings compliant with Policy Option 1: Energy performance standards.

GREENHOUSE GAS EMISSIONS

To assess how this option might contribute to Louisville's emissions reduction goals, Group14 also modeled GHG emissions resulting from a building achieving its energy performance standard, based on the building type. Energy performance standards help to drive up energy efficiency and drive down building emissions, as illustrated in Figures 1 and 2. In each building type, for mixed fuel and all-electric systems, a building that has achieved its energy performance standard creates less GHG emissions than the same building compliant with current code.

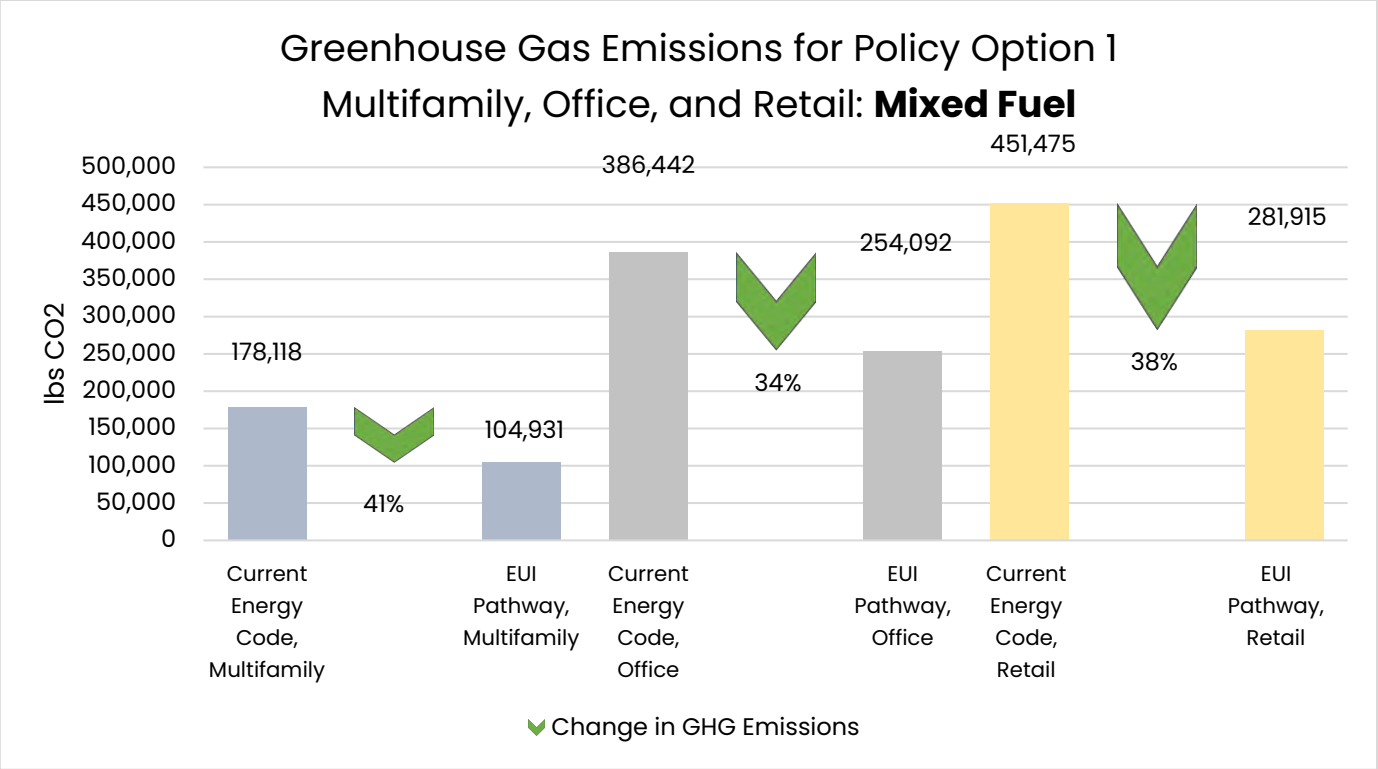


*Figure 1: Annual GHG emissions for **mixed fuel** buildings compliant with current code, compared to GHG emissions for buildings compliant with Policy Option 1: Energy performance standards for building types.*

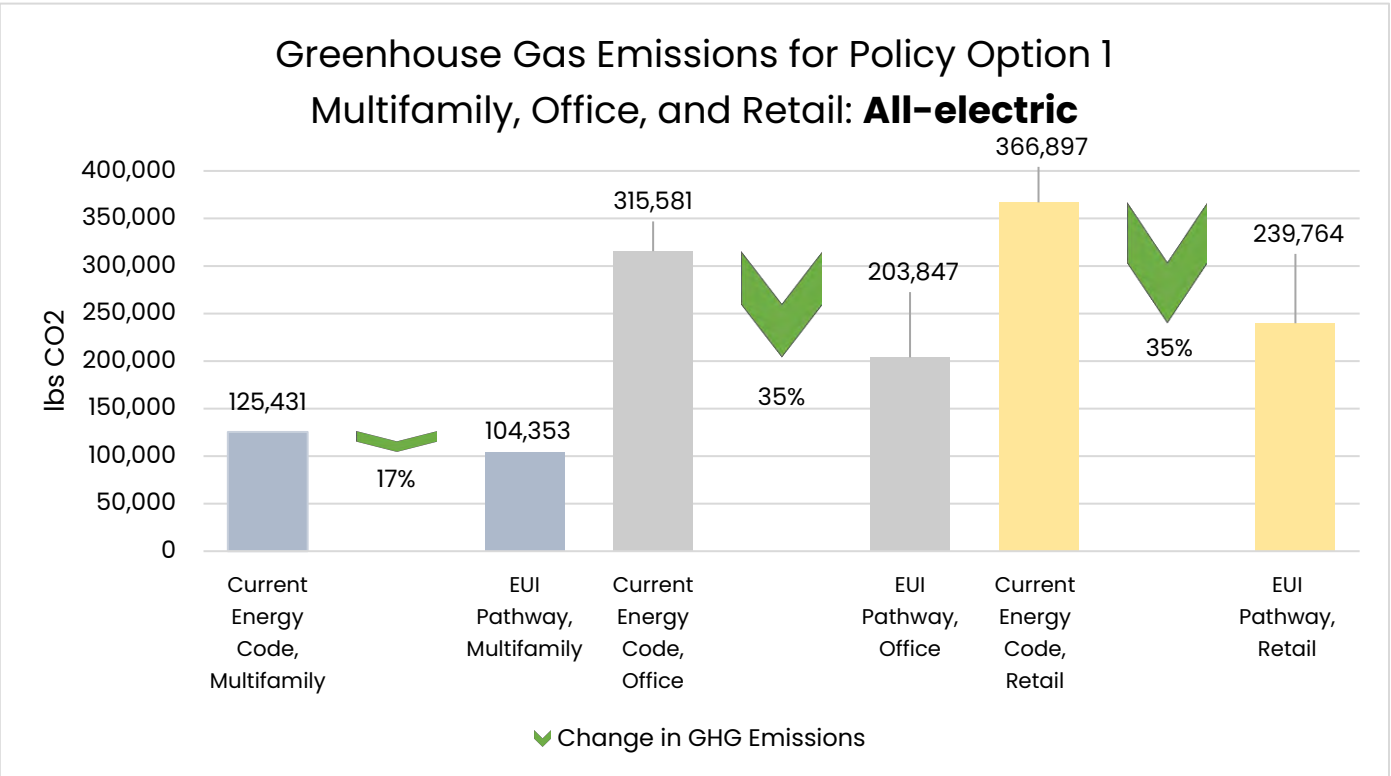


*Figure 2: Annual GHG emissions for **all-electric** buildings compliant with current code, compared to GHG emissions for buildings compliant with Policy Option 1: Energy performance standards for building types.*

DISCUSSION

Policy Option 1 is the most flexible of the code options. Buildings must reach an energy performance standard specific to that property type, but a building owner has options for how they chose to reach their energy performance standard. Onsite renewable energy can also contribute to the building's predicted EUI, adding another option in addition to efficiency to reach the target. This code results in more energy efficient, lower emitting buildings than the code package from the regional cohort and Appendix CC of the 2021 IECC.

All-electric buildings can reach much lower predicted EUIs because electricity has a lower energy density[x] than natural gas. Therefore, lower energy performance goals will naturally lead builders to all-electric options, which will result in lower GHG emissions over time as the electric grid becomes cleaner. This policy option allows the City to limit exemptions from the building code because energy performance standards can be applied to all building types, including those with high energy needs, such as a hospital. Finally, this option does not mandate building owners to invest in on or offsite PV to comply with code but provides building owners the option to use onsite PV to their own financial benefit if they so choose.

The NBI Standards modeled for this project are higher than both the City of Denver and the City of Boulder's standards for building types, making them more aggressive than local large cities surrounding Louisville. If the City chooses to pursue this policy option, additional analysis will be required to determine which targets are the most appropriate for the City of Louisville to adopt. Alignment with the City of Boulder's soon to be updated standards, could be advantageous to Louisville and would promote regional consistency.

Policy option 1 is the consultant and staff recommendation for the City's energy code. See Section 4 for further discussion.

3.2.3 POLICY OPTION 2A AND 2B: APPENDIX CC AND/OR ALL-ELECTRIC REQUIREMENT

POLICY DESCRIPTION

Policy Option 2A mandates compliance with Appendix CC of the 2021 IECC, zero energy commercial building provisions. Policy Option 2B builds upon 2A, adding a requirement that HVAC and plumbing systems must be all-electric. Appendix CC does not require commercial buildings to meet a higher level of efficiency above the base requirements in the IECC 2021. It does, however, require that commercial buildings must, in theory, offset 100% of the energy consumed onsite over a 15-year period using renewable energy. Note, it is likely that every commercial building will require both on and offsite renewable energy to reach the 100% offset requirement of Appendix CC. Procurement of offsite renewable energy to meet the 100% offset requirement is more complicated in practice. Appendix CC penalizes buildings

for procuring offsite renewables as opposed to generating 100% of their energy offset onsite, requiring buildings to procure more offsite renewables than a direct offset would require. These complications are discussed in more detail in the Offsite Procurement Discussion section below.

MODELED COST AND RENEWABLE ENERGY REQUIREMENTS

As noted previously, Group14 examined upfront cost and the annual energy bill costs for HVAC systems in each modeled building type (Office, Retail, Multifamily) that are compliant with current code. Further analysis for this policy option provided the amount of PV a building would be required to invest in, to achieve net zero and earn compliance with Appendix CC, as well as related cost data. It is important to note that in all cases, for commercial buildings that meet 2021 base code efficiency, covering the available roof area with PV did not result in a net zero building. Therefore, it is anticipated that all commercial buildings will need to invest in offsite PV to fulfill the requirements of Appendix CC. The cost of offsite PV procured via 15-year contracts for green retail tariffs and Renewable Energy Certificates (RECs) was also modeled. Results are outlined in Tables 4, 5, and 6. Though results vary by HVAC system, on average, all-electric systems with PV had a quicker payback period due to needing less renewable energy to offset their building energy use than natural gas systems.

Multifamily HVAC System Options	Cost for Code Compliant Building		Costs for Onsite PV					Net Zero Offsite PV – REC Pricing		
	Upfront Cost of HVAC System	Total Annual Energy Bills	PV (kW) required for Net Zero	PV that can fit onsite (kW)	Cost of Onsite PV	Annual Energy Bill with Onsite PV	Total Annual Energy Cost Savings with PV	kW Remaining to Offset	Green Tariff Cost (15 years, purchased in kWhs)[xi]	Unbundled RECs Cost (15 years, purchased in MWhs)[xii]
Mixed Fuel Option 1	$157,321	$40,785	338 kW	98 kW	$245,000	$28,809	$10,976	240 kW	$137,303	$70,482
Mixed Fuel Option 2	$278,321	$25,230	365 kW			$14,254		267 kW	$152,838	$78,457
Mixed Fuel Option 3	$267,321	$38,038	303 kW			$27,062		205 kW	$117,259	$60,193
Mixed Fuel Option 4	$459,821	$27,071	357 kW			$16,095		259 kW	$148,328	$76,142
All-Electric Option 1	$135,000	$40,383	236 kW			$29,407		138 kW	$79,174	$40,643
All-Electric Option 2	$245,000	$40,601	232 kW			$29,625		134 kW	$76,493	$39,266
All-Electric Option 3	$437,500	$28,431	201 kW			$17,455		103 kW	$59,226	$30,402

Table 4: Data detailing costs and PV amounts for a multifamily building under Policy Option 2A and 2B.

Office HVAC System Options	Cost for Code Compliant Building		Net Zero Requirements and Costs for Onsite PV					Net Zero Offsite PV – REC Pricing		
	Upfront Cost of HVAC System	Total Annual Energy Bills	PV (kW) required for Net Zero	PV that can fit onsite (kW)	Cost of Onsite PV	Annual Energy Bill with Onsite PV	Total Annual Energy Cost Savings with PV	kW Remaining to Offset	Green Tariff Cost (15 years, purchased in kWhs)[xi]	Unbundled RECs Cost (15 years, purchased in MWhs)[xii]
Mixed Fuel Option 1	$2,327,633	$104,604	722 kW	250 kW	$625,000	$76,604	$28,000	472 kW	$285,152	$146,378
Mixed Fuel Option 2	$1,786,323	$135,278	777 kW			$107,278		527 kW	$317,602	$163,036
Mixed Fuel Option 3	$4,492,873	$95,077	772 kW			$67,077		522 kW	$315,006	$161,703
All-Electric Option 1	$1,948,716	$131,993	755 kW			$103,393		505 kW	$304,622	$156,373
All-Electric Option 2	$3,789,170	$90,551	544 kW			$62,551		294 kW	$179,548	$92,168
All-Electric Option 3	$3,464,384	$94,324	567 kW			$66,324		317 kW	$192,996	$99,071
All-Electric Option 4	$4,005,694	$103,660	578 kW			$75,660		328 kW	$199,485	$102,403

Table 5: Data detailing costs and PV amounts for an office building under Policy Option 2A and 2B.

Retail HVAC System Options	Cost for Code Compliant Building		Net Zero Requirements and Costs for Onsite PV					Net Zero Offsite PV – REC Pricing		
	Upfront Cost of HVAC System	Total Annual Energy Bills	PV (kW) required for Net Zero	PV that can fit onsite (kW)	Cost of Onsite PV	Total Annual Energy Bill with Onsite PV	Total Annual Energy Cost Savings with PV	kW Remaining to Offset	Green Tariff Cost (15 years, purchased in kWhs)[xi]	Unbundled RECs Cost (15 years, purchased in MWhs)[xii]
Mixed Fuel Option 1	$570,500	$164,492	1741 kW	600 kW	$1,500,000	$97,292	$67,200	1,141 kW	$689,194	$353,786
Mixed Fuel Option 2	$456,000	$182,683	1564 kW			$115,483		964 kW	$584,178	$299,878
Mixed Fuel Option 3	$630,500	$158,096	1566 kW			$90,896		966 kW	$585,261	$300,434
All-Electric Option 1	$660,000	$193,161	1449 kW			$125,961		849 kW	$515,973	$264,866
All-Electric Option 2	$708,000	$185,053	1369 kW			$117,853		769 kW	$468,337	$240,413
All-Electric Option 3	$3,167,500	$156,491	1157 kW			$89,291		557 kW	$342,752	$175,946

Table 6: Data detailing costs and PV amounts for a retail building under Policy Option 2A and 2B.

Offsite Procurement Discussion

To achieve the net zero requirement for both Policy Options 2A and 2B, a typical commercial or industrial building would not be able to fit the necessary PV on the building's available roof space and must supplement by procuring offsite renewable energy. Appendix CC does not require a building to pursue onsite renewable energy before they purchase offsite offsets. To ensure building maximize onsite renewable energy, the City could consider amending Appendix CC to require building to max out their onsite PV potential before pursuing offsite offsets.

Options for offsite procurement include community solar gardens, REC purchases, green retail tariffs, and virtual power purchase agreements (VPPAs). In Appendix CC, offsite renewable energy procurement is penalized based on the type of offsite a building pursues. For any remaining energy that must be offset offsite, a procurement factor must be applied which will increase the offsite renewables a building must procure. The procurement factor is a penalty for opting for offsite purchasing instead of onsite renewable energy generation and is required per the energy offset calculations in Appendix CC.

Appendix CC lists specific offsite offset requirements which mandate that renewable energy must be generated within the utility service territory and the contract must be 15 years in length, among others. As a result, there is a feasibility challenge with this policy option including insufficient onsite roof space to completely offset energy use, limited availability of local offsite renewable resources like community solar gardens, and constraints on open-market REC procurements that meet the requirements of Appendix CC.

Green retail tariffs, which are RECs purchased directly from the electric utility, pose a challenge for Appendix CC compliance. Green retail tariffs cannot be procured on a 15-year contract basis, and they only cover building electricity consumption, not overall building energy consumption.

Community solar gardens are local and can be procured on a 15-year contract basis, however, according to discussions with Xcel Energy, there is limited availability and high demand for these gardens, making it unlikely that a building owner would be able to procure the necessary offsite PV to comply with code.

RECs tend to be low cost and an easy procurement method, making them a popular option for offsetting energy use. However, they likely do not represent local renewable energy generation and there is no 15-year contract option available, thus violating the Appendix CC requirements.

Virtual PPAs can have 15-year contracts, however, like RECs, the renewable energy generation might not be local, making this option potentially invalid according to Appendix CC.

For Policy Options 2A and 2B to be feasible, City staff would need to amend the Appendix CC language to accommodate for the challenges in offsite procurement and to require onsite PV be required ahead of offsite procurement.

Offsite Renewable Energy Procurement

Unbundled Renewable Energy Certificate (REC): a market-based instrument that represents the property rights to the environmental, social, and other non-power attributes of renewable energy generation. A REC is one megawatt-hour of electricity generated and delivered to the grid.

Community solar: an offsite solar installation that a customer can contribute funds to and receive the benefits of via bill credit.

Green retail tariff: a program offered by utilities in which a customer can buy renewable energy credits at an additional charge to cover monthly electric use.

Virtual Power Purchase Agreement (PPA): a method for large commercial entities to purchase offsite renewable energy at a fixed rate for a fixed amount of time.

GREENHOUSE GAS EMISSIONS

The GHG impact of Policy Options 2A and 2B must be viewed through two lenses: GHG reductions from onsite renewable energy and GHG reductions from offsite renewable energy.

If a building utilizes onsite PV to achieve the net zero requirement, that onsite renewable energy generation will create a direct reduction of GHG emissions. This is the same emissions reduction mechanism that occurs from PV installed to comply with the requirements of Policy Option 1.

GHG emission reductions from offsite renewable energy vary due to several factors such as procurement method and location of the renewable energy that was purchased. In addition, Appendix CC penalizes buildings for purchasing offsite energy in the form of RECs, via the procurement factor. For example, purchasing enough RECs in theory could offset all emissions created by the building. However, when a property owner purchases a REC, they are buying the right to a unit of energy from a solar garden or a wind farm that already exists, and would have existed if the building owner did not purchase the REC. Thus, the building owner's purchase is not generating any new renewable energy resources that would offset the emissions produced by the building. This would not be the case for a local community solar garden since the purchase would contribute to the development of new renewable energy resources.

Furthermore, the emissions intensity of the grid (how clean or dirty the power source for the grid is) where the renewable energy is being purchased from impacts GHG reduction. If the grid the building is drawing power from is cleaner than the grid the building owner is buying RECs from, the REC purchase has a larger GHG reduction impact but if the situation were reversed, the REC purchase has a smaller GHG reduction impact.

GHG emission reductions from Policy Options 2A and 2B are outlined below (Figures 3, 4 and 5). Net zero emissions represent a scenario in which the building has installed the maximum amount of PV they can fit on their available roof space. Figure 6 shows the emissions savings resulting from the remaining energy use being offset by RECs, with a procurement factor applied. Code compliant HVAC systems, both mixed fuel and all-electric, were modeled for each building type. Policy Options 2A and 2B have much larger GHG emissions reductions than Policy Option 1, as expected due to the nature of a net zero and/or all-electric building.

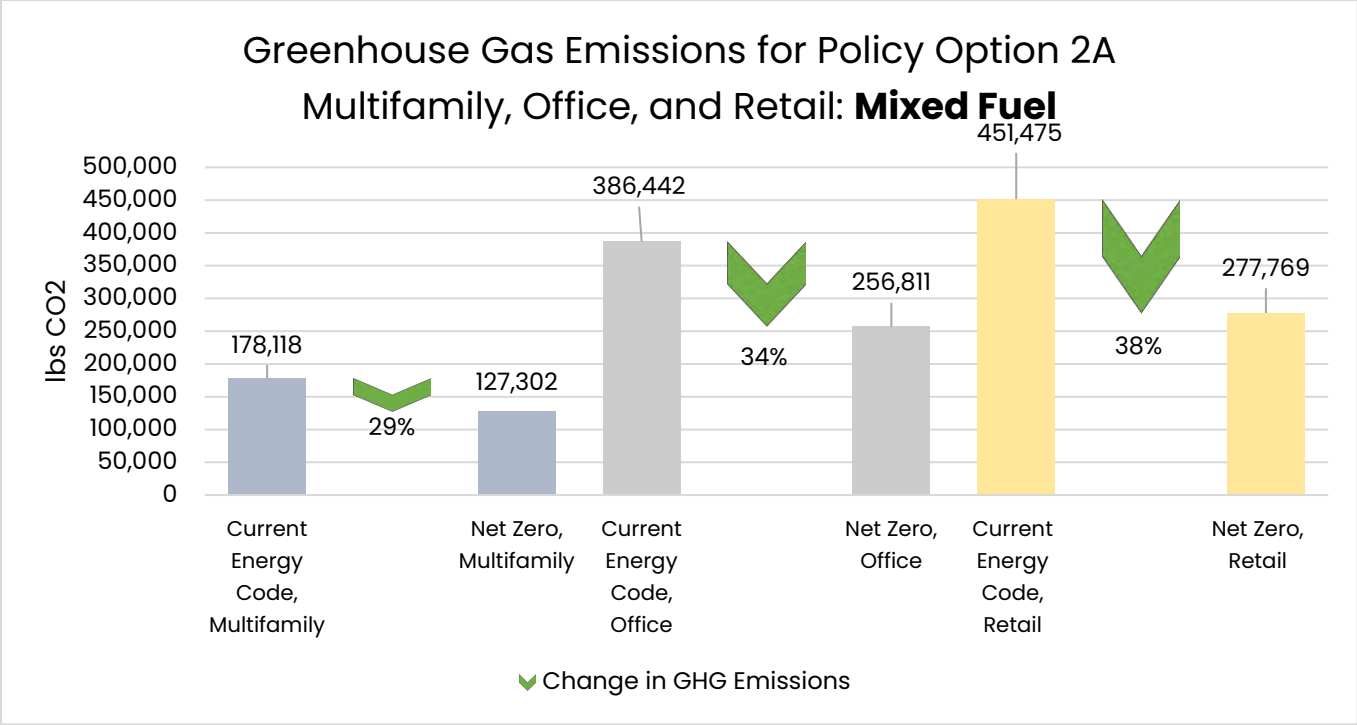


*Figure 3: Annual GHG emissions for **mixed fuel** buildings compliant with current code, compared to GHG emissions for **mixed fuel** buildings compliant with Policy Option 2A: Appendix CC, Net Zero.*

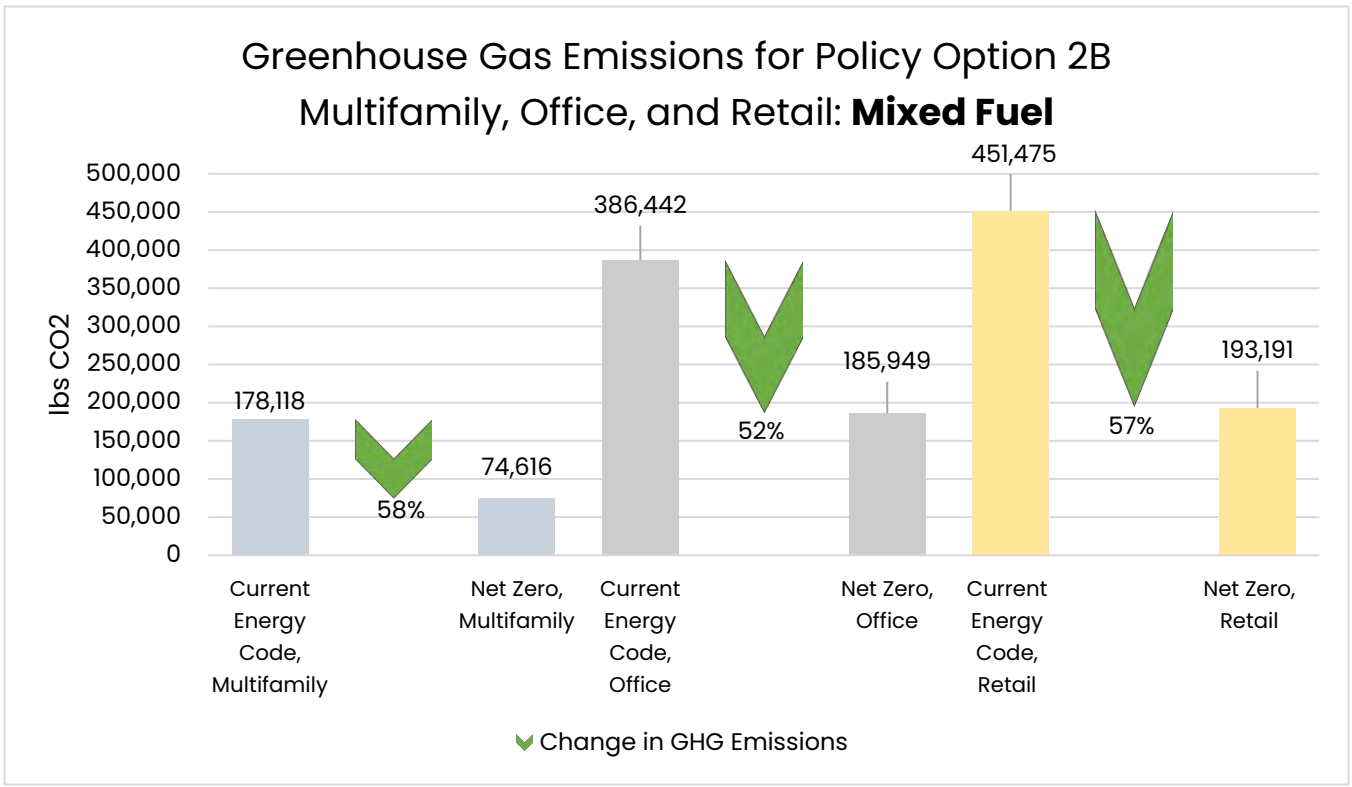


*Figure 4: Annual GHG emissions for **mixed fuel** buildings compliant with current code, compared to GHG emissions for **all-electric** buildings compliant with Policy Option 2B: Appendix CC, Net Zero + all-electric.*

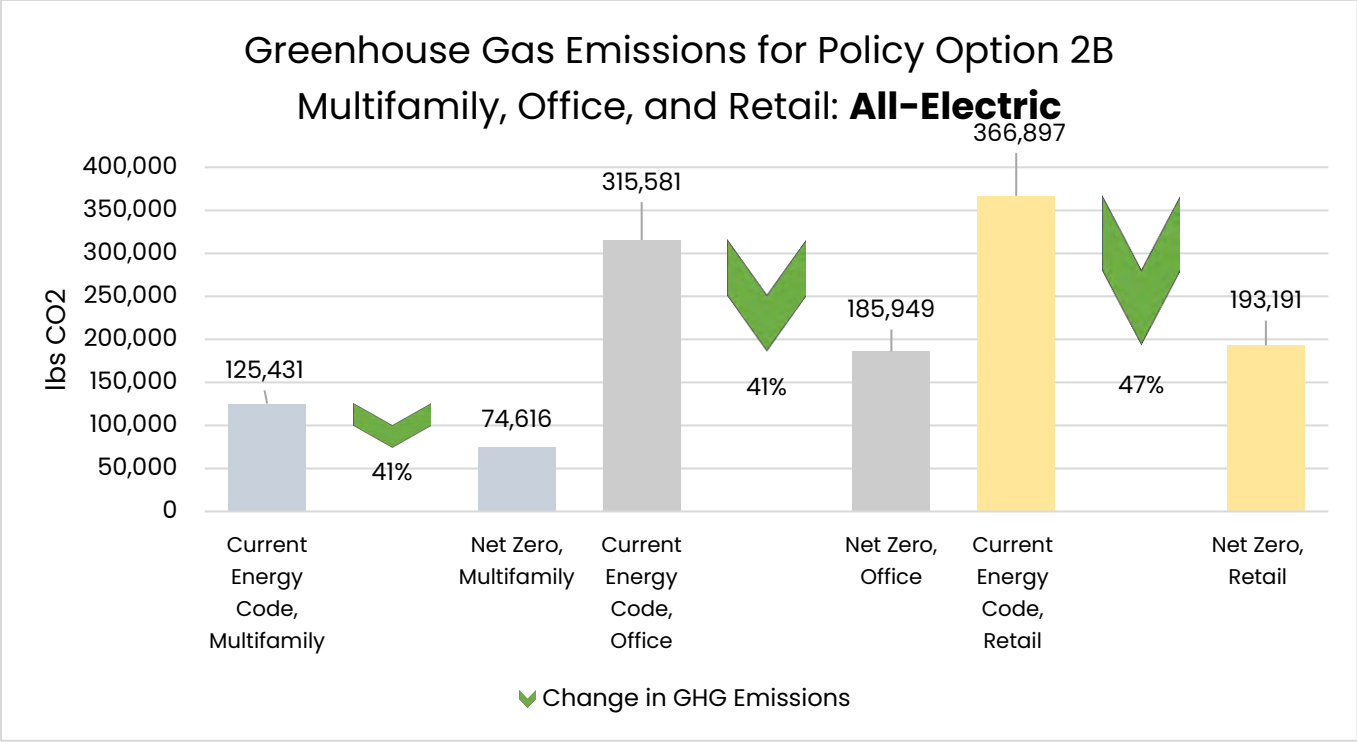


*Figure 4: GHG emissions for **all-electric** buildings compliant with current code, compared to GHG emissions for **all-electric** buildings compliant with Policy Option 2B: Appendix CC, Net Zero + all-electric.*

The GHG emissions modeling for unbundled REC purchasing used the nationwide average electricity emissions intensity, 0.85 lbs/kWh, as reported by the Energy Information Administration. The GHG calculations also included a mandatory application of a procurement factor which requires buildings who offset with RECs to purchase five times the total RECs required for a full offset.

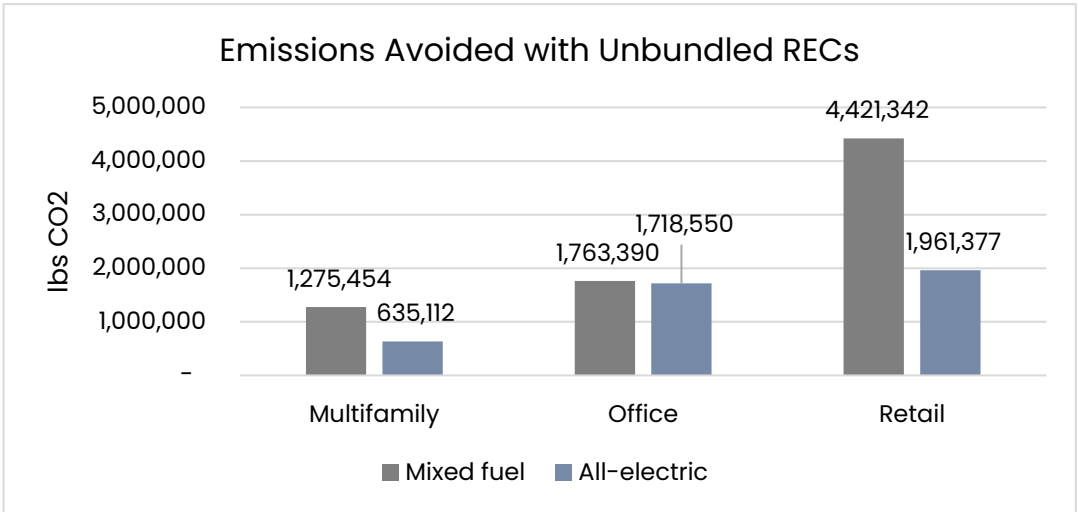


Figure 5: Emissions avoided with unbundled RECs purchased to offset any energy consumption remaining after installing the maximum amount of onsite PV.

DISCUSSION

Policy Options 2A and 2B are most aggressive options in reducing GHG emissions through onsite PV, but do not increase the energy efficiency of the building over base code. Policy Options 2A and 2B require net zero with onsite and offsite PV, and 2B is the only option that also mandates all-electric, disallowing fuel choice. Exemptions for both Policy Options 2A and 2B could be considered for certain building types that contain processes that cannot be net zero or all-electric due to unfeasible cost or lack of technology. These process load exemptions may impact buildings such as laboratories, manufacturing facilities, industrial processing, restaurants, and/or hospitals. If exempted, these process loads, under Policy Options 2A and 2B would be exempt from the net zero or all-electric requirement.

These policy options do come with complications, including the need to amend Appendix CC for offsite procurement and the variability of the potential GHG impacts. Additionally, post hoc modeling revealed that the payback period for PV installation is no less than 22 years for any HVAC system in any of the building types modeled. The upfront investment building owners would need to make in onsite PV will payback overtime, but it's important to note that investments in offsite PV will always be an additional cost and will never represent revenue or financial benefit.

3.3 OVERALL PUBLIC FEEDBACK SUMMARY

The public engagement process was conducted with recognition that an energy code update will impact community members from all sectors. An in-depth review and analysis of the input received can be found in Appendix B.

General feedback from all public outreach methods indicated that the Louisville community does not feel ready for an aggressive approach to energy code updates. This is indicated by levels of support for each of the recommendations (Figures 7, 8, 9, and 10) and by both written and oral comments (Appendix B). While some were supportive of the desire to achieve sustainability goals, many showed concern about the upfront and ongoing costs that the code updates would impose on the community, the capability of the grid to handle electrification pushes, and the very limited access to offsite renewable energy.

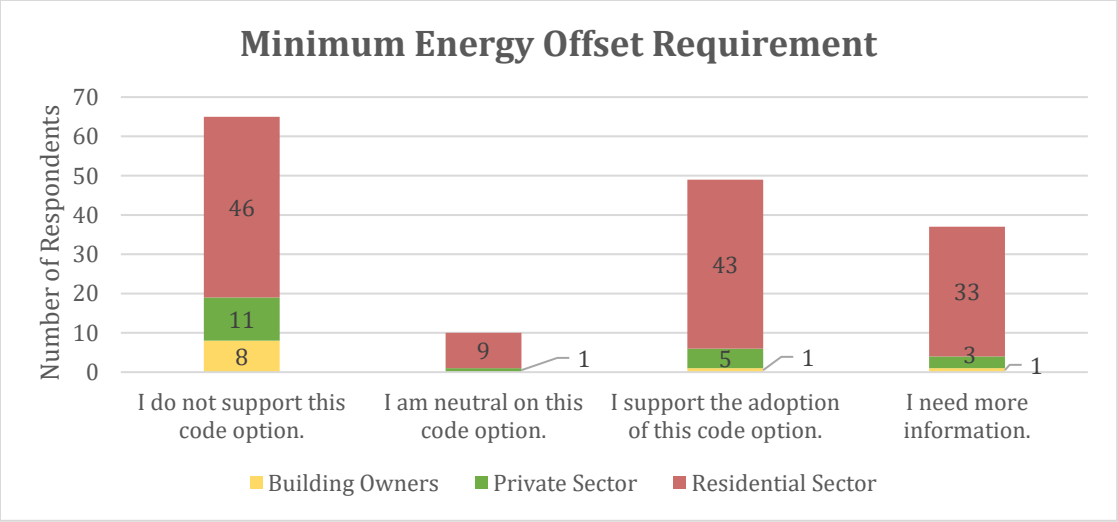


Figure 7: All sector levels of support for Minimum Energy Offset code option. ***How supportive would you be of including a minimum energy offset requirement in addition to the 2021 code, which would require on-site or off-site solar?***

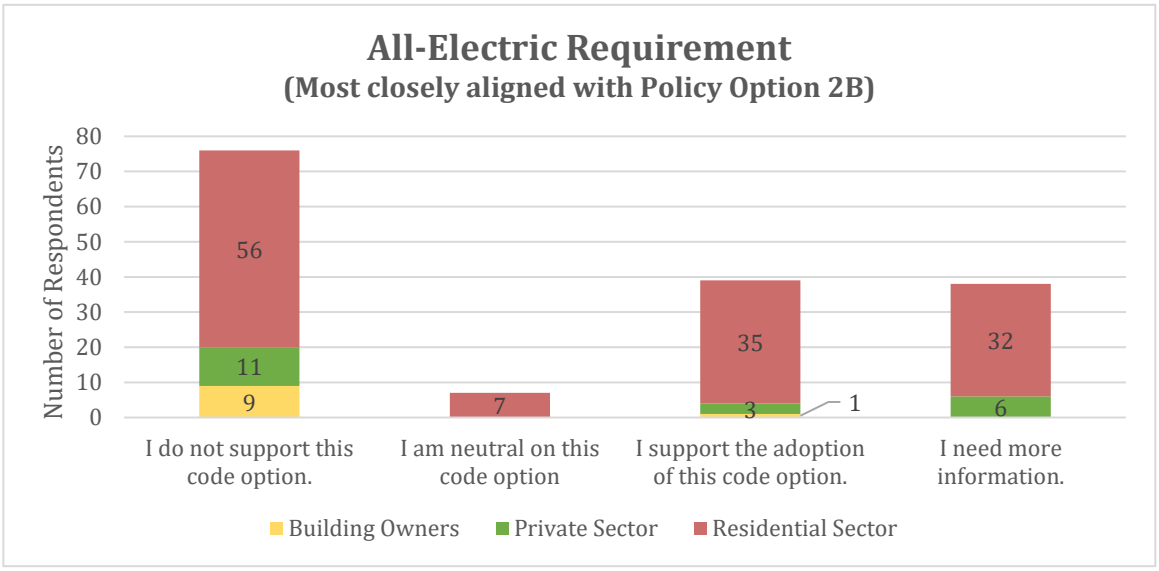


Figure 8: All sector levels of support for All-Electric Requirement code option. ***How supportive would you be if the City were to consider an all-electric requirement for new commercial construction code if industrial processes were exempt?***

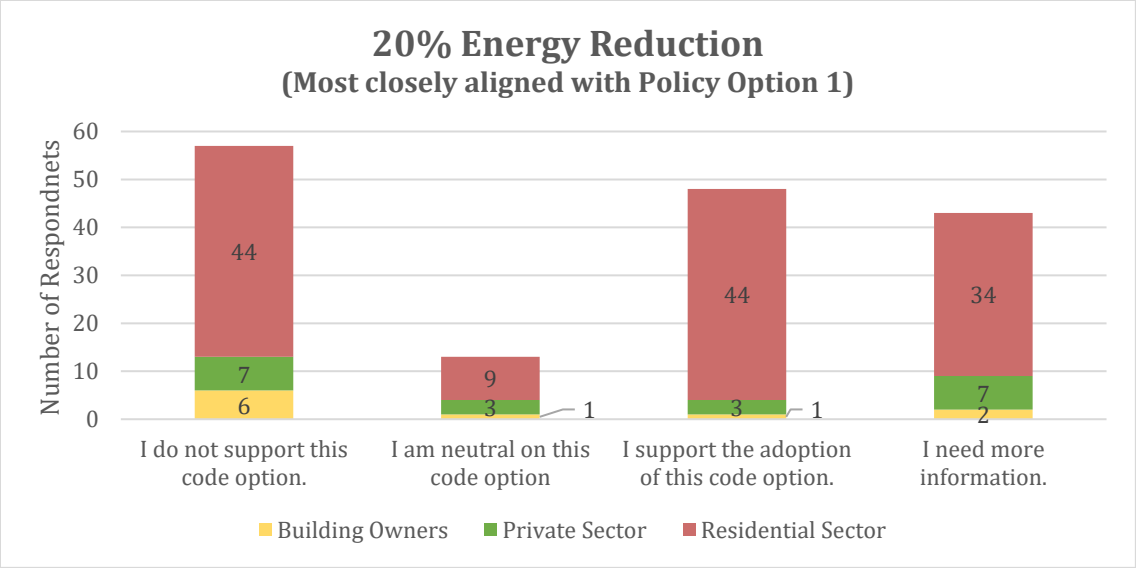


Figure 9: All sector levels of support for 20% Energy Reduction code option. ***How supportive would you be if the City were to consider an energy code that required a 20% reduction in energy use from the 2021 energy code for commercial construction?***

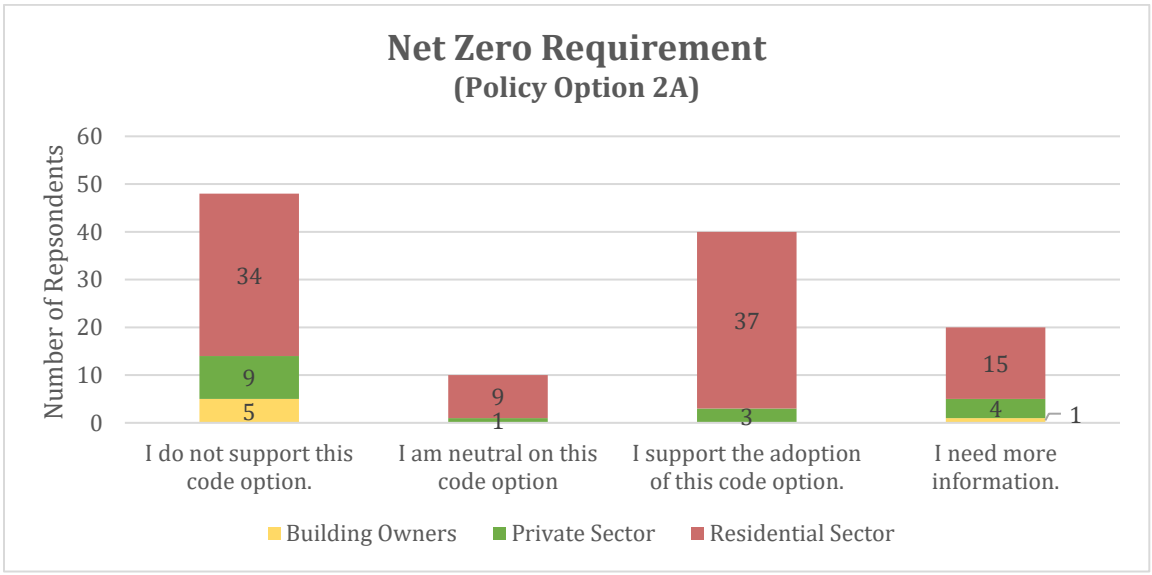


Figure 10: All sector levels of support for Net Zero code option. ***How supportive would you be if the City were to consider a commercial energy code that required net zero energy through efficiency and onsite/off-site renewable energy?***

In the online public engagement survey, the project team asked business and building owners what payback period they would tolerate for the additional upfront costs of installing solar for net zero and all-electric buildings. It is important to note that most respondents indicated that they would not tolerate any increased upfront cost, despite the payback period. Three out of ten building owners selected a payback period of zero-to-5-years, and

only one building owner was comfortable with a 10-20-year timeframe. Six out of 22 business owners would be comfortable with a zero-to-5-year payback timeframe, only two selected payback periods of 10 years or more, and six others were not interested in solar at all. In sum, according to the survey, the tolerance threshold for increasing upfront costs for onsite solar, all-electric construction, and net zero construction is low.

The project team also wanted to use the survey to assess where community values fall as they relate to adopting stricter energy codes. The survey asked, "What's the most important consideration for the City in adopting stricter energy codes for residential and commercial construction?". The results of this question emphasized the need for balance (Figure 11) and reinforced sentiments heard from the other public engagement sessions and shown by the support assessment questions. Overall, the community wants council to carefully consider this ordinance and focus on understanding its potential impacts, rather than rushing to be a leader in the energy code space.

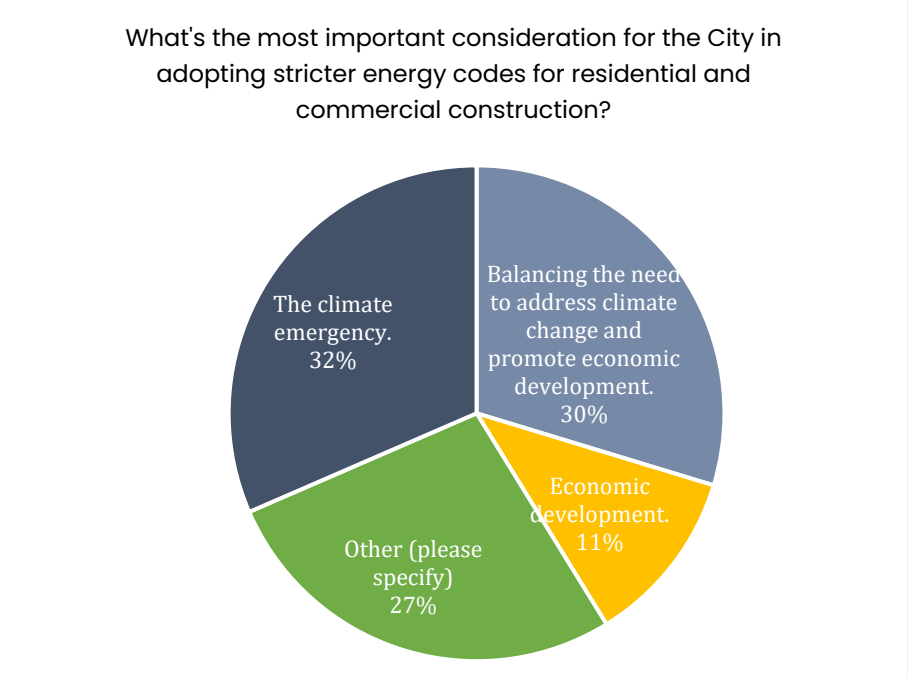


Figure 11: Percentage breakdown of answers for important considerations for stricter energy code.

4. Conclusion

4.1 Final Policy Recommendation

The project team diligently considered the City of Louisville's sustainability goals, the energy modeling and policy research, public feedback, and the estimated GHG impacts of the policies when deliberating a final recommendation for Louisville's energy code. ***Based on a need for balance and feasibility, the project team recommends City Council pursue Policy Option 1: Energy Performance Standards for Building Types.***

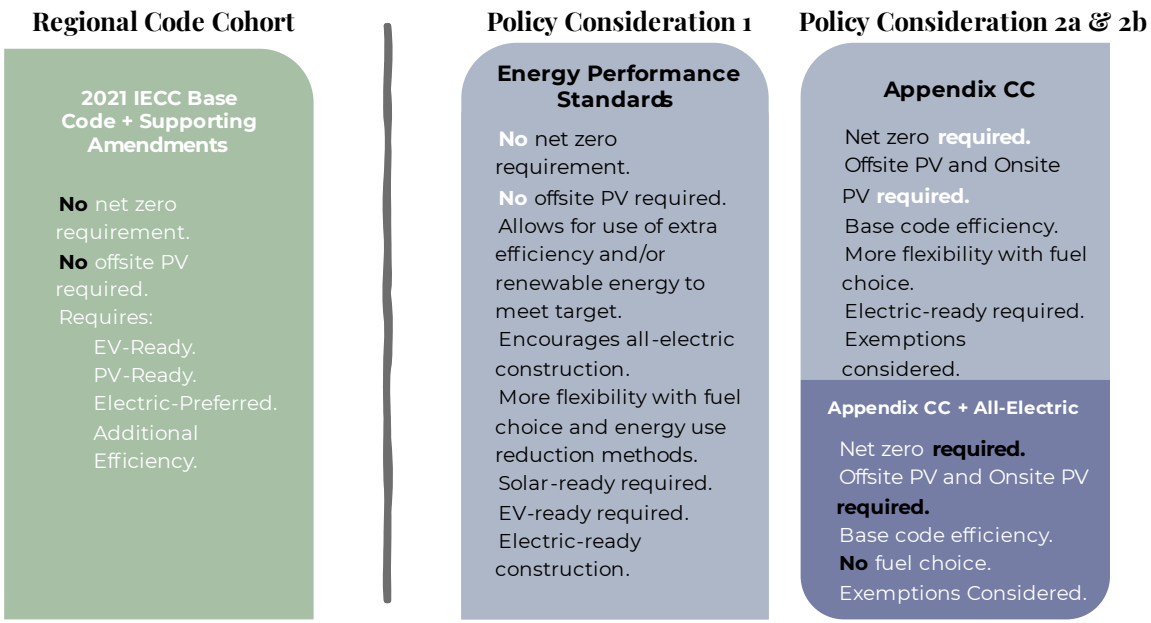


Figure 12: Summary graphic detailing the features of each policy option.

Energy performance standards emphasize energy efficiency and result in lower emitting buildings, thus contributing to Louisville's sustainability goals. There is also no net zero or all-electric requirement, which increases feasibility for building owners, and significantly reduces the upfront cost impacts. While all-electric systems are not mandated in this policy option, energy performance goals, via EUI targets, are more easily achieved with all-electric HVAC and plumbing systems than mixed-fuel systems. Therefore, this code option encourages all-electric new construction while still giving developers and owners choice. Additionally, the code option encourages local renewable energy generation because onsite renewable energy installation can help a building owner achieve the energy performance goal. The last advantage to this code option is that exemptions are not necessary. Buildings with heavy energy loads can still pursue energy use reduction via other efficiency measures.

Policy Option 1 does not create as large of a GHG reduction as Policy Options 2A and 2B, since it is a less aggressive code package. However, the annual energy costs of this policy option were generally lower than those in a building compliant with current code, depending on the building type and system installed. Annual energy costs of Policy Options 2A and 2B are generally lower than both current code compliant buildings and buildings modeled with Policy Option 1 requirements, but PV and offsite renewable energy add significant costs. Under Policy Option 1, a building owner could opt to utilize PV, onsite or offsite, if they would like it to contribute to the building's energy performance standard, but only if they deem it financially beneficial. Thus, Policy Option 1 provides more flexibility with the cost burden a building owner is willing to take on.

4.2 Future Considerations

The project team and the City recognize that stricter building energy codes alone will not achieve the City of Louisville's energy and climate goals. This section captures ideas that were brought forward throughout the project that the City could consider to further support achieving these goals.

First, public engagement brought many questions about how the code updates will impact existing buildings. Current code language says that an addition, alteration, repair, or renovation must be completed to the most up-to-date code for the scope of work intended (if the scope of the project triggers requirements in the code). Any building components not in the intended scope of work do not need to be brought up to code. The project team recommends that council carefully consider how existing buildings will be impacted by the new commercial construction code, including the cost impacts of the code update they choose to enact on these types of existing building projects. Making additions, alterations, repairs and/or renovations too expensive may encourage a property owner to scrape and rebuild rather than renovate. This would create more embodied carbon and obstruct the City's sustainability efforts. Existing buildings can be used as a climate action strategy if additions, alterations, repairs and/or renovations are allowed to pursue a prescriptive pathway to incremental efficiency improvements. The 2021 building code is more efficient than any previous code cycle and consequently, incremental changes to the existing building stock will still be impactful.

Other policy mechanisms also exist to address the existing building stock, that may be more appropriate than new construction code triggers. Benchmarking and building performance standards stand out as the most pursued policy mechanism to address existing building energy use and GHG emissions. The City of Louisville can look to City of Denver[xiii] or City of Boulder's[xiv] benchmarking programs for examples.

For a more holistic approach to increasing the positive environmental impact of new construction, the City can also look into green building codes and certifications. The International Green Construction Code (IgCC)[xv] and LEED[xvi] certifications are two examples of options that address building sustainability more comprehensively, including requirements topic areas like waste, materials management, water use, land use, and connectivity.

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[i] https://www.ipcc.ch/report/ar6/wg3/resources/press/press-release/

[ii] https://www.louisvilleco.gov/home/showpublisheddocument/25430/637114996226870000

[iii] "Core Municipal GHG Emissions" refers to the total GHG emissions from all municipal activity.

[iv] "Core Community GHG Emissions" refers to the total GHG emissions from the entire City of Louisville including all residential, commercial, and industrial energy consumption.

[v] https://www.louisvilleco.gov/home/showpublisheddocument/28886/637376646025230000

[vi]https://www.mckinsey.com/industries/engineering-construction-and-building-materials/our-insights/call-for-action-seizing-the-decarbonization-opportunity-in-construction

[vii]https://www.google.com/url?q=https://www.louisvilleco.gov/home/showpublisheddocument?id%3D22360&sa=D&source=docs&ust=1660286628507708&usg=AOvVaw1EUGqL2jm5HmMJ3ZUliJzc

[viii] https://bouldercolorado.gov/services/building-performance-ordinance

[ix] https://newbuildings.org/wp-content/uploads/2019/09/ZeroEnergyCommercialBuildingTargets.pdf

[x] https://energyeducation.ca/encyclopedia/Energy_density

[xi] Note, 15-year contracts are not available for Green Retail Tariffs. Green Retail Tariffs can also only be purchased to offset electricity use. Pricing shown here is meant for informative purposes only.

[xii] Note, 15-year contracts are not available for unbundled RECs. Pricing in table reflects REC pricing today.

[xiii]https://www.denvergov.org/Government/Agencies-Departments-Offices/Agencies-Departments-Offices-Directory/Climate-Action-Sustainability-Resiliency/Goals-and-Policies/Energize-Denver-Benchmarking

[xiv] https://bouldercolorado.gov/services/building-performance-ordinance

[xv]https://codes.iccsafe.org/content/IGCC2021P1/preface#:~:text=The%20IgCC%20is%20a%20model,on%20the%20natural%20environment%20and

[xvi] https://www.usgbc.org/leed

Group 14 ENGINEERING Inspiring Better Buildings

1325 East 16th Avenue
Denver, CO 80218
(303) 861-2070
group14eng.com

ENERGY CODE ANALYSIS – ENERGY MODELING AND POLICY CONSIDERATIONS

6/24/2022

PREPARED BY:

Anna McCullough, P.E.

amccullough@group14eng.com

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LIST OF ABBREVIATIONS

Abbreviation	Definition
ACH	Air Changes per Hour
BTU	British Thermal Unit
CO2	Carbon Dioxide
CSG	Community Solar Garden
DHW	Domestic Hot Water
DOAS	Dedicated Outdoor Air System
ECO	Energy Conservation Opportunity
ECM	Energy Conservation Measure (synonymous to ECO)
EUI	Energy Utilization Index
ERI	Energy Rating Index
ERV	Energy Recovery Ventilator
EV	Electric Vehicle
F	Fahrenheit
FCU	Fan Coil Unit
FY	Fiscal Year
HERS	Home Energy Rating System
HSPF	Heating Seasonal Performance Factor
HVAC	Heating, Ventilation, and Air-Conditioning
HW	Hot Water
IECC	International Energy Conservation Code
IWG	Inches of Water Gauge
kBtu	Thousand British Thermal Units
kW	Kilowatt/Thousand Watts
kWh	Kilowatt Hour
PNNL	Pacific Northwest National Laboratory
PV	Photovoltaic
SEER	Seasonal Energy Efficiency Ratio
SCC	Social Cost of Carbon
Sq. Ft., SF	Square Foot
TBD	To Be Determined
UEF	Uniform Energy Factor

1 INTRODUCTION

1.1 Executive Summary

Group14's scope for this report is to evaluate the current energy codes established in the City of Louisville and to provide recommendations for future all-electric and net zero codes to meet the City's carbon reduction goals. To produce this report, Group14 has modeled four different building types:

1. Multifamily building – 42,000 SF
2. Office building – 110,000 SF
3. Commercial development – 90,000 SF
4. Single family home – 2,820 SF

These energy models were created with feedback from the City's planning department as well as average CBECS data for the mountain west region. Each building type is modeled with different HVAC designs which meet the current Louisville energy codes (both Mixed-Fuel and all-electric). Greenhouse gas emissions and net present value analysis is also provided.

In the policy section of this report, all-electric and net zero energy codes from around the country are analyzed. Recommendations are made to push Louisville's energy codes towards all-electric, net zero new construction, while also considering the upcoming IECC code cycles and codes in surrounding counties.

Out energy modeling results show that the all-electric buildings have much lower carbon emissions than mixed fuel buildings but typically have slightly higher annual energy costs. First costs between both the mixed fuel and all-electric designs are similar, due to the current Louisville requirement for all-electric ready new construction. The cost to install the electric infrastructure drives up the cost of the mixed fuel buildings.

2 ENERGY MODELING RESULTS

2.1 Multifamily Building

The multifamily building modeled is typical of multifamily new construction in the City of Louisville. This design is three stories tall, 42,000 SF, with wood framed walls. The different HVAC system options modeled are:

- Mixed-Fuel options:
  - 1: Packaged terminal heat pumps (9.5 EER and 2.9 COP)
    - Ventilation provided through the unit
    - 95% efficient natural gas water heaters
    - C406 pathway: Efficient fossil fuel water heater, Reduced lighting power
  - 2: Split DX fan coil units (SEER 14) with combined heating and domestic water heating
    - Ventilation provided by exhaust fans running continuously
    - 95% efficient natural gas water heaters
    - C406 pathway: Efficient fossil fuel water heater, Reduced lighting power
  - 3: Split heat pumps (SEER 14, 9.2 HSPF)
    - Ventilation provided by exhaust fans running continuously
    - 95% efficient natural gas water heaters
    - C406 pathway: Efficient fossil fuel water heater, Reduced lighting power
  - 4: Water source heat pumps (13 EER, 4.3 COP)
    - Supplemental 80% efficient boiler
    - Variable speed cooling tower
    - Ventilation provided by exhaust fans running continuously
    - 95% efficient natural gas water heaters
    - C406 pathway: Efficient fossil fuel water heater, Reduced lighting power
- All-Electric Options:
  - 1: Packaged terminal heat pumps (10.0 EER, 3.2 COP)
    - Ventilation provided by exhaust fans running continuously
    - Heat pump domestic water heater with supplementary electric heat (3.0 UEF)
    - C406 pathway: 5% cooling improvement, 10% heating improvement, reduced lighting power, heat pump water heater
  - 2: Split heat pumps (SEER 14.7, 9.0 HSPF)
    - Ventilation provided by exhaust fans running continuously
    - Heat pump domestic water heater with supplementary electric heat (3.0 UEF)
    - C406 pathway: 5% cooling improvement, 10% heating improvement, reduced lighting power, heat pump water heater
  - 3: Water source heat pumps (13.6 EER, 4.3 COP)
    - Supplemental electric boiler
    - Ventilation provided by exhaust fans running continuously
    - Heat pump domestic water heater with supplementary electric heat (3.0 UEF) with condenser water heat recovery
    - C406 pathway: 5% cooling improvement, 10% heating improvement, reduced lighting power, heat pump water heater

All other inputs to the energy models meet the existing Louisville energy code (2021 IECC with amendments), including insulation and glazing values. The options comply with the code via the prescriptive path, which includes compliance with Section C406. Each design reflects the most cost-effective compliance pathway. All energy

modeling for the multifamily building assumer commercial utility rates – the building is on a master electrical utility meter with submeters serving each unit.

Multifamily - System Type	*Annual Energy Cost*	*First Cost*	*Annual Energy Cost with PV Required for Net Zero Energy*	*First Cost with PV Required for Net Zero Energy*
Mixed Fuel Option1	$40,785	$157,321	$4,329	$1,001,660
Mixed Fuel Option 2	$25,230	$278,321	$8,461	$1,190,470
Mixed Fuel Option 3	$38,038	$267,321	$4,131	$1,024,164
Mixed Fuel Option 4	$27,071	$459,821	$7,578	$1,352,283
All-Electric Option1	$40,383	$135,000	$13,924	$725,600
All-Electric Option 2	$40,601	$245,000	$14,667	$823,897
All-Electric Option 3	$28,431	$437,500	$5,873	$941,024

The first cost analysis for the multifamily building show that the mixed fuel options are similar first costs to the all-electric option due to the electric-ready infrastructure required under the current Louisville energy code.

Our energy modeling results show that the multifamily buildings with gas heating have lower annual energy costs than those that are all-electric. When photovoltaics are considered to make the buildings net zero, however, we found that the all-electric options require less PV and have a positive net present value. This positive net present value is calculated over a period of 20 years, with a 3% energy escalation rate. Each net present value option is evaluated against Mixed Fuel Option 1. A positive net present value means that the investment in the estimated initial construction investment is paid off before the end of the 20-year period.

Multifamily	*PV Size Required for Net Zero Energy (kW)*
Mixed Fuel Option1	338
Mixed Fuel Option 2	365
Mixed Fuel Option 3	303
Mixed Fuel Option 4	357
All-Electric Option1	236
All-Electric Option 2	232

All-Electric Option 3	201

Multifamily	Payback, No PV Included (years)	Payback, Net Zero (years)
Mixed Fuel Option1		
Mixed Fuel Option 2	9	>50
Mixed Fuel Option 3	>50	>50
Mixed Fuel Option 4	37	>50
All-Electric Option1	1	1
All-Electric Option 2	>50	1
All-Electric Option 3	39	1

Another important note is the greenhouse gas emissions created by each system type. Using NREL's Cambium tool, Group14 calculated the hourly greenhouse gas emissions throughout the year based on the average emissions expected in the entire State of Colorado. With Xcel Energy's goal to be 79% carbon neutral by 2035, we expect that the greenhouse gas emissions of these design options will be much lower in 2035, rather than the values shown in our analysis.

Without PV, the mixed fuel options have average emissions of 170,000 lbs CO2 in 2022 as compared to 110,000 lbs CO2 for the all-electric options. In 2035, the average carbon emissions drop to 95,000 lbs CO2 for the mixed fuel options and 67,000 lbs CO2 for the all-electric options.

2.2 Office Building

The office building is a 110,000 SF, 3-story building with metal-framed walls and is 40% glazed. To select the size of this building, we used information from the 2018 CBECS data for the average size of an office building in the mountain west region. The different HVAC options modeled are as follows:

- Mixed-Fuel options:
    - 1: Packaged VAV with hot water reheat (10.3 EER)
        - Condensing boilers (94% efficient)
        - 80% efficient natural gas water heaters
        - C406 pathway: 5% cooling efficiency improvement, reduced lighting power
    - 2: Packaged VAV with gas heat and electric reheat (10.3 EER)
        - 80% efficient natural gas water heater
        - C406 pathway: 5% cooling efficiency improvement, reduced lighting power

  - 3: Four pipe fan coil units
    - Ventilation is provided by a DOAS with gas heat and DX cooling (80% efficient and 9.8 EER, 3.3 COP)
    - Chilled water is provided by air cooled chiller (9.7 FL | 16.1 IPLV)
    - Heating water is provided by 94% efficient central boilers
    - 80% efficient natural gas water heater
    - C406 pathway: Dedicated outdoor air system, reduced lighting power

- All Electric Options:
  - 1: Packaged VAV with heat pump and electric reheat (10.3 EER)
    - Energy recovery ventilation (0.5 effectiveness)
    - Electric water heating
    - C406 pathway: 5% cooling efficiency improvement, reduced lighting power
  - 2: Water source heat pumps (13 EER, 4.3 COP)
    - Condenser water loop is served by variable speed cooling tower and electric boiler
    - Ventilation is provided by a heat pump DOAS (9.8 EER, 3.3 COP)
    - Energy recovery ventilation (0.5 effectiveness)
    - Electric water heating
    - C406 pathway: Dedicated outdoor air system, reduced lighting power
  - 3: Variable refrigerant flow (SEER 13, 7.7 HSPF)
    - Ventilation is provided by a heat pump DOAS (9.8 EER, 3.3 COP)
    - Energy recovery ventilation (0.5 effectiveness)
    - Electric water heating
    - C406 pathway: Dedicated outdoor air system, reduced lighting power
  - 4: Two pipe fan coil units with chilled water cooling and electric heating coils
    - Ventilation is provided by a DOAS with gas heat and DX cooling (80% efficient and 9.8 EER, 3.3 COP) with energy recovery ventilation (0.5 effectiveness)
    - Chilled water is provided by air cooled chiller (9.7 FL | 16.1 IPLV)
    - Electric water heating
    - C406 pathway: Dedicated outdoor air system, reduced lighting power

Our analysis of the different office buildings shows that the annual energy costs of an all-electric office building are comparative to that of a Mixed-Fuel building. Heating energy use in offices is relatively small and is primarily for heating outdoor air for ventilation.

Office - System Type	*Annual Energy Cost*	*First Cost*	*Annual Energy Cost with PV Required for Net Zero Energy*	*First Cost with PV Required for Net Zero Energy*
Mixed Fuel Option 1	$104,604	$2,327,633	$23,730	$4,132,873
Mixed Fuel Option 2	$135,278	$1,786,323	$48,276	$3,728,323
Mixed Fuel Option 3	$95,077	$4,492,873	$8,835	$6,423,932
All-Electric Option 1	$131,993	$1,948,716	$47,442	$3,836,012
All-Electric Option 2	$90,551	$3,789,170	$29,616	$5,149,336
All-Electric Option 3	$94,324	$3,464,384	$30,850	$4,881,224
All-Electric Option 4	$103,660	$4,005,694	$38,960	$5,449,886

The predicted energy use of the modeled office buildings is lower than actual building performance due to how office buildings are operated. Often, building owners will increase the operational hours of their building for cleaning crews or early/late workers, and even operate them 24/7 to maintain a single zone at a prescribed temperature. The analysis assumes a standard 7 AM – 6 PM, Monday through Friday, occupancy schedule. In addition, control settings are often overridden to limit economizer operation and hold the supply air temperature at 50-55 F rather than allowing the supply temperature to reset upwards when the outside air is cooler.

To meet net zero, the photovoltaic systems sizes predicted are too large to fit on the roof of the example building. The buildings would be required to purchase off-site PV to fully offset the building's energy use.

Office	*PV Size Required for Net Zero Energy (kW)*	*Estimated PV Area (SF)*
Mixed Fuel Option 1	722	103,157
Mixed Fuel Option 2	777	110,971
Mixed Fuel Option 3	772	110,346
All-Electric Option 1	755	107,845
All-Electric Option 2	544	77,724
All-Electric Option 3	567	80,962
All-Electric Option 4	578	82,525

The net present value analysis for the office buildings shows that the buildings will not pay back within the expected life of the equipment for most of the options. Each net present value option is evaluated against Mixed Fuel Option 1. The two most cost-effective options, Mixed-Fuel options 1 and 2 without PV, are the cheapest first cost options that were analyzed, as expected. With PV, Mixed Fuel Option 2 and All-Electric Option 1 are more cost-effective than Mixed Fuel Option 1.

Office	Payback, No PV Included (years)	Payback, Net Zero (years)
Mixed Fuel Option 1		
Mixed Fuel Option 2	1	1
Mixed Fuel Option 3	>50	>50
All-Electric Option 1	1	1
All-Electric Option 2	>50	>50
All-Electric Option 3	>50	>50
All-Electric Option 4	>50	>50

The carbon emissions analysis shows that the all-electric designs show much lower emissions than the Mixed-Fuel options. In 2022, the mixed-fuel buildings have an average carbon emissions of 380,000 lbs CO2. In 2035, they have a predicted emissions of 215,000 lbs CO2. The all-electric buildings have an average carbon emissions of 315,000 lbs CO2 in 2022 and 170,000 lbs CO2 in 2035.

2.3 Commercial Development

The commercial development is assumed to be a strip mall with two food service anchors – a café and a quick-service restaurant. The building is 90.000 SF with concrete block walls and is one story. The building size was determined via the 2018 CBECS data for the mountain west region. The different HVAC options modeled are as follows:

- Mixed-Fuel options:
    - 1: Packaged single-zone rooftop units with DX cooling (SEER 14) and gas heat (80% efficient)
        - Café and food service: 80% efficient natural gas water heaters
        - Retail: electric water heating
        - C406 pathway: Reduced lighting power
    - 2: Packaged single-zone rooftop units with heat pump and back-up electric heat (SEER 14, 8.0 HSPF)
        - Café and food service: 80% efficient natural gas water heaters
        - Retail: electric water heating
        - C406 pathway: Reduced lighting power

  - 3: Packaged variable volume single-zone rooftop units with DX cooling (SEER 14) and gas heat (80% efficient)
    - Café and food service: 80% efficient natural gas water heaters
    - Retail: electric water heating
    - C406 pathway: Reduced lighting power

- All-Electric Options:
  - 1: Packaged single-zone rooftop units with heat pump and back-up electric heat (SEER 14, 8.0 HSPF)
    - Energy recovery ventilation (0.5 effectiveness)
    - Electric water heating
    - C406 pathway: Reduced lighting power
  - 2: Packaged single zone rooftop units with heat pump and back-up electric heat (SEER 14, 8.0 HSPF)
    - Energy recovery ventilation (0.5 effectiveness)
    - Electric water heating
    - C406 pathway: Reduced lighting power
  - 3: Water source heat pumps (13 EER, 4.3 COP)
    - Loop is served by electric boiler and variable speed cooling tower
    - Ventilation is provided by a heat pump DOAS (9.8 EER, 3.3 COP) with energy recovery ventilation (0.5 effectiveness)
    - Café and food service: Electric water heating
    - Retail: electric water heating
    - C406 pathway: Reduced lighting power

In the commercial development models, due to the high service water heating and plug load requirements, the annual energy costs of the mixed fuel buildings are, on average, slightly lower than the all-electric energy costs.

Commercial Development - System Type	*Annual Energy Cost*	*First Cost*	*Annual Energy Cost with PV Required for Net Zero Energy*	*First Cost with PV Required for Net Zero Energy*
Mixed Fuel Option 1	$164,492	$570,500	$23,730	$4,923,423
Mixed Fuel Option 2	$182,683	$456,000	$48,276	$4,366,330
Mixed Fuel Option 3	$158,096	$630,500	$8,835	$4,545,393
All-Electric Option 1	$193,161	$660,000	$47,442	$4,282,873
All-Electric Option 2	$185,053	$708,000	$29,616	$4,130,109
All-Electric Option 3	$156,491	$3,167,500	$30,850	$6,060,323

The high internal loads drive up the amount of PV energy required to make the building net zero energy. The predicted size of the PV systems will not fit on the roof of the building off-site PV would need to be purchased to achieve net zero energy.

Commercial Development	*PV Size Required for Net Zero Energy (kW)*	*Estimated PV Area (SF)*
Mixed Fuel Option 1	1741	248,738
Mixed Fuel Option 2	1564	223,447
Mixed Fuel Option 3	1566	223,708
All-Electric Option 1	1449	207,021
All-Electric Option 2	1369	195,549
All-Electric Option 3	1157	165,304

While the net present value of the options without renewables is mostly negative, the net present value of the designs including renewables is mostly positive. Each net present value option is evaluated against Mixed Fuel Option 1. This assumes that the building will be paid for all of the electricity generated by the PV. However, as noted, the buildings do not have space for all of the onsite solar. Systems of this size are not often available in community solar gardens. With Xcel Energy's goal of net zero energy production by 2035, the requirement for photovoltaics to offset energy use would be greatly reduced in the coming years, as the electricity provided to these buildings moves closer to meeting the net zero carbon emissions goal.

Commercial Development	Payback, No PV Included (years)	Payback, Net Zero (years)
Mixed Fuel Option 1		
Mixed Fuel Option 2	1	1
Mixed Fuel Option 3	12	1
All-Electric Option 1	>50	1
All-Electric Option 2	>50	1
All-Electric Option 3	>50	>50

The carbon emissions analysis, like those above, show that carbon emissions for the all-electric buildings are much lower than those of the mixed fuel buildings. This is due to the high amount of service water required by the food service tenants. The average emissions for a mixed-fuel retail building in 2022 is 850,000 lbs C02. In 2035,

the mixed-fuel buildings are expected to have an average emissions of 470,000 lbs CO2. The all-electric design options have an expected average emissions of 680,000 lbs CO2 in 2022 and 380,000 lbs C02 in 2035.

2.4 Single-Family Home

The single-family home is a 2,820 SF 2-story home with a finished basement. The different HVAC options modeled are as follows:

- Mixed-Fuel options:
  - 1: 96% efficient gas furnace with SEER 16 split DX cooling
    - 0.92 UEF water heater
  - 2: Split heat pump with back-up gas heat (SEER 16, HSPF 10, 96% efficient gas back-up)
    - 0.92 UEF water heater
- All Electric Options:
  - 1: Split heat pump with back-up gas heat (SEER 16, HSPF 10, 96% efficient gas back-up)
    - 3.0 UEF heat pump water heater with supplementary electric resistance heat
  - 2: Ground source heat pump (18 EER, 3.7 COP)
    - 3.0 UEF heat pump water heater with supplementary electric resistance heat
- Appendix RC Options
  - Mixed Fuel Option: 96% efficient furnace with SEER 21 cooling
    - 0.94 UEF water heater
  - All-Electric Option: Cold climate heat pump
    - 3.48 UEF heat pump water heater

In our analysis of the single-family home options, we found that the annual energy costs of the all-electric homes are only slightly higher than the lowest cost option. This is due to the highly efficient and cost-effective all-electric design options available to residential consumers. The design options compliant with Appendix RC have the lowest annual energy costs.

Single-Family Home - System Type	*Annual Energy Cost*	*First Cost*	*Annual Energy Cost with PV Required for Net Zero Energy*	*First Cost with PV Required for Net Zero Energy*
Mixed Fuel Option 1	$2,375	$4,040	$386	$51,775
Mixed Fuel Option 2	$2,388	$4,540	$371	$51,135
All-Electric Option 1	$2,511	$3,255	$966	$37,738
All-Electric Option 2	$2,026	$22,405	$807	$49,621

Mixed Fuel Option - Appendix RC	$1,946	19805	$302	$61,128
All-Electric Option - Appendix RC	$1,795	21750	$519	$50,249

The PV system sizes required for each option are shown below. The all-electric options require the smallest PV sizes to reach net zero energy. The mixed-fuel system options and the Appendix RC compliant mixed-fuel system option require a much larger PV size when compared to the all-electric system options.

Single-Family Home	*PV Size Required for Net Zero Energy (kW)*
Mixed Fuel Option 1	19
Mixed Fuel Option 2	19
All-Electric Option 1	14
All-Electric Option 2	11
Mixed Fuel Option - Appendix RC	17
All-Electric Option - Appendix RC	11

To achieve net zero energy, the PV will only fit on a home that has optimal sun exposure and a large enough roof to fit the PV. This will not be feasible on most homes, which will require enrollment in a community solar program to meet the net zero requirement. COSSA has stated that there will be enough community solar available for homeowners in the City of Louisville. The cost of community solar will not increase utility bills or have an enrollment cost.

Single-Family Home	Payback, No PV Included (years)	Payback, Net Zero (years)
Mixed Fuel Option 1		
Mixed Fuel Option 2	>50	1
All-Electric Option 1	1	1
All-Electric Option 2	>50	1
Mixed Fuel Option - Appendix RC	>50	>50

All-Electric Option - Appendix RC	>50	1

The net present value analysis shows that most of the options have a negative net present value without on-site PV. Each net present value option is evaluated against Mixed Fuel Option 1. This means that the systems will not pay back within the system life span, mainly due to the high cost of electricity in comparison to the mixed fuel baseline. When on-site PV is added, however, the net present values become positive, meaning they will pay back before the end of the 20-year analysis period.

Consistent with the analysis above, the carbon emissions of the all-electric options have much lower greenhouse gas emissions than the Mixed-Fuel options. The design option compliant with Appendix RC that has natural gas use has more carbon emissions than the all-electric new construction options that do not comply with Appendix RC. The average carbon emissions of the mixed-fuel options is 9,000 lbs CO_2 in 2022 and 5,000 lbs CO_2 in 2035. The all-electric options have an estimated average carbon emissions of 6,000 lbs CO_2 in 2022 and 3,500 lbs in 2035.

3 POLICY CONSIDERATIONS

Across the country, from Seattle to Boston, cities are establishing building energy codes to reduce carbon emissions for new construction. The City of Louisville has a goal to create a new construction energy code that will set them on a path towards net zero energy buildings. Louisville's current amendments to the 2021 IECC require some additional energy savings and all-electric ready construction items:

Commercial New Construction

- Increased insulation levels
- Increased fenestration efficiency requirements
- Increased HVAC efficiency
- Electric vehicle charging and infrastructure
- Electric-ready wherever gas appliances are installed
- Solar-ready zone required

Residential New Construction

- Increased insulation levels
- Increased ductwork and piping insulation requirements
- Mandatory heat recovery
- Electric vehicle charging and infrastructure
- Electric-ready wherever gas appliances are installed
- Net zero Appendix RC required

To further increase the energy savings and carbon reduction potential of Louisville's energy code, this report discusses different advanced energy codes across the country and makes recommendations on the future cycles of Louisville's energy code development.

Background

Throughout California, multiple cities require all-electric new construction. In colder climate zones, such as Boston and New York City, jurisdictions have adopted their states' optional stretch codes. These codes require additional energy savings such as mandatory energy recovery, electric vehicle charging, or in some cases a net zero new construction provision that requires electric-ready new construction.

In Colorado, a new bill (HB 22-1362) recently passed that requires jurisdictions to update their energy code to the 2021 version of the IECC when one or more of their building codes are updated. Beginning in July 2023, jurisdictions will also be required to adopt electric and solar-ready requirements and begin enforcing a low energy and carbon code when one or more of their building codes are updated. This sets a great precedent for increasing the energy efficiency requirements of Louisville's energy code.

In the 2021 IECC, there are two appendices, Appendix CC and RC which require net zero commercial and residential new construction, respectively. Appendix CC gives two options for net zero new construction: 1- for buildings complying with the prescriptive pathway energy use intensities are established for each building type and must be offset by either on-site or off-site renewables, or 2- for buildings complying with the performance pathway, they must offset their predicted energy use shown by an energy model with on-site or off-site renewables. Appendix RC, which is currently adopted by the City of Louisville, requires that new construction homes have an ERI rating of 47 or less and the predicted energy use must be offset by on-site or off-site renewables.

Another code to consider in this discussion is Boulder's energy code. In this code, buildings with an estimated construction cost of $500,000 or greater are required to comply with the performance path. This path prescribes maximum Energy Use Intensities (EUIs) that the building design must meet, shown through an energy model. After construction, building owners must reserve funds in escrow to cover the cost to reduce the building's energy use if the building does not meet the maximum allowed EUI.

In addition to these existing codes, there are amendments to the 2024 IECC that have passed preliminary committee approval which will further increase the energy savings of the base code. The all-electric-ready new construction amendment requires that anytime a natural gas appliance will be installed that appropriately sized electric infrastructure will be installed to accommodate a future electrical appliance. The on-site renewable energy amendment will require 0.75 W/sf gross floor area, not to exceed the combined gross conditioned floor area of the three largest floors on all new-construction commercial buildings. These addendums to the 2024 IECC will reduce the carbon emissions of new construction buildings and will encourage all-electric new construction. The IECC will continue to push towards net zero new construction with each code cycle, which will provide a framework for jurisdictions also hoping to require net zero new construction.

There are hurdles to providing all-electric new construction for commercial buildings. In comparison to all-electric space heating and domestic water heating, annual heating costs with natural gas are lower. In Louisville's climate specifically, we find that heat pump systems will have to utilize electric resistance heating during very cold times, further driving up annual energy costs. Additionally, demand response controls for reducing peak energy use and costs are not yet widely supported by Xcel Energy in large commercial buildings. We expect that this hurdle will be overcome in the coming years.

In addition to these climate and utility hurdles, we have found that industrial, laboratory, and manufacturing buildings all have systems that currently cannot be electrified. In Louisville there are major food, machinery, and plastics manufacturers, with specialized processes that use natural gas and cannot currently be replicated with electricity. In the energy codes discussed above, these processes are exempt from the electrification requirement, including the all-electric ready new construction requirement.

Resiliency is another factor to consider in this decision-making process. The Marshall Fire has highlighted concerns on how to make sure Louisville is a safe, resilient place to live and work. Through the energy codes, resiliency can be increased by requiring on-site solar and peak shifting controls to reduce demand and therefore peak loads on the grid.

Considerations

For the City of Louisville, we are recommending three different pathways for commercial energy code adoption:

- Option 1: Require all-electric-ready new construction as an addendum to the 2021 IECC, with on-site or off-site PV required to match the 2024 IECC on-site renewable amendment.
- Option 2: Require projects above a certain construction cost (or size) to meet a maximum-allowed EUI that is low enough that an all-electric design will comply more easily than a Mixed-Fuel building. Provide a prescriptive pathway that requires an equivalent amount of energy efficiency as the performance pathway. All new construction will be required to be electric-ready.
- Option 3: Require all-electric ready, net-zero new construction for all buildings and utilize Appendix CC from the 2021 IECC for buildings that do not pursue the performance path for compliance.
- Option 3B: Require all-electric net zero new construction for all buildings and utilize Appendix CC from the 2021 IECC for buildings that do not pursue the performance path for compliance.

For residential energy code adoption, Louisville has already adopted Appendix RC as a mandatory measure for all new construction buildings. Our recommendation is to amend Appendix RC to allow HERS ratings in lieu of ERI scores. This appendix maintains that buildings can comply with the code with or without natural gas; however, the appendix greatly incentivizes all-electric new construction to meet the energy scores calculated during design. Appendix RC also requires homes to offset their energy use with on-site or off-site renewables.

Discussion

Option 1

This option, seen as the least stringent of the three policies listed above, also requires the least number of amendments for the City of Louisville. This simple code can easily be automatically updated as each new version of the IECC is released.

This code would have the following main items:

- 2021 IECC adopted as the base code (currently adopted in Louisville)
- Electric vehicle charging and electric vehicle ready spaces amended (currently adopted in Louisville)
- All-electric or all-electric ready construction required (currently adopted in Louisville)
- On-site or off-site PV required to match the amendment to the 2024 IECC, alternatively, PV could be provided as required to offset any carbon emissions by natural gas systems used on site.
- Automatic update to the newest version of the IECC upon release

There are many benefits to this code pathway – primarily that the energy code for Louisville will continue to be updated as the code is updated. This also allows for engineers, architects, and building owners to navigate code updates and expectations.

Option 2

In this option, Louisville would use the City of Boulder's Energy Code as a framework for their efficiency code. Boulder's code has additional energy efficiency requirements above the 2018 IECC base code and is estimated to provide 20% additional energy efficiency. The additional energy savings are through mandatory and prescriptive compliance items such as:

- Air barrier testing
- Additional insulation levels
- Additional HVAC controls
- Reduced lighting power densities and additional lighting controls
- Electric vehicle charging
- Solar-ready zone
- Site energy Use Intensity (EUI) targets for the performance pathway

There are many benefits to aligning Louisville's energy code with the City of Boulder. Firstly, creating a unified energy code throughout the area would be beneficial for potential building owners and developers. A consistent energy code will set expectations and establish cost estimates and investments for new construction in the region. In addition, the EUI approach simplifies performance modeling by eliminating a baseline model to compare to.

If Louisville wishes to create a similar code based on the 2021 IECC, analysis could be performed to customize a set of EUIs for performance compliance. City of Boulder mandatory measures could be adopted along with additional mandatory measures, including:

Electric vehicle charging and electric vehicle ready spaces amended (currently adopted in Louisville)

All-electric or all-electric ready construction required (currently adopted in Louisville)

Along with this approach, all-electric buildings could be provided with a simpler path to code compliance and mixed-fuel buildings could require additional energy savings to above the base code to show compliance. For example, an all-electric building would solely have to meet the mandatory requirements in the base code,

however a mixed-fuel building would have to show 10% additional energy savings above the base code. This encourages designers and owners to build all-electric buildings without requiring all-electric new construction for all buildings.

The code maximum EUIs would be difficult to achieve via a Mixed-Fuel building and easier to meet for an all-electric building. As seen in our energy modeling results, the all-electric buildings that comply with Louisville's current energy code have lower energy use intensities than their mixed-use equivalents.

In this pathway, industrial and laboratory occupancies would use a traditional performance modeling compliance pathway and show energy savings. This allows industrial and laboratory occupancies to exclude process energy use from the energy savings calculation, including those processes that utilize natural gas. This results in energy-efficient envelope, lighting and HVAC systems having to offset increased heating and cooling loads from the process equipment.

In addition to this pathway, we recommend that on-site PV is incentivized by Louisville for buildings where PV is best suited, for example buildings with large, open roof spaces and sites that are optimized for solar production. Xcel Energy is targeting 2035 for zero carbon electricity production. There are benefits to buildings with on-site photovoltaics; however, utility-scale photovoltaics are generally better maintained than smaller systems.

Option 3

Under this option, Appendix CC of the 2021 IECC would be made mandatory for new construction commercial buildings. This appendix requires that buildings complying prescriptively provide a set amount of photovoltaics to offset their building's energy use based on their occupancy type. Performance compliance pathways are required to offset their building's estimated energy use shown through an energy model. This net zero requirement can be met through on-site or off-site photovoltaics.

The benefit to this pathway is that the Appendix will continue to be updated to be more effective at each iteration of code amendments at the national level until, hopefully, it is codified in the energy code. While this pathway is the most energy efficient and effective at reducing operational carbon, net zero construction has the highest first cost of all three pathways. The pathway also needs a post-construction performance assessment, such as benchmarking, to confirm net-zero achievement.

Option 3B

Under this option, Appendix CC of the 2021 IECC would be mandatory, with an additional requirement for all-electric new construction. No combustion systems would be allowed, except for the following occupancy types:

- Industrial
- Laboratories
- Manufacturing

In these building types, HVAC and plumbing systems would be required to be all-electric, however processes requiring natural gas would not be. For example, a steam industrial process that requires a large amount of steam would not be required to be electrified.

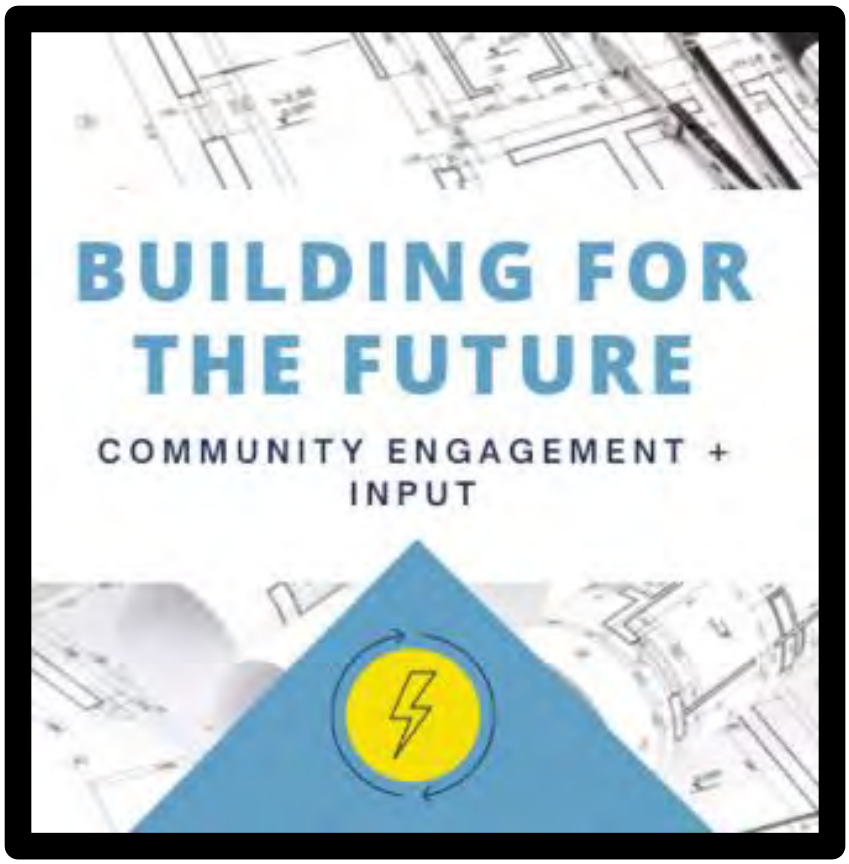
Future Work

Based on the desired pathway that City Council selects for their energy code, future work will include development of a set of mandatory, prescriptive, and performance measures to ensure that each pathway provides equivalent levels of energy efficiency requirements. Additional work is needed to ensure that resiliency considerations are made for renewable energy systems required, including battery back-up for both peak shifting and emergency power when possible. Any prescriptive pathway set by the city should encourage all-electric new construction and reduce use of natural gas.

4 CONCLUSION

The City of Louisville goals to reduce energy use and greenhouse gas emissions are important steps in addressing our climate crisis. Louisville relies on Xcel Energy for their electricity. Xcel Energy's goal to deliver carbon-free electricity by 2035 is realistic and results in Louisville having access to much cleaner power than the power provided to the rest of the state. Our recommendation is to leverage Xcel Energy's goal to deliver carbon-free electricity by 2035, and focus the energy code on energy efficiency, all-electric buildings, and renewables to offset gas use.

Louisville is surrounded by other counties that also have goals to reduce emissions and increase the efficiency required by the energy code. Creating an energy code that is similar and consistent across the region lets business developers and homeowners know what to expect when looking for a place to build, and helps contractors and engineers find the most cost-effective and energy efficient ways to meet the code. This will improve the efficiency of commercial and residential buildings across the region and encourage designers to find the most cost-effective solutions to the code.



City of Louisville Energy Code Update

Public Engagement Summary

August 2022

LOTUS Engineering & Sustainability

City of Louisville

Background

In 2021, the City of Louisville adopted the 2021 International Energy Conservation Code (IECC) with specific amendments that included more stringent efficiency requirements, and a requirement for electric-readiness and EV-readiness for all new construction. The City also adopted the Zero Energy Appendix (Appendix RC) that requires net zero energy construction for all new single-family homes in the City.

Now, the City is considering additional code options that would encourage higher efficiency, net zero, and/or all electric for multi-family and commercial new construction. Energy modeling was conducted to evaluate the City's current energy codes and other code development options. The modeling also investigated the up-front cost, annual cost, and lifetime cost of building to the new potential standards.

Public input is critical to the investigation and development of these new multi-family and commercial code options. Code changes impact multiple sectors of the community, from building developers to businesses to tenants and homeowners. City staff engaged the broader public through an online survey and two community meetings. In addition, the City staff engaged with two of the City's boards, the Louisville Sustainability Advisory Board, and the Building Code Board of Appeals, to present code options for feedback. The feedback received from this outreach will support City staff in identifying unforeseen barriers or challenges with new building code policy and will help inform where the opportunity is to drive more efficiency and climate protection in the building code.

City of Louisville Energy Code Update Public Engagement Survey

Survey Methodology

The survey questions were designed with the goal of capturing feedback and assessing support levels for potential code options for the Louisville community, as well as to gain an understanding of the perceived impacts of the code update. This was gathered through a combination of multiple choice and open-ended response questions. The open-ended questions were included to give respondents sufficient opportunity to provide comments. Demographics information was collected to understand what sectors and communities responded to the survey, and which might require additional outreach. Choice logic was used to tailor questions to three main groups: Group 1, Building Owners/Developers, Group 2, Business and Tradespersons, and Group 3, Residential. The survey was designed using SurveyMonkey software and was distributed via publication on the EngageLouisville

website, email listservs, and advertised during the two community meetings. The survey was open from June 27, 2022 to August 5, 2022.

Results of the survey were analyzed to find and remove duplicate responses and to determine whether incomplete responses should be included. Multiple choice question results were summarized and converted into sector-specific charts. Open-ended responses were categorized and summarized.

Survey Results

Key Takeaways	
The survey had a total of 206 responses. *Note: the total number of answers per question may vary from the total number of respondents due to incomplete surveys.*	
Nearly ¾ of survey takers were homeowners, with the remaining ¼ representing building owners and industry professionals.	
Generally, survey takers tended to lean toward opposing each of the code policy considerations. However, the number of survey takers who supported each of the code policy considerations was still significant.	
Survey takers perceived the largest barriers to energy code updates to be additional cost burdens and creating a hostile environment for businesses.	
Survey takers saw the largest benefits to energy code updates to be greenhouse gas reductions and public health improvements (i.e., air quality).	
Survey takers expressed themselves in a wide variety of open responses. Some expressed staunch support for code updates, others expressed staunch opposition. A few of these comments are highlighted below.	
Example responses from those opposing the energy code updates:	Example responses from those supporting the energy code updates:
"Louisville is already not attracting new businesses like surrounding communities are. I want a vibrant economy here and I want to help businesses, not create barriers."	"If we work together (industry and government) to GREATLY reduce the GHG emissions of homes and buildings in the Denver metropolitan area, then we have addressed one of the largest sectors of emissions in CO. This would give upcoming generations a foothold to fight the omnipresent climate crisis. We must invest NOW to help future generations, it's not about us."

"Cost. I am supportive of #'s 21-24, but I think the considerations need a very careful approach with financial implications well laid out in either case studies or similar programs in the U.S. Its tough to for a smaller town, like Louisville, to be on the bleeding edge of the change without a City like Denver helping to lead the way."	"Commercial buildings consume large quantities of power - often 24/7. Since they consume large amounts of power, addressing their electricity consumption should have a real benefit from a climate change perspective."
"1) Addressing climate change while promoting economic development is a prime concern. 2) However, many people will not be able to afford the upgrades!"	"While the impacts to the environment are obvious, I think what these codes can represent is the start of a workforce that is trained in building to higher standards. Codes like these are the future of buildings and it has to start somewhere, so let's start that here!"

DEMOGRAPHICS

The survey asked for race/ethnicity, sector represented, and whether the respondent lives and/or works in the City of Louisville.

RACE/ETHNICITY

- White (83%)
- Hispanic or Latino (3%)
- Multiracial or Biracial (2%)
- Native American or Alaskan Native (1%)
- Asian or Pacific Islander (1%).
- The remaining were write-in responses with many failing to specify.

90% of survey respondents live in Louisville and 42% of respondents work in Louisville.

Most survey respondents were homeowners (74%). The breakdown of the remaining sectors is illustrated in Figure 1. Sector selection determined which questions the respondent would receive. Building Owner and Building Developer selectors were placed in the Building Owner/Developer Group. Business Owner / Manager, Energy Efficiency Expert, Engineer, Architect, or Designer, General Contractor, and Other business were placed in the Business and Tradespersons Group. Those who selected Home Owner,

Affordable Housing Representative, or Residential Tenant or Occupant were placed in the Residential Group.

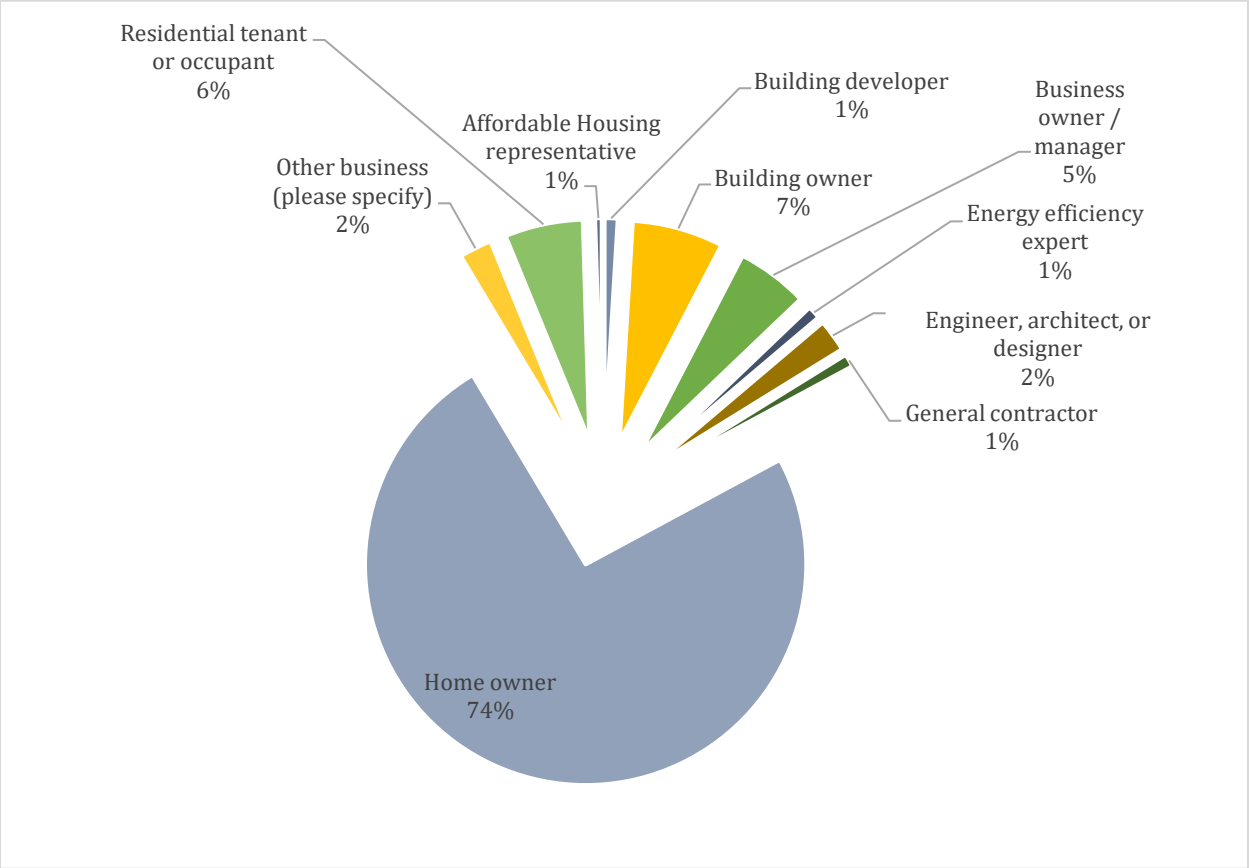


Figure 1: Breakdown of sectors represented in online survey.

Summary of Survey Results from All Groups

Important Considerations for Adopting Code Updates

What's the most important consideration for the City in adopting stricter energy codes for residential and commercial construction?

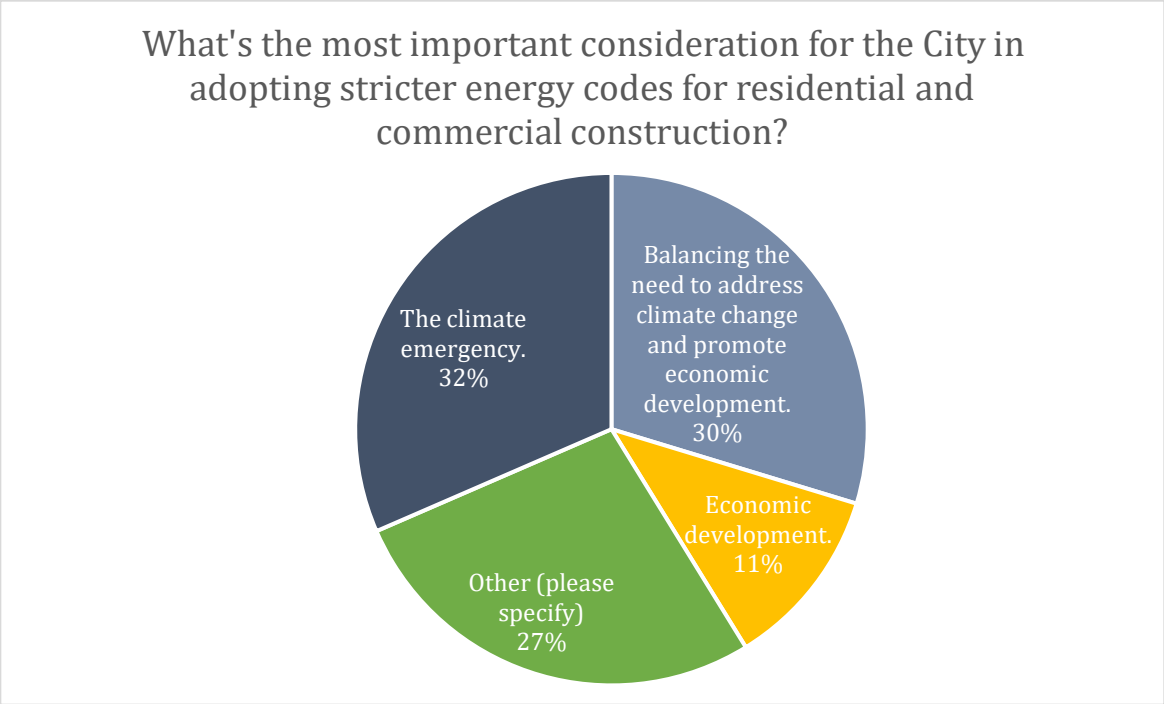


Figure 2: Percentage breakdown of answers for important considerations for stricter energy code.

To evaluate how survey respondents' values may influence their support of code updates or other sustainability measures, the survey asked respondents "What's the most important consideration for the City in adopting stricter energy codes for residential and commercial construction?" See Figure 2 for a breakdown of the results.

'Other' answers included responses expressing the need for cost/benefit analyses, desires for less government interference, and cost concerns. (See Appendix A for open-ended responses.)

Support for Code Considerations

Survey takers were given questions describing potential City code considerations and asked to indicate their level of support via a 3-point Likert scale ranging from opposition to full support, with a fourth answer choice allowing respondents to indicate if they need more information to decide. Results are illustrated in Figures 3-6.

HOW SUPPORTIVE WOULD YOU BE OF INCLUDING A MINIMUM ENERGY OFFSET REQUIREMENT IN ADDITION TO THE 2021 CODE, WHICH WOULD REQUIRE ON-SITE OR OFF-SITE SOLAR?

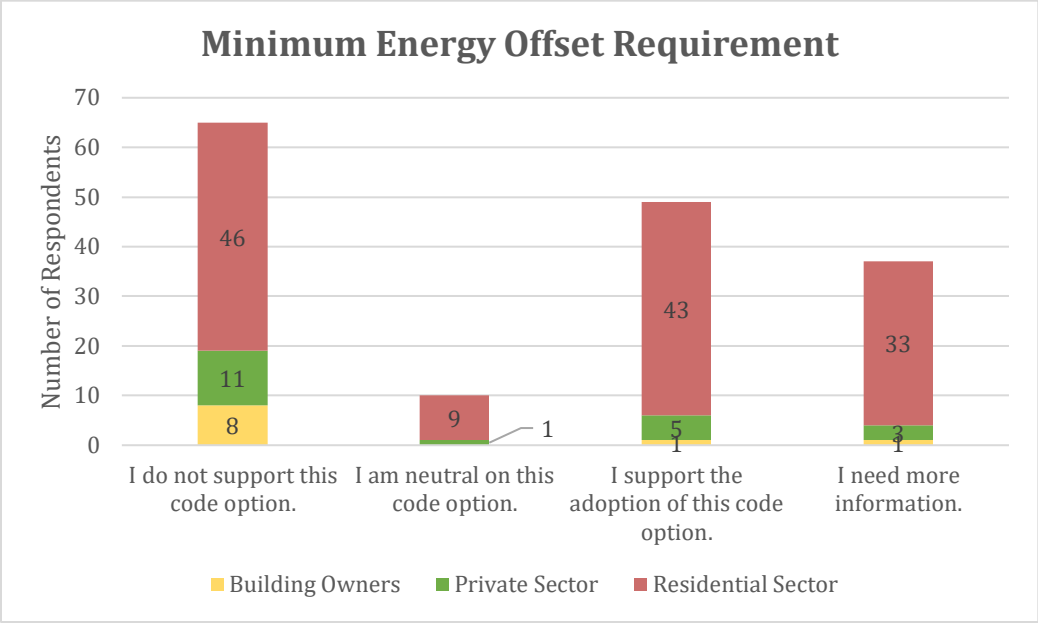


Figure 3: All sector levels of support for Minimum Energy Offset code option.

HOW SUPPORTIVE WOULD YOU BE IF THE CITY WERE TO CONSIDER AN ALL-ELECTRIC REQUIREMENT FOR NEW COMMERCIAL CONSTRUCTION CODE IF INDUSTRIAL PROCESSES WERE EXEMPT?

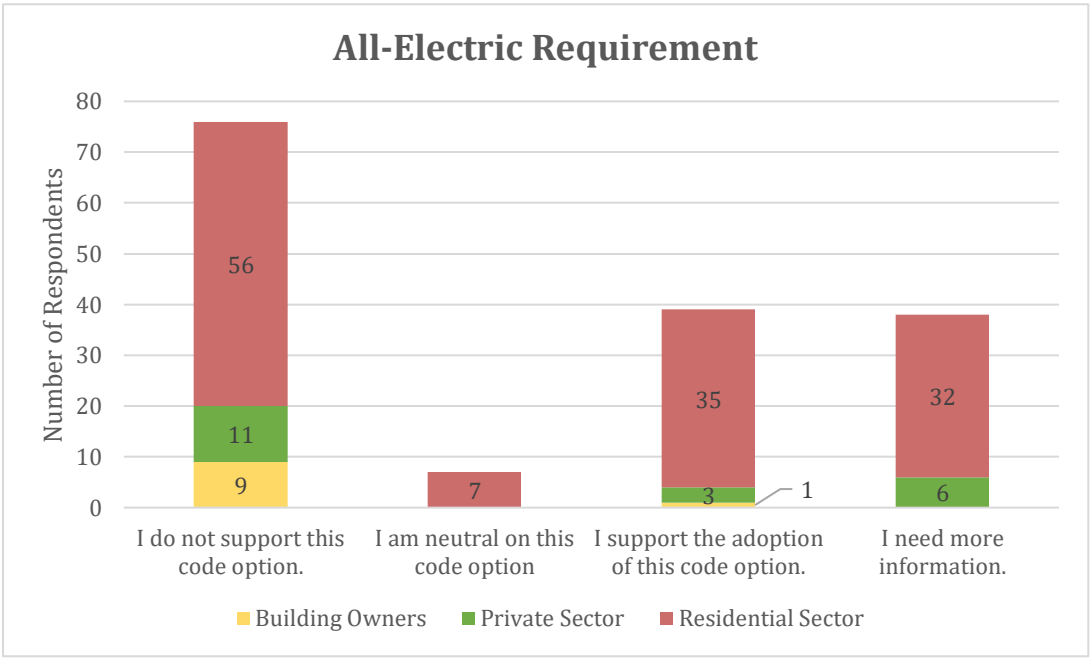


Figure 4: All sector levels of support for All-Electric Requirement code option.

HOW SUPPORTIVE WOULD YOU BE IF THE CITY WERE TO CONSIDER AN ENERGY CODE THAT REQUIRED A 20% REDUCTION IN ENERGY USE FROM THE 2021 ENERGY CODE FOR COMMERCIAL CONSTRUCTION?

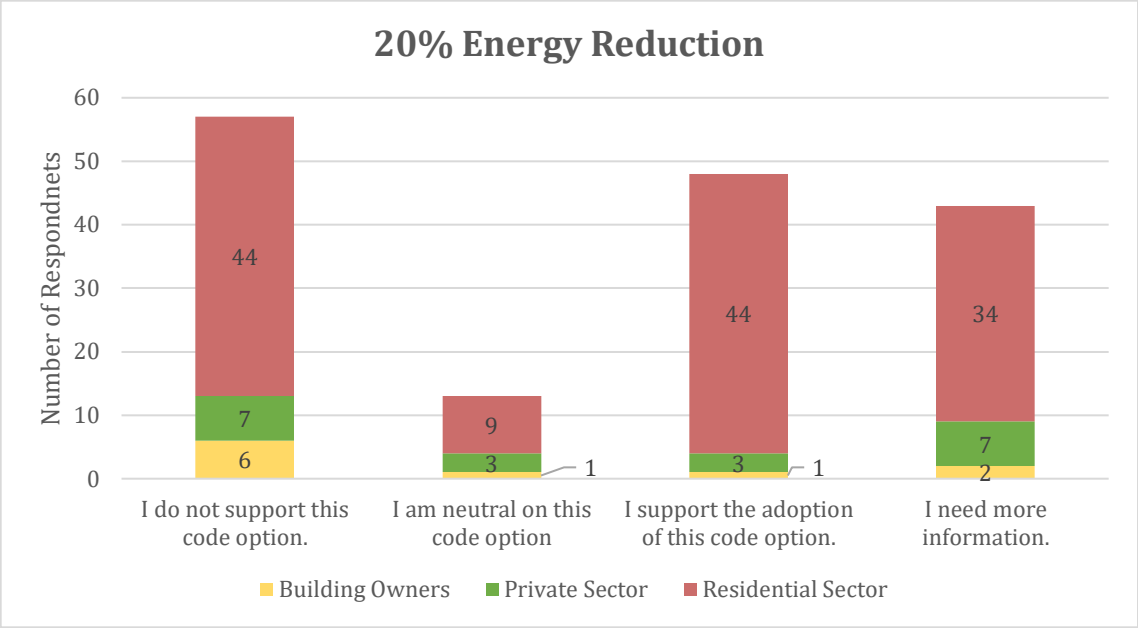


Figure 5: All sector levels of support for 20% Energy Reduction code option.

HOW SUPPORTIVE WOULD YOU BE IF THE CITY WERE TO CONSIDER A COMMERCIAL ENERGY CODE THAT REQUIRED NET ZERO ENERGY THROUGH EFFICIENCY AND ONSITE/OFF-SITE RENEWABLE ENERGY?

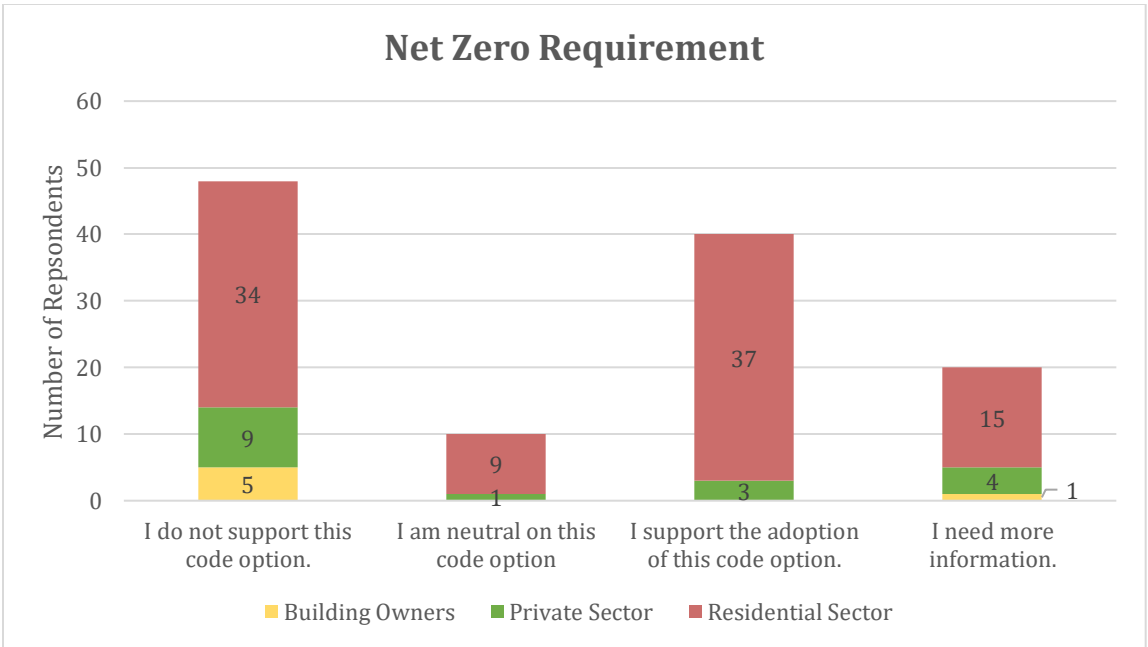


Figure 6: All sector levels of support for Net Zero code option.

Barriers and Benefits

The survey asked open-ended questions to assess what respondents' perceived barriers and benefits were to the code considerations presented to them. The following provides a summary of the open-response comments received in the survey.

Summarized Barriers:

- Cost burdens for builders and tenants alike.
- The code considerations will make the City of Louisville a hostile environment for businesses.
- Residents and builders have a lack of knowledge and education regarding the benefits of code upgrades.

Summarized Benefits:

- Cleaner air.
- Clean energy use and greenhouse gas reductions.
- Increased energy efficiency in buildings.

See Appendix A for a complete list of responses.

Equity Considerations

All participants were asked the open-ended question: "Are there any considerations to address equity for low-income residents or disproportionately impacted communities that the City of Louisville should consider for any of the three commercial code scenarios considered above?"

Common themes resulting from survey responses included:

- Ensuring affordable/inclusionary housing is not unduly burdened by cost because of implementing these energy codes.
- Suggestions that the City provide grants and financial mechanisms for those who qualify.

See Appendix A for a complete list of responses.

Building Owners & Developer Group Responses

The Building Owner / Developer Group had 16 total responses, however, not everyone answered each question.

One survey taker expressed great enthusiasm and support for energy code upgrades. The rest were at the opposite end of the spectrum, showing opposition to all code considerations.

Does your company have sustainability or climate related goals?

5 respondents have started or are fully implementing sustainability/climate goals at their company, while 6 do not have any goals.

Would you prefer energy code requirements that:

- (Performance approach). Set an energy consumption performance target and allow for flexibility in how a building meets that requirement which can include onsite PV if needed to meet the performance target.
- (Performance + prescriptive approach). Set an energy consumption performance target that specifies an efficiency standards for equipment that must be met and requires mandatory PV on all new buildings.

7 building owners selected the performance approach and 3 selected the performance + prescriptive approach.

Support for Code Considerations

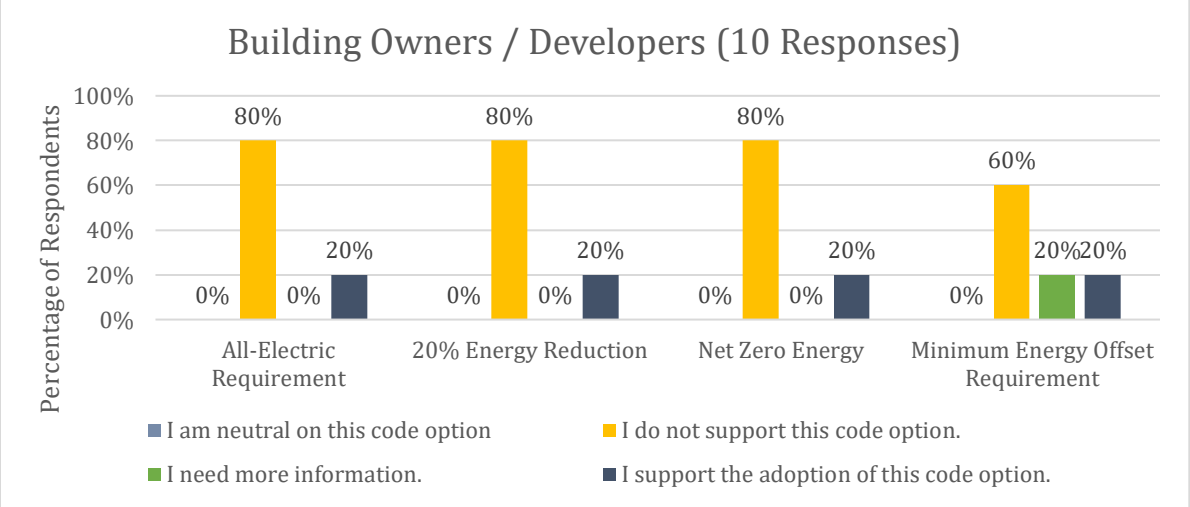


Figure 7: Building Owners / Developers sector levels of support for code options.

Business + Tradespersons Group Responses

The Business + Tradespersons Group had 25 total responses, however, not everyone answered each question.

The survey asked about location of their workspaces.

- 5 own their office/workspace in the City of Louisville.
- 7 rent their office/workspace in the City of Louisville.
- 10 do not have an office/workspace in the City of Louisville.

Does your company have sustainability or climate related goals?

9 respondents do not have sustainability goals, plans, or programs in place. 13 have either begun efforts or have established sustainability plans and/or programs and goals at their company.

Support for Code Considerations

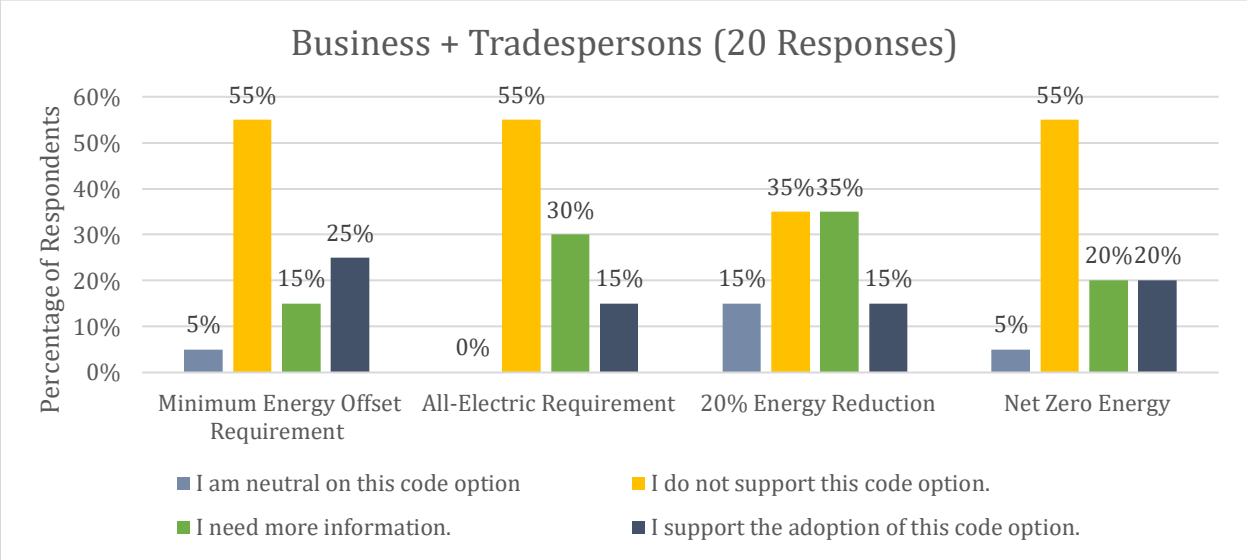


Figure 8: Business + Tradespersons sector levels of support for code options.

Residential Group Responses

The Residential Group had 169 total responses, however, not everyone answered each question.

Outside of the Marshall Fire rebuild efforts, do you plan to build a new home or undergo a major retrofit on your home in the next 1-3 years?

- 31 respondents' homes are part of the Marshall Fire rebuild effort.

- 19 are planning a major retrofit in the next 1-3 years.
- 81 are not planning any major retrofits.

DO YOU CURRENTLY LIVE IN AN ALL-ELECTRIC AND/OR NET ZERO HOME OR HAVE YOU TAKEN STEPS TO START TO ELECTRIFY YOUR HOME?

- 22 respondents are working on electrifying their home.
- 21 are working on making their home net zero.
- 88 are not doing either.

SUPPORT FOR CODE CONSIDERATIONS

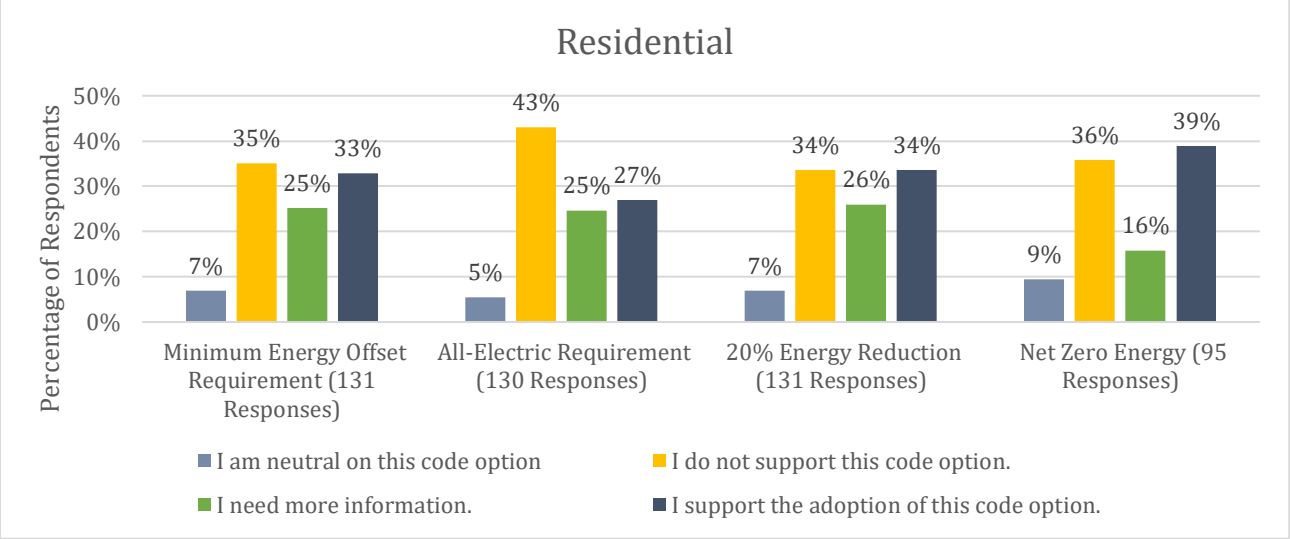


Figure 9: Residential sector levels of support for code options.

Community Meetings

The City of Louisville held two community meetings. The first was June 29th, 2022 from 6:00pm to 8:00pm. The second was July 28th, 2022 from 11:30am to 1:30pm. The meetings were held in open-house format, with a presentation outlining the code modeling and policy considerations, followed by time for participants to ask questions and make comments.

In both meetings, similar concerns to those brought up in the online survey were expressed. Questions and comments included (summarized, not direct quotes):

- Concern that businesses are leaving Louisville.
- Concern about costs imposed by these policy considerations.
- Concern of the electric grid not being able to handle energy code update impacts and Xcel not delivering on their stated renewable energy goals.
- Emphasis on building types that would qualify for exemptions.

- Curiosity and questions about alignment with regional code update efforts.
- A desire for the City to look closely at code for existing buildings.
- Emphasis on pushing energy efficiency before pushing electrification of building systems.
- The City should take its time developing the ordinance, rather than rushing to be a leader in this space. Careful consideration of impacts needs to be made.

Board Meetings

Louisville Sustainability Advisory Board

The energy code update modeling, policy considerations, and preliminary survey results were presented to the Louisville Sustainability Advisory Board (LSAB) Meeting on July 20th, 2022. This was an information session. Throughout the presentation, opportunity was given for board members to comment, as well as the public to give comment during designated public comment periods. Summarized comments and questions included:

- There is a need to push Xcel to implement resiliency measures and redundancy if we are going to electrify our systems.
- How does this project relate to existing buildings?
- Expressed need to emphasize greenhouse gas emissions benefits of the code updates.
- Concern about procuring offsite solar: lack of information available, lack of available offsite solar, and lack of funding to create more offsite solar.
- Exemptions for certain building types from code updates could create a loophole and could hinder Louisville's progress toward sustainability goals.
- How will small businesses be impacted by the code updates?
- There needs to be a scale of options ranging from a code update that is easy, a code update that is balanced, and a code update that is high impact but difficult to implement.

Building Code Board of Appeals

A similar presentation to the one given to LSAB was given to the Louisville Building Code Board of Appeals on July 21st, 2022, also as an information and feedback collection session. Summarized comments and questions included:

- Louisville has limited access to offsite renewable energy.
- Several questions related to the feasibility of limiting commercial energy consumption via Site Energy Use Intensity targets, and how successful City of Boulder's efforts were with energy performance targets.

- Board members sought confirmation that the modeling would apply to building types that exist in the City of Louisville.
- Concern regarding the capability of the electric grid to handle buildings built to stricter commercial energy codes and/or built to be all-electric, and the reliability of Xcel's renewable energy goals.
- Curiosity about other regional code efforts and whether the 2021 IECC has been implemented elsewhere.

Appendix A: Open-ended Responses from Online Survey

**Click the page number in the Table of Contents above to navigate to the open-ended responses for the following questions.*

What is your biggest concern or perceived barrier to the commercial code considerations presented? 15In your opinion, what is the biggest benefit to the commercial code considerations presented? 23Are there any considerations to address equity for low-income residents or disproportionately impacted communities that the City of Louisville should consider for any of the three commercial code scenarios considered above? 33What's the most important consideration for the City in adopting stricter energy codes for residential and commercial construction? 39

WHAT IS YOUR BIGGEST CONCERN OR PERCEIVED BARRIER TO THE COMMERCIAL CODE CONSIDERATIONS PRESENTED?

The impact to current businesses in the market and attracting new businesses as costs to implement such an aggressive code would unfairly impact business - need to be implemented slowly over a long time.
Perception that we cannot afford efficiency improvements and businesses will locate elsewhere.
There needs to be a clear presentation of the cost to builders and potential tenants. Each measure needs a cost and how long it will take to see a return on their investment. In addition what are the incentives for their participation in the plan.
Cost. You put the burden on these companies and they won't build here. That impacts locals who then don't have opportunity to work there. Let the free market do its thing. Companies have to have a good reason to take all the economic risks they do to build. Putting restrictions just makes them go elsewhere.
I think there is a very big loophole for industrial buildings. We need to look more closely at what we could require of industrial builds. I would support natural gas for emergency backup but not for processes.
Cost. We also have quite a few unoccupied buildings
Violation of owners rights to their own property.
The market needs time to process this type of change
Unreasonable cost with no clear benefit Business owners will gk elsewhere
Economic hardships for new businesses
Discouraging busisness development in Louisville.

It may be difficult to guarantee clean-energy sources when weather reduces solar and when commercial operations continue after dark. (Battery storage systems may not be ready to scale up, or may cost too mucy.)
COST vs payback / benefit
I would like to first read comments from the existing commercial business and building owners. We don't want to drive away business. We want to retain and attract business.
We need more businesses in the area. The city will be relying only on homeowners taxes for funding at the rate we are losing businesses.
We need to make the City attractive to potential investors and not become too expensive. That said, Redtail Ridge, because it's an entirely new development at this point, should be held to the highest standards. In addition, I would like to see large parking lots replaced by garages to reduce the amount of pavement and increase natural landscape. Commercial properties need to include charging stations for EVs
Cost and the effect of not considering any balance toward economic development of our city - it's lifeblood.
I am all for lowering emissions and energy efficiency but I believe the cities "net zero" approach is ill advised, expensive and another elitist move that will increase the cost of housing for a minimal real world benefit.
Businesses and developers will fight this tooth and nail
Pushing cost to business owners
Will it keep business away being cost prohibitive?
Cost, added lead time on construction.
Cost
Business leaving and not choosing Louisville to build
Some commercial occupants might have specialized needs that could necessitate gas/ fossil fuels. We will need fossil fuels for decades.
This will increase cost for businesses in Louisville. We have already lost most of our cornerstone businesses to neighboring communities l. This will continue to occur until there are no businesses left if we continue to make it more expensive for them to operate here.
Overreach by the city Government and costs. There is already a huge vacancy of commercial space in Louisville and this would prohibit businesses from moving to Louisville.
Companies will not consider Louisville as viable option for building their business.
Not enough valid, non political info

You are very focused on the wrong thing. There are so many empty buildings in the city... all this will do is raise the construction cost which will raise the rent which means that that we have more buildings to this new code with no value other than sitting empty. There should not be a mandate that should be an option if a developer wants to do it.
Louisville is already driving businesses out.
Fear of costs, fear of regualtions
Ability of small local businesses to absorb costs
Ignorant people
The City already is perceived as business unfriendly.
That it will turn away business from louisville. But we already have so much vacant buildings I am not concerned. They can use those first
Causing businesses to move. Money is the driver for all businesses. Tax incentives, subsidies, or loans may reduce this risk.
Louisville is already not attracting new businesses like surrounding communities are. I want a vibrant economy here and I want to help businesses, not create barriers.
It will make Louisville even less desirable as a place for new commercial buildings.
Inability to recoup costs.
I would be forced out of business
Louisville has already driven large businesses from here, I can't imagine that they will like the new requirement. Why do you think businesses (especially in the building industry) do not want to be in Boulder County and specifically Boulder.
Developers might be entrenched in traditional construction designs and methods
costs, impractical, no impact on climate change
You drive business out of Louisville when you create building requirements that drive the cost of commercial build out so much higher than surrounding cities. We are loosing commerical along the McCaslin corridor left and right. We should be focusing on how to bring companies here rather than giving them another reason to go to Lafayette or Superior.
Think the city needs to focus on sustaining homes and businesses. Not sustainability.
silly government hand outs to companies to reduce their risk to almost negligible for the promise that they'll follow the rules
We believe that it will hurt the economy of Louisville. Costs in construction are at an all time high with the limited supply chain. Adding code that will increase cost will only deter business and residents from moving into Louisville. I also fear that if

businesses need to expand they will look to our neighboring cities that offer lower rent, tax breaks, and less restrictions (lower cost) in construction.
Loss of potential and existing businesses
Potential upfront costs and how that might affect tenants
Increased costs will drive away business
The elimination of businesses using natural gas. This would severely impact many small businesses in Louisville - restaurants, for example.
The city already has an anti-business climate. By issuing more mandates that raise costs it will just drive potential businesses to neighboring communities.
question whether what is considered sustainable today will be supported by facts in the future
Louisville is already seen as being anti-business. Why would we make it harder to attract new businesses?
Cost
A lack of real financial analysis of current cost of future certainty of costs.
Lead times for equipment
Unjustified and will not bring interest to Louisville. These actions will chase more business out.
That the costs will drive businesses away from the city and prevent new businesses from opening.
Driving businesses away. Need to balance the energy requirements with other incentives
Companies wanting to maximize profit.
They are greedy and wanted to do their own way. They will try to bypass this code by saying oh we cannot do this due to lack of technology higher cost or infeasible with current energy needs. Do not give them any incentives because if you do, we the city of Louisville will be on the hook.
Efficiency is great. Will this draw or discourage small businesses? We already have lost many businesses to neighboring communities. Where will the off-sight collectors be placed? What will that do to Open Space? Have long-term health effects been studied? Will more staff need to be hired to regulate and oversee this change? Has research been done to see the actual energy savings?
Business choosing to locate elsewhere
Cost. I am supportive of #'s 21-24, but I think the considerations need a very careful approach with financial implications well laid out in either case studies or similar programs in the U.S. Its tough to for a smaller town, like Louisville, to be on the bleeding edge of the change without a City like Denver helping to lead the way.
Lack of understanding is probably the biggest barrier.

I'd want to know more about upfront costs and whether this was being done in concert with nearby municipalities. I like the requirement to reduce energy use/become more efficient better than any specific code requirement.
N/A, I am unfamiliar with commercial building codes.
I am ignorant of the processes used in commercial buildings that are sufficiently energy intensive to require using gas. That said, I think ASHP or GSHP is the only way to go for both commercial and residential, going forward. If we cannot eliminate gas entirely, we should strive to significantly reduce it where ever possible. Heat Pump technology is sufficiently advanced that heating and cooling can use it effectively. Same for Water heating. In Commercial environments, the time horizons are longer (then some residential), so ROI should be easily achievable.
The fact that there is a lot of commercial tenants moving out of Louisville recently - Kohls, Lowes, Sams Club, etc
If the building envelope is not enhanced even beyond what is proposed. The biggest energy losses in buildings is through a lack of air tightness, then lack of glazing performance and then thermal performance. All three of these areas should be addressed before electrification. By reducing energy loads HVAC and ventilation equipment can be properly sized to meet the lower energy demand and offset costs would be much smaller and easier to manage financially.
Louisville is already business hostile. Look at all the stores leaving town of all sizes. The last thing we need is another barrier.
Just electric requirements aren't enough, we need to be sure that all energy in from renewable sources
Same as residential - lack of contractors with experience
Until the industry knows how to do this, it would likely leave us stuck with old, inefficient buildings for a long time.
Louisville continues do drive businesses out of town. This will accelerate the trend.
Reduction in number of companies wanting to build in Louisville, which means higher costs for new home owners.N/
General opinion: Corporations will always resist increased financial of their operations, regardless of the impact on the environment.
cost
Reduces business opportunities in the city. Drives businesses to surrounding cities.
Top down approach is not good.
I wonder what the specific downsides to this would be.
Too restrictive

Big concern is if higher construction costs will make Louisville less desirable for future commercial growth.
Cost, heavy-handed mandate
Disproportionate impact on small local businesses, who already have a hard time getting off the ground relative to national chains.
businesses moving out elsewhere...
Expense and reduced demand for businesses to locate in Louisville due to cost (energy and rent)
Cost to businesses that could deter them from investment in Louisville.
I need to understand the cost impacts and the impact on businesses deciding to reside in Louisville. What is the balance 'goal' to increase businesses in Louisville especially since our town hasn't had any noticeable growth in years. Especially in the McCaslin corridor. We are falling behind our neighboring towns. If it is now or in the future a result of too many regulations or cost similar to Boulder then it is an economic issue for the town and its tax paying residents that have to pick up the revenue shortage.
Massive extra cost, making the business uncompetitive. Better to operate outside Louisville
I worry that the same thing that happened with the residential code will happen with the commercial code: builders convincing people/companies that it can't be done, or can't be done affordably. Perhaps incentives for builders to get training for building to new standards could help with that (I believe EMU Systems is doing something like this).
Cost
It is none of government's business. You have enough trouble doing what you ARE supposed to do.
State wide adoption and regional cooperation.
People don't want to have to pay more, despite the climate crisis.
Incentivizing companies to go down this path
Added cost for no benefit.
Cost and efficiency for the company
Need more info
Companies will relocate to a cheaper city.
If it's too expensive to operate a business here they will go elsewhere.
It might deter new businesses coming into the city.
Cost
Businesses in Louisville cannot afford to convert to electric. It's best for restaurants to remain on gas. That's how good is made.

Ability for our tenants to operate their businesses.
They would hamstring an already suffering business community and will drive potential new businesses to surrounding communities.
Louisville has already become a more business-hostile environment, and we have a lot of empty commercial space that needs to be addressed. I'd hope the city would pay more attention to fixing this issue instead of possibly making it even more difficult to do business in Louisville.
Businesses will look elsewhere to build. City Council of Louisville would appear to be anti-business.
This will backfire by encouraging businesses to claim false exemptions and go outside the permitting process in order to get their projects completed and online. This will result in a less efficient product then leaving the current code as-is. (Again I'm not even going into the bigger economic risks of being so far ahead of the pack, energy wise)
companies would elect not to be in Louisville
Upfront costs, willingness of commercial businesses to adopt
cost
Cost
Cost of doing business becomes too high; the code is implemented without staging and/or enough advance warning.
No!
Lots of technical details in these code questions. Is the technology realistically available to be aggressive in the commercial code? Much of the commercial buildings are already built. How will these buildings be included in the commercial code? This needs to be considered now. If the new code requirements only apply to new commercial construction, it will be a "feel good" action that doesn't accomplish much except make new commercial impractical.
I think there are others with legitimate needs for gas during the transition to 100% electric . For example, a hospital needs a way to generate power for patients hooked up to oxygen and other life saving equipment. Similarly, people with certain medical conditions may have the legitimate needs. I don't know.
No flexiblity.
Louisville has a lot of empty commercial buildings today. Why would a company whose goal is to make money and stay in business want to pay extra to build or pay extra for monthly bills. Maybe put more effort into water conservation and bringing businesses back to our community

That commercial interests will find a way to get less stringent codes than the residents are required to meet, resulting in the smallest burden being placed on those with the most amount of money.
The cost that will be past down to the buy of goods. There is no free, taxes and fees must be passed on. Everyone is living pay check to pay check, City needs to figure out how to reduce fees and taxes so business come in and pay property tax.
cost to the business; property taxes are already too high
I'm sure they are also concerned about the upfront costs and payback period
May drive business away
Businesses not wanting to do business in Louisville
I have lived in Louisville for 37 years. I have watched Superior, Broomfield, Lafayette and even Erie grow their commercial presence while Louisville continues to lose both retail and non-retail (with the exception fo the Colorado Tech Center). Adding cost burdens that make building -- and operating a business, since those costs have to be passed on to the tenants -- in Louisville even less competitive does not seem like a smart thing to do right now.
Cost, short term
It may drive some wharehouse and pot greenghouse operations outside of the code affected areas (boo-hoo to that) and it may require increases in electrical generation capabilities that would require additional peaker natural gas turbines until alternative electric supplie comes online. In other words it could be short term disruptive to lectrical energy capacity if a large amount of natural gas heating capacity were suddenly required to be all electric resitive heaters. Best to pay outside consultants to model these complex issues before adopting potentially disruptive new codes.
The significant increase in cost to businesses who would move to a more energy friendly city. Louisville could lose a lot of business by these plans.
That the wrong actions are being mandated to really improve our community environment. We have bad air all too often. Minimize commuting. Maximize use of public transportation to enter and leave our business community corridors. Not allowing large commuting populations nor businesses utilizing such into our community. Not allowing any more green spaces to be covered with concrete and asphalt. Having rigidly strict emission standards and elimination of diesel vehicles in our community. Having a zero tolerance and high penalties and fines for idling diesel trucks and vehicles unnecessarily in our community. Encouraging all existing businesses to develop solar panels on their large roof expenses as well as encouraging the same for residents. Creating for provisions that replace solar panels after hail events without having the residents have to pay out of pocket

removal and reinstallation fees. Do not let Xcel energy limit the amount of solar production per resident or per business we should be able to produce all that we want and contribute it to the grid without penalties from Excel energy.
Uncertain; need more information
net zero energy should be mandatory
It could discourage commercial development
None because I believe it will help keep out some of the worst area developers
Additional cost and pollution required by current means of production, which means dirty fuels to produce the amount of electricity you propose.
Driving business away from Louisville
availability of contractors with sufficient expertise
commercial buildings have too many complications. unlike residential, the users are often not the owners. sometimes there are multiple users within on energy meter.

IN YOUR OPINION, WHAT IS THE BIGGEST BENEFIT TO THE COMMERCIAL CODE CONSIDERATIONS PRESENTED?

none, based on the current requirement - it is not feasible with today's technology and can't be afforded.
Climate change action.
If done with attention to detail, it will reduce green house gas emissions. But we need to pay attention to the bottom line. We need to find ways to attract and promote those businesses that are climate change conscious. Offer them ongoing incentives and showcase them as leaders meeting the stated goals.
none. if and when it becomes feasible to build in this way, then companies will naturally do so when the technology is available at affordable costs.
It will be a great foundation for the future--let's not work incrementally on these codes, it's important to get this done.
Way less emissions
Not sure I see a benefit
This could lead to a large drop in carbon-based energy use in the energy-intensive commercial sector.
The 2021 codes continues to improve the energy usage of commercial buildings and is broadly understood and interpreted.
More efficient use of power
Cleaner air
Addressing climate change

Making some individual's in the city management feel like they are saving the world. Unfortunately they are shifting the financial impact to residents.
Reducing Louisville's carbon footprint
Environmental impacts, forward thinking community
I don't see a benefit for businesses.
Energy efficiency
Meeting the agenda of the city is all it's benefiting
Smaller footprint
There are none you are breaking our community.
Climate change impacts
I see no benefit at all
Future of the planet
Environmental impact
The environment, not worrying about the environment being able to support my future possible children
sustainability
Clean energy use. Lower carbon emissions
Be responsible beyond an individual's $.
None
Climate
We have to make these changes but it must provide resilient solutions, particularly in the face of climate change, I am particularly interested in subsidies for on-site or community solar solutions. If the grid has challenges, our proposals should provide resilient solutions.
Investing in the community where your business resides
Virtue signaling.
Commercial buildings likely have a much larger environmental footprint than residential buildings
I think it is a detractor and one of the reasons I sold my business in town.
encouraging companies to blend in with the culture of energy independence
It has the potential to save energy.
Non. I guess the council and mayor can feel like they have made a difference.. when in fact the city is becoming blighted (business). Maybe more efforts should be placed on business retention and promotion for new businesses
Savings in the long-run, plus client support due to the energy saving practices
No benefit, companies will select options that meet their needs at a reasonable cost.

While I'm all for doing all we can to lessen the impact buildings have on the environment, the main cause of global warming is vehicle exhaust. Why is the city not addressing this, rather than considering a code that might severely impact small businesses while failing to address the major causes of global warming.
Marginal impacts on overall climate
energy savings, but the savings must offset actual cost in a reasonable amount of time (5 years)
Don't see one
Incremental improvements are good if done in a more thoughtful way in cooperation with businesses and property owners. Louisville is no longer friendly to homeowers or businesses. This proposal makes that worse.
We have to get to decarbonized buildings & policy is the only way it will happen.
There are none that would justify these actions.
Better energy efficiency for new structures.
It is necessary.
The energy saving being cost effective in both short and long terms.
Saving our planet
Building better buildings.
These proposals sound good in theory. Educating Louisville residents and businesses about what these all mean and how you decided on them would be great. For example, I'm wondering why a 20% reduction? Why not more?
Reduction in overall emissions of GHGs.
N/A, I am unfamiliar with commercial building codes.
N/A for this question. However, perhaps a consideration for luring commercial customers - if they perceive the cost of building too high, they may take a pass on Louisville. They would need to be shown when the ROI is realized.
Stringency. You presented the proposals at a high level (20% reduction, net zero) but there is a lot of information still needed to make any kind of decision on the proposal at this time. How compliance is shown and differences based on building types and end-use.
Creating the conversation around what it means to be energy efficient.
Using renewable energy sources!
A livable planet
Until the industry knows how to do this, it would likely leave us stuck with old, inefficient buildings for a long time.
Should free up parking with lots of empty parking lots.
Need more information
pretty questionable as to any benefit

Makes city leadership appear effective
Let businesses decide for themselves.
lower energy costs and help towards reducing the effects of climate change
Too restrictive
This will reduce the carbon footprint for new-construction commercial properties.
Reducing reliance on fossil fuels and their emissions.
none at this moment
Insulation improvement is ok.
Impact on climate change
I'm all for residential and commercial to build to the latest standards but need to balance against cost and the ability to meet those requirements as they are a moving target (trained installers, rebates, etc)
While the impacts to the environment are obvious, I think what these codes can represent is the start of a workforce that is trained in building to higher standards. Codes like these are the future of buildings and it has to start somewhere, so let's start that here!
If we work together (industry and government) to GREATLY reduce the GHG emissions of homes and buildings in the Denver metropolitan area, then we have addressed one of the largest sectors of emissions in CO. This would give upcoming generations a foothold to fight the omnipresent climate crisis. We must invest NOW to help future generations, it's not about us.
They will help combat global warming and benefit the environment.
Less energy usage, more sustainability
There are none. Again, add incentives for different areas you want to increase.
Unsure, one community is a start but unless the world changes, not sure there is a benefit to justify forcing the cost on business since there are empty buildings here already
Need more info
Greatly reducing or eliminating direct fossil fuel consumption.
Benefit to the climate and setting an example to other communities of what is possible.
Some energy savings
Better for the environment
Zero
The general idea of being more energy efficient.
There would be a marginal benefit to the environment but without wide geographic support, it would be drop in the bucket at the expense of the local business community.

Increased energy efficiency is a really good thing, but it cannot be so expensive that it makes Louisville too expensive a place to do business.
none
Please don't lump me into the "Non-Environmentalist" category, but the answer is none. I think the current IECC without the additional code considerations will make more of an impact than adding additional modifications because you will have greater compliance.
There is no benefit
Environmental impact / Sustainability
Long term benefits
environmental
Climate
Climate change
If they actually have a positive environmental effect, that's good. But I'm concerned that this is just greenwashing.
Nothing!
Addresses climate change. But there are many options to accomplish this including better site design and addressing urban heat island effects. Why were mature trees removed from former Sam's Club parking lot? Actions like these also affect the energy use of existing buildings.
It will make surrounding cities more attractive for commercial investment. That's a benefit, right?
Commercial building consume large quantities of power - often 24/7. Since they consume large amounts of power, addressing their electricity consumption should have a real benefit from a climate change perspective.
Some kind of offset.
Solar is a good option for everyone to help offset carbon at least in the summer with a/c running via electricity. Won't help alot in the winter.
It'll save our planet and keep our home livable.
Business will just go to other places to setup business.
environment
I wonder if there could be a way to requiring commercial entities greater than a certain size to adopt stricter codes. Offer incentives for smaller sized businesses?
Image/marketing
A cleaner environment and help to balance who has to follow the codes
Same as residential... climate friendly, and -- not including the amortized cost of building to the new codes -- potentially less expensive to operate.

Even more important for longer term commercial buildings - should invest the money upfront for longer term payback.
Adopting new all electric codes would potentailly drive out low ccost industry and help a more expensive office and high tech client driven workspace. It would force developers to seek a higher paying end user rather than low cost warehouse space tenants that would likely site their operations along the I25 corridor.
We need to make sure businesses are not causing further environmental harm to our community or our world.
None
You are missing the point when you allow large expanses of concrete and asphalt to be installed, when you allow thousands of cars to enter and leave and traverse the community, when you are not limiting the types of emissions a vehicle such as diesel vehicles and not encouraging more electric vehicles, when you allow Xcel energy to limit the amount of solar production and not reimburse anyone who super produces power, when you don't even consider developing a solar farm in our community but rather have thousands of vehicles bringing in pollution and covering up green space with heat producing buildings in parking lots.
Uncertain; need more information
net zero energy should be mandatory
Climate impact reduction
Louisville will finally be taking real steps to address the global climate emergency
Not at this time. Look into the future with your crystal ball and see when we can have "clean electricity production".
Making sure that the upgrades can be achieved through cost savings that the city can bring.
reduction in greenhouse gas emissions
Louisville would feel good when meeting with other local communities.

What HVAC systems, process loads, other appliances, or specific building types do you think would need to be exempted from the commercial code options presented? (The rationale for exemptions could be prohibitively higher cost to operate, infeasible with current energy needs, technology does not exist, etc.)

all retail and industrial uses need to be exempt - maybe office building is a place to start with it occurring over a long timeframe.
Backup storage and generation where technology is emerging.
Where ever there is a trade off in the profit margin that can not be justified by incentives or tax breaks.

All
I think we need to be careful about making exemptions--with the rate that technology is progressing, it is extremely likely that more accessible paths toward a more stringent commercial code. I don't agree with exempting industrial from the commercial codes in a blanket fashion. Also there needs to be a way to update the requirements as new technology becomes available.
The policy should not be enacted.
Not sure at this point
I don’t support the requirement for full electrification for businesses.
Industry specific would be things related to food production. I am sure their are many more industry specific needs for the use of gas.
Tax subsidies, perhaps at the Federal level, to encourage self-sufficiency with solar and newer technologies
This is way too technical a question to pose to residents. Come on.
There should not be exemptions, the law should not have prohibitively higher costs for any resident or business and absolutely should not be based on technology that does not exist.
Heat for industrial processes - no electrical options for some, excessive cost, lower reliability.
I don't know enough about this to offer any informed comment.
We should not adopt this code!
All of them. Let the owner decide.
All should be exempted. Costs in reality are always prohibited. Costs in your studies are always lower than actual. You need to present a realistic costs not just from advocates for net zero.
Backup heat sources for very low temp and emergency backup to electrical heat.
Don’t know
Manufacturing, R&D, small business in non-tech sectors
Cooking, industrial uses, backup power.
coffee roasters
ALL of them- this needs to be optional
I don't feel qualified to respond
For new commercial spaces, there should be NO exemptions. All new commercial businesses should adhere to a net zero energy code.
there should be no exemptions based solely on the code affecting the company's profit. that is, if being all electric means their profits are 50% less than if they used gas, that is not a good enough reason for the exemption. i.e., if they are profitable,

but will be more profitable with the exemption, then that would not realize the benefit the code is trying to achieve
Without gas it would be impossible for a restaurant to operate. Electric equipment is nearly double the cost of gas.
the commercial codes are burdensome
Gas fired cooking equipment (restaurants), gas fired boil kettles (breweries), etc. Disallowing the use of natural gas would be infeasible and prohibitively costly to achieve for many small businesses in Louisville.
system requirements that are more stringent than the prevailing local codes in the State of Colorado
I do not support the proposed requirements in any form
Acute healthcare (like new Avista Buildings)
All
Older and historic structures, restaurants and breweries (all use gas appliances).
None, they can afford the requirement changes and should follow the commercial code to the "T". it is not fair to give them exemptions and while we the residents have to suffer.
Are there enough choices in all electric HVAC systems to make this reasonable?
All of the above
Hot water heating, which is currently more difficult through an air-source heat pump due to the larger scale of hot water use in Commercial buildings. Historic Preservation projects should be exempt on some level.
Again, I'd rather see a requirement to build to reduce energy use and emissions to a defined lower level than a requirement to use/not use any particular appliance or technology.
N/A, I am unfamiliar with commercial building codes.
HVAC and water: I think all electric should be used here. Stove: induction has been shown to be a good alternative by chefs, though it takes some getting used to. N/A for other areas. If you leave it to the builder or client to figure out how to be successful, it may not happen. I suggest having some strategies already worked out and available for builders/clients to review/modify.
Not my expertise so cannot say with any kind of knowledge base. I imagine cooking equipment would be one type of equipment. As for HVAC, that can easily be electrified with cold climate heat pump technology.
Frankly, I don't think any building type or industry should be exempt. There are examples all over the world of rec centers, Hostipal, manufacturing buildings, restaurants, etc. already using significantly less energy
None

The city should allow enough gas heat to keep vacant buildings from freezing up in the winter.
All of the above.
Need more information
Business that use natural gas as part of their product or services delivered
I don't recommend adopting the codes in the first place.
I don't know how to answer this question.
As with residential, make these code changes optional vs. mandatory
all of them; make it a choice
RTUs, water heaters, stove.
I don't have enough background to make an informed opinion on this.
ALL
I'm not sure I know enough about commercial building sciences to answer this question at the moment.
technology does not exist
all should be exempt
Let's obtain grants to help industry have the MOST efficient and low GHG emission options available to them! This is essential!
I'm not familiar enough with these to comment.
depends on the type of building
Commercial HVAC
Need more info
Restaurants
not sure
New builds and restaurants
Warehouse heaters, processing/production equipment, water heaters.
I think it is premature to adopt this code so exemptions become irrelevant.
High costs.
It is already clear that restaurants can't operate. Any electric heat pump systems are too high of a risk. I have not had any projects that were striving to be close to net zero have their mechanical systems in place for very long because they are such un-tested technology. The waste in removing and disposing those systems when the next generation comes along simply negates any perceived benefit.
Not sure
don't know
Non profits, depends on type of business.
Let us build what we want! Stop controlling us!

All of them. This is all pointless and stupid.
Hospitals would need flexibility.
Furnace
Heating. There is not enough electrical power nor the infrastructure to support the load. It will take 50 years to provide the power and infrastructure to support all electric. Batteries and not here yet so extra solar energy can't be stored for night usage. City should be listening to electrical engineers that understand the real physics of going all electric. I had a hybrid and the batteries were almost gone in 7 years.
ones that make cost prohibitive
Higher operating costs
Don't know enough to weigh in on this.
None - there are biofuel based fireplaces in lieu of gas and with homes becoming substantially more efficient who needs to burn a precious resource for ambience
Obvious potential exemptions for many existing businesses who have insufficient insulatinion to afford an all electric forced air heating system. Natural gas direct vent heaters are also extremely efficient as 100 percent of the heat from natural gas combustion is forced into the building airspace but at the expense of air qaulity and worker pulmonary health. Buildigs that use DV forced air heaters often run with open rollup doors in wintertime and have almost no insulation in a metal framed and sided warehouse structure.
All electric will significantly increase the cost for doing business in Louisville. Even if all lights are LED, higher insulation requirements, etc.
Do not allow Excel energy to limit solar panel production on any warehouse or building. You're missing the problem you're using the wrong solutions and so many of your standards that you're trying to adopt. You are destroying the community by allowing a super large development for business and commuting. You are making solar intolerable with Exel energy limits and standards. A lot of these standards seem to be a smoke screen for bigger problems and that is what is so upsetting to this business oriented person. Why do you let the big guy destroy our environment and expect all of us small guys to do some minuscule and expensive compensation. The big climate change pollution elephant in the corner is your big Red Tail ridge Project.
Uncertain; need more information
no exemptions, please
None
See above.
None, Exempt them all!

retail, restaurant, industrial, and office. easier to implement on hospitality, event space, big box retail,

ARE THERE ANY CONSIDERATIONS TO ADDRESS EQUITY FOR LOW-INCOME RESIDENTS OR DISPROPORTIONATELY IMPACTED COMMUNITIES THAT THE CITY OF LOUISVILLE SHOULD CONSIDER FOR ANY OF THE THREE COMMERCIAL CODE SCENARIOS CONSIDERED ABOVE?

don't understand the question
Low income housing when residents are faced with rent increases.
Address the issues through small business loans and grants. Provide consulting services to assist with application of the best solution for their business need.
Yeah...don't increase cost and make it even harder to live here or hav a business here
There's a tradeoff between higher building costs now and lower energy costs over time. I don't think we should modify the code to help with affordability. we need to require 30% affordable housing in new builds. that's a better way to take care of this.
Construction prices will increase and low income families will be less likely to live in Louisville.
There needs to be an option in this area
I don't support the requirement for full electrification for businesses.
Apply tiered rates that are low for low-income residents--these would be offset by higher rates for heavier users of energy (e.g., large homes).
No additional subsidies of politically chosen groups should not be increased due to the additional requirements placed by the City, the City should first exempt them.
Affordable housing needs to include standards for energy efficiency to reduce the level of HVAC needs, plus subsidies, as appropriate
Certainly - when I hear city council talk about affordable housing, but then consider cliff legislation on net zero, the former comes off purely as a political, hollow gesture a la the CAC.
Yes, stop with the elitist environmental laws that hurt low income residents and place unnecessary burden on higher income families by covering those costs through additional fees and taxes.
I imagine there would be
You shouldn't force this on anyone
Providing grants/scholarships for businesses of low-income residents in order for them to comply with new standards and allow them to remain valuable productive members of our community.

Again I don't know.
If we lose all of our businesses the entire tax burden for our community will need to be supported by the remaking residents including the low income residents
No, you should not even be considering this change.
Low income is relative! It's very expensive to live here even if you are middle class
We are being pushed out of our community by all these extra mandates that end up costing me a lot more money. My family is a fourth generation in this community and it's sad to see mandates pushing us out
Yes, allowing for rebates and incentives. Both UPFRONT and post building
City/county needs to build affordable housing following all these environment code
Care for them with full explanation of their long term work and needs. They need to meet our new codes.
Absolutely! Please make decisions that don't hurt people financially.
Yes, lower income demographic always bears the brunt. Subsidies and grants may be an option.
grants, incentives, financing
What low-income residents? The City has long since driven them out of town with prohibitive costs and burdensome regulations.
All of this makes it harder to provide low-income housing. Allow increased density.
If you force me out of business I expect to be compensated. You approved this equipment in 2019
Construction incentives, and awareness of any exemptions that disproportionately impact certain communities
louisville appears fairly uniform with respect to race/economics except for artificial affordable housing occupants
Yes, especially for low to middle income families rebuilding after the fire.
government assistance for people not for companies. not sure if that makes sense, but the government is of the people, by the people, and for the people. any code should more greatly affect / benefit the people before _any_ company's profits. Not saying revenue ... profits.
Equity for low income. What a joke of a question. What low income resident can come to or even live in Louisville at this time?
This may be too off-topic to this code, but make sure that all low-income housing is required to to provide recycling AND composting for all residents.
Consideration should be made for any person living, working, or doing business in Louisville as to the feasibility and reality of requiring something that could both cost and impact these people in a very negative way. Consideration should also

be given for the economic impact of these codes and how the city could lessen that impact. Making a code requirement like this may be noble and desirous, but there needs to be a balance.
No - if the city recognizes there is an impact then it should waive that impact for everyone.
No. If you adopt them, everyone should have to pay the cost.
Yes. Provide support for non-profit groups and low-income renters.
A fund to provide onsite/ offsite solar.
Yes, these groups should be considered for all scenarios or it will significantly reduce diversity in an already minimally diverse area.
How to lower the cost of entry for low income residents.
It is in the Xcel rebates for leap, Xcel should provide more options for those who are living low income/impacted communities.
Are you creating a system that automatically needs to be subsidized? How difficult is it to apply and receive subsidies? Will this eliminate or reduce businesses owned by those for whom English is a second language? Are you willing to burden your citizens even more than the current rates?
No. Upfront costs will be paid for in energy savings
Incentivize inclusionary housing projects to reach certain levels of energy efficiency or energy independence with their projects.
I don't know.
Yes, criteria for considering equity and providing the subsidies or exemptions to achieve equity should be built into any ordinance.
N/A, I am unfamiliar with commercial building codes.
Absolutely - I think the only way to address this is through grants or some kind of funding from the city
Again, it is actually easier to make multi family homes more energy efficient than stand along buildings. If anything affordable housing should be held to a higher standard. It has greater long term benefits for the occupants than typical code built structures.
Set and meet these code requirements for everyone. Be sure to confer with these communities for the best solutions to meet their needs. Low-income residents and disproportionately impacted communities should be eligible for city grants to meet this code, we must invest in these communities.
Louisville is virtually uniformly white, so not really relevant
There should be free community solar and subsidized retrofits available for low incomes

The city should hire staff to pretend to care about low income residents. Boulder has used this scam for decades.
Low income residents would have a difficult time living in Louisville because the cost of living here is becoming prohibitive for lower and middle class residents.
Need more information
Don’t raise costs for any residents or businesses
I don't recommend adopting the codes in the first place.
Yes, I wonder how all of these changes affect the poor. Are these changes that only the wealthy can handle? Does this make this area even less affordable? How does this affect diversity and equality?
Yes, there should be income-based subsidies rather than exemptions. Poorer communities of color are disproportionately affected by dirty air, water, and other environmental issues, yet we are all part of their cause. We should prioritize community-wide change toward electrification, and support those who cannot afford it with subsidies.
for all residents!
Energy costs will be higher.
Just concerns about cost impacts.
DO NOT negatively impact any of the residents
Yeah, they shouldn't have to pay a dime of it. Tax the rich. :)
Yes, white people need to pay a privileged levy that pays the difference for all new buildings to meet the new codes and not the business themselves.
Only if they are not paying for it.
Yes, low income residents should get the most support. Education, funding, and follow through from local government and industry should center those most impacted. Grants should be centered on supporting these communities FIRST!
Perhaps give them subsidies.
I'm not familiar with good solutions. I recently learned of bonds like https://nlihc.org/resource/field-atlanta-passes-homeless-opportunity-bond and https://ballotpedia.org/California_Proposition_84,_Housing_and_Homeless_Bond_Measure_(1988)
We need to build low-income housing and subsidize energy bill costs for low-income residents.
There should be.
No.
Yes.
The city already doesn't have a balanced budget so to damage the business community - a major revenue source for the city - and then try to come up with

the money to make up for the damage is a downward spiral. The correct approach is to build the business community up first and then look at code updates when the community can absorb them.
No. The CC needs to help the Marshall Fire rebuild victims first before addressing "equity" of commercial builds for low-income residents or disproportionately impacted communities.
You cannot have this conversation and have a conversation about equity and low income at the same time. The only businesses that would choose to move forward under the proposed codes would be doing so by spending extra funds to make a statement. They will not simply absorb those costs. They will be passed along further creating a divide.
Businesses that help people/families shouldn't be scared away by all of these codes
Control control control
How about treating all residents equally instead of trying to foment class warfare?
There should be incentives or grants for low income citizens and public facilities primarily servicing low income citizens.
Low income can't afford to build in Louisville so no it is not needed
Generally low income residents are exposed to more pollution because they live in lower income areas, closer to higher commercial pollutants. Requiring new commercial construction to do better and be better, should arguably improve the health and quality of life for those living in low income areas. In fact, it'll eventually be better for all of us.
Why have anyone paying the high costs?
No specifics, but I do think there should be considerations for these type of residents.
Would like incentives for prior home owners/businesses especially if new construction is getting
I do not understand the question
Yes. We need to make some accommodations to allow for affordable housing. One of the key attributes Louisville had going for it was its focus on community (for lack of a better word). I wonder how much this counts any more as I look at some of the decisions/rules/requirements coming out of the Louisville City Council.
Build government sponsored low income housing
How many low income qualifying businesses operate within Louisville City limits. Can the be expempted if their numbers are very low?
Equity should be top of mind. Ideally, grants would be available rather than exceptions to the code.

Low income would be impacted the most by the increased costs for all electric homes.
Exchanging homes into LED lights is a significant savings at minimal cost. No diesel vehicles be allowed in the community. You must allow natural gas options for heating. Electric heating and clothes drying can be exorbitantly more expensive. Quit preserving historic outmoded homes as if they are some kind of sacred cow. We must stop having to preserve old miners shacks and kit homes for some kind of aesthetic. Allow new and more efficient structures to replace them. Encourage all warehouse structures and residences to produce all the solar power that they want to contribute without penalties and without limits into our grid. If you don't limit what larger building surfaces can produce you'll have plenty of extra energy to help out with programs to contribute to disadvantaged or low income homes. Community Solar Farm. Whether affluent or financially struggling it is horrible to mandate more appliances such as heat pumps and electric furnaces and electric heating elements in a home where Xcel energy also has the ability to limit how much solar is produced per unit of residential and commercial space. Shame on you for your plans and financial obligations to buy these electric utilities for our homes and businesses when you allow the electricity company to maintain high prices and not reward those who can super produce more electricity. You are allowing Xcel energy to torture us and some of us are not dumb enough to fall for it.
Uncertain; need more information
all people benefit from all-renewable, net zero codes
Some short term break should be given up front.
Yes. I don't have enough info to comment in specifics, but the City should always consider low-income/disproportionately impacted communities in everything it does. That's part of being an inclusive and equitable community.
Don't impose any more silly restrictions upon any of us at this time. It makes no sense. Encourage a 10-20% reduction and incentives but don't impoverish anyone for a silly goal of all-electric before everyone can afford it. Remember that you're trying to be inclusive. On the other hand I do not entirely approve of incentives-which is only another word for taking tax dollars from some to give to others. That has to be done carefully for deserving people who can prove they need help which I do support.
Dont adopt them and low income residents will be able to live in Louisville.
The effects of climate change already impact such communities more severely, providing further motivation for the adoption of stronger building codes.

If you make residential and commercial properties more expensive to build, you are going to continue to push lower income residents and business' out of Louisville.

WHAT'S THE MOST IMPORTANT CONSIDERATION FOR THE CITY IN ADOPTING STRICTER ENERGY CODES FOR RESIDENTIAL AND COMMERCIAL CONSTRUCTION? ('OTHER' ANSWERS)

Be aware of the cost and burden this places on residents and the assumption that these costly requirements and rules have no proof to help alter any human impact on the environment
Energy codes for construction are a violation the property rights of residential and commercial property owners. Regulations take away the ability of the property owner to use their property as they see fit and decrease the value. Each individual is in the best position to decide how to best built their property to suit their needs.
City cannot be unreasonable with building code demands. Turning into Boulder will drive away residents like me.
We almost had to move our 42 year old business out of Louisville because of costs. With Boulder, Broomfield and now Erie pulling the larger businesses away from Louisville we should be a safe haven for small businesses and need to be careful policies do not price them/us out of 80027.
The city should not adopt stricter energy requirements we are already losing businesses and can not afford to lose more
Affordability impact on culture, making it affordable for mid-class and fixed income households
This isn't important at all
I disagree with stricter energy codes
HONESTLY balancing the need to address energy efficiency and promote economic development.
how about making this optional!
should not be mandated if has no meaningful impact on climate and is impractical for multiple reasons
I don't think they should
Stricter codes well hurt economic development
reasonable cost benefit analysis
I don't believe the city should make stricter codes at this time
Cost to residents and building owners
You ignore residential costs. Balance climate change with reasonable costs to business and residential owners and renters.
Don't enforce any of these.

all of above. also City of Louisville should provide electric bike rebates Denver is beating us to the punch and they are effective and ahead of us. we need to step up our game
Research from various sources, don't just go with the trend. What are the long-term costs from creation to post-use of materials? What is the true gain of efficiency? The difference between the 2018 and 2021 codes are not gigantic, yet the cost differences are huge.
Cost/benefit analysis
Priceing out people who are not "true believers."
Stop making it astronomically impossible for our children to live here!!!!!
none of the above; sensible and based on citizens' afordability and needs
NOT imposing extra costs on the homeownwers
COST
Less government interference with construction.
Impact on economic development and growth
1) Addressing climate change while promoting economic development is a prime concerns. 2) However, many people will not be able to afford the upgrades!!!! While my husband and I are able to afford them, the installation of solar panels, for instance, is tricky given the amount of hail storms we have here in Louisville wherein the solar panels break. It takes an extremely long time to get them replaced. The hail storm of 2018 was a prime example wherein pretty much everyone in Louisville had to replace their roofs. Those with solar panels waited as long as a year to have them replaced. How much product will be available given the decrease of a plethora of products due to the Covid-19 pandemic?
Businesses and residences need to recover from a massive fire and a possible redesign. We do not need to spend money on unsustainable programs. Louisville residents need to recover and rebuild before we go green unnecessarily.
The city council implemented building codes to conform to their political agenda. They "thought they would have time to figure it out".
Does it actually support your goals
Codes should not be stricter. The city will be making it more difficult to afford updating homes or building new
Diversity of residents, can’t price some people out with this
There is no climate emergency, it’s all about control! I should be able to have what I want in my house, not what the government says I should have! Are you going to pay my bills?
Why don't you stop imposing stupid regulations that make the city a less affordable and less desirable place to live?

I do not support all electric. Doesn't it still require coal or some other gas emitting resources to create electricity? Xcel will only allow so electricity for solar panels. Electric heat is not as warm or affordable as gas.
The economic development and climate change issues *do* need to be balanced in order for fixes to the climate emergency to work, which means that both the climate emergency and economic development must be number 1 priorities.
High cost of electricity and infrastructure to provided power, unlike CA with rolling blackouts.
Traffic congestion and smog. Bad air quality days.
I'm all for all-electric but it is not feasible at this time. We can barely produce or afford it. The grid is not adequate for the additional load and the price is going to increase, not decrease-am I correct?
costs are ultimately passed onto users of the building. if its too difficult/expensive in louisville, they will go to erie, longmont, lafayette, etc. it will only hurt Louisville is they do not maintain competitiveness with the nearby communities.

Appendix B: Survey Questions

Demographic Questions:

1) Name & email
2) Would you like to be updated by email on the energy code development process?
    a) Yes
    b) No
3) Which of the following best describes you (check all that apply)? (*optional*)
    a) Asian or Pacific Islander
    b) Black or African American
    c) Hispanic or Latino
    d) Native American or Alaskan Native
    e) Native Hawaiian or Other Pacific Islander
    f) White
    g) Multiracial or Biracial
    h) A race/ethnicity not listed here (write-in)
4) What sector do you primarily represent (select one):
    a) Building owner
    b) Building Developer
    c) Business owner/manager
    d) Tradesperson (electrician, plumber, etc.)
    e) Energy efficiency expert
    f) Energy or facility manager
    g) Engineer, Architect or Designer
    h) General Contractor

i) Affordable Housing representative

j) Residential tenant or occupant

k) Home owner

l) Other Business (Write-in)

5) Are you currently operating a business or considering owning/operating a business within the City of Louisville?

a) Already owns or operates in a business located in Louisville.

b) Already owns or operates in a business that conducts business in Louisville but is not located in the City.

c) Considering starting or expanding a business in Louisville.

d) No I am not.

6) Do you work within the City of Louisville?

a) Yes

b) No

7) Do you live within the City of Louisville?

a) Yes

b) No

8) How would you rate your knowledge/understanding of the City of Louisville's current energy code?
a) (Scale 1-10)

Group 1: Building Owner / Building Developer

Note: For all open-response questions, if you don't know or do not have feedback, please write-in NA.

Page 1 Group 1

9) Does your company have sustainability or climate related goals?

a) Yes, we have a sustainability plan/program and goals.

b) Yes, we have started small efforts to be more sustainable but no official plan/program or goals.

c) No, we've discussed internally but don't have climate or sustainability goals, plans, or programs.

d) No, we don't have climate or sustainability goals, plans or programs.

10) If so, please provide a high-level overview of your sustainability/climate related goals, plans, or programs.

a) [open-ended / optional]

11) Are you planning any major building or tenant space retrofits within the next 1-3 years?

a) Yes.

b) Yes after 3+ years.

c) No.

12) Do you have plans to build or acquire new property(ies) within the City of Louisville in the next 1-3 years?

a) Yes.

b) Yes after 3+ years.

c) No.

13) What are your main considerations when operating and/or working in Louisville? (check all that apply)

a) Cost of doing business

b) Comfort

c) Environmental impact / Sustainability

d) Culture/community

e) Rules/regulations

f) Other (write-in)

14) How would you rate your experience installing/maintaining heat-pumps and other efficient all-electric HVAC systems?

    a) [scale 1-10]

15) Do any of your current buildings or tenant spaces utilize heat-pumps or other efficient all-electric HVAC systems?

    a) Yes, more than one.

    b) Yes, just one.

    c) No.

16) How often do you currently design/build/install all-electric HVAC systems in new construction projects?

    a) Never.

    b) Minority of projects.

    c) Approximately half of all projects.

    d) Majority of the projects.

17) What's the most important consideration for the City in adopting stricter energy codes for residential and commercial construction?

    a) The climate emergency.

    b) Economic development.

    c) Balancing the need to address climate change and promote economic development.

    d) Other [write-in].

Group 1 Page 2

Intro:

Current Energy Code:

The City of Louisville has adopted the 2021 IECC, as well as additional amendments requiring further energy savings and all-electric construction items:

Commercial New Construction

- Increased insulation levels
- Increased fenestration efficiency requirements
- Increased HVAC efficiency
- Electric vehicle charging and infrastructure
- Electric-ready wherever gas appliances are installed
- Solar-ready zone required

Residential New Construction

- Increased insulation levels
- Increased ductwork and piping insulation requirements
- Mandatory heat recovery
- Electric vehicle charging and infrastructure
- Electric-ready wherever gas appliances are installed
- Net zero Appendix RC required

Commercial Code Scenarios for Consideration:

The City of Louisville is considering updates to the commercial energy code to improve the environmental and operational performance of new commercial buildings. These updates could include, but are not limited to, all-electric new construction, stricter efficiency requirements, energy offset requirements using solar, or net zero requirements, such as those found in Appendix CC of the current IECC 2021 code.

Residential Code Scenarios for Consideration:

For residential energy code adoption, Louisville has already adopted Appendix RC as a mandatory measure for all new construction buildings. The Appendix RC requires new single-family residential homes to meet a specific energy efficiency criteria and offset their energy use with onsite or offsite solar. Future residential code scenarios could include all-electric construction requirements.

Note, for all open response questions, if you don't know or do not have feedback, please write in NA.

Questions Page 2 Group 1

18) How do you perceive the new considerations for energy code would impact your ability to develop/design/build housing affordably in the City of Louisville?

a) [open ended]

19) How do you perceive the new considerations for energy code would impact your ability to develop/design/build commercial buildings in the City of Louisville?

a) [open ended]

20) Do you need/want training on the current energy code?

a) Yes

b) No

21) Would you need/want training on the proposed codes/policies if enacted?

a) Yes

b) No

22) What data or information do you need to better understand the potential impacts of energy code options on your business and operations?

a) [open-ended]

23) Would you prefer energy code requirements that:

a) Set an energy consumption performance target and allow for flexibility in how a building meets that requirement which can include onsite PV if needed to meet the performance target. (Performance approach).

b) Set an energy consumption performance target that specifies an efficiency standards for equipment that must be met and requires mandatory solar on all new buildings. (Performance + prescriptive approach).

24) How much flexibility in building design would you prefer to achieve code/policy requirements?

a) The more flexibility the better.

b) Some flexibility but some clear expectations/rules.

c) Set prescriptive standards (equipment efficiency, envelope requirements, mandatory solar, etc).

25) Would you be willing to pay more upfront for all-electric new construction with onsite solar if the payback was longer in order to reduce the carbon/environmental impact of the building?

a) Not willing

b) Somewhat not willing

c) Undecided

d) Somewhat willing

e) Willing

26) What is the payback time frame that you would be comfortable with, for additional upfront costs that support carbon reduction, all-electric, or net zero construction?

a) 0-5 years

b) 5-10 years

c) 10-20 years

d) 20-30 years

e) 30+ years

f) I am not interested in increasing upfront construction costs for carbon reduction.

27) What payback period would be your minimum threshold to consider solar onsite for a mixed-fuel building if it represented a higher up-front cost?

a) 0-5 years

b) 5-10 years

c) 10-20 years

d) 20-30 years

e) 30+ years

f) I am not interested in increasing upfront construction costs for solar.

28) What payback period would be your minimum threshold to consider solar onsite for an all-electric building if it represented a higher up-front cost?

a) 0-5 years

b) 5-10 years

c) 10-20 years

d) 20-30 years

e) 30+ years

f) I am not interested in increasing upfront construction costs for solar.

29) The City has in place the IECC 2021 code along with some efficiency strengthening amendments. How supportive would you be of including a minimum energy offset requirement in addition to the 2021 code, which would require on-site or off-site solar?

a) I do not support this code option.

b) I am neutral on this code option.

c) I support the adoption of this code option.

d) I need more information.

30) How supportive would you be if the City were to consider an all-electric requirement for new commercial construction code if industrial processes were exempt?

a) I do not support this code option.

b) I am neutral on this code option.

c) I support the adoption of this code option.

d) I need more information.

31) How supportive would you be if the City were to consider an energy code that required a 20% reduction in energy use from the 2021 energy code for commercial construction?

a) I do not support this code option.

b) I am neutral on this code option.

c) I support the adoption of this code option.

d) I need more information.

32) How supportive would you be if the City were to consider a commercial energy code that required net zero energy through efficiency and onsite/off-site renewable energy?

a) I do not support this code option.

b) I am neutral on this code option.

c) I support the adoption of this code option.

d) I need more information.

33) What is your biggest concern or perceived barrier to the commercial code considerations presented?

a) [open-ended question]

34) In your opinion, what is the biggest benefit to the commercial code considerations presented?

a) [open-ended question / optional]

35) What HVAC systems, process loads, other appliances, or specific building types do you think would need to be exempted from the commercial code options presented? (The rationale for exemptions could be prohibitively higher cost to operate, infeasible with current energy needs, technology does not exist, etc.)

a) [open-ended question / optional]

36) Are there any considerations to address equity for low-income residents or disproportionately impacted communities that the City of Louisville should consider for any of the three commercial code scenarios considered above?

a) [open-ended question / optional]

37) If the City provides incentives for energy efficiency or electrification upgrades, would you be more likely to support this code adoption?

a) I already support this code option.

b) Not likely to change my support.

c) Somewhat likely to change my support.

d) Yes, it would change my support.

Group 2: Business Owner, Tradesperson (electrician, plumber, etc), Energy Efficiency Expert, Energy or Facility Manager, Engineer, Architect, Designer, General Contractor and Other Business.

Group 2 Page 1

Note, for all open response questions, if you don't know or do not have feedback, please write in NA.

38) Does your business rent or own your office/workplace in the City of Louisville?

a) Rent.

b) Own.

c) Don't have an office/workplace in the City of Louisville.

39) Does your company have sustainability or climate related goals?

a) Yes, we have a sustainability plan/program and goals.

b) Yes, we have started small efforts to be more sustainable but no official plan/program or goals.

c) No, we've discussed internally but don't have climate or sustainability goals, plans, or programs.

d) No, we don't have climate or sustainability goals, plans or programs.

40) If so, please provide a high-level overview of your sustainability/climate related goals, plans, or programs.

a) [open-ended]

41) Do you have plans to build new or retrofit existing office space within the City of Louisville in the next 1-3 years?

a) Yes

b) Yes after 3+ years

c) No

42) What payback period would be your minimum threshold to consider solar onsite for your business?

a) 0-5 years

b) 5-10 years

c) 10-20 years

d) 20-30 years

e) 30+ years

f) I am not interested in solar for my business.

g) I already have solar onsite for my business.

43) What are your main considerations when operating and/or working in Louisville? (check all that apply)

a) Cost

b) Comfort

c) Environmental impact / Sustainability

d) Culture/community

e) Rules/regulations

f) Other (write-in)

44) How would you rate your experience designing/building/installing heat-pumps and other efficient all-electric HVAC systems?

a) [scale 1-10 or Not Applicable]

45) What's the most important consideration for the City in adopting stricter energy codes for residential and commercial construction?

a) The climate emergency.

b) Economic development.

c) Balancing the need to address climate change and promote economic development.

d) Other [write-in].

Group 2 Page 2

Intro:

Current Energy Code:

The City of Louisville has adopted the 2021 IECC, as well as additional amendments requiring further energy savings and all-electric construction items:

Commercial New Construction

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- Increased HVAC efficiency
- Electric vehicle charging and infrastructure
- Electric-ready wherever gas appliances are installed
- Solar-ready zone required

Residential New Construction

- Increased insulation levels
- Increased ductwork and piping insulation requirements
- Mandatory heat recovery
- Electric vehicle charging and infrastructure
- Electric-ready wherever gas appliances are installed
- Net zero Appendix RC required

Commercial Code Scenarios for Consideration:

The City of Louisville is considering updates to the commercial energy code to improve the environmental and operational performance of new commercial buildings. These updates could include, but are not limited to, all-electric new construction, stricter efficiency requirements, energy offset requirements using solar, or net zero requirements, such as those found in Appendix CC of the current IECC 2021 code.

Residential Code Scenarios for Consideration:

For residential energy code adoption, Louisville has already adopted Appendix RC as a mandatory measure for all new construction buildings. The Appendix RC requires new single-family residential homes to meet a specific energy efficiency criteria and offset their energy use with onsite or offsite solar. Future residential code scenarios could include all-electric construction requirements.

Note, for all open response questions, if you don't know or do not have feedback, please write in NA.

Questions Page 2 Group 2:

46) How do you perceive the new considerations for energy code would impact your ability to maintain or expand your current business in the City of Louisville?

a) [open ended]

47) Do you need/want training on the current energy code?

a) Yes

b) No

48) Would you need/want training on the proposed codes/policies if enacted?

a) Yes

b) No

49) What data or information do you need to better understand the potential impacts of energy code options on your business and operations?

a) [open-ended]

50) The City has in place the IECC 2021 code along with some efficiency strengthening amendments. How supportive would you be of including a minimum energy offset requirement in addition to the 2021 code, which would require on-site or off-site solar?

a) I do not support this code option.

b) I am neutral on this code option.

c) I support the adoption of this code option.

d) I need more information.

51) How supportive would you be if the City were to consider an all-electric requirement for new commercial construction code if industrial processes were exempt?

a) I do not support this code option.

b) I am neutral on this code option.

c) I support the adoption of this code option.

d) I need more information.

52) How supportive would you be if the City were to consider an energy code that required a 20% reduction in energy use from the 2021 energy code for commercial construction?

a) I do not support this code option.

b) I am neutral on this code option.

c) I support the adoption of this code option.

d) I need more information.

53) How supportive would you be if the City were to consider a commercial energy code that required net zero energy through efficiency and onsite/off-site renewable energy?

a) I do not support this code option.

b) I am neutral on this code option.

c) I support the adoption of this code option.

d) I need more information.

54) What is your biggest concern or perceived barrier to the commercial code considerations presented?

a) [open-ended question]

55) In your opinion, what is the biggest benefit to the commercial code considerations presented?

a) [open-ended question / optional]

56) What HVAC systems, process loads, other appliances, or specific building types do you think would need to be exempted from the commercial code options presented? (The rationale for exemptions could be prohibitively higher

cost to operate, infeasible with current energy needs, technology does not exist, etc.)

a) [open-ended question / optional]

57) Are there any considerations to address equity for low-income residents or disproportionately impacted communities that the City of Louisville should consider for any of the three commercial code scenarios considered above?

a) [open-ended question / optional]

58) If the City provides incentives for energy efficiency or electrification upgrades, would you be more likely to support this code adoption?

a) I already support this code option.

b) Not likely to change my support.

c) Somewhat likely to change my support.

d) Yes, it would change my support.

Group 3: Residential Section

Group 3, Page 1

Intro:

Current Energy Code:

The City of Louisville has adopted the 2021 IECC, as well as additional amendments requiring further energy savings and all-electric construction items:

Commercial New Construction

- Increased insulation levels
- Increased fenestration efficiency requirements
- Increased HVAC efficiency
- Electric vehicle charging and infrastructure

Residential New Construction

- Increased insulation levels
- Increased ductwork and piping insulation requirements
- Mandatory heat recovery
- Electric vehicle charging and infrastructure

- Electric-ready wherever gas appliances are installed
- Solar-ready zone required

- Electric-ready wherever gas appliances are installed
- Net zero Appendix RC required

Commercial Code Scenarios for Consideration:

The City of Louisville is considering updates to the commercial energy code to improve the environmental and operational performance of new commercial buildings. These updates could include, but are not limited to, all-electric new construction, stricter efficiency requirements, energy offset requirements using solar, or net zero requirements, such as those found in Appendix CC of the current IECC 2021 code.

Residential Code Scenarios for Consideration:

For residential energy code adoption, Louisville has already adopted Appendix RC as a mandatory measure for all new construction buildings. The Appendix RC requires new single-family residential homes to meet a specific energy efficiency criteria and offset their energy use with onsite or offsite solar. Future residential code scenarios could include all-electric construction requirements.

Note, for all open response questions, if you don't know or do not have feedback, please write in NA.

Page 1 Group 3 Questions:

59) What are your main considerations for choosing to live in Louisville? (check all that apply)

a) Cost

b) Comfort

c) Environmental impact / Sustainability

d) Culture/community

e) Rules/regulations

f) Other (write-in)

60) Outside the Marshall Fire rebuild efforts, do you plan to build a new home or undergo a major retrofit on your home in the next 1-3 years

a) Yes

b) No

c) My home is part of the Marshall Fire rebuild effort.

61) Do you currently live in an all-electric and/or net zero home OR have you taken steps to start to electrify your home?

a) Yes, I live in an all-electric home.

b) Yes, I live in a net-zero home.

c) Yes, I am working on electrifying my home.

d) Yes, I am working on making my home net zero energy.

e) No.

62) Do you currently have solar installed on your home?

a) Yes.

b) No.

63) What's the most important consideration for the City in adopting stricter energy codes for residential and commercial construction?

a) The climate emergency.

b) Economic development.

c) Balancing the need to address climate change and promote economic development.

d) Other [write-in].

The City has adopted the Zero Energy Appendix (Appendix RC) for all new single-family home construction:

64) Do you have a clear understanding of the City of Louisville's current residential new construction code requirements?

a) [Sliding scale 1-5]

65) How do you perceive that Louisville's residential building code standards impact affordability of housing in the City?

a) Positively impact housing by reducing energy costs for residents and tenants.

b) Negatively impact housing by increasing upfront costs.

c) I don't see there being an impact.

d) Other [write-in].

66) What is your biggest concern or perceived barrier to building new homes to the Zero Energy Appendix?

a) [open-ended question]

67) In your opinion, what is the biggest benefit to building new homes to the Zero Energy Appendix?

a) [open-ended question / optional]

68) If the City were to consider an all-electric requirement for new single-family home construction:

69) What is your biggest concern or perceived barrier to building all-electric new homes?

a) [open-ended question]

70) In your opinion, what is the biggest benefit to building all-electric new homes?

a) [open-ended question / optional]

71) Should there be an exemption or flexibility granted for certain community members to allow them to build with natural gas?

a) [open-ended question / optional]

72) If the City provides incentives for electrification, would you be more likely to support an all-electric code requirement for new single-family home construction?

a) I already support this code option.

b) Not likely to change my support.

c) Somewhat likely to change my support.

d) Yes, it would change my support.

Optional Commercial Code Questions for Group 3:

The City of Louisville is considering updates to the commercial energy code to improve the environmental and operational performance of new commercial buildings. These updates could include, but are not limited to, all-electric new construction, stricter efficiency requirements, energy offset requirements using solar, or net zero requirements, such as those found in Appendix CC of the current IECC 2021 code.

73) The City has in place the IECC 2021 code along with some efficiency strengthening amendments. How supportive would you be of including a minimum energy offset requirement in addition to the 2021 code, which would require on-site or off-site solar?

a) I do not support this code option.

b) I am neutral on this code option.

c) I support the adoption of this code option.

d) I need more information.

74) How supportive would you be if the City were to consider an all-electric requirement for new commercial construction code if industrial processes were exempt?

a) I do not support this code option.

b) I am neutral on this code option.

c) I support the adoption of this code option.

d) I need more information.

75) How supportive would you be if the City were to consider an energy code that required a 20% reduction in energy use from the 2021 energy code for commercial construction?

a) I do not support this code option.

b) I am neutral on this code option.

c) I support the adoption of this code option.

d) I need more information.

76) How supportive would you be if the City were to consider a commercial energy code that required net zero energy through efficiency and onsite/off-site renewable energy?

a) I do not support this code option.

b) I am neutral on this code option.

c) I support the adoption of this code option.

d) I need more information.

77) What is your biggest concern or perceived barrier to the commercial code considerations presented?

a) [open-ended question]

78) In your opinion, what is the biggest benefit to the commercial code considerations presented?

a) [open-ended question / optional]

79) What HVAC systems, process loads, other appliances, or specific building types do you think would need to be exempted from the commercial code options presented? (The rationale for exemptions could be prohibitively higher cost to operate, infeasible with current energy needs, technology does not exist, etc.)

a) [open-ended question / optional]

80) Are there any considerations to address equity for low-income residents or disproportionately impacted communities that the City of Louisville should consider for any of the three commercial code scenarios considered above?

a) [open-ended question / optional]

81) If the City provides incentives for energy efficiency or electrification upgrades, would you be more likely to support this code adoption?

a) I already support this code option.

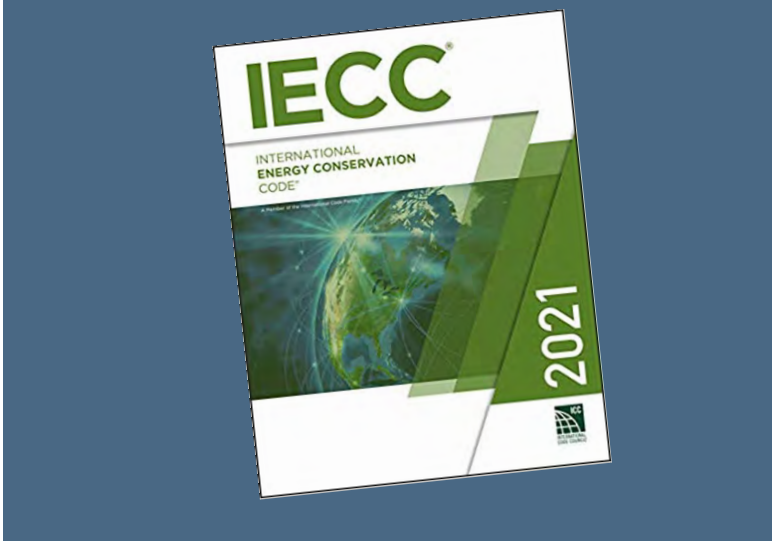
b) Not likely to change my support.

c) Somewhat likely to change my support.

d) Yes, it would change my support.

Appendix C

2021 International Energy Conservation Code



About I-Codes: Building codes improve the quality of construction of the built environment and thereby promote the health, safety, resiliency, affordability, sustainability, and general welfare of our communities. Building codes set a bare minimum construction quality that local officials deem necessary and that consumers expect. Most jurisdictions across the country adopt model building codes published by the International Code Council, and these are updated every three years in an extensive process involving builders, trades, architects, manufacturers and suppliers, low-income advocates, and, crucially, local building officials who are ultimately responsible for enforcing the codes. These codes are then adopted at local level. The 2021 codes are the most recent edition.

About the 2021 International Energy Conservation Code (IECC): After two previous cycles of stagnant efficiency, building officials voted overwhelmingly in favor of provisions in the latest IECC to strengthen energy efficiency. Overall, the 2021 IECC reduces energy by 8-9% (and reduces energy bills by 8-9%) compared to the previous 2018 IECC. The 2021 also includes language clean-up and clarifications, and an expanded focus on flexibility and options. Most of the changes "tighten up" provisions already in the code. Key changes for residential new construction include a better "thermal envelope" (e.g. walls, insulation, windows, doors, etc.), windows that take into account "solar heat gain" in climate zone 5B (the climate zone for the front range of Colorado), changes to duct testing, and increased use of lighting controls. On the commercial side, key changes include air barrier commissioning (i.e. testing and verification of the layer in walls that keeps outside air out and clean, conditioned inside air in), more efficient mechanical systems, technology for energy monitoring in larger buildings so that building operators can better measure and track their building's energy use, and increased options for additional energy efficiency "points."

Jurisdictions with the 2021 IECC: Arapahoe County, Aurora, Fort Collins, Larimer County, Longmont, Louisville, Parker, Superior, and Vail. At least 39 other jurisdictions covering 49% of Colorado's population have announced plans to adopt the 2021 IECC within the next year.

New Colorado Law (2022): The Colorado legislature passed a new bipartisan law that updates minimum energy code requirements. Jurisdictions must adopt at least the 2021 IECC, along with EV-ready, PV-ready, and electric-ready, when updating any other building codes between July 1, 2023 and July 1, 2026. After that date, jurisdictions must adopt at least a low-energy and carbon code. A new Energy Code Board will identify code language for the EV-ready, PV-ready, electric-ready, and low energy and carbon code, and jurisdictions can choose to adopt that code language, something equivalent, or something stronger.

Cost Discussion: An extensive analysis from the Pacific Northwest National Labs (PNNL, the entity charged by the U.S. Congress to perform energy code cost-effectiveness studies) calculates that the increased first cost per household is $3,376 for the 2021 IECC versus the 2015 IECC in Climate Zone 5B (as of Dec. 2021). PNNL's analysis is considered the most credible compared to other estimates because of PNNL's long-standing peer-reviewed methodology, and its absence of profit motive or conflict of interest. The majority of the first cost increase compared to the 2015 IECC is an increase in insulation levels. (Cost data is roughly similar between the 2015 and 2018 IECC, since the efficiency levels were similar.)

- Note: Applying a 19% inflation/supply chain adder as recommended by the National Association of Home Builders, and slightly increasing the size of the average house to better represent our region, yields an increased first cost of $5,118, per PNNL. Also, natural gas prices for residential customers in Colorado have nearly doubled since the study, which would improve the energy cost savings as compared to the original report.

Increased First Cost (vs 2015)	Mortgage Increase	Annual Energy Savings	Net Savings	Years to Positive Savings	Lifecycle Cost Savings
$3,376	$122	$161	$20/yr	9	$1,247

Mild/Medium/Aggressive Rating: Mild. The 2021 IECC is the minimum energy code required by the state of Colorado and even before the state law, jurisdictions covering half of Colorado's population had already announced plans to adopt it. As such, "mild" also includes EV-ready, PV-ready, and electric-ready as required by Colorado law. A "medium" rating would include a higher degree of electric transition – for instance, allowing a choice of either all-electric or mixed fuel new construction but requiring mixed fuel homes and buildings to pursue additional energy efficiency to make up for the extra emissions from fossil gas use onsite. An “aggressive” rating would include either all-electric requirements, the zero energy appendices, or both.

Notes on Cost Studies:

- In a memo to Marshall fire households, the Home Builders Association. of Metro Denver estimated $100,000 in additional upfront costs for 2021 IECC, then scaled back to $11,000 at the state legislature in April 2022 based on a study from Home Innovation Research Labs for National Association of Home Builders.
- Another study from ICF International showed HIRL/NAHB's $11,000 estimate used incorrect economic assumptions, and determined that the estimates in PNNL's study are more accurate.
- A City of Louisville survey of two builders estimated $6,450 in additional first cost for the 2021 IECC vs Louisville's amended 2018 IECC (for a slightly larger house size).
- Natural gas prices were $6.06/thousand cubic feet in PNNL's analysis, versus $11.93 as of April 2022, per EIA.

Prepared For: DOLA Code Cohort for Northwestern Metro / Boulder County
Date Updated: July 19, 2022

SWEEP
SOUTHWEST ENERGY EFFICIENCY PROJECT
LOTUS Engineering & Sustainability
SHUMS CODA ASSOCIATES

Solar-Ready



About: Solar-Ready appendices (RB for residential and CB for commercial) are officially prepared by the International Code Council as "add-on" to the IECC. They prepare homes and buildings for the future installation of solar by requiring conduit, space on the electrical panel, space reserved on the roof free from obstructions and shady objects, adequate roof structural capacity, notation on construction documentation, and a permanent certificate. Shady roofs are exempted. The current appendices only include multifamily buildings 4-5 stories tall, so an amendment is needed to include all multifamily buildings – a provision we call "expanded solar-ready".

Cost Discussion: Upfront costs are minimal (<$200). Cost savings include avoiding the need to tear up walls, redo wiring, and potentially upgrade an electrical panel. They also avoid the situation where roof penetrations for attic vents, etc. are poorly placed in a way that prevents future solar.

Jurisdictions with Solar-Ready: Avon, Boulder, Boulder County, Breckenridge,* Craig, Denver, Fort Collins, Frisco,* Golden, Lafayette, Louisville, Superior, Vail, and Wheat Ridge. Others considering or in the process of adopting it, besides Code Cohort communities, include Eagle County (*via Summit County sustainability program). Note: a new 2022 Colorado law requires all upcoming IECC adoptions to include solar-ready provisions equivalent to or better than a version to be identified by the state's Energy Code Board. We highly anticipate Appendices RB and CB with the multifamily fix will meet the law.

Mild/Medium/Aggressive Rating: Mild. A "medium" rating would require solar to actually be installed on some buildings for part of the energy load, plus a residential solar access law. An "aggressive" rating would require solar installed on all buildings for all of the energy load, a residential solar access law, and a retrofit policy.

Prepared For: DOLA Code Cohort for Northwestern Metro / Boulder County
Date Updated: July 7, 2022

SWEEP
SOUTHWEST ENERGY EFFICIENCY PROJECT

LOTUS
Engineering & Sustainability

SHUMS CODA ASSOCIATES

EV-Ready



About: Electric Vehicle Ready (EV-Ready) appendices prepare homes and buildings for the current transition to electric vehicles. These appendices recognize that the vast majority of all electric vehicle charging will occur at home, with some charging infrastructure needed at work or around town. New single family homes will require one EV-ready space, and new multifamily and commercial buildings will require a percentage of EV-capable, EV-ready, and EV-installed spaces depending on the building type and use.

- Note: EV-ready is especially important for multifamily buildings, for equity reasons, since renters can't retrofit their parking lot or garage to install a 240-volt outlet on their own.

These percentages align with levels recently approved by Denver's code committee, and are less than the percentages adopted in some other jurisdictions (Superior, for instance). Multifamily percentages were reduced to ease the cost impact to new housing, and commercial building percentages were reduced to account for charging behavior based on building type.



Building Type	Minimum EV Installed Spaces	Minimum EV Ready Spaces	Minimum EV Capable Spaces
Single-family Duplex, Townhome	N/A	1 Space	N/A
Group A, B, E, M	10%	5%	10%
Group F, I, R-3, R-4	2%	0%	5%
Group R-1 and R-2[a]	15%	5%	40%
Group S-2 Parking Garages	10%	5%	0%

a. Where all (100%) parking serving R-2 occupancies are EV ready spaces, requirements for EVSE spaces for R-2 occupancies shall not apply.

(In I-code terminology, Group A is Assembly, B is Business, E is Education, F is Factory & Industrial, I is Institutional, M is Mercantile, R-1 is transient residential, R-2 is apartments and other non-transient residential, R-3 and R-4 are small group homes including halfway houses, rehab centers, care facilities, etc., and S is Storage.)

Market Discussion: EVs comprised 9% of new vehicle sales in Colorado in Q1 2022, and dealers continue to have long waitlists, especially with the recent rises in gas prices. All major auto brands have announced plans to shift the majority of their fleets to EVs by the mid-2030s or sooner. Newer models have ranges of well over 300 miles. Besides the reduced environmental impact, buyers like the faster acceleration, the low maintenance, the safety ratings, and the convenience of avoiding trips to the gas station.

Cost Discussion: One EV-ready space for a single-family home averages about $325-$400 at the time of construction. Federal and Xcel Energy rebates are available. Retrofitting even just the wiring later can run $481-$1,493 per space (depending on the distance from the panel to the garage) plus potential costs to upgrade the electrical panel. For commercial and multifamily, costs can run $300 for EV-capable, $1,300 for EV-ready, and $2,500 for EV-Installed per space. Federal, Colorado, and Xcel Energy rebates are available. Retrofits done later can cost several times more, and may include the need to tear up and rebuild walls (and in the case of commercial and multifamily, parking lots and landscaping), redo wiring, and upgrade the electrical panel.

Jurisdictions with EV-Ready: Aspen, Avon, Boulder, Boulder County, Breckenridge, Denver, Dillon, Durango, Eagle County, Fort Collins, Frisco, Golden, Lafayette, Lakewood, Larimer County, Louisville, Pueblo County, Steamboat, Summit County, Superior, Westminster, and Vail, Others in the Code Cohort communities are also planning to adopt it. Note: a new 2022 Colorado law requires all upcoming IECC adoptions to include EV-ready provisions equivalent to or better than a version to be identified by the state's Energy Code Board. We highly anticipate these amendments will meet the new law.

Mild/Medium/Aggressive Rating: Medium. A “mild” rating would have lower percentages for commercial and multifamily. An "aggressive" rating would require every space in multifamily to have some level of infrastructure, plus a policy for renovations.



Prepared For: DOLA Code Cohort for Northwestern Metro Area / Boulder County
Date Updated: July 7, 2022

Electric-Ready and Electric Preferred



About: Electric-ready amendments prepare homes and buildings for the choice between electric and gas equipment and appliances by ensuring they have the wiring and panel capacity available for future electric equipment (and enough physical space, in the case of water heaters). Electric-transition amendments, the next step, still allow new construction to be either all-electric or "mixed fuel" (e.g. natural gas) but mixed fuel homes and buildings require extra efficiency to make up for extra emissions.

In particular, the residential amendments in the prescriptive path require mixed fuel homes to select three "additional efficiency packages" instead of one. Mixed fuel homes choosing the "Energy Rating Index" (ERI) pathway would seek a score of 50 instead of 55.* For commercial buildings, mixed fuel buildings would choose extra efficiency options totaling an extra 10 points. The amendment also fixes two places in the commercial code where gas equipment was given more points than electric.

Market Developments: Air source heat pumps have been commonplace in other parts of the country, and are now making inroads in Colorado thanks to rapid technological developments that allow "cold climate" heat pumps to supply heat even when outdoor temps fall to -22F. Other configurations are possible as well, such as a non-cold-climate heat pump plus extra "strip heat" that can kick in for extra cold times. (This configuration is cheaper upfront but more expensive to run in extra cold temperatures when the heat strips are on.) For water heating, heat pump water heaters are an easy replacement for a typical gas or electric hot water storage tank. Finally, on the cooking side, some homeowners may express a preference for gas, but induction stoves are proving their mettle with twice-as-fast boil times, more finely-tunable controls, safety protections (e.g. the ability to touch the burner and not get burned) and the near-elimination of harmful air pollutants that lead to increased asthma rates and other respiratory distress.

Cost Discussion: Upfront costs depend highly on the configuration selected by the builder. All-electric homes, depending on supply chain availability and builder/contractor familiarity, can be built at no additional cost compared to mixed fuel [1]. Although the upfront costs of an air source heat pump and heat pump water heater are typically more than gas equivalents, the big savings come from avoiding the gas connection and gas piping costs to and within the home or building, and state and utility rebates offset the cost as well. For mixed fuel homes, electric-ready infrastructure is estimated at $300 for a water heater and the same for a stove (or possibly increased to $400 each with inflation and a tight labor market). No additional costs are incurred for electric readiness for a furnace, because central air conditioning or other space cooling would be provided anyway.

* Before 5% efficiency required in R401

(Cost Discussion Cont'd) A high-efficiency gas furnace (95-96% AFUE vs 92-93% AFUE), one of the most likely options for the required "additional efficiency package," is a difference of $200-$500 plus labor [2]. Data from the forthcoming Colorado Residential Field Study shows half of new homes are installing high-efficiency gas furnaces already. For water heaters, the difference between meeting the federal minimum efficiency standards of 0.63 UEF and an 0.92 UEF on-demand water heater is $500 plus labor [3] [4]. After heating and water heating, mixed fuel homes would then need to select one more "additional efficiency package" from the list provided in the 2021 IECC.

- Note: separate market transformation efforts are underway to train builders and contractors for the transition to all-electric equipment, and the familiarity and economies of scale are expected to bring total costs down as well.

Jurisdictions with Electric-Ready and/or Electric Transition: Boulder, Boulder County, Denver (in progress), Fort Collins, Longmont, Louisville, Superior, other Code Cohort communities (in progress). Note: a new 2022 Colorado law requires all upcoming IECC adoptions to include electric-ready provisions equivalent to or better than a version to be identified by the state's Energy Code Board. We highly anticipate these amendments will be in compliance with the law.

Mild/Medium/Aggressive Rating: Medium. A “mild” rating would be just electric ready – i.e. just the wiring and panel capacity. An “aggressive” rating would require all-electric heating and water heating for most residential, multifamily, and commercial buildings, or, even further, no gas connections at all.

[1] Despite a few recent studies, a couple local home builders report challenges getting the costs to "pencil out." State policies passed since then, like the 10% tax credit for heat pumps, heat pump water heaters, and panels, plus regulatory dockets underway at the Public Utilities Commission, may improve the cost calculations.
[2] Manufacturer model database review from electrification expert David Petroy, January 23, 2022. Note: Mr. Petroy notes that some comparisons may show wider differences because more efficient models are more likely to have higher-end “bells and whistles” that don’t affect performance.
[3] Home Depot website comparison of in-stock 0.64 UEF gas storage water heater ($800) and 0.93 gas tankless water heater ($1,300), Feb 9, 2022.
[4] Another full study on the economics of all-electric homes in CO is available at https://swenergy.org/pubs/heat-pump-study-2022

Efficiency Amendments





About: One amendment improves the lighting efficiency in horticulture facilities, and another amendment addresses the heat island effect, as explained below.

These two were selected from a wide array of other strengthening amendments, including a review of other nearby jurisdictions' codes, decarbonization model codes, and the 2024 IECC proposals. These two were selected based on a balance of technical and practical implementability, simple code language, and sustainability impact.

No additional efficiency-strengthening amendments are proposed for residential buildings (beyond those in the electric preferred proposals). This is recognition of the already-decent efficiency improvements in the 2021 IECC, the current challenges with the cost of construction, and the general preferences for simplicity and focused impact.

Horticulture lighting. Energy consumption from lighting in marijuana grow facilities, as well as other indoor agricultural facilities, is staggering, and is projected to continue increasing. Lighting can account for 50% to 80% of an indoor facility's energy use and 30% of a greenhouse's energy use. Traditionally, grow facilities hadn't invested in efficient lighting because of uncertainty in their market and shifting legal policies. This proposal is cost-neutral for greenhouses and has a 3-year payback for indoor facilities. This proposal has been approved by the 2024 IECC Commercial Consensus Committee.

Cool roofs. Cool roofs are made of materials that reflect more sunlight and absorb less heat. They are usually, though not always, made of lighter-color materials. Cool roofs still allow the installation of solar panels, skylights, mechanical equipment, rooftop amenities, and/or vegetative roofs at the building owner's discretion. This only affects low-sloped (i.e. flat or nearly flat) roofs, and it doesn't apply to roof repairs or replacements. Cool roofs are already in the IECC, but this brings them into our climate zone (5B) in recognition of increased summer temperatures and the growing problem of the heat island effect. Higher urban temperatures also speed the formation of ground-level ozone, the primary component of smog. Costs for a cool roof are equivalent to costs for a black roof, and most suppliers and contractors supply both types. Energy costs are not notably impacted, because more recent energy codes have high amounts of insulation in the attic that limit the roof's impact on inside temperatures. Instead, as noted, the significant benefits here are for reducing heat island and improving air quality.

Jurisdictions with Efficiency Amendments: Denver requires a cool roof and has improved horticulture lighting. Other jurisdictions in the area have selected various other amendments to increase the efficiency of their homes and buildings, including Boulder, Boulder County, Breckenridge, Denver, Fort Collins, Frisco, Golden, Louisville, Summit County, and Superior.

Mild/Medium/Aggressive Rating: Medium. A "mild" rating would be just the 2021 IECC unamended. An "aggressive" rating would have prescriptive table updates, stricter performance path requirements (e.g. 10% more efficient), and/or more amendments approved for the 2024 IECC.

City of Louisville
COLORADO • SINCE 1878

City Council

Meeting Minutes

September 27, 2022
City Hall, Council Chambers
749 Main Street
7:00 PM

Call to Order – Mayor Stolzmann called the meeting to order at 7:00 p.m. **Roll Call** was taken and the following members were present:

City Council:	***Mayor Ashley Stolzmann***
	Mayor Pro Tem Dennis Maloney
	Councilmember Kyle Brown
	Councilmember J. Caleb Dickinson
	Councilmember Deborah Fahey
	Councilmember Chris Leh (arrived 7:02 pm)
	Councilmember Maxine Most
Staff Present:	***Jeff Durbin, City Manager***
	Megan Davis, Deputy City Manager
	Rob Zuccaro, Planning and Building Safety Director
	Chad Root, Chief Building Official
	Kayla Betzold, Sustainability Coordinator
	Meredyth Muth, City Clerk
Others Present:	***Anne McCullough, Group 14 Engineering***
	Kim Schlaepfer, Lotus Engineering & Sustainability
	Claire Kantor, Lotus Engineering & Sustainability

DISCUSSION/DIRECTION – COMMERCIAL ENERGY CODE UPDATE OPTIONS

Planning Director Zuccaro noted this item has been on the City Council work plan for two years. Council asked for a review of the commercial code specifically after last year's update to energy efficiency building codes. Council asked that the IECC Net Zero Commercial Appendix or other net zero goals and strategic implementation of all-electric construction be reviewed.

Consultants Lotus Engineering & Sustainability and Group 14 helped the City through the Marshall Fire and is currently assisting with building code review.

Director Zuccaro stated staff is seeking feedback on four questions. First, there will be three pathways under consideration this evening and staff would like Council's preferred

option among those three pathways. Second, Council will be asked for direction on potential exemptions by building/industry types and if those will be full exemptions or by exemptions by process loads. Third, if the codes will be applicable to new construction only or will additions and renovations will also be included. Finally, feedback on an all-electric new construction requirement and any consideration of exemptions.

Kim Schlaepfer, Senior Associate with Lotus Engineering and Sustainability, presented the results of the report which were oriented around the City's sustainability goals of meeting electrical needs with carbon free sources and reducing annual greenhouse gas emission from the baseline set in 2016.

Tonight's presentation will focus on new construction of multi-family and commercial code options that will encourage higher efficiency, net zero and/or all-electric. There is currently a regional code effort to collectively adopt the 2021 IECC and supporting amendments as well as developing a regional roadmap to reach net zero for new construction by 2030.

The consultants looked at building codes and policies around the state and the US. They modeled four different building types that are typical of new construction in the city to see the upfront costs of building to the 2021 code, the operational cost to run the buildings, and the greenhouse gas emissions of those options.

Policy options are net zero with renewable energy, enhanced energy efficiency, and all-electric. It is important to remember that all of these would be in addition to the 2021 code and the amendments that Louisville already has in place.

Policy option 1 is an energy performance standard and policy option 2 is a net zero standard. Policy option 2 has two parts, net zero standard and net zero plus all-electric standard.

Public feedback was obtained through two community meetings and one survey, as well as meetings with the Sustainability Advisory Board and the Building Code Board of Appeals. Ms. Schlaepfer reviewed the public feedback. Balancing the climate emergency with economic development came out on top. Write in comments trended toward a less favorable view of new energy codes. The community does not feel ready for an aggressive approve to energy code updates citing financial concerns, rising home costs, costs to builders and tenants and the potential to drive away businesses.

Survey responses indicated there was support for reducing greenhouse gas emissions, improved air quality, and curiosity around a regional code. Reponses also favored taking time with the building code, considering impacts in existing buildings, concerns with procuring offsite solar, feasibility of meeting code standards and the ability of the grid to handle all-electric new construction.

The policy considerations for tonight were reviewed:

1. Setting Energy Performance Standards for Different Building Types – projects would be required to meet a maximum energy use allowed per square foot also called Site EUI (Energy Use Intensity).

2. Implementation of Appendix CC – Zero Energy Appendix for Commercial Buildings
    a. Enforcing Appendix CC only
    b. Enforcing Appendix CC and all-electric building requirement

Council could look for exemptions for carbon offset and all-electric requirements. Appendix CC penalizes businesses that would need to go offsite to procure renewable energy.

Ms. Schlaepfer went through calculations for multi-family and office buildings to meet the requirements.

The consulting team recommends the City move forward with policy option 1. This option provides flexibility in fuel sources, doesn't require solar, EUI targets are easier to achieve, and doesn't require exemptions. While this doesn't align with the regional goals, it does align with the City of Boulder codes.

Mayor Stolzmann asked for clarification on the statement that all-electric and offsite solar might not be feasible for some building types. The consultant gave hospitals, restaurants and manufacturing as examples.

Mayor Pro Tem Maloney asked what phase 2 of the regional code cohort what would look like. The discussions just started but they are looking at the codes for the City of Boulder, City of Louisville, City of Denver, State of Massachusetts and other net zero code standards. Crested Butte just enacted all-electric code with the exception of restaurants. They also require all commercial buildings over 5000 sf to install renewable energy onsite.

Councilmember Dickinson asked what other cities in the cohort have passed the IECC 2021. Superior, Longmont, and Louisville. Erie, Lafayette, Broomfield and Northglenn are moving forward with adoption.

Public Comments

Mark Oberholzer, Louisville resident and business owner, stated the business community is not ready for a code change and the infrastructure isn't ready. Businesses are still trying to recover from the Marshall Fire, supply chain issues, there are still a lot of empty commercial buildings in the city. This is just not the time to add a new stress to the business community. As for infrastructure, it's hard to know what Xcel's current make up of energy supply is and it would be irresponsible to get ahead of the curve. He

prefers we act with the cohort and not unilaterally. The cost of improvements to vacant buildings would most likely cause those buildings to remain vacant.

Iona Kearney, Louisville Chamber of Commerce Board of Directors, stated that as a board we are not against the desire for greener infrastructure, but on behalf of some of the membership we have discovered some unanswered questions regarding existing businesses, and the vacant buildings.

Mike Deborski, Louisville, stated he attended one of the meetings and was the only business operator in the room. More outreach to businesses may be required. He would like to see more of a "carrot" approach rather than a "hammer" approach.

Rick Kron, Louisville DBA and resident, stated he would like to see participation in the cohort and to act with the cohort not before it does, adopt a "carrot" approach. This is a new construction only discussion and should not be applied to existing businesses.

Tiffany Boyd, Louisville, encouraged the Council to vote yes and include the energy performance standards. The cohort will bring a lot of municipalities together but Louisville will have a jump start on future standards.

Josh Cooperman, Louisville supports the efforts to mitigate climate change and favors the performance standards. This system is used in Boulder. He supports the City's participation in cohort. If Louisville pushes ahead they could inform the cohort.

Mayor Stolzmann stated there is an urgency to respond to the climate emergency and the longer we defer and delay the worse it will get. We can't just wait for other people to address the problems. She stated the highest emissions we have are from transportation and building. Xcel will be at 87% carbon free by 2030 and possibly fully carbon free by 2050. The way to address new building is to address building codes.

She stated the majority of the comments she has received are based on inaccurate information. She noted that building new buildings with old measures will only cost more to retrofit in the future. She added incentives would be great if we could afford them.

Mayor Stolzmann suggested going with Option 1 or 2 with modifications. With option 1 she would like to see an all-electric requirement and for Option 2 to modify the net zero code calculations. She is in favor of adding in all-electric requirements. She is interested to hear what exemptions people would like to see and the details for those.

Mayor Stolzmann stated she hears a lot about incentives but they are not really set up to benefit commercial property owners as they are putting out the capital to upgrade and the tenant gets the benefit of a lower energy bill.

Councilmember Dickinson stated we have a shared goal as a community, Council, and staff. Our community believes we are in a climate crisis and we have to do something.

He stated he is confident we are moving in the right direction and he likes some of the cohort goals. How we move from here is the question. The concern is we could act independently without the entire cohort then things will be built in other communities to a lower standard. Anything being built in 2022 should be built to the highest environmental standards. We have a shared goal of getting to net zero we need to find the best path to get there. It is a matter of how and how fast.

Councilmember Most stated we have to act now to address the climate crisis; it is a clear and present danger. In 2022, you have to build to the highest standards. If a business can't afford to do that, they probably couldn't afford to run the business. We want the greenest businesses to come to Louisville and we should go out to attract them. Our vacancy rates are not a bad as people seem to think and we need to make decisions based on real data.

Councilmember Brown stated he favors option 2 with all-electric requirements. It's nice to believe in incentives but at the end of the day requirements are important. He is interested in talking about exemptions if there is more information. It is a false choice that we can't have new businesses and these regulations. We won't get to the highest levels without pushing the discussion.

Councilmember Fahey agreed the climate crisis is real, it needs to be addressed and we all need to act. This discussion is only related to new construction. She would support all-electric for new construction with an exemption for hospitals and possibly a couple of other industrial uses.

Mayor Pro Tem Maloney stated we wall want to move forward, it is a matter of how quickly we move forward. He stated he likes the cohort idea and wishes it was state wide so we aren't creating competition between communities. He stated he is concerned about getting so far ahead of the curve that we don't any new building at all. We may want to move quicker than the cohort if it makes sense to us and we can remain business friendly. He stated there should be further discussion about any exemptions and what the trigger point would be for renovations. Stainability goals should balance with the economic vitality of the city.

Councilmember Leh agreed this is an important topic to almost everyone in town. He noted the three pillars of sustainability are economy, environment, and equity. He reviewed the sustainability goals of the city noting it is a question of how fast we do it. It is important to recognize we have already made some big strides in this area with the adoption of the 2021 IECC. He would like more answers to some of the questions before moving forward. We don't need to be the leader on all of these efforts given the crisis we have had this year in this community. He would prefer to hold tight until we see results from the other communities. He is concerned what it would mean to businesses trying to expand. He wants to be able to give flexibility to those businesses that need other sorts of energy such as hospitals, etc.

Mayor Stolzmann stated the City is not leading the way on building codes, we are right in the middle of the pack and there are many places are ahead of us. She stated her frustration that this keeps getting put off and is being addressed in political terms. She would like to see what other incentives people can bring forward.

Councilmember Most stated business needs cannot be put ahead of the environment; it doesn't have to be one or the other. We have a responsibility to address climate change.

Councilmember Brown stated he would consider exemptions if there is evidence something is actually prohibitive, not just difficult to do. There are many issues that have been first addressed by municipalities and building codes can be one of those.

Mayor Stolzmann stated there is general agreement for staying with the cohort and having staff bring back an ordinance for new construction to have all-electric heating and cooling systems. Flesh out Policy Option 1 which would require more efficient buildings with onsite solar offsets. These would apply to new building only.

Mayor Pro Tem Maloney stated while he is interested in the cohort he is not interested in waiting for them forever. He would be in favor of quarterly reporting so see if a course change is needed at the local level.

ADJOURN

Members adjourned at 9:48 pm.

Dennis Maloney, Mayor Pro Tem

Meredyth Muth, City Clerk

CITY OF LOUISVILLE SEAL COLORADO

ORDINANCE NO. 1845
SERIES 2022

(Second reading amendments shown with deleted text in ~~**Bold Strikethrough**~~ and new text in **Bold Double Underline**.)

AN ORDINANCE AMENDING CHAPTER 15.18.030 OF THE LOUISVILLE MUNICIPAL CODE CONCERNING AMENDMENTS AND DELETIONS TO THE 2021 INTERNATIONAL ENERGY CONSERVATION CODE TO INCLUDE REQUIREMENTS FOR COMMERCIAL ENERGY USE INTENSITY PERFORMANCE TARGETS AND RESTRICTIONS OF FOSSIL FUEL SPACE AND WATER HEATING EQUIPMENT

WHEREAS, the City Council has adopted from time to time certain building and construction standards; and

WHEREAS, it is deemed to be in the interest of the public health, safety and general welfare to adopt by reference thereto the 2021 edition of the International Energy Conservation Code; and

WHEREAS, the City of Louisville remains committed to its adopted goals to reduce energy consumption, increase clean energy sources, and support the transition to a low-carbon community as outlined in the Sustainability Action Plan and Resolution 25, Series 2019, "A Resolution Setting Clean Energy and Carbon Reduction Goals"; and

WHEREAS, reducing building energy consumption is an effective strategy to reduce community-wide energy consumption and increase long-term cost savings for businesses; and

WHEREAS, the City Council desires to add requirements for energy use intensity performance standards and building electrification to build a more resilient building stock and support future building electrification efforts pursued and businesses; and

WHEREAS, the City Council, after proper notice as required by law, has held a public hearing on this ordinance providing for the adoption of said codes; and

WHEREAS, the 2021 edition of the International Energy Conservation Code, with amendments, has been submitted to the City Council in writing and the City Council has determined that such codes should be adopted as herein set forth.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF LOUISVILLE, COLORADO:

Chapter, 15.18.030 of the Louisville Municipal Code, concerning amendments and deletions to the 2021 International Energy Conservation Code, is hereby amended to read as follows, with new text in underline:

1. Section C202 GENERAL DEFINITIONS is amended to add the following definitions in alphabetical order:

   EMERGENCY POWER SYSTEM. A source of automatic electric power of a required capacity and duration to operate required life safety, fire alarm, detection, and ventilation systems in the event of a failure of the primary power. Emergency power systems are those required for electrical loads where interruption of the primary power could result in loss of human life or serious injuries.

   ENERGY USE INTENSITY (EUI). The annual building site energy use per square foot of gross floor area in units of kBTU/sq ft.

   STANDBY POWER SYSTEM. A source of automatic electric power of a required capacity and duration to operate required building, hazardous materials or ventilation systems in the event of a failure of the primary power. Standby power systems are those required for electrical loads where interruption of the primary power could create hazards or hamper rescue or fire-fighting operations.

2. Section C401.2 Application is deleted in its entirely and replaced as follows:

   C401.2. Commercial *buildings* and their building site shall comply with one of the following, as applicable:

   C401.2.1 Performance targets. New commercial *building* types included in the scope of Appendix PT shall comply with Appendix PT and Sections C403.2.4 and C404.10.

   C401.2.2 Core and shell. Core and shell buildings shall comply with the provisions of Section C402.1.3 through C402.5. When mechanical systems are installed, core and shell buildings shall also meet the provisions in **C403.2.4, C404.10, and** Section C408.

   C401.2.2.1 Core and shell buildings shall submit a letter of agreement to the City stating the tenant spaces included in the scope of Appendix PT shall meet the EUI target established in Table PT103, and shall include these requirements in their lease or purchase agreements.

   C401.2.3 Tenant finish. Tenant finishes included in the scope of Appendix PT shall comply with Appendix PT **and C403.2.4 and C404.10**. All other tenant finishes shall comply with the Prescriptive Compliance option, which requires compliance with Sections C401.3, C401.4, C402 through C406, and C408.

C401.2.4 Other commercial building types. Commercial *building* types not included above shall comply with the Prescriptive Compliance option, which requires compliance with Sections C401.3, C401.4, C402 through C406, and C408.

Exception: Additions, alterations, repairs, and changes of occupancy to existing buildings complying with Chapter 5.

3. Section C403.2 System design is modified as follows:

C403.2 System design. Mechanical systems shall be designed to comply with Sections C403.2.1 through ~~C403.2.3~~ C403.2.4. Where elements of a building's mechanical systems are addressed in Sections C403 through C403.14, such elements shall comply with the applicable provisions of those sections.

4. Section C403.2.4 Space heating equipment is added as follows:

C403.2.4 Space heating equipment. Fossil-fuel ~~**warm air furnaces**~~ **appliances** and electric resistance space heating equipment shall not be permitted for space heating.

Exceptions:

1. **Emergency backup.** Where it is required by an applicable law or regulation to provide space heating with an emergency power system or a standby power system.
2. ~~**Where cfm/sq. ft. ventilation requirements result in conditions where the Building Official determines that space heating requirements cannot reasonably be met without combustion space heating systems.**~~
2. ~~3.~~ **Certain make-up air systems.** Electric resistance in make-up air systems where energy recovery ventilation is prohibited by the International Mechanical Code.
3. ~~4.~~ **Supplementary heat.** Electric resistance heat used for supplementary heat in accordance with Section C403.4.1.1
4. ~~5.~~ **Electric resistance budget. In addition to any exceptions in this section,** ~~**Up**~~ **up** to 5 W of electric resistance space heating per square foot of *conditioned floor area* in the *building*, not including supplementary heat.
   Electric resistance heating elements integrated into heat pump equipment.
5. ~~6.~~ **Integrated units.** Electric resistance heating elements integrated into heat pump equipment.
6. ~~7.~~ **Heated plenums.** Electric resistance in heated plenums.
7. **Temporary systems. Temporary electric resistance heating systems are permitted where serving future tenant spaces that are unfinished and unoccupied, provided that the heating equipment is sized and controlled to**

achieve interior space temperatures no higher than needed to prevent freezing.

8. **Freeze protection.** ~~**Electric resistance for freeze protection elements.**~~ **Electric resistance in heating systems intended for freeze protection.**
9. **Outdoor systems.** Equipment used for outdoor heating.
10. **Specific conditions. Portions of buildings that require fossil fuel or electric resistance space heating for specific conditions approved by the Building Official for research, health care, process or other specific needs that cannot practicably be served by heat pump or other space heating systems. This does not constitute a blanket exception for any occupancy type.**
11. ~~**10.**~~ **Replacements.** Replacement fuel-fired ~~**furnace equipment**~~ **appliances**.

5. Section C404.10 Water heating equipment is added as follows:

C404.10 Water heating equipment. Fossil fuel and electric resistance instantaneous and storage water heaters shall not be used to provide hot water.

Exceptions:

1. **Emergency backup. Where it is required by an applicable law or regulation to provide water heating with an emergency power system or a standby power system.**
2. ~~**1.**~~ **Integrated units.** Resistance heating elements integrated into heat pump water heating equipment.
3. ~~**2.**~~ **Recirculation loops.** Electric resistance elements used for recirculation loop temperature maintenance.
4. ~~**3.**~~ **Small systems.** Electric storage water heaters with a rated water storage volume no greater than 20 gallons.
5. ~~**4.**~~ **Point-of-use systems.** Instantaneous electric water heaters located within 10 feet of the point of use.
6. ~~**5.**~~ **Renewable electricity.** Electric resistance equipment where not less than 100 percent of the annual service water-heating requirement is provided by an *on-site renewable energy system* not used to meet any other provision of this code.
7. ~~**6.**~~ **Renewable or waste thermal energy.** Electric resistance storage water heating equipment in *buildings* where not less than 75% of the annual service water heating requirement is met by a solar thermal system or other renewable thermal system.
8. ~~**7.**~~ **High-temperature requirements.** Water heating systems that serve end-uses or have a storage requirement that necessitates a water temperature of 141°F (55°C) or hotter.
9. **Electric resistance budget. In addition to any exceptions in this section, a budget of 24 kW plus 0.1 watts per square foot of building area of electric resistance service water heating capacity per building.**
10. **Commercial kitchens. Electric booster-heaters serving commercial dishwashers, commercial food service equipment, and other approved**

process equipment that require supply water temperatures of 120°F (49°C) or higher.

11. ~~8.~~ **Replacements.** Replacement of gas-fired storage water heaters or instantaneous water heaters.

APPENDIX PT
MODELING TO A PERFORMANCE TARGET

PT101 Scope. This section establishes criteria for demonstrating compliance with a performance target, and is required for new multifamily (occupancy R-2), offices greater than 5,000 ft^2, primary and secondary schools, parking garages, and warehouses. All end use load components within and associated with the building and their building sites shall be modeled.

PT102 Mandatory requirements. The requirements in this section are mandatory requirements and shall be required in addition to the provisions of ASHRAE 90.1 Appendix G.

PT103 Performance target. Projects of the types listed in Table PT103 shall demonstrate that the proposed design reaches a fixed energy use intensity (EUI) less than or equal to the values in Table PT103, calculated utilizing the energy modeling procedures of Appendix G of ASHRAE 90.1. For *buildings* with multiple occupancy types, the modeled performance target shall be a weighted average of the floor area of each occupancy type.

> **Exception:** Energy used for electric vehicle charging, data centers, and process loads shall be excluded from compliance modeling.

TABLE PT103
PERFORMANCE TARGETS

BUILDING TYPE	PERFORMANCE TARGET (kBTU/ft2)
Multifamily (Occupancy R-2)	32
Office, small (>5,000 ft2)	19
Office, medium (5,000 – 50,000 ft2)	23
Office, large (>50,000 ft2)	28
School, primary	34
School, secondary	31
Warehouse	11

PT104 Renewable Energy. On-site renewable energy generated by a system installed as part of this project that is used by the building shall be subtracted from the proposed design energy consumption prior to calculating the proposed building performance.

PT105 Performance documentation. Documentation to verify compliance with this section shall be provided to the code official.

PT105.1 Projected compliance report. Permit submittals shall include a report documenting the proposed design is projected to meet the EUI target. The compliance report shall include the following specific information beyond the information required in ASHRAE 90.1 Appendix G:

1. Address of the building.
2. An inspection checklist documenting the building component characteristics of the proposed design.
3. Name of individual completing the report.
4. Name and version of compliance software tool.
5. Documentation of the reduction in energy use associated with on-site energy.

PT105.2 Construction plan requirements. Construction plans shall depict all component characteristics of the proposed design utilized for the EUI in accordance with ASHRAE 90.1 Appendix G.

PT105.3 Measured performance report. Projects shall demonstrate compliance with this code by documenting that the building has achieved the EUI performance calculated based on 12 months of metered energy use after occupancy.

PT105.3.1 Demonstration of operating energy use. Metered energy data demonstrating compliance with the EUI target shall be reported to the building official using Energy Star Portfolio Manager and adjusted for the percentage of floor area occupied. While at least 75 percent occupied, the building shall operate at or below its assigned energy use target established in Section PT103 for any recording period of 12 consecutive months that is completed within three years of the date of the Certificate of Occupancy. The owner shall notify the building official when this 12-month period has been successfully completed.

PT106 Energy metering and monitoring. All projects must install submetering or monitoring capabilities to support building energy performance analysis. The project must include capabilities to store and access a 24-month continuous data set on an ongoing basis.

PT106.1 End-use monitoring. Measurement devices shall be installed in new *buildings* to monitor the electric energy use of each of the following separately:

1. Total electric energy.
2. HVAC systems energy use.
3. Interior lighting.
4. Exterior lighting.
5. Receptacle circuits.
6. Data centers representing over 10 percent of total building load or 5 percent of building floor area.
7. Other process loads that represent 10 percent or more of total building energy use based on building energy use modeling.

PT106.2 Independent metering. The following items shall be independently metered. Individual meters used to comply with this section may not serve multiple *buildings*.

1. All fuel sources serving the building.
2. Energy production from on-site renewable energy systems.
3. Electric vehicle (EV) supply equipment.
4. Data centers representing over 10 percent of total building load or 5 percent of building floor area.
5. Other process loads that represent 10 percent or more of total building energy use based on building energy use modeling.
6. Individual tenant energy loads.

6. Section R202 GENERAL DEFINITIONS is amended as follows:

RESIDENTIAL BUILDING. For this code, includes detached one- and two-family dwellings and townhouses, as well as Group R-2 other than for *multifamily*, R-3, and R-4 buildings three stories or less in height above grade plane with separate means of egress.

MULTIFAMILY. Apartments, condominiums, and other similar-type buildings regardless of the number of stories.

INTRODUCED, READ, PASSED ON FIRST READING, AND ORDERED PUBLISHED this 15th day of November, 2022.

Ashley Stolzmann, Mayor

ATTEST:



Meredyth Muth, City Clerk

APPROVED AS TO FORM:

Kelly PC, City Attorney

PASSED AND ADOPTED ON SECOND AND FINAL READING, this 20th day of December, 2022.

Ashley Stolzmann, Mayor

ATTEST:

Meredyth Muth, City Clerk



MOTION: Councilmember Dickinson moved to approve Resolution No. 54, Series 2022; seconded by Councilmember Most.

VOTE: Motion passed by unanimous roll call vote.

ORDINANCE NO. 1845, SERIES 2022 – AN ORDINANCE AMENDING CHAPTER 15.18.030 OF THE LOUISVILLE MUNICIPAL CODE CONCERNING AMENDMENTS AND DELETIONS TO THE 2021 INTERNATIONAL ENERGY CONSERVATION CODE TO INCLUDE REQUIREMENTS FOR COMMERCIAL ENERGY USE INTENSITY PERFORMANCE TARGETS AND RESTRICTIONS OF FOSSIL FUEL SPACE AND WATER HEATING EQUIPMENT – 2nd READING, PUBLIC HEARING (advertised *Daily Camera* 12/2/22) *continued from 12/6/22*

Mayor Stolzmann introduced the item and opened the public hearing.

Community Development Director Zuccaro stated this ordinance would amend chapter 15.18.030 of the Louisville Municipal Code concerning amendments and deletions to the 2021 International Energy Conservation Code. It includes requirements for commercial energy use intensity (EUI) performance targets for specific building types; restricts fossil fuel space and water heating equipment; and applies only to new commercial construction.

This item is a part of the City's Sustainability Action Plan and the City Council's 2023 work plan. He reviewed the work done on energy modeling, policy research, and reviewed the public engagement process.

Director Zuccaro reviewed the proposed ordinance noting it includes energy use intensity (EUI) performance based targets for seven building types; other building types would be required to meet a prescriptive commercial base energy code (IECC 2021 + strengthening amendments); and all building types must meet space and water heating equipment requirements (all-electric). He reviewed the energy use performance targets and the space and water heating exemptions. He reviewed cost comparisons for electric versus mixed fuel uses.

Sustainability Coordinator Kayla Betzold reported on the regional building code cohort (which includes municipalities from across the region) which has completed its phase 2 planning meetings to develop the net zero new construction roadmap. A draft roadmap is currently under review with a final roadmap to be published in early 2023. Plans include stricter EUI targets and demand response capability by 2027 as well as stricter EUI targets and energy storage required by 2030.

Councilmember Dickinson asked if upgrades would be required for remodels. Chad Root, Chief Building Official, stated if the existing systems can meet the needs of the remodel they can be maintained. If they can't meet those needs, new equipment that meets the current code would be required.

Councilmember Dickinson asked why Louisville is not a part of the Cohort. Christine Brinker, SWEEP, stated a group applied to DOLA for a grant for this project and during the time if took the grant to come through Louisville decided to move forward more quickly on its own. It will be a part of the cohort for the phase 2 process.

Public Comments

Christian Dino, Louisville, (pooled time with Peter Geise) stated he was concerned about the costs of these new requirements. He stated he has done a case study on his own home and has found the costs to be much higher than the current code. He stated the metering equipment is costly and hard to get. He added this code requires equipment that has not been proven and may have a long lead time to get. This will keep people from building here or renting vacant spaces if they can build more quickly and cheaper in neighboring communities. He urged a no vote.

Eric Lund, Louisville Chamber of Commerce, stated his restaurant members have many concerns about the cost of refurbishing properties and they have said that clarification on the rules would be helpful. He suggested postponing a decision until clarification can be made. He stated that for Louisville to be competitive with neighbors, our rules should align with the cohort and not be too far ahead.

Matt Berry, Louisville, stated this code is too far in advance to the current technology and will create waste as new technology arrives in just a couple of years. He does not want to have to dispose of technology when something better and easier to use arrives on the market in a few years. He urged a no vote.

Rick Kron, Downtown Business Association, urged a no vote on this ordinance. Louisville should not get ahead of the cohort but rather should act in line with the cohort so we are not ahead of them and businesses then choose to go elsewhere. We don't yet know the real costs or benefits of this change. This ordinance it is not clear what it does in some places and needs additional work.

Jeff Sheets, Koelbel and Company, stated in his other developments there are serious delays in getting equipment and asking for this type of specific equipment will make it even worse. We need to better understand what this ordinance does. It has flaws in how it calculates costs for owners and tenants. This ordinance will make Louisville less competitive for businesses. He urged a no vote.

Tiffany Boyd, Louisville, urged Council to approve this ordinance. She suggested waiting for the cohort is just waiting for the inevitable and Louisville should be at the forefront. We should not kick the can down the road. We need stringent greenhouse gas limits to be put in place.

Tess Weltzin, Lafayette, urged Council to approve the ordinance to address the climate crisis for the next generation. This ordinance will help drive the path for energy efficiency. She stated local action is what is needed.

Ilana Diddams, Louisville, urged a yes vote to support the goals of the City's Sustainability Plan. She stated voting against the ordinance would not be addressing the climate crisis and the sustainability goals.

Mayor Stolzmann ended the first round of public comments noting that she would not take online comments given earlier problems with the system. She noted that she already asked people to attend in person and as presiding officer she can make that determination. She asked the City Attorney to review the Rules of Procedure for this process.

City Attorney Kelly reviewed the Rules of Procedure noting the rules state that if there are technical problems that preclude electronic participation, the in person meeting shall continue if a quorum is present in the room. She added that the Rules state the chair has reasonable discretion to apply the meeting procedures subject to the right of any member of Council to appeal to the Council in which case the matter shall be resolved by a vote of the members.

MOTION: Councilmember Leh moved to override the Mayor's decision to not take electronic comments. He stated he wants to be sure to hear from those online if it is possible. Seconded by Mayor Pro Tem Maloney.

VOTE: Motion passed by 4-3 vote with Mayor Pro Tem Maloney and Councilmembers Fahey, Leh, and Dickinson voting yes.

Larry Donner, Louisville, stated he does not support this ordinance. He feels this ordinance will ensure vacant buildings won't get repurposed and more businesses will leave town. The codes are premature and we don't fully understand the impacts.

Susan Loo, Louisville, stated the previous cost estimates on residential net zero were not accurate and it is likely these estimates for commercial are not accurate as well. There hasn't been a full look at the details of what this ordinance will do.

Councilmember Brown stated this ordinance applies to new construction only. He noted that staff did a great deal of public outreach on this and people were able to give input.

Councilmember Leh asked if the business community was specifically asked for input on this ordinance as presented here. Director Zuccaro stated there was no specific outreach to the business community about the code as drafted and presented here.

Councilmember Leh reviewed the City's sustainability goals as set out in Resolution No. 25, Series 2019 and noted everyone on Council wants to meet those goals. It is just a matter of how we get there and the timing.

Public Comments

Jeff Sheets, Koelbel and Company, stated developers aren't opposed to this but would be looking for very specific costs to build. He suggested taking more time and meeting with developers to look at real costs and understand what this looks like to see it if achievable. He suggested that could be done quickly and brought back in first quarter of next year. He asked Council to delay this a bit.

Tamar Krantz, Louisville, stated she is happy Louisville is on the forefront of this issue. She urged approval to help meet the City's sustainability goals. She does not think it will prevent businesses from coming here. She urged approval.

Josh Cooperman, Louisville, urged approval as a way to reduce greenhouse gases. He stated he wants this in place for new construction, particularly any large projects that are coming through. This code is not a stretch and should be approved.

Rick Kron, Downtown Business Association, stated he is not convinced the cost estimates in the report are not accurate and the ROI on some items are very long. He stated he would have liked the draft ordinance available earlier so that people could have more time to read and understand it before this Council meeting. He stated there are some types of businesses could build here under this ordinance.

Tiffany Boyd, Louisville, stated these changes are inevitable to address the climate crisis. All buildings will need to retrofit when this becomes required so it makes sense to approve this now.

2:34

Councilmember Fahey stated she thinks this is a good compromise and will promote sustainable building in new construction. It does apply only to new construction and has exemptions for hospitals and restaurants. The State is going to be putting very similar regulations in place in a few months and the cohort will be considering even stricter regulations for surrounding communities.

MOTION: Councilmember Fahey moved to approve the ordinance; Councilmember Most seconded the motion.

Mayor Pro Tem Maloney stated he wants more information on the ordinance. He noted all members of council support the sustainability goals, however he has concerns about process and timing. There is a sense of urgency to do this we have to do it soon, however we need to know what is happening at the State and with the cohort.

SUBSTITUTE MOTION: Mayor Pro Tem Maloney moved to table the ordinance to a date uncertain but take action in Q1 or Q2 of 2023 when we have more information. Councilmember Leh seconded the motion.

Councilmember Leh stated everyone agrees we have a serious and urgent climate problem that needs to be addressed. We all agree on our sustainability goals. We all agree on the cohort process that will establish regional standards. He would like staff to get additional public input on this version of the ordinance given there have been so many changes since first reading. He would rather table this until staff could get additional public input and bring it back in first quarter of 2023.

Councilmember Leh made a friendly amendment to table the ordinance to February 21 to allow time for a roundtable with the business community to take input on the ordinance. Mayor Pro Tem Maloney accepted the amendment.

Councilmember Most stated she thinks there has been reasonable public input and additional time is not likely to change any minds or garner more support. She stated this is a good compromise so continuing to keep this open is not an effective use of everyone's time. She understands the desire for more engagement but there is a point we need take action and we can address problems if they arise.

Councilmember Fahey stated she is comfortable the Council took enough input from the two public meetings. Staff did incorporate comments from the business community to get to where we are and allowing specific exceptions. The Council can amend this if we need to and we can look at incentives for new buildings if we want to.

Councilmember Dickinson stated the City has been leading the way in code adoption. He is excited about the cohort bringing this to all communities. This will happen sooner than later regionally. He would prefer moving with the cohort rather than ahead of them. He stated he likes this code as presented but would prefer to do this in conjunction with the cohort or doing it in Q1.

Mayor Stolzmann closed the public hearing.

VOTE ON SUBSTITUTE MOTION: Motion failed on a 4-3 vote with Mayor Stolzmann, and Councilmembers Brown, Councilmember Fahey, Councilmember Most voting no.

VOTE ON ORIGINAL MOTION: Motion carried by unanimous roll call vote.

RESOLUTION NO. 55, SERIES 2022 – A RESOLUTION AMENDING THE 2022 BUDGET BY AMENDING APPROPRIATIONS IN THE SOLID WASTE & RECYCLING FUND AND GOLF COURSE FUND FOR ADDITIONAL APPROPRIATIONS WITHIN SUCH FUNDS – PUBLIC HEARING (advertised *Daily Camera* 12/16/2022)

From:	John Cowley
To:	City Council
Subject:	Clarifying a misconception regarding subscriptions to solar farms
Date:	Tuesday, October 8, 2024 3:13:54 PM

Dear Louisville City Council members:

I am writing to help clarify an apparent misconception voiced by several members of City Council at a recent city council meeting. This information may be a factor in future decisions.

The misconception is that "requiring subscriptions to area solar farms would be a financial burden". This is in relation to whether renewable energy offset requirements in RC appendix (implementation of 2021 IECC) would negatively impact residents building new homes.

This is absolutely not the case. Today, solar-farm subscriptions cost nothing. In addition, a number of companies offering subscriptions to solar farms include long-term discounts of 5%, 10%, or more in some cases (as introductory offers). Some also offer sign-up bonuses.

Thus, solar-farm subscribers SAVE money from the start. I personally have had a subscription via Neighborhood Sun, one of the companies offering this service in our (Xcel's) region. Each month, my Xcel bill shows a CREDIT for the cost of electricity delivered by my portion of the solar farm. Meanwhile, the solar farm's charge to me is exactly 10% LESS.

So the subscriber saves money, there is no upfront cost to subscribe, there is no long-term commitment, and the subscriber can relocate within Xcel's region while keeping the subscription in place.

This option could benefit every resident who doesn't have a solar roof. The only limit would be if all the existing solar farms became fully subscribed, as was the case a number of years ago. Supply and demand have rebalanced since then. New solar farms continue to be built.

It is satisfying to have minimized my electricity-related emissions causing climate change. That urgent obligation is at the core of this issue for all of us.

Sincerely,

John Cowley
303 Fairfield Lane
Louisville, CO 80027
303-530-9087

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From:	Andy Johnson
To:	City Council
Cc:	Chad Root; Rob Zuccaro
Subject:	Building Code Follow
Date:	Tuesday, September 17, 2024 9:01:26 PM

Mayor & Council Members,

Clearly, I am not in practice of delivering a 3min comment in a public meeting. In follow up to my public comment at the City Council meeting discussing the energy code updates, I would like to finish my comments to avoid the risk of sounding to myopic in my views on this topic.

We are the ONLY jurisdiction who has adopted the RC appendix. The HERS 47 requirement within RC before onsite renewables are included is difficult and out of step with a more reasonable HERS 50. The numbersmithing that occurs from energy raters in our State to meet the RC appendix requirements is causing a credibility issue within the building industry. The cost implications are real, however the buzz around the actual costs are not. More credible information about cost implications of net-zero and a true definition of net-zero needs to be established. We are not ready for the RC appendix. If we want a net-zero energy residential building code, then we should write our own version and spend the time to really vet all the criteria. BTW, the RC appendix will literally kill the ability for detached ADU's to comply with the energy code. The buildings are too small to ever score an HERS 47. Also BTW, only 17 states have adopted the 2021 IECC in their communities. 2021 IECC can co-exist with the 2024 set of I-codes. DO NOT ADOPT THE 2024 IECC until the ICC makes their first round of corrections and amendments. If we adopt the 2014 IECC, we would be the only community who has made that step in the United States.

We should remove the mandatory all-electric requirement for commercial space heating and water heating. There is a punchline to this.

We should keep Appendix PT and further refine it. Here is the punchline. When a commercial building uses the Appendix PT to realize their use targets, it almost always forces a building to use a heat pump heat source. We have analyzed this carefully with the Cantilevers project, which is currently in permit review (sidebar, have been working Group 14, a consultant to the City, on the project). Keep in mind industrial and light industrial is excluded from performance targets. Let's carefully consider the refinements to PT and study how it may enhance our built environment or possibly burden specific business types.

I suggest that LSAB and BCBOA work together to help advise a path forward. BCBOA and LSAB both have provided detailed feedback, and I am sure there is a balance point if the two groups were to work together to help advise Council and Staff. Please take the time to read LSAB's recommendations.

I also suggest that a straight forward adoption of the 2021 IECC without the litany of confusing and at sometimes conflicting amendments. This would largely apply to the prescriptive insulation requirements, but includes all the details (and over simplification) of electrification requirements. This does not mean a step back, but rather a clarification and consistency of building efficiency requirements.

The bottom line is that Council, and in some cases staff, is not made up of building professionals or building code professionals. The risk of making uninformed decisions is

incredibly high when providing guidance from a feeling rather than facts and well researched feedback from energy professionals and the building community. Antidotal story telling and conjecture about successes and failures of our built environment run rampant within our community. Please use our City resources including LSAB, BCBOA, local stakeholders, and Colorado's skilled energy consultants to help advise Staff and Council on a factual and reasonable path forward.

Andy

--
Andy Johnson, AIA
DAJDESIGN
w. 303.527.1100
m. 303.249.1624

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From:	Kevin Lombardo
To:	City Council
Subject:	Sept. 17 Meeting Item 8C
Date:	Monday, September 16, 2024 10:53:47 AM

Dear City Council,

I understand you will be receiving a presentation at the Sept. 17 City Council meeting regarding the existing 2021 IECC building standards and will be requested to direct City Staff to take some action. I'd like to provide some thoughts and considerations for that review.

First (as I'm sure you're all aware) the 2021 IECC was voted on, adopted, and re-litigated due to the Marshall Fire about 3 years ago now. Over those 3 years we've all heard some really scary things about how it's too expensive, too progressive, not possible, etc. and yet a significant portion of Marshall Fire rebuilds are 2021 and higher, disproving much of that scariness. The fact is that it's not nearly as costly or as difficult as some of the feedback would have you believe. This is largely thanks not only to the substantial workforce that just got training and practice building to these standards during the Marshall Fire rebuilds, but to the torrent of incentives available to homeowners, businesses, and builders. I've included a slightly overwhelming list of resources below to help articulate just how much financial incentive is available because it's sometimes hard to lose sight of the cumulative effect of these programs.

I also want to voice my concern for the impact that Staff's and the Building Code Board of Appeals' (BCBOA) recommendations would have on the success of Louisville's Community Decarbonization Plan, which relies heavily on energy-efficient buildings, electrification, and renewable energy adoption. The greenhouse gas reduction goals from that plan were accepted by City Council as the city's Climate Action Goals. Further, Xcel Energy is pushing for electrification/decarbonization and, thereby, higher-performing buildings that require less energy from the grid (information on their Clean Heat Program can be found here). If we continue to peel away the requirements of the city's 2021 IECC implementation, we most certainly won't meet these goals. BCBOA's recommendations should be rejected entirely as they allow for the continued use of fossil fuels, which is an unconscionable recommendation in the year 2024 and has climate and occupant health impacts.

The 2024 IECC was finalized in March of this year. We need to stop spending time, money, and effort re-hashing what Louisville should include in its current building standards. If anything, City Council should direct City Staff to figure out how to best implement 2024

IECC and/or consider implementing an even higher building standard (Passive House is probably a stretch, but that would be lovely) and becoming a true leader in high-performance building. Alternatively, please consider the compromises set forth by the Louisville Sustainability Advisory Board (LSAB) Memo as any changes to be made.

Finally, I want to express concern for the continued inequity in how the Advisory Boards' input is being presented to you. Sustainability Staff does not appear to be provided a part of this presentation, LSAB's memo is crammed in the back of the packet (again), and its summarized recommendations are somewhat misrepresented.

Thanks very much for taking the time to read this. As mentioned, here is that list of resources:

- DRCOG Building Decarbonization Program - $199M Grant
- PACE Incentives - For businesses, up to $100,000 per applicant, many rebates doubled with City of Louisville rebates
- XCEL Rebates
  - Upcoming Builder Incentives (Passive House Rocky Mountain Chapter Video)
  - Home Rebates on Heat Pumps, Heat Pump Water Heaters, Insulation & Air Sealing
  - Renewable Energy Incentives
- Federal Rebates & Tax Credits
- Colorado State Rebates
- Boulder County Rebates
- Louisville Rebates
- Colorado Green Building Guild Builder Training Scholarships - subsidies for builder training to build higher-performing buildings.

Best,
Kevin Lombardo
Louisville Resident

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From:	Andy Johnson
To:	City Council
Cc:	Chad Root; Meredyth Muth
Subject:	Fw: HERS 47 vs. HERS 50
Date:	Tuesday, August 6, 2024 4:51:43 PM

Dear Mayor & City Council,

Please find the email below from the energy rater DAJ Design uses for all our residential projects. The email pertains to the specific topic of the HERS rating revision being proposed at tonight's City Council meeting. Thanks!

Andy

--
Andy Johnson, AIA
DAJDESIGN
w. 303.527.1100
m. 303.249.1624

From: Max Nuttelman <max@eiboulder.com>
Sent: Tuesday, August 6, 2024 4:28 PM
To: Andy Johnson <andy@dajdesign.com>
Subject: HERS 47 vs. HERS 50

Hi Andy,

Here are my thoughts on the topic of HERS 47 vs. HERS 50, before rooftop PV is considered.

HERS 50 (without PV) is a lofty goal for most building jurisdictions. It requires essentially the 2021 IECC, in addition to basically 2 of the below 4 categories, depending on the geometry, percentage and orientation of glazing, etc. of the home:

1) really good windows (U-0.25 or better)
2) super tight envelope (1.5 ACH50 or lower)
3) really good ASHP heating/cooling system (HSPF 11 min, SEER 18 min) OR 98% AFUE furnace
4) ASHP water heater (EF 4.0 min) OR tankless gas (EF-0.95 min)

The above 4 options can be very burdensome and costly for a homeowner, as the price of these high-end windows and mechanical systems are very high.

For meeting HERS 47 (without PV), you need to meet all of the above categories; in some cases, depending on the orientation, glazing percentage and other factors, the best ASHP's on the market are required, AND triple-pane windows are required.

Going from HERS 47 to HERS 50 is a minimal change in energy consumption for the home. Both are very resilient, relatively low energy consuming homes, and cutting-edge for mandatory wide-spread energy code adoption. However, the incremental cost required to lower the HERS score from 50 to 47 is very high.

Max Nuttelman, M.Eng
Energy Innovations LLC
720.281.4554
www.eiboulder.com

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From:	RJ Harrington
To:	City Council
Subject:	Tonight - Items 10D & E
Date:	Tuesday, August 6, 2024 9:15:42 AM

Hi Neighbors,

Please retain our strong building codes. In the past several weeks, one only needs to look at EPA's AirNow, or out one's windows, or try to breathe without tasting PM 2.5. Realize that every slip we allow for additional methane, or other fossil fuel, combustion (for any use) will lead to more methane/fossil extraction and the same unhealthy air quality index.

If you're determined to move backward, LSAB has proposed a reasonable compromise (page 229), so that we don't lose all that we gained in the past.

For all of our progeny,
The Harringtons

457 E Raintree Ct. 80027

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From:	MARK PERSICHETTI
To:	City Council
Subject:	Ordinance No 1876, Series 2024, Item 10-D on your Agenda for Tonight
Date:	Tuesday, August 6, 2024 10:44:59 AM

Hello Council Members,

I see that at this evening's City Council meeting, you'll be considering several amendments to our current building codes that might have the effect of diminishing our City's capabilities to reduce future greenhouse gas emissions. (Item 10-D on your Agenda: Ordinance No 1876, Series 2024)

Within the Packet for tonight's meeting, I also read that your Sustainability Advisory Board has submitted to you several suggested compromises between the current building codes and the City staff's suggested amendments. (pages 229-231 of tonight's meeting packet) In particular, LSAB has made the following recommendations:

- Retain the all-electric space and water-heating requirements for alterations and additions if existing equipment is replaced or if additional heating units are installed.
- Only permit natural-gas backups for commercial space heating if existing natural gas space heating equipment is being retained to serve this function.
- Maintain furnace efficiency standards but create a simple waiver for cases in which products meeting these standards are not readily available.
- Maintain commercial door U-value standards but create a simple waiver for cases in which products meeting these standards are not readily available.
- Apply electric vehicle charging standards to any added parking but not to any reconfigured parking.

I fully endorse those proposed compromises offered by LSAB. I believe their adoption would not reduce or constrict the current building codes' abilities to reduce future greenhouse-gas emissions.

I agree with LSAB's belief that future state/regional legislation will most likely mandate electrification retro-fits of existing residential and commercial buildings, whenever they're remodeled. Within our City, by electrifying their buildings during construction, remodels, or structural additions, our building owners will likely bear overall lower costs in the long term.

And I fully support LSAB's closing statements: 1) that if the City can offer any assistance to meet, or incentives to exceed the current building codes, LSAB will be most supportive of such efforts. And 2) LSAB's recommendation to City staff, that the City provide incentives for commercial and residential energy efficiency and electrification upgrades in the City's next biennial budget.

My thanks for your favorable consideration of my comments here!

Mark Persichetti
Member of LSAB, 2004-2021
1402 Taft Place, Louisville

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From:	Johnny Rezvani
To:	City Council
Subject:	CGBG Supports retention of the City"s building codes
Date:	Tuesday, August 6, 2024 11:12:28 AM

Members of Louisville City Council,

As a Board member of the Colorado Green Building Guild, I would like to advocate for the retention of Louisville's building codes and recommend following the proposals of the Louisville Sustainability Advisory Board.

As you know, the Denver Regional Council of Governments (DRCOG), which includes Boulder County, was recently awarded a major EPA grant to combat climate pollution, promote sustainability, and reduce building emissions. More specifically the grant is planning for the training of more than 4,800 workers in the region to support a building electrification workforce and plan to engage 1.6 million Coloradans in the benefits of building efficiency and electrification through a public awareness campaign. Louisville's building code will be supported by the work of this grant, as well as the work of Colorado Green Building Guild and groups like ours, to ensure building codes are not only met but surpassed.

If the Council chooses to change the code, I strongly support the recommendations of the Louisville Sustainability Advisory Board, in particular:

- Retain the all-electric space and water heating requirements for alterations and additions if existing equipment is replaced or if additional heating units are installed
- Only permit natural gas backups for commercial space heating if existing natural gas space heating equipment is being retained to serve this function
- Maintain furnace efficiency standards but create a simple waiver for cases in which products meeting these standards are not readily available
- Maintain commercial door U-value standards
- Apply electric vehicle charging standards to any added parking but not to any reconfigured parking

Thank you,

Johnny Rezvani
Colorado Green Building Guild Board Past President
CGBG.org
Boulder, CO

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From:	John Cowley
To:	City Council
Subject:	Please retain the essence of the advanced building codes
Date:	Tuesday, August 6, 2024 11:56:27 AM

Dear Louisville City Council:

Please vote to retain the present, advanced building codes regarding items that reduce greenhouse-gas emissions and add charging points for electric vehicles. These generally promote electrification (reduction in natural-gas and gasoline use) as key elements in reducing emissions.

Some compromises, such as recommended in the letter from the Sustainability Advisory Board (May 15, 2024) are acceptable, and perhaps necessary to reach consensus. At a minimum, these issues deserve further discussion to weigh existential climate-emissions effects against short-term construction impacts.

The reality of our almost continuous presence of wildfire risk and smoke from U.S. and Canadian fires should make it impossible for vested interests and governmental representatives to remain in denial about the accelerating consequences of climate change.

Yes, there may be some short-term additional expenses needed to meet the present building code requirements, but the codes are in place because many millions of regional residents have recognized the urgency of taking action to cut global-warming emissions. Investing now in these building upgrades will pay off mightily within the next five to l0 years, as climate-change effects accelerate.

The City Council's role is to take the lead in educating and promoting constituents' acceptance of such necessary, but occasionally burdensome, undertakings in governance. There is no doubt that in five years' time, this will be seen as having been the smart thing to do.

Sincerely,

John Cowley
303 Fairfield Lane
Louisville, CO 80027

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From:	tamar krantz
To:	City Council
Subject:	Maintain our energy codes!
Date:	Tuesday, August 6, 2024 12:13:35 PM

Dear City Council Members,

I am proud of our city's commitment to decarbonization.

I encourage you to maintain our robust energy codes and to consider waivers that put the burden of proof upon the applicants. As you know, buildings and construction contribute significantly to GHG emissions. With so much construction on the horizon, we need to maintain our energy codes so that we contribute as little as possible to the climate crisis. While CU is not obligated to follow our codes, it would be a reasonable ask for them to do so. This is not the time to change our requirements.

I object to the combined responses of building owners and private sector representatives with residents in the survey results. It should be obvious that the regulated community will always prefer that compliance be optional. Please listen to the residents who are concerned about public health and the future of the planet. If I were included in the survey, I would have responded that I support all of the code options.

If you must make changes to the existing code, please adopt the recommendations outlined in the Sustainability Advisory Board's memo!

Thanks for considering our planet's future!

Tamar Krantz,
Louisville

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From:	Cathern H Smith
To:	City Council
Subject:	Recommendations for Amending LMC re 2021 International Energy Conservation Code (Item 10D)
Date:	Tuesday, August 6, 2024 1:02:48 PM

Dear Mayor Ley and Members of City Council:

To reduce the impacts of climate change and to demonstrate to younger members of the community that you are not just passing the buck, please adopt the following compromises suggested by Louisville's Sustainable Advisory Board (SAB) and me:

1. **Retain the all-electric space and water heating requirements for alterations and additions when existing equipment is replaced or if additional heating units are installed.**

   Before deciding, please ask Staff for data on the impact of greenhouse gas emissions under the Staff and SAB alternatives. My understanding is that the rate of new construction is so low that to have a meaningful impact upon the City's greenhouse gas emissions the Code must apply to alterations and additions.

2. **Only permit natural gas backups for commercial space heating if existing natural gas space heating equipment is being retained to serve this function.**

   A reminder that natural gas heating equipment does not function without electricity, making natural gas unable to serve as a backup when the electricity goes out. Also, buildings insulated to high R values will be remarkably temperature stable during the few, brief cold snaps we have.

3. **Maintain furnace efficiency standards <u>and</u> create a simple waiver for cases in which products meeting these standards are not readily available.**

   A word search on "furnace efficiency standards" in the appropriate segment of the packet does not turn up any data. Before reducing the standard, please ask for data.

4. **Maintain commercial door U-value standards <u>and</u> create a simple waiver for cases in which products meeting these standards are not readily available.**

   Word searches on "commercial door" and "commercial door U-value" in the appropriate segment of the packet do not turn up any data. Before reducing the standard, please ask for data.

5. **Apply electric vehicle (EV) charging standards to any added parking**.

   Here my recommendation varies slightly from the SAB's. Please consider qualitative criteria. For example, parking lots of a certain size - or - parking lots where people are expected to be parked for longer periods of time (e.g., lots near playing fields, lots used by RTD's patrons and lots for substantial shopping centers with multiple community services such as churches, grocery stores, and banks.) Another example of qualitative criteria is to address range insecurity by requiring lots near major arteries to have EV charging stations.

Thanks for the opportunity to comment on this significant proposed change to portions of the City Code addressing greenhouse gases and climate change.

Cathern Smith
Ward III

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From:	Tess Weltzin
To:	City Council
Subject:	Building Codes and Climate Goals for Louisville
Date:	Tuesday, August 6, 2024 1:08:26 PM

Dear Louisville City Councillors,

This Tuesday evening you are scheduled to consider amendments to the City's building code under agenda item 10D. I truly hope that you make the decision to retain our building codes. Being faced with decisions like these is hard, but I hope that you think of the long lasting impacts for the environment and future. The air quality in Colorado has been so terrible due to the fires. It is only going to get worse. We don't have the funds, energy, or plans to keep trying to fix these climate disasters after they have started, and ruined acres of land, our air, and the area we call home. We need to be making huge measures to combat our carbon emissions, or in all truth, Colorado will go up in flames. Please retain the building codes. Thank you.

Best,
Tess Weltzin

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From:	Annie Parnell
To:	City Council
Subject:	Change in building codes
Date:	Monday, August 5, 2024 8:56:58 PM

Dear council members-

Are you kidding? Climate change is real. Our children don't have anymore time for us to be irresponsible about our decisions—your children and grandchildren don't have anymore time.

We voted you into office, not the builders and the contractors who are pressuring you to make their lives easier and their margins bigger.

Thank you for taking the time to read my message. Frankly I don't have much faith in you guys doing the right thing.
Regards
C. Horst
136 Hoover Avenue
Louisville

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From:	Jojo Follmar
To:	City Council
Subject:	Delay amending the City"s building codes
Date:	Monday, August 5, 2024 6:33:15 PM

Dear Louisville City Council,

I would like to request that you delay amending the City's building codes under item 10D on this week's agenda until input from all the relevant advisory boards has been thoroughly considered and incorporated. The climate building codes were such a landmark piece of legislation for the city and they are very important to reaching Louisville's climate goals. I understand that in practice, certain portions of the building codes were not plausible and thus revisions are needed; however, due to the scale and importance of the codes, I feel that extra time should be taken to get sufficient input from everyone, especially the advisory boards.

Thank you for your time and consideration,
Jojo Follmar

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From:	Kevin Lombardo
To:	City Council
Subject:	Agenda Item 10D - 2021 IECC Amendments
Date:	Monday, August 5, 2024 4:49:17 PM

Hello City Council,

I am writing regarding the proposed amendments to the 2021 IECC that are up for consideration tomorrow evening (8/5/24). If you will consider revisions to the code, my family would prefer you accept the recommendations by the Sustainability Advisory Board. As you all know, the City has developed our Community Decarbonization Plan and City Council has accepted the goals of the Plan into the Climate Action Goals. These goals are absolutely at risk if either staff's or the Building Code Board of Appeals' recommendations are adopted, and we will continue to release greenhouse gas emissions into the environment at unacceptable rates. A better strategy is to ensure that businesses and residents understand the incentives and resources available to them to implement these changes, and to stand with them in support as they navigate what might seem uncomfortable. Please, let's not go backward. We need to keep our foot on the accelerator (*obviously* I'm not going to say, "gas") and keep doing everything we can to combat climate change.

Thank you!

Kevin Lombardo
Louisville Resident

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From:	Joshua Cooperman
To:	City Council
Cc:	Rob Zuccaro; Hannah Miller
Subject:	Remove item 10D from Tuesday"s City Council meeting agenda
Date:	Sunday, August 4, 2024 12:49:01 PM

Dear Louisville City Councillors,

This Tuesday evening you are scheduled to consider amendments to the City's building code under agenda item 10D. I respectfully request that you delay consideration of this item until City staff equitably incorporates input from advisory boards and City staff's report equitably reflects input from advisory boards. Currently, City staff has incorporated input from the Building Code Board of Appeals into its draft building code amendments, included an alternative set of amendments based on input from the Building Code Board of Appeals, and attached a memorandum from the Sustainability Advisory Board. This state of affairs does not represent equitable treatment of input from advisory boards.

Thank you for considering my request.

Best,
Josh

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From:	Matt Berry
To:	City Council
Subject:	International Energy Conservation Code
Date:	Tuesday, July 30, 2024 7:32:55 PM
Attachments:	image001.png

Councilmembers,

My name is Matt Berry and I sit on the Building Code Board of Appeals. We were asked to review and edit the proposed amendments to the previously adopted… and previously amended IECC (Yes these are amendments on top of amendments on top of amendments). This was in your packet for the July 9 first reading and I anticipate will be there for the August 6th meeting (As I write this the agenda is not posted yet)

The building codes work much like the code in a computer program. Modifying the code will have an un-intended effect in other areas of the codes. These codes are written by multiple committees of hundreds of people who spend thousands of hours making sure they are compatible with the other codes and current building technology.

What is not in your packet is the discussion our board had that we feel the City would be better off removing all of the amendments and appendices added in by previous consultants. Most all of the edits both by staff and our board involved repairing these modifications to be achievable and to remove conflicts. My consensus is that it will be more effective to reach the sustainability goals you are trying to achieve by cleaning things up an adopting an un-modified IECC.

Thank you for your efforts.

Matthew K. Berry, PE

ASCENT
STRUCTURAL ENGINEERING

1711 Pearl Street, Suite 300
Boulder, CO 80302
303.865.4942 Direct
303.499.3022 Office
www.ASCENTgrp.com

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ORDINANCE 1876, SERIES 2024

AN ORDINANCE AMENDING LOUISVILLE MUNICIPAL CODE SECTION 15.18.030 CONCERNING THE 2021 INTERNATIONAL ENERGY CONSERVATION CODE

Public Hearing – January 21, 2025

City of Louisville

Policy Framework

- Res. No. 18, Series 2024
  - ✓ Sets GHG Emission and Carbon Free Electric Goals

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF LOUISVILLE, COLORADO:

Section 1. The City of Louisville hereby updates the following clean energy and carbon emission reduction goals:

1. Meet all of Louisville's municipal electric needs with 100% carbon-free sources by 2025.
2. Reduce energy-related municipal greenhouse gas emissions 60% below the 2016 baseline by 2030 and achieve carbon-neutrality by 2050.
3. Generate 75% of Louisville's residential and commercial/industrial electric needs from carbon-free sources by 2030.
4. Reduce energy-related residential and commercial/industrial GHG emissions 60% below the 2016 baseline by 2030 and achieve carbon-neutrality by 2050.

- Overlapping Council Priorities Influenced by Cost and Feasibility Issues of Building Code
  - ✓ Sustainability
  - ✓ Economic Vitality/ Business Development
  - ✓ Affordable Housing

City of Louisville

Background

- **2021 – Ord. 1816**
  - ✓ Adoption of 2021 IECC and Appendix RC – Residential Net Zero
- **2022 – Ord. 1845**
  - ✓ Group 14 Engineering/Lotus Engineering Study – Recommend Adoption of EUI Targets (Appendix PT)
  - ✓ Discussion/Direction – Council Direction to Draft Code with EUI Targes and All-Electric Commercial Space and Water Heating
- **2023 – City Hosted Stakeholder Open House**
  - ✓ Input Resulted in Proposed Package of Amendments
- **2024 – Council Discussion/Direction on Three Primary Amendments**
  - ✓ 1) Remove Appendix RC; 2)Maintain Commercial All-Electric Heat Pump and EUI Targets; 3) Proceed with Targeted Amendments

City of Louisville

Three Primary Strengthening Amendments

1. **Appendix RC – Zero Energy Residential Building Provisions**
   - ✓ Energy Rating Index (ERI) for Building of 47 or Below and Renewable Offsets to Achieve ERI of 0.
2. **All-Electric Heat Pump Systems for Commercial Space and Water Heating**
   - ✓ Exemptions for Commercial and Industrial Processing and Commercial Kitchens
3. **Appendix PT – Modeling Performance Targets**
   - ✓ Office, Warehouse, Hotels, and Multi-Family Development
   - ✓ Energy Use Index (EUI) Modeling and Compliance Verification

City of Louisville

Concerns Raised With Codes

- Premium cost for equipment
- Supply chain issues and lack of compliant equipment
- Lack of qualified designers and labor for installation and maintenance
- More maintenance issues with newer technology
- Lack of consultants to conduct ERI ratings
- Limitations on electrical infrastructure and costs to upgrade

City of Louisville

Advisory Board Recommendations

- Building Code Board of Appeals (BCBOA)
  - ✓ Recommends Elimination of Mandatory Requirements for Appendix RC, Appendix PT, and Commercial All-Electric Heath Pump Space and Water Heating Requirements
- Louisville Sustainability Advisory Board (LSAB)
  - ✓ Recommends Maintaining Appendix RC, and Commercial All-Electric Heath Pump Space and Water Heating Requirements. Silent on Appendix PT.

City of Louisville

Proposed Amendments

- Remove Appendix RC – Zero Energy Residential Building Provisions
- Specify Commercial All-Electric Heath Pump Standards Apply to New Construction Only
- Allow Gas Backup for Commercial All-Electric Heath Pump Space Heating Equipment
- Remove Post-Construction Documentation, One-Year Compliance Check, Monitor and Metering Requirements for Commercial Construction Under Appendix PT - Modeling Performance Targets
- Establish Performance Path with HERS of 50 for New Residential Development
- Provide Climate Appropriate Heat Pump Standards for Commercial and Residential Development

City of Louisville

Regional Code Cohort and 2024 IECC

- 15-Jurisdiction Cohort Working on Adoption Package with Strengthening Amendments to 2024 IECC. Does Not Include Mandatory All-Electric Construction or Mandatory EUI Targets
- Cohort Collaborating with DRCOG to Promote 2024 IECC Adoption Package Across 58 Member Jurisdictions
- 2024 IECC Represents The Most Up-To-Date Version of Energy Conservation Code, Vetted Nationally to Ensure Compliance with Federal Regulations and Feasibility With Current Industry Best Practices

City of Louisville

Staff Recommendation

Consideration of One of the Following Options:

1. Approve Ordinance 1876, Series 2024 as Drafted. This Maintains 2021 IECC as Base Code with Louisville Specific Amendments
2. Approve Ordinance 1876, Series 2024 as Drafted and Direct Staff to Align with Reginal Cohort Adoption of 2024 IECC. Path Does Not Include Commercial All-Electric Heat Pump Requirements and EUI Targets
3. Approve Ordinance 1876, Series 2024 as Drafted and Direct Staff to Bring Back Proposal for Adoption of the 2024 IECC with Louisville-Specific Amendments

City of Louisville

From:	Meredyth Muth
To:	Genny Kline
Cc:	Samma Fox; Rob Zuccaro
Subject:	FW: Questions and comments for Chad and Rob regarding next week"s City Council meeting
Date:	Thursday, January 16, 2025 5:12:29 PM
Attachments:	image001.png

Genny can you please add this email as attachment #14 to Rob's IECC CC AND can you send it individually attached to the your email to Council. We just want to make sure they all see it.

Meredyth Muth *(she/her/hers)*
Interim Deputy City Manager
City of Louisville, Colorado
303.335.4536 (office)
720.762.2491 (cell)

Please note: all incoming and outgoing emails may be subject to the Colorado Open Records Act, § 24-72-100.1, et seq.

From: Rob Zuccaro <rzuccaro@louisvilleco.gov>
Sent: Thursday, January 16, 2025 2:48 PM
To: Meredyth Muth <muthm@louisvilleco.gov>; Samma Fox <sfox@louisvilleco.gov>
Cc: Chad Root <croot@louisvilleco.gov>
Subject: RE: Questions and comments for Chad and Rob regarding next week's City Council meeting

Hi Meredyth,

Here are responses. I would prefer to send this via email or supplemental memo. I don't think I can easily integrate these into the CC at this stage. Let me know if you think we can send this via email or if you want me to put it into a memo format. Thanks.

At one point in discussion of the proposed amendments, you noted some confusion about which parts of the code apply to multifamily housing, Appendix RC or Appendix PT. Has this already been clarified, or is this clarification part of the proposed amendments? What is the clarification or proposed clarification?
Yes, this is clarified in the code amendments. R2 Occupancy Multifamily Development must meet Appendix PT.

I understand that the City made some changes to the 2021 IECC base code when adopting Appendix RC and a modified Appendix PT, and I believe that these changes to the base code are one of BCBOA's motivations for recommending that we move to just the base code. Disregarding Appendix RC, which we did not modify, I believe, could we eliminate the changes to the 2021 IECC base code (for better consistency) but still retain the modified Appendix PT

(perhaps with changes to the all-electric requirements)?
The modifications to the 2021 IECC base code were developed separate from and have little or no overlap with Appendix RC or Appendix PT. I do not believe that the BCBOA's main recommendations are related to these base code amendments. While they had some desired edits to the base code amendments, we made most of those in this draft unless they violated the new State-mandated energy code requirements. When looking closely at their recommended draft, their policy level recommendations were to remove mandates for the three primary strengthening amendments 1) Appendix RC, 2) Appendix PT, and 3) Commercial All-Electric Heat Pumps for Space and Water Heating.

Could you help me to better understand the current requirements around alterations and additions for both residential and commercial construction? For instance, for additions I assume that all new construction must meet our most up-to-date codes; is this also true for alterations? Do we have thresholds for additions and alterations for both residential and commercial? I inquire for the following reason: we need to find pathways to retrofit existing building stock that lower greenhouse gas emissions, and there must be some pathways involving additions and alterations, so I do not simply want to abandon the requirements for such retrofitting that we currently have in place.
The proposed code provides that commercial additions or alternation of any kind would not trigger either 1) Appendix PT, or 2) Commercial All-Electric Heat Pump for Space and Water Heating. These two parts of the code would only apply to all-new construction For the 2021 IECC base code, alternations and additions do trigger coming into compliance with those base codes but only for the addition or the areas of alteration. Portions of the existing building not altered generally do not need to be updated to meet the 2021 IECC base code.

One bullet point states that the proposed amendments would allow for a HERS rating of 50 to substitute for meeting the prescriptive pathway. This statement applies to residential construction only, right? My understanding is that you are proposing to replace the HERS rating of 47 from Appendix RC with a HERS rating of 50. Is this correct?
The proposal is to have a performance option of meeting a 50 HERS or better, and yes, this is for residential only. This bullet is corrected in the updated staff memo for second reading.

To meet the requirements of Appendix RC, one can subscribe to a community solar farm. If there are no subscriptions available, then does the City allow one to join a waitlist in the meantime? Does the City require a subscription for a certain duration?
Appendix RC requires purchase or lease or renewable offsets for 15 or more years if not provided on-site. This needs to be secured prior to issuing a Certificate of Occupancy.

Appendix RC does not allow joining a waitlist.

One bullet point concerns the requirements for electric vehicle charging upon alteration or addition of parking spaces. What does the City's code currently require (without amendment)?
EV Charging Infrastructure is required for new construction, commercial additions of 25% or more of original sq. ft., or residential additions of 50% or more of original sq. ft.

Rob Zuccaro, AICP
Community Development Director
303-335-4590
rzuccaro@louisvilleco.gov
City of Louisville
COLORADO • SINCE 1878
Planning | City of Louisville, CO (louisvilleco.gov)
Building Safety | City of Louisville, CO (louisvilleco.gov)
Economic Vitality | City of Louisville, CO (louisvilleco.gov)

From: Meredyth Muth <muthm@louisvilleco.gov>
Sent: Thursday, January 16, 2025 12:54 PM
To: Rob Zuccaro <rzuccaro@louisvilleco.gov>; Samma Fox <sfox@louisvilleco.gov>
Subject: RE: Questions and comments for Chad and Rob regarding next week's City Council meeting
Importance: High

Hi Rob, please see the questions below from Josh. Would you like to update the CC to answer these (if they aren't already answered there) or we can do a document answering Council questions separately from your CC. Let me know what you would prefer.

Meredyth Muth *(she/her/hers)*
Interim Deputy City Manager
City of Louisville, Colorado
303.335.4536 (office)
720.762.2491 (cell)

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From: Josh Cooperman <jcooperman@louisvilleco.gov>
Sent: Thursday, January 16, 2025 10:38 AM
To: Samma Fox <sfox@louisvilleco.gov>; Meredyth Muth <muthm@louisvilleco.gov>

Subject: Questions and comments for Chad and Rob regarding next week's City Council meeting

Dear Samma and Meredyth,

I have some questions and comments for Chad and Rob regarding the proposed amendments to the City's building codes. Could you please pass these along? Thanks.

Best,
Josh

Dear Chad and Rob,

Here are some questions and comments regarding the proposed amendments to the City's building codes. I will reference your report from the first reading on 17 December 2024. Also, I am interested in considering some modification of the proposed amendments. Should we try to incorporate these modifications into the packet for Tuesday?

At one point in discussion of the proposed amendments, you noted some confusion about which parts of the code apply to multifamily housing, Appendix RC or Appendix PT. Has this already been clarified, or is this clarification part of the proposed amendments? What is the clarification or proposed clarification?

I understand that the City made some changes to the 2021 IECC base code when adopting Appendix RC and a modified Appendix PT, and I believe that these changes to the base code are one of BCBOA's motivations for recommending that we move to just the base code. Disregarding Appendix RC, which we did not modify, I believe, could we eliminate the changes to the 2021 IECC base code (for better consistency) but still retain the modified Appendix PT (perhaps with changes to the all-electric requirements)?

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One bullet point concerns the requirements for electric vehicle charging upon alteration or addition of parking spaces. What does the City's code currently require (without amendment)?

I am very happy to discuss these questions in person. Thanks so much.

Best,
Josh