

City Council

Agenda

Tuesday, December 17, 2024
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](https://www.louisvilleco.gov/council) 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. Approval of December 9 and December 10, 2024 Meeting Minutes

C. Approval of Board and Commission Appointments

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.

- D. Approval of a Service Agreement with The Humane Society of Boulder Valley for Animal Impoundment Services
- E. Approval of the First Addendum to the 2024 Pavement Management Services and Curb Ramp Inventory Contract
- F. Resolution No. 64, Series 2024 – A Resolution Approving an Agreement for Lease of Colorado-Big Thompson Water

6. COUNCIL INFORMATIONAL COMMENTS AND COMMITTEE REPORTS

7. CITY MANAGER’S REPORT

8. REGULAR BUSINESS

A. AMERICAN PUBLIC WORKS ASSOCIATION AWARD PRESENTATION

- Introduction
- Action

B. LAW ENFORCEMENT APPRECIATION DAY PROCLAMATION

- Introduction
- Action

C. ORDINANCE NO. 1876, SERIES 2024 – AN ORDINANCE AMENDING CHAPTER 15.18.030 OF THE LOUISVILLE MUNICIPAL CODE CONCERNING THE 2021 INTERNATIONAL ENERGY CONSERVATION CODE – 1ST READING, SET PUBLIC HEARING 1/21/25

- Introduction
- Action

D. OPEN SPACE MANAGEMENT UPDATE

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

E. ORDINANCE NO. 1889, SERIES 2024 – AN ORDINANCE AMENDING TITLE 5 OF THE LOUISVILLE MUNICIPAL CODE CONCERNING LIQUOR AND MARIJUANA LICENSING – 2ND READING, PUBLIC HEARING (advertised *Daily Camera* 12/8/24)

- 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

F. DISCUSSION / DIRECTION – 2025 LEGISLATIVE AGENDA

- Staff Presentation
- Public Comments (Please limit to three minutes each)
- Council Questions & Comments
- Council Direction

G. 2024 WORK PLAN CLOSE OUT

- Staff Presentation
- Public Comments (Please limit to three minutes each)
- Council Questions & Comments
- Council Direction

9. CITY ATTORNEY'S REPORT

10. IDENTIFICATION OF FUTURE AGENDA ITEMS

11. ADJOURN

**ITEMS TENTATIVELY SCHEDULED FOR REGULAR MEETING
01/07/2025**

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

- MLK, Jr. Proclamation
- Establish Downtown Streetscape Steering Committee
- Wastewater Treatment Plan Expansion Construction Contract
- Golf Cart Purchase Agreement
- Sewer Tap Fees
- Industrial Fees

- Boulder County EnergySmart IGA
- Boulder County PACE IGA
- Approval of 2025 Legislative Agenda
- Youth Advisory Board Presentation
- ADU Regulations – 1st Reading
- Business Assistance Program Changes – continued from 12/3/24

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CASH ACCOUNT: 001000 101001

WARRANT: 112724 11/27/2024

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
13260	CLIFTON LARSON ALLEN LLP	Professional Utility Serv	12,817.65
5255	FAMILY SUPPORT REGISTRY	Payroll Run 1 - Warrant 1	173.53
99999	LAND TITLE	Reissue of check 42704 -	67.99
99999	MATTHEW RILEY	Travel Reimbursement - Br	218.76
99999	ABBY MCNEAL	Flight Reimbursement - 1/	253.94
99999	COURTNEY HOM	Mileage Reimbursement 8/3	87.44
99999	JESSICA ZEAS	Travel Reimbursement CGFO	263.84
99999	TRAVIS ANDERSON	Travel Reimbursement CGFO	277.64
99999	MAHYAR MANSURABADI	Travel Reimbursement CGFO	95.00
99999	JULIE GLASER	Travel Reimbursement CGOF	220.96
10951	PINNACOL ASSURANCE	Policy #4206615	6,086.16
15881	VIRTUOUS PAWS DOG TRAINING	Dog Toy Instruction Progr	75.00
10884	WORD OF MOUTH CATERING INC	Lunches Ordered 11/21-11/	1,590.00
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15 INVOICES		WARRANT TOTAL	31,386.42
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CASH ACCOUNT: 001000 101001

WARRANT: 120524 12/05/2024

VENDOR	VENDOR NAME	PURPOSE	AMOUNT
15923	CALLIE TRUMAN	ENTERTAINMENT 12/6/24	200.00
99999	KIANA FREEMAN	MILEAGE NOV 2024	59.43
99999	CORD WEATHERLY	MILEAGE NOVEMBER 2024	218.42
3875	XCEL ENERGY	ACCT #53-1879600-8 10/1	84,921.85
13790	ZAYO GROUP LLC	ACCT #936665 11/21/24	1,199.02
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5 INVOICES		WARRANT TOTAL	86,598.72
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CASH ACCOUNT: 001000 101001

WARRANT: 121724 12/17/2024

VENDOR	VENDOR NAME	PURPOSE	AMOUNT
6866	4 RIVERS EQUIPMENT, LLC	ACCT #16511 #3422 EQUIPM	92.74
15764	A-MAC UNDERGROUND	Directional Boring for Co	34,000.00
5166	AAA STEAM AND SAUNA	REC CENTER - SAUNA PM SER	1,362.00
4160	ALARM DETECTION SYSTEMS, INC.	ACCT #802604 REC CENTER	363.84
4160	ALARM DETECTION SYSTEMS, INC.	ACCT #804654 LIBRARY	330.06
4160	ALARM DETECTION SYSTEMS, INC.	ACCT #870159 REPLACED BA	6.07
4160	ALARM DETECTION SYSTEMS, INC.	ACCT #870159 ANNUAL ALAR	2,546.88
12150	ANIMAL & PEST CONTROL SPECIALI	2024 Prairie Dog Manageme	23,400.00
11455	APC CONSTRUCTION CO LLC	2024 STREET RESURFACING P	115,049.72
13556	AQUATIC CHEMICAL SOLUTIONS INC	WINTER CHEMICALS	1,774.83
13556	AQUATIC CHEMICAL SOLUTIONS INC	MOTOR SERVICE	375.00
13556	AQUATIC CHEMICAL SOLUTIONS INC	UV REPROGRAMMED	200.00
13881	ASLAN CONSTRUCTION INC	WWTP Solids Handling Equi	281,067.00
13881	ASLAN CONSTRUCTION INC	WWTP Expansion CMAR Pre-C	20,000.00
15803	AUSMUS LAW FIRM, P.C.	DEC 2024 CONTRACT PROSECU	1,500.00
15944	B&M ENTERPRISES LLC	REIMBURSE FOR GRANT HSA	9,000.00
500	BAKER AND TAYLOR	ACCT #415337 L121376 4 B0	19.43
15810	BEABOUT BROCK EASLEY LLC	MULTIPLE CHEMICALS	31,020.70
15810	BEABOUT BROCK EASLEY LLC	Ammonia Probes	3,979.30
14900	BIOCHAR NOW LLC	FILTRATION SOCK	680.00
14251	BK TIRE INC	VEHICLE TIRES #3203	2,357.64
15133	BLACKSTONE PUBLISHING	CUST ID #169823 CHILDREN	14.99
14223	BLUE STAR RECYCLERS	COMPUTER RECYCLING 11/12/	1,933.30
14952	BOBBO'S SWEET SHOP LLC	BAG TAX FUNDED PROGRAM 5	1,000.00
11605	BOBCAT OF THE ROCKIES LLC	PARKS EQUIPMENT	18.82
15100	BRENNTAG PACIFIC INC	Water Plant Chemicals - S	17,893.84
9838	BRIGHTVIEW LANDSCAPE SERVICES	CUST #21013231 Parks/Ope	12,853.85
15547	BSN SPORTS LLC	CUST #12149101 UNIFORMS	372.05
14036	CENTER COPY BOULDER INC	DEPOSITIONS FLYER	895.85

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CASH ACCOUNT: 001000 101001

WARRANT: 121724 12/17/2024

VENDOR	VENDOR NAME	PURPOSE	AMOUNT
14688	CESCO LINGUISTIC SERVICES	SPANISH INTERPRETER 11/12	187.50
15336	CHARLES ABBOTT ASSOCIATES, INC	OCT 2024 CONSULTING SERVI	21,469.00
15216	CHARLES D JONES CO	CUST #12341 HEATING UNIT	538.60
15216	CHARLES D JONES CO	CUST #12341 HEATING UNIT	221.12
15216	CHARLES D JONES CO	CUST #12341 REFRIGERANT	480.00
14923	CHOICE SCREENING INC	NOV 2024 BACKGROUND CHECK	146.00
4785	CINTAS CORPORATION #66	ACCT #12522401	382.34
4785	CINTAS CORPORATION #66	ACCT #12522401	387.31
4785	CINTAS CORPORATION #66	ACCT #12522401	353.03
14225	CLEAN DESIGNS INC	WATER VALVE - REC CENTER	160.00
1120	COLORADO ANALYTICAL LABORATORY	CITY OF LOUISVILLE CO0107	206.00
1120	COLORADO ANALYTICAL LABORATORY	WATER PLANT QUARTERLY IPP	239.40
1120	COLORADO ANALYTICAL LABORATORY	CITY OF LOUISVILLE CO0107	807.00
1120	COLORADO ANALYTICAL LABORATORY	CITY OF LOUISVILLE CO0107	81.00
1120	COLORADO ANALYTICAL LABORATORY	WWTP - SOLIDS - MONTHLY	240.00
1120	COLORADO ANALYTICAL LABORATORY	WWTP - INFLUENT - WEEKLY	180.20
1120	COLORADO ANALYTICAL LABORATORY	FRESCA FOODS ANNUAL SAMPL	171.20
14909	COLORADO CHRISTMAS LIGHTS	2024 holiday lighting con	74,824.43
1205	COLORADO DEPT OF REVENUE	ACCT #01069804009 3RD QT	473.10
10056	COLORADO DOORWAYS INC	ACCT #CITLOU RESTROOM DO	1,120.00
15761	COLORADO OUTHOUSE LLC	Port-o-let 3 year contrac	201.25
15761	COLORADO OUTHOUSE LLC	Port-o-let 3 year contrac	201.25
15845	CONCORD TECHNOLOGIES	NOV 2024 CLOUD FAX SERVIC	231.72
15611	CONTROLOGY STUDIO LLC	PILATES CLASSES NOV 2024	537.60
15414	CORA BRACHO-TROCONIS	11/17/24 THANKSGIVING PIC	210.00
13162	CORE & MAIN LP	ACCT #103796 WATER UTILI	4,759.70
13162	CORE & MAIN LP	ACCT #103796 WATER UTILI	406.28
13162	CORE & MAIN LP	ACCT #103796 WATER UTILI	2,067.75
13162	CORE & MAIN LP	EJIW VALVE BOX RISER AC	2,337.50
12428	CUMMINS SALES AND SERVICE	CTC LIFT STATION GENERATO	698.32
12428	CUMMINS SALES AND SERVICE	Emergency Generator - Bat	3,461.35
15769	CURTIS, JUSTUS, & ZAHEDI, LLC	NOV 2024	9,098.00

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CASH ACCOUNT: 001000 101001

WARRANT: 121724 12/17/2024

VENDOR	VENDOR NAME	PURPOSE	AMOUNT
15036	DAVID J. THROWER	NOV 2024 COURT SERVICES	2,800.00
11476	DBC IRRIGATION SUPPLY	CUST #1268 IRRIGATION SU	1,525.76
15149	DENALI WATER SOLUTIONS LLC	2024 WWTP Biosolids	1,990.46
15149	DENALI WATER SOLUTIONS LLC	2024 WWTP Biosolids	2,089.17
15522	EASY ICE, LLC	ACCT #105842 ICE MACHINE	345.00
1785	ECO-CYCLE INC	2024 Leaf Disposal ACCT	4,130.60
15144	EXCEL DRIVER SERVICES LLC	CLASS B TRAINING - J.TORR	3,500.00
6847	GENERAL AIR SERVICE & SUPPLY	ACCT #42580500 NOV 2024	99.93
14936	GOLDEN AUTOMATION LLC	Controls Systems Security	16,534.08
2310	GRAINGER	ACCT #802864512	163.74
2340	GREEN SPOT INC	6 MAPLES TREES	2,160.00
15146	HAZEN AND SAWYER DPC	10/1/24 - 11/30/24 Utili	1,876.25
15932	HIGH ALTITUDE EQUIPMENT	SMART BATTERY CHARGER/POW	2,300.00
15209	HOLLAR TREE CO LLC	North OS Siberian Elm rem	15,277.50
15209	HOLLAR TREE CO LLC	Tree pruning throughout C	3,600.00
15209	HOLLAR TREE CO LLC	Tree pruning throughout C	1,350.00
15209	HOLLAR TREE CO LLC	FORT REMOVAL	2,450.00
15261	WESTERN PAPER DISTRIBUTORS	CUST ID #244097	3,750.48
15261	WESTERN PAPER DISTRIBUTORS	CUST ID #244097	1,607.67
15261	WESTERN PAPER DISTRIBUTORS	CUST ID #244097	207.73
15261	WESTERN PAPER DISTRIBUTORS	CUST ID #244097	114.83
15261	WESTERN PAPER DISTRIBUTORS	CUST ID #244097	507.36
15261	WESTERN PAPER DISTRIBUTORS	CUST ID #244097	251.47
15261	WESTERN PAPER DISTRIBUTORS	CUST ID #244097	5.74
15261	WESTERN PAPER DISTRIBUTORS	CUST ID #244097	77.23
2615	INGRAM LIBRARY SERVICES INC	ACCT #2050766 BOOKS	714.55
2615	INGRAM LIBRARY SERVICES INC	ACCT #2050766 BOOKS	225.71
2615	INGRAM LIBRARY SERVICES INC	ACCT #2050766 BOOKS	408.65
2615	INGRAM LIBRARY SERVICES INC	ACCT #2050766 BOOKS	513.94
2615	INGRAM LIBRARY SERVICES INC	ACCT #2050766 BOOKS	348.07
2615	INGRAM LIBRARY SERVICES INC	ACCT #2050766 BOOKS	435.09
2615	INGRAM LIBRARY SERVICES INC	ACCT #2050766 BOOKS	258.61
2615	INGRAM LIBRARY SERVICES INC	ACCT #2050766 BOOKS	427.65
2615	INGRAM LIBRARY SERVICES INC	ACCT #2050766 BOOKS	254.82
2615	INGRAM LIBRARY SERVICES INC	ACCT #2050766 BOOKS	367.50
2615	INGRAM LIBRARY SERVICES INC	ACCT #2050766 BOOKS	290.38

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CASH ACCOUNT: 001000 101001

WARRANT: 121724 12/17/2024

VENDOR	VENDOR NAME	PURPOSE	AMOUNT
2615	INGRAM LIBRARY SERVICES INC	ACCT #2050766 BOOKS	404.93
2615	INGRAM LIBRARY SERVICES INC	ACCT #2050766 BOOKS	478.55
2615	INGRAM LIBRARY SERVICES INC	ACCT #2050766 BOOKS	201.53
2615	INGRAM LIBRARY SERVICES INC	ACCT #2050766 BOOKS	1,988.30
2615	INGRAM LIBRARY SERVICES INC	ACCT #2050766 BOOKS	406.85
2615	INGRAM LIBRARY SERVICES INC	ACCT #2050766 BOOKS	541.54
2615	INGRAM LIBRARY SERVICES INC	ACCT #2050766 BOOKS	248.40
2615	INGRAM LIBRARY SERVICES INC	ACCT #2050766 BOOKS	241.46
2615	INGRAM LIBRARY SERVICES INC	ACCT #2050766 BOOKS	233.80
2615	INGRAM LIBRARY SERVICES INC	ACCT #2050766 BOOKS	1,102.25
10772	INTEGRATED SAFETY SERVICES LLC	REPAIR WILKINS FIRE BACKF	762.80
10772	INTEGRATED SAFETY SERVICES LLC	ANNUAL FIRE EXTING INSP 1	107.25
13778	INVISION GIS LLC	NOV 2024 Professional Sv	3,830.00
13778	INVISION GIS LLC	NOV 2024 Professional S	3,500.00
15238	SNAPOLOGY OF GOLDEN-LITTLETON	11/25/24 - 11/27/24 SNAPO	2,520.00
15895	KEBAYA COACHING AND CONSULTING	EDI TRAINING FOR BOARDS/C	12,000.00
15904	KEETON INDUSTRIES, INC.	COMPRESSOR P&P	1,575.24
2360	KELLY PC	NOV 2024 PROFESSIONAL SER	37,862.00
14219	KIMLEY-HORN AND ASSOCIATES INC	OCT 2024 SCWTP Residual	16,812.50
10197	KOLBE STRIPING INC	2023 Pavement Marking Pro	22,749.25
14097	L.A.W.S.	PD #2194 VEHICLE ISS BUTT	29.33
14097	L.A.W.S.	PD VEHICLE LIGHT BAR CLIP	87.00
15754	LIGHTHOUSE TRANSPORTATION GROU	AI RENTAL CUST #LOUISVIL	2,450.70
14961	LOUISVILLE CYCLERY LLC	Two e-bikes for Ranger pr	5,876.94
8059	LOUISVILLE DOLPHINS SWIM TEAM	NOV 2024 SWIM CLINICS	6,370.00
13968	MAD SCIENCE OF COLORADO	CHEMICAL CURIOSITY 11/11	546.00
15723	MAGDO MUSIC	10/29/24 - 12/10/24 MAGDO	504.00
14071	MARY RITTER	H2O RUNNING NOVEMBER 2024	861.00
15526	MINES AND ASSOCIATES INC.	CUST ID #LOUISVILLE EAP	1,724.80
14768	MOJOS CLEANING SERVICES INC	DEC 2024 JANITORIAL SERVI	36,308.00
11061	MOUNTAIN PEAK CONTROLS INC	CTC LIFTSTATION STARTUP P	870.00

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CASH ACCOUNT: 001000 101001

WARRANT: 121724 12/17/2024

VENDOR	VENDOR NAME	PURPOSE	AMOUNT
15749	NORATEK	Software for playgrounds/	3,712.50
11342	OJ WATSON COMPANY INC	ACCT #LOUISVI EQUIPMENT	169.32
99999	CORONADO EXCAVATION	REFUND PERMIT #MEP-5817-2	49.63
99999	CRYSTAL ELECTRIC	REFUND PERMIT #MEP-5851-2	85.76
99999	KINGS PLUMBING	REFUND PERMIT #MEP-5865-2	85.76
99999	RK MECHANICAL, LLC	REFUND PERMIT #MEP-5791-2	291.09
99999	RK MECHANICAL, LLC	REFUND PERMIT #MEP-5790-2	1,273.57
99999	RK MECHANICAL, LLC	REFUND PERMIT #MEP-5469-2	1,688.55
99999	RICHARD BILLION	MARSHALL FIRE USE TAX CR	465.37
99999	LAURA NASIATKA	MARSHALL FIRE USE TAX CR	269.06
99999	ANN HENDRICK	REFUND LOUISVILLE REC CEN	100.00
99999	HAMMERWELL, INC.	REFUND HYDRANT METER RENT	2,100.00
99999	MYRA CHAPMAN	REFUND LOUISVILLE REC CEN	96.00
99999	GS EXTERIOR EXPERTS	REFUND LICENSE #LSVL-0060	88.00
13649	OVERDRIVE INC	EMATERIALS CUST ID #1100	43.99
13649	OVERDRIVE INC	EMATERIALS CUST ID #1100	43.99
13649	OVERDRIVE INC	EMATERIALS CUST ID #1100	500.13
15945	PAUL T. LITTLE	REIMBURSE HSA GRANT	4,000.00
5898	PIONEER SAND COMPANY INC	3"-6" Hyland VTC Rip-Rap	664.99
11329	POLYDYNE INC	WWTP Polymer	11,569.23
14982	POR WINE HOUSE LLC	BAG TAX FUNDED PROGRAM	1,000.00
13317	POTESTIO BROTHERS EQUIPMENT	ACCT #19374 PARKS-EQUIPM	689.85
14160	PRECISE MRM LLC	CUST #679650 OCT 2024	380.00
15865	PUBLICATION PRINTERS CORP	Winter 2024 Rec Center c	3,566.70
13549	PUSH PEDAL PULL INC	ACCT #0002335 PREV MAINT	2,115.00
14844	REPUBLIC SERVICES INC #535	ACCT #3-0535-9535390	161,263.74
670	RESOURCE CENTRAL	AUG 2024 Water Conservati	6,299.13
14804	RESPEC COMPANY LLC	2024 Stormwater Master Pl	9,573.75
14297	ROCKFAN ENTERTAINMENT	Logitech bundles for Zoom	4,004.29
15714	ROSALIE OLSON	ADV BEG SPANISH 10/30/24	420.00
15154	RULE4 INC	Cybersecurity Incident Re	1,535.52
14560	SAMEDAY OFFICE SUPPLY	ACCT #A12877 TEAM BUILDI	376.71

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CASH ACCOUNT: 001000 101001

WARRANT: 121724 12/17/2024

VENDOR	VENDOR NAME	PURPOSE	AMOUNT
14560	SAMEDAY OFFICE SUPPLY	BASE,SIT,STAND	2,125.00
14341	SCULPTURE SERVICES OF COLORADO	CLEANING FOR SCULPTURES	1,415.00
15594	SIMPLER SYSTEMS, INC	NOV 2024 Consult Services	1,000.00
14818	SITEONE LANDSCAPE SUPPLY LLC	CUST #290129 HORTICULTUR	82.25
13059	SPRAGUE PEST SOLUTIONS	11/7/24 WATER TRMT S WT	99.83
13059	SPRAGUE PEST SOLUTIONS	11/7/24 WATER TRMT N WT	82.50
13059	SPRAGUE PEST SOLUTIONS	11/7/24 REC/SENIOR CENTE	105.00
13059	SPRAGUE PEST SOLUTIONS	11/7/24 POLICE DEPT	75.00
13059	SPRAGUE PEST SOLUTIONS	11/7/24 CITY HALL	82.50
13059	SPRAGUE PEST SOLUTIONS	11/1/24 MUSEUM	75.00
13059	SPRAGUE PEST SOLUTIONS	11/1/24 ART CENTER	75.00
13059	SPRAGUE PEST SOLUTIONS	11/14/24 CITY SERVICES	145.00
13059	SPRAGUE PEST SOLUTIONS	11/7/24 WASTE WATER TRMT	82.50
13059	SPRAGUE PEST SOLUTIONS	11/7/24 LIBRARY	75.00
13059	SPRAGUE PEST SOLUTIONS	11/12/24 COAL CREEK GOLF	92.00
11026	STANLEY ACCESS TECHNOLOGIES LL	ACCT #0010592535 LRC FRO	255.50
14244	SUNICE USA INC	CUST #A3662 WOMEN JANIE	64.24
14701	SUPERIOR CHAMBER OF COMMERCE	CHAMBERS MEMBERSHIP	325.00
15627	THE LOUISVILLE HISTORY FOUNDAT	REIMB FOR SHELIVING & OFFS	177.07
15625	TOP GOLF USA, INC.	Software Subscription Mai	4,200.00
4765	UNCC	NOV 2024 TRANSMISSIONS &	1,633.14
10351	US BANK	ACCT #205234000 0412 PA	363.00
10351	US BANK	ACCT #211970000 04120 P	7,865.00
14690	VELOCITY CONSTRUCTORS INC	NOV 2024 SCWTP Filter Med	139,327.95
4900	VRANESH AND RAISCH LLP	OCT 2024 WINDY GAP	427.50
15832	WAAS CAMPBELL RIVERA JOHNSON &	LEGAL SERVICES 10/29/24 R	406.00
11053	WATER TECHNOLOGY GROUP	CTC Lift Station Repairs	12,934.00
11053	WATER TECHNOLOGY GROUP	CUST ID #400328 COGENT F	2,455.73
13985	WESTERN STATES FIRE PROTECTION	ANNUAL CLEAN AGENT INSP	1,778.00
13790	ZAYO GROUP LLC	ACCT #018253 DEC 2024	3,935.00

CASH ACCOUNT: 001000 101001		WARRANT: 121724	12/17/2024
VENDOR	VENDOR NAME	PURPOSE	AMOUNT
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190 INVOICES		WARRANT TOTAL	1,327,420.59
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CITY OF LOUISVILLE					
PURCHASE CARD SUMMARY					
STATEMENT PERIOD 10/21/24 - 11/20/24					
SUPPLIER	SUPPLIER LOCATION	CARDHOLDER	DEPARTMENT	TRANS DATE	AMOUNT
200107-621 17TH ST.-PA	DENVER	HANNAH MILLER	CITY MANAGER	11/19/2024	18.00
2024 BOULDER VALLEY RE	FORT COLLINS	LIGEA FERRARO	CITY MANAGER	11/19/2024	85.00
2024 BOULDER VALLEY RE	FORT COLLINS	LIGEA FERRARO	CITY MANAGER	10/22/2024	85.00
21ST CENTURY - 43 - LO	LONGMONT	DAVID DEAN	GOLF COURSE	11/18/2024	2,185.02
4 ALL PROMOS	ESSEX	SCOTT MOORE	POLICE	11/14/2024	624.10
5.11, INC.	8664511726	SARA PECK	POLICE	11/02/2024	152.54
7SHIFTS	WILMINGTON	DAVID BARIL	GOLF COURSE	11/12/2024	76.99
ACCO BRANDS DIRECT	LAKE ZURICH	MINDY OLKJER	PUBLIC WORKS	10/22/2024	44.71
ADOBE *ADOBE	4085366000	KURT KOWAR	PUBLIC WORKS	11/08/2024	31.12
ADOBE *ADOBE	4085366000	DEREK COSSON	CITY MANAGER	11/01/2024	79.99
AEDLAND.COM	RICEVILLE	KEVIN FREY	FACILITIES	10/21/2024	494.00
AFP*DAMA - ROCKY MOUNT	GREENWOOD VIL	AILEEN PROFIR	IT	10/22/2024	59.00
AFP*LIBRARY MARKETING	DALLAS	ERIN OWEN	LIBRARY	11/20/2024	39.00
ALLDATA	800-859-3282	MASON THOMPSON	OPERATIONS	11/02/2024	125.00
ALLIANCE SAFETY - MOTO	AURORA	CATHERINE JEPSON	PARKS	11/19/2024	669.00
ALLIANCE SAFETY - MOTO	AURORA	CATHERINE JEPSON	PARKS	11/19/2024	75.64
AMAZON MARK* 0728D09Z3	SEATTLE	BENJAMIN FRANCISCO	OPERATIONS	11/01/2024	65.38
AMAZON MARK* 0T83P5W53	SEATTLE	JILL SIEWERT	LIBRARY	10/23/2024	10.98
AMAZON MARK* 374HK2L83	SEATTLE	PATRICIA MORGAN	REC CENTER	11/08/2024	35.78
AMAZON MARK* 3B2VB66E3	SEATTLE	TREVOR DEPEW	WATER	10/25/2024	44.97
AMAZON MARK* 3V1NA0Y83	SEATTLE	BENJAMIN FRANCISCO	OPERATIONS	10/29/2024	7.98
AMAZON MARK* 428FM6P93	SEATTLE	LOGAN JOHNSON	CITY MANAGER	11/19/2024	199.98
AMAZON MARK* 516HR94Z3	SEATTLE	KEVIN FREY	FACILITIES	11/01/2024	39.99
AMAZON MARK* 5D4F47SE3	SEATTLE	KEVIN FREY	FACILITIES	11/04/2024	97.28
AMAZON MARK* 5U6JB6NQ3	SEATTLE	TREVOR DEPEW	WATER	10/29/2024	40.48
AMAZON MARK* 673BY6083	SEATTLE	TREVOR DEPEW	WATER	11/02/2024	55.96
AMAZON MARK* 6C36953I3	SEATTLE	BENJAMIN FRANCISCO	OPERATIONS	11/01/2024	27.99
AMAZON MARK* 7Z02Z9I83	SEATTLE	KEVIN FREY	FACILITIES	10/30/2024	119.97
AMAZON MARK* AL6T803W3	SEATTLE	TREVOR DEPEW	WATER	11/02/2024	64.35
AMAZON MARK* BB11Q3RE3	SEATTLE	MASON THOMPSON	OPERATIONS	11/12/2024	49.97
AMAZON MARK* BP0TN0SL3	SEATTLE	LOGAN JOHNSON	CITY MANAGER	11/18/2024	199.98
AMAZON MARK* CO8K29XE3	SEATTLE	KEVIN FREY	FACILITIES	10/30/2024	24.99
AMAZON MARK* DN0FW49W3	SEATTLE	JEFF OWENS	WATER	11/13/2024	89.99
AMAZON MARK* DO18011D3	SEATTLE	PATRICIA MORGAN	REC CENTER	11/07/2024	204.86
AMAZON MARK* F021B9YD3	SEATTLE	KEVIN FREY	FACILITIES	10/30/2024	116.99
AMAZON MARK* FE8ZF5AK3	SEATTLE	KEVIN FREY	FACILITIES	10/25/2024	573.25
AMAZON MARK* FN90O4RF3	SEATTLE	TREVOR DEPEW	WATER	10/25/2024	96.00

AMAZON MARK* FV39J3XR3	SEATTLE	MELISSA TRACY	PUBLIC WORKS	11/10/2024	237.93
AMAZON MARK* J28266G53	SEATTLE	LOGAN JOHNSON	CITY MANAGER	11/16/2024	699.93
AMAZON MARK* JG1811PF3	SEATTLE	TREVOR DEPEW	WATER	10/23/2024	23.99
AMAZON MARK* KC9KY90T3	SEATTLE	IRIS BELENSKY	LIBRARY	11/01/2024	99.56
AMAZON MARK* KT0C89SC3	SEATTLE	JULIE SEYDEL	REC CENTER	11/14/2024	319.32
AMAZON MARK* L43YW8873	SEATTLE	JILL SIEWERT	LIBRARY	10/27/2024	295.73
AMAZON MARK* M752Z55W3	SEATTLE	JESSE DEGRAW	REC CENTER	11/15/2024	59.97
AMAZON MARK* ML4BI3A53	SEATTLE	MELISSA TRACY	PUBLIC WORKS	10/28/2024	30.73
AMAZON MARK* ON8X00LC3	SEATTLE	BENJAMIN FRANCISCO	OPERATIONS	11/18/2024	474.88
AMAZON MARK* OY30P4N03	SEATTLE	TREVOR DEPEW	WATER	10/23/2024	90.56
AMAZON MARK* QA1IM3YO3	SEATTLE	JULIE SEYDEL	REC CENTER	11/15/2024	589.26
AMAZON MARK* QC8MY07K3	SEATTLE	LOGAN JOHNSON	CITY MANAGER	11/12/2024	228.60
AMAZON MARK* QV6R02F23	SEATTLE	SARA PECK	POLICE	10/25/2024	29.58
AMAZON MARK* RQ7EM9K13	SEATTLE	DAVE TOVEY	IT	11/06/2024	31.94
AMAZON MARK* SW7M33N63	SEATTLE	KEVIN FREY	FACILITIES	11/16/2024	47.95
AMAZON MARK* UY9KO3UL3	SEATTLE	GABBY MURATTI	PLANNING	10/29/2024	27.49
AMAZON MARK* VY8ZQ2KP3	SEATTLE	HANNAH MILLER	CITY MANAGER	11/10/2024	58.51
AMAZON MARK* XV3CD5QE3	SEATTLE	TREVOR DEPEW	WATER	10/29/2024	8.57
AMAZON MARK* ZH8YO1LA2	SEATTLE	BENJAMIN FRANCISCO	OPERATIONS	11/04/2024	13.99
AMAZON MARK* ZO8SY1HY2	SEATTLE	AILEEN PROFIR	IT	11/19/2024	12.35
AMAZON MKTPL*0D5UC71N3	AMZN.COM/BILL	DANIEL WOOLDRIDGE		11/10/2024	231.95
AMAZON MKTPL*0M2EO5IQ3	AMZN.COM/BILL	TANNER THORSON	WASTEWATER	11/13/2024	149.00
AMAZON MKTPL*1L6U05RQ3	AMZN.COM/BILL	MATTHEW RILEY	IT	11/12/2024	79.98
AMAZON MKTPL*3N8NY6HV3	AMZN.COM/BILL	MATTHEW RILEY	IT	11/13/2024	295.00
AMAZON MKTPL*3Q0G990G3	AMZN.COM/BILL	JILL SIEWERT	LIBRARY	11/07/2024	25.58
AMAZON MKTPL*4B0E123V3	AMZN.COM/BILL	ABBY MCNEAL	PARKS	11/18/2024	107.98
AMAZON MKTPL*4D1MO2PM3	AMZN.COM/BILL	NICK PROSSER	IT	11/05/2024	57.90
AMAZON MKTPL*5P7O69QU3	AMZN.COM/BILL	GREG VENETTE	WATER	10/21/2024	65.99
AMAZON MKTPL*5T5T39233	AMZN.COM/BILL	PATRICIA MORGAN	REC CENTER	11/16/2024	41.98
AMAZON MKTPL*5U9SX78F3	AMZN.COM/BILL	MATTHEW RILEY	IT	10/31/2024	240.00
AMAZON MKTPL*6O7NW21O3	AMZN.COM/BILL	KELLY THARP	OPERATIONS	11/03/2024	25.97
AMAZON MKTPL*6Y7405D43	AMZN.COM/BILL	LINDSEY WITTY	REC CENTER	10/25/2024	27.99
AMAZON MKTPL*7Q3TN7AI3	AMZN.COM/BILL	AMANDA PERERA	REC CENTER	11/05/2024	57.98
AMAZON MKTPL*851852WD3	AMZN.COM/BILL	LINDSEY WITTY	REC CENTER	10/22/2024	35.17
AMAZON MKTPL*8F4JM0Y33	AMZN.COM/BILL	LINDSEY WITTY	REC CENTER	11/08/2024	110.53
AMAZON MKTPL*8P7R351T3	AMZN.COM/BILL	GIGI YANG	LIBRARY	10/24/2024	30.88
AMAZON MKTPL*9G1GG2XB3	AMZN.COM/BILL	MINDY OLKJER	PUBLIC WORKS	11/20/2024	10.99
AMAZON MKTPL*9K90N9WE3	AMZN.COM/BILL	NICHOLAS POTOPCHUK	PARKS	10/22/2024	18.99
AMAZON MKTPL*A45FA1BO3	AMZN.COM/BILL	TANNER THORSON	WASTEWATER	10/22/2024	19.66
AMAZON MKTPL*CJ8IN1O93	AMZN.COM/BILL	DANIEL WOOLDRIDGE		11/13/2024	696.00
AMAZON MKTPL*DT2H44R33	AMZN.COM/BILL	KEVIN FREY	FACILITIES	10/28/2024	49.49
AMAZON MKTPL*E90DL1E83	AMZN.COM/BILL	NICHOLAS POTOPCHUK	PARKS	10/29/2024	24.99

AMAZON MKTPL*ED0C66QU3	AMZN.COM/BILL	KEVIN FREY	FACILITIES	10/23/2024	166.31
AMAZON MKTPL*EO7P06BS3	AMZN.COM/BILL	TANNER THORSON	WASTEWATER	11/07/2024	19.94
AMAZON MKTPL*GA4QW6U93	AMZN.COM/BILL	KRISTEN BODINE	LIBRARY	11/02/2024	102.08
AMAZON MKTPL*GY10I9P43	AMZN.COM/BILL	LINDSEY WITTY	REC CENTER	11/03/2024	114.86
AMAZON MKTPL*HW6B563V3	AMZN.COM/BILL	TANNER THORSON	WASTEWATER	11/07/2024	503.31
AMAZON MKTPL*J14ZT9473	AMZN.COM/BILL	MATTHEW RILEY	IT	10/25/2024	170.05
AMAZON MKTPL*JA0JH5C43	AMZN.COM/BILL	MATTHEW RILEY	IT	11/10/2024	84.00
AMAZON MKTPL*JP7B19TJ3	AMZN.COM/BILL	GIGI YANG	LIBRARY	10/31/2024	11.99
AMAZON MKTPL*JU38I3AV3	AMZN.COM/BILL	SARA PECK	POLICE	10/29/2024	7.84
AMAZON MKTPL*K727K3DH3	AMZN.COM/BILL	GERALD PIERCE	GOLF COURSE	11/04/2024	74.65
AMAZON MKTPL*KX66H4CW3	AMZN.COM/BILL	LESLIE RINGER	HUMAN RESOURCES	11/16/2024	180.65
AMAZON MKTPL*LC51O4LZ3	AMZN.COM/BILL	TANYA SCOTT	FINANCE	11/11/2024	134.75
AMAZON MKTPL*LP3FA8SZ3	AMZN.COM/BILL	DANIEL WOOLDRIDGE		11/10/2024	126.00
AMAZON MKTPL*MF00F8L53	AMZN.COM/BILL	BILL VALENCIA	WASTEWATER	11/19/2024	32.47
AMAZON MKTPL*MQ4IF0Z73	AMZN.COM/BILL	JILL SIEWERT	LIBRARY	11/10/2024	60.82
AMAZON MKTPL*NA7QO93F3	AMZN.COM/BILL	ABBY MCNEAL	PARKS	10/30/2024	126.64
AMAZON MKTPL*NI6LD9853	AMZN.COM/BILL	JILL SIEWERT	LIBRARY	11/11/2024	67.90
AMAZON MKTPL*NS2O59EE3	AMZN.COM/BILL	SARA PECK	POLICE	10/30/2024	13.96
AMAZON MKTPL*PT6QW9W13	AMZN.COM/BILL	LINDSEY WITTY	REC CENTER	11/19/2024	588.67
AMAZON MKTPL*T787F88Y3	AMZN.COM/BILL	LINDSEY WITTY	REC CENTER	11/07/2024	45.61
AMAZON MKTPL*TN4ZZ5Z23	AMZN.COM/BILL	JILL SIEWERT	LIBRARY	10/29/2024	181.95
AMAZON MKTPL*TQ1BN5293	AMZN.COM/BILL	LINDSEY WITTY	REC CENTER	11/14/2024	161.95
AMAZON MKTPL*VJ37X68E3	AMZN.COM/BILL	TREVOR DEPEW	WATER	10/23/2024	30.76
AMAZON MKTPL*W03CO2IS3	AMZN.COM/BILL	NICHOLAS POTOPCHUK	PARKS	10/25/2024	22.99
AMAZON MKTPL*W15LR3I53	AMZN.COM/BILL	NICHOLAS POTOPCHUK	PARKS	10/23/2024	25.99
AMAZON MKTPL*XZ5JO04F3	AMZN.COM/BILL	ABBY MCNEAL	PARKS	11/14/2024	15.47
AMAZON MKTPL*Z06901TY3	AMZN.COM/BILL	TANNER THORSON	WASTEWATER	10/26/2024	33.71
AMAZON MKTPL*ZD51L0TP3	AMZN.COM/BILL	JILL SIEWERT	LIBRARY	11/19/2024	4.98
AMAZON MKTPL*ZG3RN06F3	AMZN.COM/BILL	JILL SIEWERT	LIBRARY	11/13/2024	201.59
AMAZON MKTPLACE PMTS	AMZN.COM/BILL	LINDSEY WITTY	REC CENTER	11/08/2024	27.99
AMAZON RETA* 1Q4MB4RF3	SEATTLE	GENEVIEVE KLINE	CITY CLERK	11/05/2024	99.99
AMAZON RETA* 2B8MO3MR3	SEATTLE	JILL SIEWERT	LIBRARY	10/22/2024	40.76
AMAZON RETA* 2N03232P3	SEATTLE	PATRICIA MORGAN	REC CENTER	11/15/2024	142.34
AMAZON RETA* 6S6A96DP3	SEATTLE	GENEVIEVE KLINE	CITY CLERK	10/30/2024	17.94
AMAZON RETA* 784Y28A93	SEATTLE	JULIE SEYDEL	REC CENTER	11/02/2024	256.71
AMAZON RETA* 8B8536BJ3	SEATTLE	JILL SIEWERT	LIBRARY	11/17/2024	33.52
AMAZON RETA* A81J62023	SEATTLE	JILL SIEWERT	LIBRARY	11/17/2024	19.98
AMAZON RETA* AV5DS6H13	SEATTLE	PAUL BORTH	REC CENTER	11/14/2024	69.99
AMAZON RETA* B08V432G3	SEATTLE	JULIE SEYDEL	REC CENTER	11/05/2024	22.42
AMAZON RETA* D486T4L53	SEATTLE	TREVOR DEPEW	WATER	10/28/2024	11.49
AMAZON RETA* JF1Z15XP3	SEATTLE	SARA PECK	POLICE	10/24/2024	92.42
AMAZON RETA* JF2326MI3	SEATTLE	MEREDYTH MUTH	CITY MANAGER	11/04/2024	54.90

AMAZON RETA* JF8FI8MD3	SEATTLE	BILL VALENCIA	WASTEWATER	10/29/2024	29.10
AMAZON RETA* M24442BU3	SEATTLE	JESSE DEGRAW	REC CENTER	11/15/2024	33.64
AMAZON RETA* MJ57K9NH3	SEATTLE	JILL SIEWERT	LIBRARY	11/18/2024	16.57
AMAZON RETA* NE3R33XO3	SEATTLE	JULIE SEYDEL	REC CENTER	11/14/2024	70.80
AMAZON RETA* Q06MW4963	SEATTLE	AILEEN PROFIR	IT	11/01/2024	94.30
AMAZON RETA* RM8JI3QR3	SEATTLE	KATIE BEASLEY	REC CENTER	10/24/2024	11.68
AMAZON RETA* T281F73W3	SEATTLE	JILL SIEWERT	LIBRARY	11/20/2024	10.98
AMAZON RETA* V77E43X53	SEATTLE	JULIE SEYDEL	REC CENTER	11/02/2024	303.78
AMAZON RETA* ZU32F4UF3	SEATTLE	JILL SIEWERT	LIBRARY	10/23/2024	40.89
AMERICAN AED LLC	MIRAMAR	KEVIN FREY	FACILITIES	11/15/2024	1,414.00
AMERICAN RED CROSS	800-733-2767	NICK PAPPAS	REC CENTER	10/24/2024	114.00
AMERLIBASSOC ECOMMERCE	866-746-7252	PEGGY NORRIS	LIBRARY	11/01/2024	210.00
AMZN MKTP US	AMZN.COM/BILL	LINDSEY WITTY	REC CENTER	11/15/2024	6.12
AMZN MKTP US	AMZN.COM/BILL	JILL SIEWERT	LIBRARY	10/29/2024	29.12
AMZN MKTP US*0S1ZA8423	AMZN.COM/BILL	TANNER THORSON	WASTEWATER	11/13/2024	67.35
AMZN MKTP US*2H8S7YF3	AMZN.COM/BILL	SARA PECK	POLICE	10/24/2024	15.80
AMZN MKTP US*4B0PE02Y3	AMZN.COM/BILL	GENEVIEVE KLINE	CITY CLERK	10/29/2024	76.46
AMZN MKTP US*5G2757YQ3	AMZN.COM/BILL	PATRICIA MORGAN	REC CENTER	11/06/2024	92.58
AMZN MKTP US*B71SL83M3	AMZN.COM/BILL	LINDSEY WITTY	REC CENTER	11/06/2024	15.48
AMZN MKTP US*E635L8E13	AMZN.COM/BILL	JULIE SEYDEL	REC CENTER	11/14/2024	18.14
AMZN MKTP US*EU0QE8IL3	AMZN.COM/BILL	TANNER THORSON	WASTEWATER	11/06/2024	54.95
AMZN MKTP US*F69S08P53	AMZN.COM/BILL	JILL SIEWERT	LIBRARY	11/19/2024	50.90
AMZN MKTP US*JF8H51Q73	AMZN.COM/BILL	KEVIN FREY	FACILITIES	11/05/2024	85.10
AMZN MKTP US*JY8I100B3	AMZN.COM/BILL	GENEVIEVE KLINE	CITY CLERK	10/22/2024	12.50
AMZN MKTP US*K870T82H3	AMZN.COM/BILL	PATRICIA MORGAN	REC CENTER	11/15/2024	84.18
AMZN MKTP US*KW0X09W53	AMZN.COM/BILL	LINDSEY WITTY	REC CENTER	11/07/2024	11.92
AMZN MKTP US*MN50F1ED3	AMZN.COM/BILL	TREVOR DEPEW	WATER	10/23/2024	14.40
AMZN MKTP US*N98PB5RC3	AMZN.COM/BILL	TREVOR DEPEW	WATER	10/22/2024	37.99
AMZN MKTP US*O16O22J73	AMZN.COM/BILL	JILL SIEWERT	LIBRARY	11/08/2024	40.87
AMZN MKTP US*O32GG64K3	AMZN.COM/BILL	TANNER THORSON	WASTEWATER	11/07/2024	18.74
AMZN MKTP US*O74GC93O3	AMZN.COM/BILL	JILL SIEWERT	LIBRARY	11/04/2024	21.19
AMZN MKTP US*QL24781C3	AMZN.COM/BILL	KELLY THARP	OPERATIONS	10/24/2024	55.40
AMZN MKTP US*S56XD9XD3	AMZN.COM/BILL	GIGI YANG	LIBRARY	10/21/2024	19.99
AMZN MKTP US*SJ0N93763	AMZN.COM/BILL	PATRICIA MORGAN	REC CENTER	11/15/2024	29.99
AMZN MKTP US*UK1FC2HQ3	AMZN.COM/BILL	KEVIN FREY	FACILITIES	11/08/2024	184.29
AMZN MKTP US*U07NL27K3	AMZN.COM/BILL	GERALD PIERCE	GOLF COURSE	11/01/2024	46.16
AMZN MKTP US*UQ0QU4AM3	AMZN.COM/BILL	KEVIN FREY	FACILITIES	10/23/2024	48.42
AMZN MKTP US*VV7HU9BI3	AMZN.COM/BILL	KEVIN FREY	FACILITIES	11/05/2024	82.47
AMZN MKTP US*WO4001BI3	AMZN.COM/BILL	LINDSEY WITTY	REC CENTER	11/07/2024	6.12
AMZN MKTP US*XD45B5XN3	AMZN.COM/BILL	JESSE DEGRAW	REC CENTER	10/31/2024	148.45
AMZN MKTP US*XH2FM6AJ3	AMZN.COM/BILL	CATHERINE JEPSON	PARKS	11/18/2024	599.98
AMZN MKTP US*YT7QS2483	AMZN.COM/BILL	KELLY THARP	OPERATIONS	10/23/2024	17.14

ARROWSTAGELINES.COM	OMAHA	KATIE BEASLEY	REC CENTER	11/13/2024	1,589.00
ARROWSTAGELINES.COM	OMAHA	KATIE BEASLEY	REC CENTER	10/29/2024	1,647.00
ARROWSTAGELINES.COM	OMAHA	KATIE BEASLEY	REC CENTER	10/28/2024	1,845.00
ARROWSTAGELINES.COM	OMAHA	KATIE BEASLEY	REC CENTER	10/28/2024	1,247.00
ATLANTIS CASINO RESORT	RENO	KURT KOWAR	PUBLIC WORKS	10/25/2024	1,212.58
AVIS RENT A CAR	MANCHESTER	JULIE SEYDEL	REC CENTER	10/25/2024	475.13
AZUL FUEGO MEXICAN RES	LOUISVILLE	MICHELLE CLINGAN	HUMAN RESOURCES	11/12/2024	154.25
AMAZON.COM*1R5VH7GZ3	AMZN.COM/BILL	JILL SIEWERT	LIBRARY	11/03/2024	17.95
AMAZON.COM*2L45E3QQ3	AMZN.COM/BILL	GENEVIEVE KLINE	CITY CLERK	10/22/2024	60.83
AMAZON.COM*399NG2VY3	AMZN.COM/BILL	TANNER THORSON	WASTEWATER	11/07/2024	149.99
AMAZON.COM*7K0M50WU3	AMZN.COM/BILL	JILL SIEWERT	LIBRARY	11/07/2024	89.88
AMAZON.COM*7Z2EB09L3	AMZN.COM/BILL	PATRICIA MORGAN	REC CENTER	10/29/2024	23.88
AMAZON.COM*8J9QT9IK3	AMZN.COM/BILL	TANNER THORSON	WASTEWATER	10/24/2024	399.96
AMAZON.COM*9D1154143	AMZN.COM/BILL	JILL SIEWERT	LIBRARY	11/05/2024	9.09
AMAZON.COM*9M6I247Q3	AMZN.COM/BILL	TANNER THORSON	WASTEWATER	11/07/2024	129.99
AMAZON.COM*BS87F31Z3	AMZN.COM/BILL	AMANDA PERERA	REC CENTER	11/05/2024	149.00
AMAZON.COM*CG77L3HN3	AMZN.COM/BILL	LINDSEY WITTY	REC CENTER	11/02/2024	29.49
AMAZON.COM*CX5734T33	AMZN.COM/BILL	PAUL BORTH	REC CENTER	10/25/2024	7.39
AMAZON.COM*D43DF5VU3	AMZN.COM/BILL	KELLY THARP	OPERATIONS	10/23/2024	88.17
AMAZON.COM*DG36X9PS3	AMZN.COM/BILL	GENEVIEVE KLINE	CITY CLERK	10/22/2024	11.28
AMAZON.COM*E19045XJ3	AMZN.COM/BILL	JILL SIEWERT	LIBRARY	11/14/2024	71.80
AMAZON.COM*E51YP2GL3	AMZN.COM/BILL	KIANA FREEMAN	CITY MANAGER	10/30/2024	39.95
AMAZON.COM*EF3780GC3	AMZN.COM/BILL	KELLY THARP	OPERATIONS	10/23/2024	61.50
AMAZON.COM*I84SV0DY3	AMZN.COM/BILL	JILL SIEWERT	LIBRARY	10/27/2024	13.98
AMAZON.COM*IC1OC35I3	AMZN.COM/BILL	JILL SIEWERT	LIBRARY	11/17/2024	98.08
AMAZON.COM*IH6ZT2MC3	AMZN.COM/BILL	JILL SIEWERT	LIBRARY	10/28/2024	14.98
AMAZON.COM*J95PB5GG3	AMZN.COM/BILL	TANNER THORSON	WASTEWATER	11/14/2024	249.99
AMAZON.COM*JT61Y0IJ3	AMZN.COM/BILL	LINDSEY WITTY	REC CENTER	11/05/2024	397.60
AMAZON.COM*KM2BR6CM3	AMZN.COM/BILL	GREG VENETTE	WATER	11/05/2024	19.99
AMAZON.COM*LT2RF3IF3	AMZN.COM/BILL	LIGEA FERRARO	CITY MANAGER	11/13/2024	28.99
AMAZON.COM*NA0JX91K3	AMZN.COM/BILL	PATRICIA MORGAN	REC CENTER	10/29/2024	71.59
AMAZON.COM*QJ0YJ9593	AMZN.COM/BILL	JILL SIEWERT	LIBRARY	11/03/2024	21.82
AMAZON.COM*QK5NR8IY3	AMZN.COM/BILL	SARA PECK	POLICE	11/07/2024	26.90
AMAZON.COM*S89K24G73	AMZN.COM/BILL	GREG VENETTE	WATER	11/03/2024	89.98
AMAZON.COM*SH51516T3	AMZN.COM/BILL	TANNER THORSON	WASTEWATER	10/24/2024	36.49
AMAZON.COM*XG6MO2X33	AMZN.COM/BILL	KRISTEN BODINE	LIBRARY	11/18/2024	15.49
AMAZON.COM*XX2LM6CX3	AMZN.COM/BILL	KELLY THARP	OPERATIONS	11/02/2024	16.79
AMAZON.COM*Y65NZ8KM3	AMZN.COM/BILL	TANNER THORSON	WASTEWATER	11/12/2024	67.67
ARVADA CENTER	ARVADA	KATHY MARTIN	REC CENTER	10/22/2024	530.00
B&H PHOTO 800-606-6969	NEW YORK	GRACE JOHNSON	CITY MANAGER	10/31/2024	171.47
B&H PHOTO 800-606-6969	NEW YORK	DANIEL WOOLDRIDGE		10/28/2024	298.79
BATTERIES+BULBS #0777	LAFAYETTE	DANIEL SALAS ROBLES	PARKS	11/04/2024	43.98

BATTERYSHARKS.COM	8006571303	MATTHEW RILEY	IT	10/28/2024	44.63
BEAVER RUN RESORT	BRECKENRIDGE	DAVE TOVEY	IT	11/15/2024	242.46
BEAVER RUN RESORT	BRECKENRIDGE	MATTHEW RILEY	IT	11/15/2024	277.01
BEAVER RUN RESORT	BRECKENRIDGE	AILEEN PROFIR	IT	11/15/2024	231.79
BEAVER RUN RESORT	BRECKENRIDGE	PAULINA BENNETT	IT	11/15/2024	230.26
BEST BUY 00002097	WESTMINSTER	KURT KOWAR	PUBLIC WORKS	11/07/2024	811.55
BESTBUYCOM806982879270	888BESTBUY	JILL SIEWERT	LIBRARY	11/05/2024	499.00
BIZWEST-DIGITAL	GREELEY	ROBERT ZUCCARO	PLANNING	11/12/2024	11.00
BLACKJACK PIZZA - CO 0	LOUISVILLE	KELLY THARP	OPERATIONS	10/25/2024	123.44
BLACKJACK PIZZA - CO 0	LOUISVILLE	MEREDYTH MUTH	CITY MANAGER	10/21/2024	101.44
BLISSCOMPUT	2013300477	DAVE TOVEY	IT	10/30/2024	270.00
BOSS PRINTING	BROOMFIELD	ROBERT ZUCCARO	PLANNING	11/02/2024	23.52
BOSS PRINTING	BROOMFIELD	ROBERT ZUCCARO	PLANNING	10/23/2024	71.54
BOSTON HARBOR HOTEL	BOSTON	TANYA SCOTT	FINANCE	10/23/2024	615.68
BOSTON HARBOR HOTEL	BOSTON	TANYA SCOTT	FINANCE	10/23/2024	2,325.00
BSN SPORTS LLC	FARMERS BRANC	LINDSEY WITTY	REC CENTER	11/02/2024	861.30
CASTA	DENVER	ROBERT ZUCCARO	PLANNING	10/21/2024	15.00
CENTER COPY PRINTING	303-4406000	IRIS BELENSKY	LIBRARY	11/07/2024	50.66
CENTER COPY PRINTING	303-4406000	DAVID BARIL	GOLF COURSE	11/07/2024	62.28
CENTER COPY PRINTING	303-4406000	TANYA SCOTT	FINANCE	10/21/2024	192.90
CENTURYLINK LUMEN	800-244-1111	TANYA SCOTT	FINANCE	10/28/2024	1,047.36
CEUS OTG	8136796745	CHRIS LICHTY	PARKS	11/05/2024	25.00
CHERRY CREEK 5940	DENVER	JEFF OWENS	WATER	11/11/2024	12.00
CHILDHEALTHCONNECTION	FORT COLLINS	AMANDA PERERA	REC CENTER	11/19/2024	80.00
CHIPOTLE 0114	LOUISVILLE	HUGO VALDEZ	OPERATIONS	10/24/2024	23.45
CHIPOTLE ONLINE	CHIPOTLE.COM	VANESSA ZARATE	PLANNING	11/04/2024	544.16
CLUBCONNECT	9136615569	LINDSEY WITTY	REC CENTER	11/01/2024	149.00
CO PARK* CO	WHEAT RIDGE	PATRICIA MORGAN	REC CENTER	11/07/2024	55.00
CO PARK* CO	WHEAT RIDGE	KATIE TOFTE	REC CENTER	10/21/2024	90.00
COAL CREEK ACE HARDWAR	LOUISVILLE	BRENDON MEILI	PARKS	11/06/2024	16.99
COAL CREEK ACE HARDWAR	LOUISVILLE	BILL VALENCIA	WASTEWATER	10/29/2024	29.46
COLONIALCOFFEE.COM	MIAMI	SARA PECK	POLICE	11/06/2024	119.99
COLORADO ANALYTICAL	COMMERCE CITY	MELISSA TRACY	PUBLIC WORKS	11/04/2024	240.00
COLORADO ANALYTICAL	COMMERCE CITY	MELISSA TRACY	PUBLIC WORKS	10/30/2024	436.51
COLORADO ASSOCIATION O	720-6747275	JEFF FISHER	POLICE	10/21/2024	250.00
COLORADO CWP	719-5456748	KEN MATHEWS	OPERATIONS	11/19/2024	85.00
COLORADO CWP	719-5456748	VINCENT WRAY	WATER	11/18/2024	50.00
COLORADO CWP	719-5456748	TANNER THORSON	WASTEWATER	11/15/2024	50.00
COLORADO CWP	719-5456748	HUGO VALDEZ	OPERATIONS	11/05/2024	50.00
COLORADO CWP	719-5456748	TREVOR DEPEW	WATER	11/05/2024	85.00
COLORADO CWP	719-5456748	JEFF OWENS	WATER	11/01/2024	50.00
COLORADO CWP	719-5456748	BILL VALENCIA	WASTEWATER	10/31/2024	50.00

COLORADOCHAPTERICC.ORG	ARVADA	CHAD ROOT	BUILDING SAFETY	11/19/2024	93.06
COMCAST CABLE COMM	800-COMCAST	SHARON NEMECHEK	LIBRARY	11/13/2024	111.95
COMCAST CABLE COMM	800-COMCAST	RAFAEL GUTIERREZ	POLICE	11/13/2024	49.95
COMCAST CABLE COMM	800-COMCAST	LESLIE RINGER	HUMAN RESOURCES	11/07/2024	455.90
COMCAST CABLE COMM	800-COMCAST	MARLA OLSON	PARKS	10/28/2024	458.63
COMCAST DENVER	800-266-2278	PAMELA PETERSON-HOHS	GOLF COURSE	11/15/2024	115.00
COMCAST DENVER	800-266-2278	JILL SIEWERT	LIBRARY	11/14/2024	129.89
COMMUTINGSOLUTIONS.ORG	LOUISVILLE	LIGEA FERRARO	CITY MANAGER	11/19/2024	80.00
COMMUTINGSOLUTIONS.ORG	LOUISVILLE	LIGEA FERRARO	CITY MANAGER	11/13/2024	80.00
COMMUTINGSOLUTIONS.ORG	LOUISVILLE	LIGEA FERRARO	CITY MANAGER	11/12/2024	80.00
COMMUTINGSOLUTIONS.ORG	LOUISVILLE	LIGEA FERRARO	CITY MANAGER	11/12/2024	80.00
COMMUTINGSOLUTIONS.ORG	LOUISVILLE	LIGEA FERRARO	CITY MANAGER	10/29/2024	80.00
CONTINENTAL CLEANERS L	LOUISVILLE	SARA PECK	POLICE	10/25/2024	25.48
COSMOS PIZZA - LAFAYET	LAFAYETTE	SARA PECK	POLICE	10/28/2024	30.75
COSMOS PIZZA - LAFAYET	LAFAYETTE	PAULINA BENNETT	IT	10/25/2024	114.97
CREXI	LOS ANGELES	VANESSA ZARATE	PLANNING	11/01/2024	946.67
CU ATHLETICS EVENT	303-492-8337	PATRICIA MORGAN	REC CENTER	10/22/2024	165.00
CU ATHLETICS EVENT	303-492-8337	PATRICIA MORGAN	REC CENTER	10/22/2024	165.00
CU PRESENTS BOX OFFICE	BOULDER	PATRICIA MORGAN	REC CENTER	11/11/2024	476.00
DEMCO INC	800-9624463	JILL SIEWERT	LIBRARY	10/29/2024	100.89
DEMCO INC	800-9624463	JILL SIEWERT	LIBRARY	10/21/2024	765.27
DEN PUBLIC PARKING	DENVER	KURT KOWAR	PUBLIC WORKS	10/24/2024	40.00
DENVER BOTANIC CORPORA	DENVER	PEGGY NORRIS	LIBRARY	10/24/2024	325.00
DENVER BOTANIC GARDENS	DENVER	KATIE BEASLEY	REC CENTER	11/11/2024	290.00
DENVER BOTANIC GARDENS	DENVER	KATIE BEASLEY	REC CENTER	11/11/2024	290.00
DENVER BOTANIC GARDENS	DENVER	KATIE BEASLEY	REC CENTER	11/11/2024	290.00
DOLAN CONSULTING GROUP	RALEIGH	SARA PECK	POLICE	11/07/2024	500.00
DOLLARTREE	LOUISVILLE	PAMELA LEMON	REC CENTER	11/16/2024	193.75
DOLLARTREE	LOUISVILLE	PATRICIA MORGAN	REC CENTER	11/12/2024	17.50
DOLLARTREE	LOUISVILLE	REBECCA STORES	REC CENTER	10/22/2024	11.25
DOLLARTREE	LOUISVILLE	BARBARA MACFERRIN	HUMAN RESOURCES	10/21/2024	37.50
DOMINO'S 6286	LOUISVILLE	MELISSA TRACY	PUBLIC WORKS	11/06/2024	68.39
DONORBOX PLATFORM	ALEXANDRIA	GIGI YANG	LIBRARY	11/03/2024	1.18
DOUBLETREE	S BURLINGTON	JULIE SEYDEL	REC CENTER	10/25/2024	559.16
DROPBOX VQ43HKPBXVFG	SAN FRANCISCO	CAMERON FOWLKES	PUBLIC WORKS	10/27/2024	119.88
EARL S SAW SHOP	BOULDER	NATHANIEL GOECKNER	PARKS	11/18/2024	427.20
ELDORADO ARTESIAN SPRI	LOUISVILLE	LESLIE RINGER	HUMAN RESOURCES	11/18/2024	34.85
ESTES PARK LODGING	ESTES PARK	ERICA BERZINS	POLICE	10/25/2024	417.00
EZCATER*JASONS DELI	8004881803	MELISSA TRACY	PUBLIC WORKS	10/31/2024	147.37
EZCATER*QDOBA	8004881803	BARBARA MACFERRIN	HUMAN RESOURCES	10/22/2024	163.68
EZCATER*SNARFS SANDWIC	8004881803	BARBARA MACFERRIN	HUMAN RESOURCES	11/19/2024	320.04
FASTSIGNS 371501	BROOMFIELD	ROBERT ZUCCARO	PLANNING	11/01/2024	60.29

FASTSIGNS 371501	BROOMFIELD	ABBY MCNEAL	PARKS	10/28/2024	145.50
FASTSIGNS 371501	BROOMFIELD	ROBERT ZUCCARO	PLANNING	10/24/2024	105.29
FBI LEEDA INC	877-7727712	JEFF FISHER	POLICE	11/04/2024	50.00
FEDEX OFFIC74200007427	LOUISVILLE	PAMELA PETERSON-HOHS	GOLF COURSE	11/07/2024	117.46
FEDEX OFFIC74200007427	LOUISVILLE	PAMELA PETERSON-HOHS	GOLF COURSE	11/05/2024	403.35
FEDEX OFFIC74200007427	LOUISVILLE	SARA PECK	POLICE	10/31/2024	163.65
FEDEX OFFIC74200007427	LOUISVILLE	SARA PECK	POLICE	10/21/2024	54.55
FIRST CHOICE COFFEE- D	DENVER	LIGEA FERRARO	CITY MANAGER	11/12/2024	164.78
FIRST CHOICE COFFEE- D	DENVER	GREG VENETTE	WATER	11/08/2024	170.21
FIRST CHOICE COFFEE- D	DENVER	DAVID DEAN	GOLF COURSE	11/08/2024	150.38
FLOWCODE PRO	NEW YORK	GINGER CROSS	GOLF COURSE	11/05/2024	300.00
FORENSIC INTERVIEW SOL	WASHINGTON	SARA PECK	POLICE	11/14/2024	1,500.00
FRONTIER	DENVER	RICKY BLACKNEY	POLICE	11/06/2024	465.92
GOVERNMENT FINANCE OFF	3129779700	RYDER BAILEY	FINANCE	10/23/2024	70.00
GRAINGER	LAKE FOREST	TREVOR DEPEW	WATER	11/19/2024	232.14
GRAINGER	LAKE FOREST	VINCENT WRAY	WATER	11/12/2024	11.90
GRAINGER	LAKE FOREST	VINCENT WRAY	WATER	10/22/2024	39.80
GRAINGER	LAKE FOREST	MELISSA TRACY	PUBLIC WORKS	10/22/2024	264.67
GRAINGER	LAKE FOREST	MELISSA TRACY	PUBLIC WORKS	10/22/2024	288.34
GREEN CO2 SYSTEMS	970-482-0203	DANIEL BIDLEMEN	REC CENTER	11/06/2024	279.22
GREEN CO2 SYSTEMS	970-482-0203	DANIEL BIDLEMEN	REC CENTER	11/05/2024	756.68
GREEN CO2 SYSTEMS	970-482-0203	DANIEL BIDLEMEN	REC CENTER	11/05/2024	773.32
GREEN CO2 SYSTEMS	970-482-0203	DANIEL BIDLEMEN	REC CENTER	11/02/2024	37.10
HACH COMPANY	9706631377	TANNER THORSON	WASTEWATER	11/11/2024	267.75
HACH COMPANY	9706631377	TANNER THORSON	WASTEWATER	11/06/2024	242.24
HACH COMPANY	9706631377	TANNER THORSON	WASTEWATER	10/24/2024	72.69
HACH COMPANY	9706631377	TANNER THORSON	WASTEWATER	10/23/2024	266.89
HANGSAFEHOOKS.COM	NIXA	AMANDA PERERA	REC CENTER	11/15/2024	718.43
HEARTSMART	WOODRUFF	DANNY WEIONSTOCK	REC CENTER	11/14/2024	391.00
HELENA 35221	AURORA	CATHERINE JEPSON	PARKS	11/15/2024	161.25
HILLYARD INC DENVER	DENVER	PAMELA PETERSON-HOHS	GOLF COURSE	11/04/2024	231.29
HOLLAND SUPPLY INC	HOLLAND	KERRY KRAMER	PARKS	11/19/2024	462.66
HYATT HOTELS	AVON	VANESSA ZARATE	PLANNING	10/22/2024	523.12
IAPMO	909-4724100	VICKIE ILKO	OPERATIONS	10/24/2024	500.00
ICMA ONLINE	2022894262	PENNY FORD	HUMAN RESOURCES	10/25/2024	75.00
IN *ARROWHEAD AWARDS,	303-4479407	GABBY MURATTI	PLANNING	11/07/2024	43.00
IN *EKATA, LLC	720-8833322	BARBARA MACFERRIN	HUMAN RESOURCES	10/21/2024	360.46
IN *LANDMARK	262-6798484	DAVID DEAN	GOLF COURSE	11/18/2024	232.92
IN *MODERN IMAGING SOL	800-5117585	TREVOR DEPEW	WATER	11/06/2024	262.85
IN *TEE CLAW SPORTS IN	714-4792580	DAVID DEAN	GOLF COURSE	11/18/2024	210.44
IN *WYLD ENDURANCE	207-9305484	PAUL BORTH	REC CENTER	11/15/2024	571.20
IN *WYLD ENDURANCE	207-9305484	PAUL BORTH	REC CENTER	11/14/2024	772.80

INKJETSUPERSTORE.COM	LOS ANGELES	DAVID DEAN	GOLF COURSE	11/11/2024	37.90
INSIGHT PUBLIC SECTOR	CHANDLER	LIGEA FERRARO	CITY MANAGER	11/15/2024	40.09
INSIGHT PUBLIC SECTOR	CHANDLER	LIGEA FERRARO	CITY MANAGER	10/30/2024	40.09
INT'L CODE COUNCIL INC	888-422-7233	GABBY MURATTI	PLANNING	10/30/2024	238.50
INT'L CODE COUNCIL INC	888-422-7233	CHAD ROOT	BUILDING SAFETY	10/23/2024	170.00
INTERMOUNTAIN SAFETY	GOLDEN	BENJAMIN FRANCISCO	OPERATIONS	10/31/2024	188.86
INTERMOUNTAIN SAFETY	GOLDEN	JACK MANIAN	OPERATIONS	10/31/2024	11.65
ISA	ATLANTA	CHRIS LICHTY	PARKS	11/08/2024	39.95
INDEED 99350749	AUSTIN	PENNY FORD	HUMAN RESOURCES	11/01/2024	8.01
JAX - 05	LAFAYETTE	CHAD ROOT	BUILDING SAFETY	11/13/2024	72.00
JAX - 06	LAFAYETTE	CHAD ROOT	BUILDING SAFETY	11/13/2024	29.99
JAX - 06	LAFAYETTE	JEFFREY ROBINET	OPERATIONS	11/05/2024	169.99
JAX - 06	LAFAYETTE	VINCENT WRAY	WATER	10/30/2024	279.96
JAX - 06	LAFAYETTE	VINCENT WRAY	WATER	10/30/2024	139.95
JAX - 06	LAFAYETTE	BILL VALENCIA	WASTEWATER	10/22/2024	161.32
KEYSTONE RESV	KEYSTONE	ADAM BLACKMORE	PARKS	10/31/2024	100.00
KEYSTONE RESV	KEYSTONE	ADAM BLACKMORE	PARKS	10/28/2024	100.00
KEYSTONE RESV	KEYSTONE	ADAM BLACKMORE	PARKS	10/22/2024	424.68
KING SOOPERS #0013	LOUISVILLE	BARBARA MACFERRIN	HUMAN RESOURCES	11/18/2024	61.73
KING SOOPERS #0013	LOUISVILLE	PATRICIA MORGAN	REC CENTER	11/15/2024	231.78
KING SOOPERS #0013	LOUISVILLE	LIGEA FERRARO	CITY MANAGER	11/14/2024	73.85
KING SOOPERS #0013	LOUISVILLE	MELISSA TRACY	PUBLIC WORKS	11/13/2024	23.47
KING SOOPERS #0013	LOUISVILLE	GABBY MURATTI	PLANNING	11/07/2024	68.20
KING SOOPERS #0013	LOUISVILLE	DAWN BURGESS	CITY MANAGER	11/06/2024	36.34
KING SOOPERS #0013	LOUISVILLE	AUSTIN BROWN	CITY MANAGER	11/04/2024	53.81
KING SOOPERS #0013	LOUISVILLE	KIANA FREEMAN	CITY MANAGER	11/04/2024	75.00
KING SOOPERS #0013	LOUISVILLE	PATRICIA MORGAN	REC CENTER	11/01/2024	243.98
KING SOOPERS #0013	LOUISVILLE	LIGEA FERRARO	CITY MANAGER	10/30/2024	15.47
KING SOOPERS #0013	LOUISVILLE	PEGGY NORRIS	LIBRARY	10/30/2024	27.33
KING SOOPERS #0013	LOUISVILLE	LIGEA FERRARO	CITY MANAGER	10/24/2024	101.12
KING SOOPERS #0013	LOUISVILLE	PATRICIA MORGAN	REC CENTER	10/23/2024	98.90
KING SOOPERS #0013	LOUISVILLE	BARBARA MACFERRIN	HUMAN RESOURCES	10/22/2024	366.59
KING SOOPERS #0013	LOUISVILLE	BARBARA MACFERRIN	HUMAN RESOURCES	10/21/2024	40.94
KING SOOPERS #0028	BOULDER	HANNAH MILLER	CITY MANAGER	10/31/2024	37.94
KING SOOPERS 0137	ARVADA	SARA PECK	POLICE	11/06/2024	82.06
KING SOOPERS 0137	ARVADA	SARA PECK	POLICE	10/24/2024	21.36
KINSCO	303-7727720	SARA PECK	POLICE	10/24/2024	332.46
LANGUAGE LINE	MONTEREY	MEREDYTH MUTH	CITY MANAGER	11/07/2024	55.39
LARGE DOCUMENT SOLUTIO	CENTENNIAL	TANYA SCOTT	FINANCE	11/12/2024	1,246.00
LEA DATA TECHNOLOGIES	HAPPY VALLEY	JEN KENNEY	POLICE	11/19/2024	1,125.00
LES MILLS UNITED STATE	18445376455	KATHY MARTIN	REC CENTER	11/18/2024	1,680.76
LES MILLS US TRADING	CHICAGO	LINDSEY WITTY	REC CENTER	11/08/2024	389.00

LL JOHNSON DIST CO	DENVER	GERALD PIERCE	GOLF COURSE	11/19/2024	60.51
LL JOHNSON DIST CO	DENVER	GERALD PIERCE	GOLF COURSE	11/19/2024	75.09
LL JOHNSON DIST CO	DENVER	GERALD PIERCE	GOLF COURSE	11/19/2024	75.09
LL JOHNSON DIST CO	DENVER	GERALD PIERCE	GOLF COURSE	11/18/2024	787.10
LL JOHNSON DIST CO	DENVER	GERALD PIERCE	GOLF COURSE	11/13/2024	199.82
LL JOHNSON DIST CO	DENVER	DAVID DEAN	GOLF COURSE	11/01/2024	16.96
LL JOHNSON DIST CO	DENVER	DAVID DEAN	GOLF COURSE	11/01/2024	315.00
LL JOHNSON DIST CO	DENVER	DAVID DEAN	GOLF COURSE	11/01/2024	134.94
LS LOUISVILLE CYCLERY	LOUISVILLE	SARA PECK	POLICE	10/22/2024	169.96
MAC EQUIPMENT INC (LON	LONGMONT	AARON GRANT	PARKS	10/25/2024	161.20
MAC EQUIPMENT INC (LOV	LOVELAND	MATT ISABELL	PARKS	11/05/2024	352.19
MASABI_RTD	303-299-6000	VINCENT WRAY	WATER	10/22/2024	11.00
MC JOB POST	ATLANTA	PENNY FORD	HUMAN RESOURCES	11/06/2024	200.00
MCCANDLESS TRUCK CENTE	HENDERSON	DILLON FEE	OPERATIONS	11/08/2024	42.69
MCCANDLESS TRUCK CENTE	HENDERSON	MASON THOMPSON	OPERATIONS	11/06/2024	42.25
MEGA SHELVING LLC	201-4607199	JILL SIEWERT	LIBRARY	10/25/2024	2,334.10
METAL SUPERMARKETS DEN	DENVER	KERRY KRAMER	PARKS	11/12/2024	968.50
METAL SUPERMARKETS WHE	GOLDEN	HUGO VALDEZ	OPERATIONS	11/05/2024	103.96
MICHAELS STORES 2059	SUPERIOR	LANA FAUVER	REC CENTER	11/12/2024	41.83
MICHAELS STORES 2059	SUPERIOR	BENJAMIN WHITE-PATARIN	PARKS	10/29/2024	29.43
MICROSOFT#G064238478	REDMOND	DANIEL WOOLDRIDGE		11/06/2024	279.15
MILE HIGH TURFGRASS LL	EVERGREEN	DAVID DEAN	GOLF COURSE	10/29/2024	450.00
MOI 671A78C8D83D5D81C9	DENVER	PATRICIA MORGAN	REC CENTER	10/24/2024	496.48
MOR ELECTRIC HEATING A	COMSTOCK PARK	MATTHEW ROWE	FACILITIES	10/21/2024	67.99
MORRELL PRINTING SOLUT	LAFAYETTE	LIGEA FERRARO	CITY MANAGER	11/18/2024	15.00
MORRELL PRINTING SOLUT	LAFAYETTE	LIGEA FERRARO	CITY MANAGER	10/24/2024	15.00
MUSCO SPORTS LIGHTING	OSKALOOSA	KAYLA CORCELLI	PARKS	11/19/2024	475.00
NAPA AUTO 0025122	BOULDER	TANYA SCOTT	FINANCE	11/13/2024	551.91
NAPA AUTO PARTS 138	LOUISVILLE	VICKIE ILKO	OPERATIONS	11/08/2024	17.98
NATIONAL ASSOCIATION O	WASHINGTON	GENEVIEVE KLINE	CITY CLERK	11/07/2024	225.00
NORTHWEST PARKWAY LLC	303-9262500	TANYA SCOTT	FINANCE	10/21/2024	16.65
O MEARA FORD	NORTHGLENN	JOSE TORRES	OPERATIONS	11/13/2024	358.75
O MEARA FORD	NORTHGLENN	JOSE TORRES	OPERATIONS	11/12/2024	105.27
O MEARA FORD	NORTHGLENN	JOSE TORRES	OPERATIONS	11/12/2024	251.76
OFFICE DEPOT #1080	DENVER	GABBY MURATTI	PLANNING	11/05/2024	197.94
OFFICE DEPOT #1080	DENVER	GABBY MURATTI	PLANNING	10/29/2024	145.41
OFFICE DEPOT #567	WESTMINSTER	BENJAMIN WHITE-PATARIN	PARKS	10/29/2024	9.98
OJ WATSON	DENVER	GERALD PIERCE	GOLF COURSE	11/07/2024	125.40
OPENAI *CHATGPT SUBSCR	SAN FRANCISCO	GINGER CROSS	GOLF COURSE	11/14/2024	20.00
OPENAI *CHATGPT SUBSCR	SAN FRANCISCO	CAMERON FOWLKES	PUBLIC WORKS	11/03/2024	20.00
OTC BRANDS *800-875-8	OMAHA	JOHN ZAMORA	LIBRARY	10/29/2024	126.25
PARKER STORE LOUISVILL	LOUISVILLE	JOSE TORRES	OPERATIONS	11/04/2024	63.88

PAYFLOW/PAYPAL	8888839770	TANYA SCOTT	FINANCE	11/04/2024	19.95
PAYFLOW/PAYPAL	8888839770	TANYA SCOTT	FINANCE	11/04/2024	59.95
PAYPAL *ASSOCIATION	4029357733	GIGI YANG	LIBRARY	11/06/2024	35.00
PAYPAL *CARANCIINCD	4029357733	SARA PECK	POLICE	11/06/2024	444.57
PAYPAL *INDIGOWATER	4029357733	KEN MATHEWS	OPERATIONS	11/07/2024	100.00
PAYPAL *WESTERNNATI	7199423935	NATHANIEL GOECKNER	PARKS	11/15/2024	950.00
PERSONALIZATION MALL	630-910-6000	KAYLA CORCELLI	PARKS	11/16/2024	8.39
PERSONALIZATION MALL	630-910-6000	KAYLA CORCELLI	PARKS	11/16/2024	101.40
PIONEER SAND CO 15	BROOMFIELD	JACOB MARINKOVICH	PARKS	10/29/2024	139.25
PIONEER SAND CO 15	BROOMFIELD	JACOB MARINKOVICH	PARKS	10/29/2024	146.16
PRAIRIE MOUNTAIN MEDIA	BOULDER	TANYA SCOTT	FINANCE	11/15/2024	1,386.00
PRAIRIE MOUNTAIN MEDIA	BOULDER	TANYA SCOTT	FINANCE	11/15/2024	56.32
PRESTIGE CHRYSLER	LONGMONT	MASON THOMPSON	OPERATIONS	10/24/2024	89.65
PRO SUB FEE	SAN FRANCISCO	DEREK COSSON	CITY MANAGER	10/23/2024	15.00
PROGREEN EXPO25	LITTLETON	JILL MUNIZ	PARKS	11/12/2024	375.00
PSI SERVICES LLC	8188476180	SCOTT MOORE	POLICE	11/04/2024	175.00
PSI SERVICES LLC	8188476180	SCOTT MOORE	POLICE	10/28/2024	175.00
PSI SERVICES LLC USD	8188476180	TANNER THORSON	WASTEWATER	11/08/2024	104.00
PSI SERVICES LLC USD	8188476180	JEFF OWENS	WATER	11/09/2024	104.00
PY *SPORTS FIELD MANAG	LAWRENCE	ERIK SWIATEK	PARKS	11/08/2024	585.00
PY *SPORTS FIELD MANAG	LAWRENCE	ERIK SWIATEK	PARKS	11/08/2024	150.00
PY *SPORTS FIELD MANAG	LAWRENCE	ABBY MCNEAL	PARKS	11/07/2024	725.00
PY *STORQUEST-LOUISVIL	LOUISVILLE	GIGI YANG	LIBRARY	11/09/2024	491.00
PY *STORQUEST-LOUISVIL	LOUISVILLE	GIGI YANG	LIBRARY	10/30/2024	502.00
PET SCOOP	DENVER	ABBY MCNEAL	PARKS	11/01/2024	558.00
QDOBA 2526 ONLINE	720-890-7877	LIGEA FERRARO	CITY MANAGER	11/14/2024	294.75
RACQUETWORLD.COM, INC.	CLIFTON PARK	JESSE DEGRAW	REC CENTER	10/31/2024	197.85
RED WING SHOE STORE 1	ARVADA	JACOB MARINKOVICH	PARKS	11/06/2024	225.00
RED WING SHOE STORE252	DENVER	JEFFREY ROBINET	OPERATIONS	11/07/2024	225.00
RMWEA	3037480321	GREG VENETTE	WATER	10/21/2024	35.00
ROCKY MOUNTAIN REGIONA	AURORA	KERRY KRAMER	PARKS	11/18/2024	185.00
ROCKY MOUNTAIN REGIONA	AURORA	DARRICK LAYTON	PARKS	11/14/2024	185.00
ROCKY MOUNTAIN REGIONA	AURORA	GEOFFREY KOZLOWSKI	PARKS	11/13/2024	185.00
ROCKY MOUNTAIN REGIONA	AURORA	DAVID DEAN	GOLF COURSE	10/26/2024	185.00
ROCKY MOUNTAIN WATERJE	GREELEY	NORMAN MERLO	GOLF COURSE	11/13/2024	377.68
ROTARY MART CITGO	BURLINGTON	JULIE SEYDEL	REC CENTER	10/23/2024	26.57
RTD EAST DIA	DENVER	JULIE SEYDEL	REC CENTER	10/25/2024	10.00
SAFEWAY #2812	LOUISVILLE	AMANDA PERERA	REC CENTER	11/06/2024	12.87
SAFEWAY #2812	LOUISVILLE	GIGI YANG	LIBRARY	11/01/2024	24.08
SAFEWAY #2812	LOUISVILLE	DANNY WEIONSTOCK	REC CENTER	10/25/2024	19.98
SAFEWAY #2812	LOUISVILLE	REBECCA STORES	REC CENTER	10/22/2024	11.98
SAMEDAY OFFICE SUPPLY	303-7902777	KAYLA CORCELLI	PARKS	11/12/2024	138.64

SAMEDAY OFFICE SUPPLY	303-7902777	KELLY THARP	OPERATIONS	11/05/2024	172.36
SAMEDAY OFFICE SUPPLY	303-7902777	JILL SIEWERT	LIBRARY	10/24/2024	36.97
SAMEDAY OFFICE SUPPLY	303-7902777	KELLY THARP	OPERATIONS	10/21/2024	39.95
SAMEDAY OFFICE SUPPLY	303-7902777	KELLY THARP	OPERATIONS	10/21/2024	25.18
SHAMROCK FSW 575 LOUIS	LOUISVILLE	MELISSA TRACY	PUBLIC WORKS	10/30/2024	18.76
SHAMROCK FSW 575 LOUIS	LOUISVILLE	BARBARA MACFERRIN	HUMAN RESOURCES	10/22/2024	49.97
SHAMROCK FSW 575 LOUIS	LOUISVILLE	BARBARA MACFERRIN	HUMAN RESOURCES	10/21/2024	161.47
SHERRILLTREE	3363780444	CHRIS LICHTY	PARKS	10/31/2024	657.96
SHERRILLTREE	3363780444	CHRIS LICHTY	PARKS	11/01/2024	135.98
SIP.US	ALPHARETTA	GREG VENETTE	WATER	11/09/2024	31.24
SITEONE LANDSCAPE SUPP	BROOMFIELD	JILL MUNIZ	PARKS	11/14/2024	448.63
SITEONE LANDSCAPE SUPP	BROOMFIELD	GEOFFREY KOZLOWSKI	PARKS	11/08/2024	424.83
SITEONE LANDSCAPE SUPP	BROOMFIELD	DAVID DEAN	GOLF COURSE	10/24/2024	142.48
SLADE GLAS* I74588	BOULDER	MARLA OLSON	PARKS	10/30/2024	658.00
SP NTRWK HARDWARES	IRVINE	KEVIN FREY	FACILITIES	10/28/2024	17.85
SQ *7TH GENERATION FAR	LOUISVILLE	CATHERINE JEPSON	PARKS	10/25/2024	41.04
SQ *7TH GENERATION FAR	LAFAYETTE	CATHERINE JEPSON	PARKS	10/25/2024	65.66
SQ *7TH GENERATION FAR	LAFAYETTE	KERRY KRAMER	PARKS	10/22/2024	66.69
SQ *B.O.B.S. DINER	LOUISVILLE	BENJAMIN FRANCISCO	OPERATIONS	11/04/2024	265.00
SQ *B.O.B.S. DINER	LOUISVILLE	DILLON FEE	OPERATIONS	11/04/2024	20.00
SQ *CENTER FOR SNAKE C	GOSQ.COM	CATHERINE JEPSON	PARKS	10/31/2024	150.00
SQ *GIOVANNITTI COFFEE	LOUISVILLE	AUSTIN BROWN	CITY MANAGER	11/04/2024	30.00
SQ *MOE'S BROADWAY BAG	LOUISVILLE	GABBY MURATTI	PLANNING	11/07/2024	317.77
STAPLS7644331043000001	877-8267755	JILL SIEWERT	LIBRARY	10/30/2024	43.94
STAPLS7645085772000001	877-8267755	JILL SIEWERT	LIBRARY	11/08/2024	244.59
STAPLS7645510741000001	877-8267755	MARLA OLSON	PARKS	11/15/2024	90.98
STAPLS7908766852000001	877-8267755	TANYA SCOTT	FINANCE	11/09/2024	1,056.00
STAPLS7908818925000001	877-8267755	GIGI YANG	LIBRARY	11/10/2024	372.97
STERICYCLE INC/SHRED-I	BANNOCKBURN	MEREDYTH MUTH	CITY MANAGER	11/18/2024	30.00
STERICYCLE INC/SHRED-I	BANNOCKBURN	MARLA OLSON	PARKS	11/12/2024	183.54
STERICYCLE INC/SHRED-I	BANNOCKBURN	TANYA SCOTT	FINANCE	11/07/2024	68.64
STERICYCLE INC/SHRED-I	BANNOCKBURN	LESLIE RINGER	HUMAN RESOURCES	11/02/2024	30.00
STOCKYARD RANCH SUPPLY	DENVER	JACOB MARINKOVICH	PARKS	11/13/2024	989.30
SUN POWERSPORTS	THORNTON	JOSE TORRES	OPERATIONS	11/14/2024	944.99
SUPPLYHOUSE.COM	888-757-4774	KEVIN FREY	FACILITIES	11/19/2024	280.32
SUPPLYHOUSE.COM	888-757-4774	DANIEL BIDLEMEN	REC CENTER	11/18/2024	710.25
SUPPLYHOUSE.COM	888-757-4774	KEVIN FREY	FACILITIES	11/01/2024	273.60
SURVEYMONK* T 46173770	SAN MATEO	MELISSA TRACY	PUBLIC WORKS	10/24/2024	99.00
STAPLES INC	STAPLES.COM	KELLY THARP	OPERATIONS	11/03/2024	92.98
TALAS	BROOKLYN	GIGI YANG	LIBRARY	11/01/2024	544.23
TARGET 00017699	SUPERIOR	REBECCA STORES	REC CENTER	11/12/2024	19.61
TARGET 00017699	SUPERIOR	REBECCA STORES	REC CENTER	11/05/2024	17.13

TARGET 00017699	SUPERIOR	CATHERINE JEPSON	PARKS	10/30/2024	69.87
TARGET 00017699	SUPERIOR	REBECCA STORES	REC CENTER	10/22/2024	52.60
TARGET PLUS	BROOKLYN PARK	JILL SIEWERT	LIBRARY	11/04/2024	138.99
TELEDYNE INSTRUMENTS I	CITY INDUSTRY	MELISSA TRACY	PUBLIC WORKS	10/24/2024	864.00
THE HOME DEPOT #1506	LOUISVILLE	KRISTEN BODINE	LIBRARY	11/18/2024	5.96
THE HOME DEPOT #1506	LOUISVILLE	KERRY KRAMER	PARKS	11/18/2024	339.09
THE HOME DEPOT #1506	LOUISVILLE	TANNER THORSON	WASTEWATER	11/14/2024	29.96
THE HOME DEPOT #1506	LOUISVILLE	AARON GRANT	PARKS	11/14/2024	9.97
THE HOME DEPOT #1506	LOUISVILLE	JEFF ROBISON	FACILITIES	11/15/2024	685.92
THE HOME DEPOT #1506	LOUISVILLE	JEFF ROBISON	FACILITIES	11/16/2024	57.60
THE HOME DEPOT #1506	LOUISVILLE	GEOFFREY KOZLOWSKI	PARKS	11/14/2024	153.31
THE HOME DEPOT #1506	LOUISVILLE	JILL MUNIZ	PARKS	11/14/2024	78.90
THE HOME DEPOT #1506	LOUISVILLE	DANIEL SALAS ROBLES	PARKS	11/14/2024	212.14
THE HOME DEPOT #1506	LOUISVILLE	DANIEL BIDLEMEN	REC CENTER	11/13/2024	49.96
THE HOME DEPOT #1506	LOUISVILLE	KEN MATHEWS	OPERATIONS	11/07/2024	147.23
THE HOME DEPOT #1506	LOUISVILLE	THOMAS CZAJKA	OPERATIONS	11/07/2024	39.94
THE HOME DEPOT #1506	LOUISVILLE	JACOB MARINKOVICH	PARKS	11/07/2024	49.92
THE HOME DEPOT #1506	LOUISVILLE	JOSE TORRES	OPERATIONS	11/07/2024	181.60
THE HOME DEPOT #1506	LOUISVILLE	DAVID DEAN	GOLF COURSE	11/07/2024	463.76
THE HOME DEPOT #1506	LOUISVILLE	JOSEPH CAMPANA	OPERATIONS	11/06/2024	27.32
THE HOME DEPOT #1506	LOUISVILLE	JEFFREY ROBINET	OPERATIONS	11/05/2024	80.84
THE HOME DEPOT #1506	LOUISVILLE	GEOFFREY KOZLOWSKI	PARKS	11/05/2024	42.11
THE HOME DEPOT #1506	LOUISVILLE	NORMAN MERLO	GOLF COURSE	11/05/2024	196.20
THE HOME DEPOT #1506	LOUISVILLE	BRIAN SCHMID	OPERATIONS	11/05/2024	10.98
THE HOME DEPOT #1506	LOUISVILLE	AARON GRANT	PARKS	11/05/2024	44.94
THE HOME DEPOT #1506	LOUISVILLE	GEOFFREY KOZLOWSKI	PARKS	11/04/2024	99.36
THE HOME DEPOT #1506	LOUISVILLE	NORMAN MERLO	GOLF COURSE	11/04/2024	166.77
THE HOME DEPOT #1506	LOUISVILLE	PAMELA PETERSON-HOHS	GOLF COURSE	11/02/2024	20.94
THE HOME DEPOT #1506	LOUISVILLE	ANDY ELLIS	PARKS	10/31/2024	34.97
THE HOME DEPOT #1506	LOUISVILLE	CATHERINE JEPSON	PARKS	10/31/2024	49.96
THE HOME DEPOT #1506	LOUISVILLE	JEFFREY ROBINET	OPERATIONS	10/31/2024	113.61
THE HOME DEPOT #1506	LOUISVILLE	MARC MORTON	PARKS	10/31/2024	73.16
THE HOME DEPOT #1506	LOUISVILLE	MATTHEW ROWE	FACILITIES	10/31/2024	15.98
THE HOME DEPOT #1506	LOUISVILLE	GEOFFREY KOZLOWSKI	PARKS	11/01/2024	52.90
THE HOME DEPOT #1506	LOUISVILLE	ANDY ELLIS	PARKS	10/30/2024	22.97
THE HOME DEPOT #1506	LOUISVILLE	DANIEL SALAS ROBLES	PARKS	10/30/2024	40.96
THE HOME DEPOT #1506	LOUISVILLE	DILLON FEE	OPERATIONS	10/30/2024	39.92
THE HOME DEPOT #1506	LOUISVILLE	KEVIN FREY	FACILITIES	10/29/2024	5.88
THE HOME DEPOT #1506	LOUISVILLE	ANDY ELLIS	PARKS	10/29/2024	93.90
THE HOME DEPOT #1506	LOUISVILLE	ABBY MCNEAL	PARKS	10/29/2024	200.23
THE HOME DEPOT #1506	LOUISVILLE	JACK MANIAN	OPERATIONS	10/29/2024	119.94
THE HOME DEPOT #1506	LOUISVILLE	DAVID DEAN	GOLF COURSE	10/28/2024	66.78

THE HOME DEPOT #1506	LOUISVILLE	NORMAN MERLO	GOLF COURSE	10/24/2024	22.92
THE HOME DEPOT #1506	LOUISVILLE	ANDY ELLIS	PARKS	10/24/2024	87.88
THE HOME DEPOT #1506	LOUISVILLE	DAVID BARIL	GOLF COURSE	10/24/2024	29.14
THE HOME DEPOT #1506	LOUISVILLE	JACOB MARINKOVICH	PARKS	10/25/2024	85.41
THE HOME DEPOT #1506	LOUISVILLE	DANIEL SALAS ROBLES	PARKS	10/25/2024	19.98
THE HOME DEPOT #1506	LOUISVILLE	NICHOLAS POTOCHUK	PARKS	10/24/2024	64.97
THE HOME DEPOT #1506	LOUISVILLE	JEFF ROBISON	FACILITIES	10/24/2024	6.55
THE HOME DEPOT #1506	LOUISVILLE	JEFFREY ROBINET	OPERATIONS	10/22/2024	52.98
THE HOME DEPOT #1506	LOUISVILLE	DANIEL SALAS ROBLES	PARKS	10/22/2024	17.01
THE HOME DEPOT #1506	LOUISVILLE	SHANE MAHAN	OPERATIONS	10/22/2024	47.96
THE HOME DEPOT #1506	LOUISVILLE	DANIEL SALAS ROBLES	PARKS	10/21/2024	16.38
THE HOME DEPOT PRO	ATLANTA	KATHLEEN D LORENZO	PARKS	11/01/2024	731.77
THE LIFEGUARD STORE, I	309-4515858	DANNY WEIONSTOCK	REC CENTER	11/18/2024	180.00
TOSHIBA BUSINESS SOLUT	801-5563471	MARLA OLSON	PARKS	11/12/2024	231.51
TOSHIBA BUSINESS SOLUT	801-5563471	MARLA OLSON	PARKS	11/12/2024	243.36
TOWN OF SUPERIOR	303-499-3675	ERIK SWIAK	PARKS	11/05/2024	333.43
TRANSWEST TRUCK TRAILER	FREDERICK	JOSE TORRES	OPERATIONS	10/28/2024	192.76
TRAVEL GUARD GROUP INC	STEVENS POINT	RICKY BLACKNEY	POLICE	11/07/2024	26.00
TRELLO.COM* ATASSIAN	NEW YORK	MINDY OLKIER	PUBLIC WORKS	11/06/2024	3.80
TRELLO.COM* ATASSIAN	NEW YORK	MINDY OLKIER	PUBLIC WORKS	10/27/2024	102.00
TRIBUTE STORE FLOWERS	MIDDLETON	ABBY MCNEAL	PARKS	10/23/2024	46.90
TST* LILITAS MARKET AN	BOULDER	KATHY MARTIN	REC CENTER	10/23/2024	23.90
TST* MUDROCK'S TAP & T	LOUISVILLE	BARBARA MACFERRIN	HUMAN RESOURCES	10/24/2024	300.00
TST* PROXIMO DISTILLER	DENVER	KATIE BEASLEY	REC CENTER	11/02/2024	400.00
TST*BURLINGTON BEER CO	BURLINGTON	JULIE SEYDEL	REC CENTER	10/23/2024	32.00
TST*BUSABA THAI	LOUISVILLE	TREVOR DEPEW	WATER	10/21/2024	171.00
TST*LULUS BBQ	LOUISVILLE	CAMERON FOWLKES	PUBLIC WORKS	11/07/2024	118.50
TST*LULUS BBQ	LOUISVILLE	TANNER THORSON	WASTEWATER	10/21/2024	194.99
TST*SKINNY PANCAKE AIR	SOUTH BURLING	JULIE SEYDEL	REC CENTER	10/25/2024	24.78
TST*THE HUCKLEBERRY	LOUISVILLE	GENEVIEVE KLINE	CITY CLERK	11/18/2024	48.36
TST*THE HUCKLEBERRY	LOUISVILLE	ROBERT ZUCCARO	PLANNING	11/04/2024	374.40
TST*THE HUCKLEBERRY	LOUISVILLE	ROBERT ZUCCARO	PLANNING	10/24/2024	33.30
TST*THE HUCKLEBERRY	LOUISVILLE	LESLIE RINGER	HUMAN RESOURCES	10/23/2024	48.48
TST*WATERLOO	LOUISVILLE	JEFF FISHER	POLICE	11/06/2024	334.00
TVY*SILVERSNEAKERS	480-444-5154	LINDSEY WITTY	REC CENTER	11/06/2024	400.00
TRANSPARENT INFORMATIO	3032178747	LESLIE RINGER	HUMAN RESOURCES	11/06/2024	107.10
U.S. AUTOFORCE	APPLETON	DAVID DEAN	GOLF COURSE	11/15/2024	39.45
ULINE *SHIP SUPPLIES	800-295-5510	GIGI YANG	LIBRARY	11/19/2024	775.77
UNITED AIRLINES	UNITED.COM	MIKE MILLER	POLICE	10/22/2024	50.00
UNITED AIRLINES	UNITED.COM	MIKE MILLER	POLICE	10/22/2024	40.00
UNITED STATES PLASTIC	419-2282242	JEFF OWENS	WATER	11/14/2024	158.45
USABLUBOOK	ATLANTA	TANNER THORSON	WASTEWATER	11/06/2024	255.91

USABBLUEBOOK	ATLANTA	MELISSA TRACY	PUBLIC WORKS	10/30/2024	273.19
USABBLUEBOOK	ATLANTA	TANNER THORSON	WASTEWATER	10/22/2024	90.13
VISTAPRINT	8662074955	AILEEN PROFIR	IT	11/06/2024	316.48
VSP*GAYLORD ARCHIVAL	SYRACUSE	GIGI YANG	LIBRARY	11/05/2024	75.19
VZWRSLSS*MY VZ VB P	800-922-0204	TANYA SCOTT	FINANCE	10/24/2024	5,867.91
VZWRSLSS*PRPAY AUTOPAY	888-294-6804	MINDY OLKIER	PUBLIC WORKS	11/08/2024	20.00
WAL-MART #4288	BROOMFIELD	LANA FAUVER	REC CENTER	11/10/2024	50.65
WALMART.COM 8009256278	BENTONVILLE	DEREK COSSON	CITY MANAGER	10/24/2024	69.70
WEATHERTECH	BOLINGBROOK	GABBY MURATTI	PLANNING	11/13/2024	131.95
WEATHERTECH	BOLINGBROOK	GABBY MURATTI	PLANNING	11/13/2024	228.90
WEBSTICKER.COM	STOWE	SARA PECK	POLICE	10/23/2024	385.00
WILBUR ELLIS DENVER	DENVER	DAVID DEAN	GOLF COURSE	11/11/2024	487.50
WILBUR ELLIS DENVER	DENVER	DAVID DEAN	GOLF COURSE	11/11/2024	1,128.50
WILBUR ELLIS DENVER	DENVER	DAVID DEAN	GOLF COURSE	11/11/2024	498.00
WILBUR ELLIS DENVER	DENVER	DAVID DEAN	GOLF COURSE	11/11/2024	240.00
WILBUR ELLIS DENVER	DENVER	DAVID DEAN	GOLF COURSE	11/11/2024	495.00
WILEY	877-762-2974	PENNY FORD	HUMAN RESOURCES	11/06/2024	655.00
WP*THE THRASHER HOUSE	CORPUS CHRIST	LINDSEY WITTY	REC CENTER	11/18/2024	66.50
XEROX BUS.SLTNS SOUTHW	SAN ANTONIO	LIGEA FERRARO	CITY MANAGER	11/06/2024	145.20
XEROX BUSINESS SOLUTIO	PAYMYINVOICE@	TANYA SCOTT	FINANCE	11/08/2024	1,599.74
YOURMEMBERSHIP	7278270046	PENNY FORD	HUMAN RESOURCES	10/25/2024	499.00
ZORO TOOLS INC	BUFFALO GROVE	KEVIN FREY	FACILITIES	11/19/2024	149.00
					\$125,951.70
				A. Blackmore	-\$184.00
				P. Borth	-\$15.99
				V. Zarate	-\$177.57
				R. Bailey	\$70.00
				Total	\$125,644.14

CITY OF LOUISVILLE
EXPENDITURE APPROVALS \$25,000.00 - \$99,999.99
November 2024

DATE	P.O. #	VENDOR	DESCRIPTION	AMOUNT
11/15/2024	2024325	Radiation Pros LLC	Annual Sludge Hauling Aluminum Sulfate is used as part of the water treatment process and accumulates in waste sludge. The sludge is removed from the process and discharged to various locations including: the SCWTP lower pond, HBWTP drying beds, and chemical holding tanks. Periodically, the sludge must be manually removed and disposed of in accordance with CDPHE and EPA regulations.	\$35,000.00
11/15/2024	2024328	Fontus Blue, Inc.	Software that provides advanced data analysis for optimization of raw water quality Software that assists operators to monitor treatment process, optimize efficiency, track chemical cost impacts and enhance water quality. Fontus Blue's Decision Blue Program uses proprietary software that is custom built to the individual specifications of the City's treatment plants and utilized machine learning to model multiple process scenarios, and provide suggestions to adjust and optimize chemical dosing.	\$26,000.00
11/21/2024	2024333	L.A.W.S.	Vehicle Uplifting - 2023 Ford UI Utility Lighting Accessory & Warning Systems for Unit #23	\$29,848.97
11/26/2024	2024338	Eco-Cycle Inc.	2024 Leaf Disposal In 2022, the City collected approximately 174 tons of leaves and in 2023, the City collected approximately 266 tons of leaves that were used as a soil amendment in agricultural areas.	\$38,500.00

City Council Meeting Minutes

**December 9 & 10, 2024
City Hall, Council Chambers
749 Main Street**

MONDAY, DECEMBER 9, 2024

Call to Order – Mayor Leh called the meeting to order at 5:30 p.m. **Roll Call** was taken and the following members were present:

City Council: ***Mayor Chris Leh
Mayor Pro Tem Caleb Dickinson
Councilmember Josh Cooperman
Councilmember Deborah Fahey
Councilmember Barbara Hamlington
Councilmember Judi Kern***

Absent: ***Councilmember Dietrich Hoefner***

Staff Present: ***Meredyth Muth, Interim Deputy City Manager***

DISCUSSION OF INTERVIEW QUESTIONS & PROCESS

Members reviewed proposed interview questions for the applicants, made edits, and finalized the questions.

Members interviewed 13 applicants for various boards and commission vacancies. The Council asked questions about their interest in serving, their knowledge of city processes, and the skills they bring to the position.

At 8:40 p.m. members continued the meeting to December 10 and adjourned for the evening.

TUESDAY, DECEMBER 12, 2024

Call to Order – Mayor Leh called the meeting to order at 5:15 p.m. Mayor Leh, Mayor Pro Tem Dickinson, Councilmember Cooperman, Councilmember Fahey, Councilmember Hamlington and Councilmember Kern were present. Councilmember Hoefner was absent from the meeting.

City of Louisville

***City Council 749 Main Street Louisville CO 80027
303.335.4536 (phone) 303.335.4550 (fax) www.LouisvilleCO.gov***

Members interviewed an additional 11 applicants for various boards and commission vacancies. The Council asked questions about their interest in serving, their knowledge of city processes, and the skills they bring to the position.

DISCUSSION & IDENTIFICATION OF POTENTIAL APPOINTEES

Members discussed the applicants' qualifications and merits, deliberated about possible appointments, and made recommendations of a slate of appointees to vote on at the December 17 City Council meeting.

ADJOURN

Members adjourned at 9:26pm.

Christopher M. Leh, Mayor

Genny Kline, Interim City Clerk

**SUBJECT: APPROVAL OF 2025 CITY COUNCIL APPOINTMENTS TO
BOARDS AND COMMISSIONS**

DATE: DECEMBER 17, 2025

PRESENTED BY: MEREDYTH MUTH, CITY CLERK

SUMMARY:

The City began soliciting applications for 2025 board and commission vacancies in October with a November 4 application deadline. The City Council appointed Mayor Pro Tem Dickinson and Councilmember Fahey to complete an initial review of the written applications. The Committee met and made recommendations for which applicants to move forward for an interview or an appointment. At the December 3 City Council meeting, the Council discussed the recommendations, altering the list slightly to include some additional interviews. On December 9 and 10 the Council met to interview 24 applicants for various board positions. Following the interviews, Council discussed the candidates' qualifications and merits and deliberated about possible appointments.

From that meeting the City Council now recommends the 2025 positions be filled as shown on the attached spreadsheet.

If the appointments are made as shown on the attached list there will be no vacant seats going into 2025.

Complete application responses from each applicant are available in the [November 19 Council meeting packet](#).

FISCAL IMPACT:

None

RECOMMENDATION:

Approve list of appointees.

ATTACHMENT(S):

1. Spreadsheet listing 2025 board and commission appointments

STRATEGIC PLAN IMPACT:

☐		Financial Stewardship & Asset Management	☒		Reliable Core Services
☐		Vibrant Economic Climate	☐		Quality Programs & Amenities

SUBJECT: 2025 BOARD AND COMMISSION APPOINTMENTS

DATE: DECEMBER 17, 2024

PAGE 2 OF 2

☒	 Engaged Community	☐	 Healthy Workforce
☐	 Supportive Technology	☐	 Collaborative Regional Partner

2025 Board and Commission Vacancies		
Board of Adjustment		4
Jennifer Singer-Rupp	3 years	January 2025 - December 2027
Jim Branum	3 years	January 2025 - December 2027
Scott Berger	2 years	January 2025 - December 2026
Rachel Croft <i>associate</i>	2 years	January 2025 - December 2026
Building Code Board of Appeals		3
Christian Dino	3 years	January 2025 - December 2027
Mason Gatto	3 years	January 2025 - December 2027
Steve Norwood	1 year	January 2025 - December 2025
Cultural Advisory Board		3
Mohamed Ghali	3 years	January 2025 - December 2027
Roger Keeler	3 years	January 2025 - December 2027
Alexander Phillips-Messner	3 years	January 2025 - December 2027
Historic Preservation Commission		2
Marty Beauchamp	3 years	January 2025 - December 2027
Talbot Wilt	3 years	January 2025 - December 2027
Historical Museum Advisory Board		2
Jeanette Bangs	4 years	January 2025 - December 2028
Barbara Taylor	4 years	January 2025 - December 2028
Library Board of Trustees		3
Heather Wiegand	4 years	January 2025 - December 2028
Allie Benz	4 years	January 2025 - December 2028
Alan Halpern	2 years	January 2025 - December 2026
Local Licensing Authority		3
Matt Machado	4 years	January 2025 - December 2028
Rob Carpenter	4 years	January 2025 - December 2028
Derek Cole	2 years	January 2025 - December 2026
Open Space Advisory Board		4
Susan McEachern	3 years	January 2025 - December 2027
Benjamin Mow	3 years	January 2025 - December 2027
Daniel Rupp	3 years	January 2025 - December 2027
Graeme Patterson	1 year	January 2025 - December 2025
Parks & Public Landscaping Advisory Board		4
Todd Flaska	3 years	January 2025 - December 2027
Julien Denat	3 years	January 2025 - December 2027
Kathey Kelsey	3 years	January 2025 - December 2027
Gene Kutscher	1 year	January 2025 - December 2025
Recreation Advisory Board		2
Daniel Brenner	3 years	January 2025 - December 2027
Everett Weiss	3 years	January 2025 - December 2027
Revitalization Commission		1
Corrie Williams	5 years	January 2025 - December 2029
Sustainability Advisory Board		3
Aubrey Suber	2 years	January 2025 - December 2026
Nisa Bradley	2 years	January 2025 - December 2026
Kristin McDermott	1 year	January 2025 - December 2025

**SUBJECT: APPROVAL OF A SERVICE AGREEMENT WITH HUMANE
 SOCIETY OF BOULDER VALLEY FOR ANIMAL IMPOUNDMENT
 SERVICES**

DATE: DECEMBER 17, 2024

PRESENTED BY: RAFAEL GUTIERREZ, CHIEF OF POLICE

SUMMARY:

The Humane Society of Boulder Valley seeks to enter into a new two-year agreement with the City of Louisville effective January 1, 2025 through December 31, 2026. The City of Louisville and the Humane Society of Boulder Valley entered into previous service agreements in the past, that have since expired and are now seeking to enter into a new agreement to cover the next two-year budget cycle.

The Humane Society of Boulder Valley maintains an animal shelter facility within Boulder County, CO and acts as the receiving agent for animal impoundments, to provide sheltering and care of animals brought to their facility by authorized City of Louisville personnel. As per the agreement, the Humane Society is responsible for sheltering and caring for the animals brought to their facility while reasonable efforts are made to locate owners of impounded animal(s) so they may be reclaimed. The Humane Society shall hold all impounded animals for a 5-day holding period while working to have impounded animals reclaimed. After the expiration of the 5-day holding period the Humane Society may dispose of any animal not reclaimed.

The Humane Society provides 24 hours per day, seven days per week access to its facilities for authorized personnel for the purpose of receiving impounded animals. Exceptions to this access, with reasonable notice to the City, are outlined in the agreement and include emergency situations, legal or regulatory requirements, and unforeseen operational constraints.

FISCAL IMPACT:

The City agrees to pay the Humane Society a total fee of \$26,900 for two years of service as listed in the agreement. The fees will reflect an annual cost of \$13,200 in the year 2025 and \$13,700 in the year 2026. The Humane Society will bill the police department on a quarterly basis and the proposed fees were included and approved in the budget process for 2025 and 2026. There is a provision in the agreement for additional costs if the number of animal impoundments exceeds 50 per year. On average over the last 5 years, the City of Louisville impounded approximately 40 animals per year.

PROGRAM/SUB-PROGRAM IMPACT:

Public Safety and Justice-Patrol and Investigation: provides animal sheltering resources as a core service for managing animal impoundments safely and humanely.

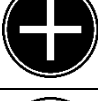
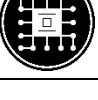
RECOMMENDATION:

Staff recommends approval of the two-year agreement with the Humane Society of Boulder Valley for animal impoundment services for calendar years 2025 and 2026.

ATTACHMENT(S):

1. 2025-2026 Humane Society of Boulder Valley Services 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

Agreement for Animal Impoundment Services

This Agreement for Animal Impoundment Services (the "Agreement") is made as of the 1st day of January 2025 (the "Effective Date"), by and between the City of Louisville, Colorado (the "City"), and The Humane Society of Boulder Valley, Inc. (the "Humane Society") (each a "Party" and collectively the "Parties").

The Parties, in consideration of their respective rights and obligations as set forth in this Agreement, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, hereby agree as follows:

1. **Term.** This Agreement shall commence on the Effective Date and terminate on December 31, 2026, unless renewed or extended by written agreement of the Parties.
2. **Termination.** This Agreement may be terminated by either Party, with or without cause, provided that termination shall not be effective until 90 days after the terminating Party provides written notice of termination to the other Party.
3. **Amendment.** This Agreement may be amended by the Parties at any time during its term, provided it is amended in writing and such amendment is agreed to and signed by the authorized representatives of both Parties.
4. **Services to be Provided by the Humane Society.**
 - a. The Humane Society agrees to maintain a shelter facility (the "Facility") within Boulder County, Colorado in accordance with all applicable State of Colorado health and animal treatment statutes. Except as provided in Section 5, the Humane Society further agrees to act as the receiving agency for impoundment and sheltering purposes with respect to all animals brought to the Humane Society's Facility by authorized personnel of the City ("Authorized Personnel").
 - b. The Humane Society shall hold all impounded animals for 5 days (the "Holding Period"). If an impounded animal is not reclaimed by a verified owner during the Holding Period, the Humane Society may, following the expiration of the Holding Period, dispose of any such animal. The Humane Society shall make reasonable efforts to contact the owner of any impounded animal brought to it by the City under this Agreement which bears reasonable means of identification. Reasonable efforts will consist of attempting to contact the owner at the phone number indicated on the license or tag.
 - c. Except during any week where a Legal Holiday occurs, the Humane Society shall maintain a schedule of at least 40 hours per week whereby animals impounded under this Agreement may be reclaimed by their owner. In any week in which a Legal Holiday occurs, eight hours may be deducted from the required 40 hours for each such holiday. "Legal Holiday" shall include, without limitation, any day that is not a Saturday or Sunday on which banks or other financial institutions are generally closed in the State of Colorado. In addition to the recognized Legal Holidays, the Humane Society shall be permitted to close its operations due to emergencies that are determined, in good faith and at the reasonable discretion of the Humane Society, to pose a risk to the safety or well-being of the Humane Society's

staff or to the animals in its care. In such cases, the Humane Society shall provide notice to the City as soon as practicable and shall make reasonable efforts to, but shall not be required to, reschedule for any missed hours.

- d. In addition, the Humane Society shall make its shelter facilities available to Authorized Personnel for the purpose of receiving impounded animals under this Agreement on a basis of 24 hours per day, seven days per week, except in the following cases:
 - i. *Emergency Situations*: When emergencies arise that affect the safety or operation of the Humane Society's operations, including, but not limited to natural disasters, severe health or safety risks, and critical equipment failures. The Humane Society shall notify the City as soon as practicable and provide information on alternative arrangements or a revised timeline for availability.
 - ii. *Legal or Regulatory Requirements*: If compliance with legal or regulatory requirements necessitates temporary adjustments to operating hours. The Humane Society shall inform the City of such requirements and provide relevant documentation.
 - iii. *Unforeseen Operational Constraints*: In cases where unforeseen constraints prevent the Humane Society from operating, such as severe staff shortages or extreme operational issues. The Humane Society shall provide notice to the City as soon as practicable and, to the extent possible, make reasonable efforts to provide alternative arrangements for receiving impounded animals.
 - iv. *Holiday Closures*: On recognized Legal Holidays, the Humane Society may have reduced hours or be closed. The Humane Society shall provide advance notice to the City of any such holiday closures.
- e. The Humane Society shall provide the City with continuous access to the Humane Society's software database that tracks sheltered animals (the "Database"). The Database shall enable the City to search and view information regarding animals and individuals using criteria such as their name, identification number, street, city, or zip code. Notwithstanding the foregoing, the Humane Society shall not be liable for any interruptions in access to the Database, including, but not limited to, outages, maintenance, or technical issues. The Humane Society shall not be held responsible for any reliance on outdated or incorrect information contained in the Database. The City shall maintain the confidentiality of all animals and personally identifiable information contained within the Database, including, but not limited to, outcomes related to each animal. Confidential information shall not include information that: (i) is in the public domain; (ii) is required to be disclosed by law; or (iii) is necessary for the City's law enforcement purposes; provided, however, that the Humane Society shall not be required to provide any information that would violate applicable laws or regulations. The City shall implement reasonable safeguards to protect the confidentiality and security of the information provided, which shall include, at a minimum, measures consistent with applicable local government policies and best practices for data security. The City shall be liable for any unauthorized disclosure or misuse of such confidential information. In the event the City is unable to fulfill its obligations under this section, the City shall promptly notify the

Humane Society as soon as reasonably practicable and cooperate in any necessary remedial actions.

5. **Exceptions to Humane Society's Obligation to Provide Services.**

- a. The Humane Society is not obligated to accept animals other than dogs or cats under this Agreement, unless authorized by the Chief Executive Officer of the Humane Society (the "CEO") or by the CEO's authorized representative. Seriously sick or seriously injured animals brought to the Facility may be treated or euthanized at the sole option of the Humane Society, following reasonable efforts to contact the owner as specified herein, and the Humane Society shall not be required to wait for any other applicable holding or impoundment period provided herein. In the event disposal of an animal is required due to serious illness or injury, the Humane Society shall make all reasonable efforts to identify and notify the owner of the animal's location and condition before destroying it, by researching all lost animal reports; however, the Humane Society shall not undertake identification efforts which it determines, in its sole discretion, would unduly prolong suffering of the animal in question. The Humane Society shall not provide any shelter or impoundment services for barnyard animals.
- b. All animals impounded by the City shall be the responsibility of the City until deposited at the Facility. Thereafter, all animals shall be the responsibility of the Humane Society under the terms of this Agreement.
- c. The City is solely responsible for transporting animals from its jurisdiction, including animals that have been left or abandoned at a private veterinary clinic or boarding facility by officers or private citizens.
- d. *Court Ordered Impoundment Surcharge.* In addition to the compensation provided for above, the City shall pay the Humane Society a daily surcharge of \$40 for each animal ordered to be impounded pending a case in a court of law, provided that that the result of the case does not provide for the cost of care compensation from the guardian to the Humane Society.
- e. *Rabies Bite Quarantine Surcharge.* In addition to the compensation provided for above, the City shall pay the Humane Society a daily surcharge of \$40 for each stray or seized animal required to be quarantined for rabies bite confinement.
- f. *Large Event Impoundment Surcharge.* In the event of a large impoundment (e.g., hoarding case) from a single resident, whether by relinquishment or otherwise, the City agrees to pay the Humane Society \$100 per animal. The \$100 per animal charge shall take effect when five animals or more are relinquished or in a large impoundment case.
- g. *Compensation for Declared Disasters.* In addition to the foregoing and upon verification of costs, the City will reimburse the Humane Society for impounding or providing temporary boarding to animals from the City during a disaster emergency declared by the City or the State of Colorado. In such event, the following fee schedule shall apply:

- i. \$52 per day per animal housed, which covers health checks and minor medical care;
- ii. Actual costs of urgent or emergency care, staff time costs for non-exempt staff including over-time and additional staff attributable to the disaster emergency, after the Humane Society has made a reasonable attempt to collect from the animal owner;
- iii. Transportation of animals by the Humane Society to Louisville addresses at a standard IRS mileage rate. The Humane Society agrees to make reasonable efforts to first arrange with the City for the transportation of any animal to an address in Louisville prior to initiating Humane Society transportation and;
- iv. Additional supplies attributable to the disaster emergency will be reimbursed upon review and approval of the City.

6. **Compensation.** The City agrees to pay the Humane Society for all services provided under this Agreement in accordance with this Section 6, except as otherwise specified in Sections 5(d)-(g). The Humane Society shall issue and deliver invoices to the City on a quarterly basis, and the City shall make payment in full to the Humane Society within 30 days of receipt of each invoice.

- a. The City agrees to pay to the Humane Society an annual fee of \$13,200 for the period of January 1, 2025 through December 31, 2025.
- b. The City agrees to pay to the Humane Society an annual fee of \$13,700 for the period of January 1, 2026 through December 31, 2026.
- c. *Surcharge for Increased Impoundments.* Each January following each full calendar year during the term of this Agreement, the Humane Society shall review the number of animals provided by the City to the Humane Society for impoundment during the previous calendar year. If such number exceeds 50 animals, the Humane Society shall invoice the City for, and the City shall pay to the Humane Society, a surcharge based on the number of animals above the 50-animal threshold. The surcharge rate shall be calculated in accordance with the following schedule:

Number of Impounded Animals	Surcharge Amount
51 – 55	\$1200
56 – 60	\$2400
Greater than 60	\$260 per animal

7. **Reclaim Rights and Obligations.**

- a. Each animal impounded by the City and placed with the Humane Society pursuant to this Agreement may be reclaimed by the owner during the Holding Period upon verification of ownership, subject to the following provisions.
- b. The Humane Society shall charge to any verified owner who reclaims an animal all costs and fees incurred by the Humane Society. The Humane Society shall keep complete and accurate records of all such charges assessed and any payments made by reclaiming owners.
- c. The Humane Society may set and collect such impound, board, and veterinary care fees for impounded animals as it deems appropriate and may refuse to return the animal to its owner

if such owner fails to pay any such fees in full. Any such fees collected will be retained by the Humane Society and will not be credited against any fees owed or paid by the City, except that fees collected from an owner and previously paid by the City shall be credited or refunded to the City.

- d. In connection with bringing an animal to the Humane Society, the City may institute a claim or proceeding against the person responsible for an animal (the "Defendant"), based upon or pursuant to C.R.S. § 18-9-204.5, or another applicable statute, ordinance, regulation, or law. The City hereby agrees that within one business day after it institutes such a claim or proceeding, it will provide the Humane Society with the following information, in writing: (i) the name, address, and telephone number of the Defendant; (ii) the date that the Defendant was charged with a violation of C.R.S. § 18-9-204.5 or any other applicable statute, ordinance, regulation, or law; and (iii) a copy of the arrest report or summons and citation related to Defendant. The City further agrees to promptly provide the Humane Society with any available information as to the status of the pending claim or proceedings against the Defendant (including, without limitation, any request or application for bail). In the event a court sets bail for a Defendant's release from custody pending final disposition pursuant to C.R.S. § 18-9-204.5(4), the City shall provide all available information with respect to Defendant's bond conditions and shall assign to the Humane Society any and all payments received from Defendant for the costs of boarding and caring for Defendant's animal placed with the Humane Society pursuant to C.R.S. § 18-9-204.5(4).
- e. Before entering into any agreement with a Defendant regarding the disposition of all or part of a case or claim, and before seeking any final judicial determination of charges pending against a Defendant, the City shall first contact and consult with the Humane Society to determine the extent of any and all fees, charges, bills, or costs owed by the Defendant based upon or arising out of the Humane Society's receiving, keeping or disposing of an animal. In prosecuting the case or claim, the City shall assist and fully cooperate with the Humane Society in the Humane Society's efforts to seek payment from the Defendant (or any other responsible person or entity) for those fees, charges, bills, or costs. This assistance and cooperation shall include, without limitation: (i) causing the Defendant to pay the Humane Society before any final disposition of charges is arranged or determined; (ii) requesting that the court orders the Defendant to pay the Humane Society in connection with the final disposition of charges; or (iii) requesting that the court make payment a condition of any sentence or probation.
- f. In the event that the Defendant owner or other responsible person is found to be "not guilty" or otherwise not liable of violating C.R.S. § 18-9-204.5 or any other applicable ordinance, regulation or law, or if the charges or claims brought against the Defendant are dismissed, either by the court or by the City, then the City shall be responsible for the payment of all fees, charges, bills or costs based upon or arising out of the Humane Society's receiving, keeping or disposing of the animal(s) in question.

- g. The Humane Society shall refer to the City for appropriate action the names of any known owners of animals impounded under this Agreement who have been assessed and have refused to pay or otherwise have not yet paid the associated costs and fees.

8. Reports Required.

- a. The Humane Society will maintain complete and accurate records of impounded animals. These records will specify the date of impoundment, the reason for impoundment if provided by the City, the general condition of the animal upon arrival or first contact with the Humane Society employees, efforts to identify and give notice to the owner, the length of animal stay at the Facility, treatment and/or disposition of the animal, all associated costs and fees, identity of the reclaiming owner, amounts billed to and collected from the reclaiming owner, and all other billing and collection information required under Section 7, above.
- b. The Humane Society shall make impound records and facilities available for inspection by any authorized representative of the City upon written request submitted to the CEO of the Humane Society or the CEO's authorized representative at least 24 hours in advance of the requested inspecting.

9. Reservation of Authority. The Humane Society has full and exclusive authority to establish internal operating policies and to conduct shelter operations which are not otherwise specified in, or in conflict with this Agreement. Nothing in this Agreement shall prohibit the City from establishing operating procedures or undertaking duties which are required by or in accordance with any City regulations or state or federal law.

10. Compliance with Applicable Laws. The Humane Society shall comply with all applicable local, state, and federal laws, rules regulations and ordinances concerning the services performed under this Agreement. If the City finds that the Humane Society is not in material compliance with any such laws, the City shall have the right to withhold future payments from the Humane Society until such time as the Humane Society shall comply, and may terminate this Agreement pursuant to Section 3, above.

11. Independent Contractor. The Parties recognize and agree that the Humane Society is an independent contractor for all purposes, both legal and practical, in performing services under this Agreement, and that the Humane Society and its agents and employees are not the City's agents or employees for any purpose. As an independent contractor, the Humane Society shall be responsible for employing and directing such personnel as it requires to perform the services purchased hereunder, shall exercise complete authority over its personnel, and shall secure any and all permits that may be required to perform the services.

12. Indemnification. The Humane Society shall protect, indemnify, defend, and hold harmless the City, the departments and agencies thereof, its officers, elected and appointed, and its employees, servants and agents from any and every action, cause of action, claim or demand of any person, natural or corporate, who is not a subscribing party to this Agreement by, because or through any matter, cause, or thing happening or in any way connected with the impoundment facility; except the Humane Society shall not be required to protect, indemnify,

defend, and hold harmless the City for acts, claims or demands which may arise from the willful misconduct or negligent acts of the City, its officers, elected or appointed, and the agencies thereof, nor for acts, claims, or demands based on the performance of this contract by the Humane Society in compliance with specific instructions or orders given to said Humane Society by authorized agents or elected or appointed officers of the City.

13. Insurance Coverage. The Humane Society is required to maintain at its own expense and without cost to the City, the following types and amounts of insurance. The policy limits required are to be considered minimum amounts.

- a. Comprehensive General Liability Insurance with minimum limits of \$2,000,000 combined single limit for each occurrence. This policy shall include the Broad Form Endorsement. The Certificate of Insurance for this coverage must identify if this coverage is provided under a claims-made form. Should this insurance coverage be on a claims-made form, a letter from the Humane Society's Insurance Broker outlining the current policy aggregate limits must accompany the Certificate of Insurance.
- b. Worker's Compensation and Employers Liability Insurance shall cover the obligations of the Humane Society in accordance with the provisions of the Worker's Compensation Act, as amended, of the State of Colorado.
- c. Comprehensive Automobile Liability Insurance with respect to each vehicle assigned to or used in the performance of this Agreement by the Humane Society.

14. Miscellaneous.

- a. *Invalidity of Provisions.* Should any of the provisions of this Agreement be held to be invalid or unenforceable, then the balance of the Agreement shall be held to be in full force and effect as though the invalid portion was not included; provided, however, that should the invalidity of unenforceability go to the essence of the Agreement or be of substantial nature, then the Party or Parties who would receive the benefit of the provision, were it not invalid or unenforceable, shall have the option to terminate this Agreement, forthwith.
- b. *Assignment.* Neither Party may assign any portion of this Agreement without the prior written consent of the other Party. Notwithstanding the preceding, the Humane Society may pledge amounts received pursuant to this Agreement without the consent of the City.
- c. *Notices.* Any notices to be given in accordance with or Pursuant to this Agreement for Animal Impound Services shall be directed as follows:

Louisville Police Department
Attn: Police Chief
992 W. Via Appia Way
Louisville, Colorado 80027
(303)335-4633

Kat Burns, Chief Executive Officer

Humane Society of Boulder Valley, Inc.
2323 55th Street
Boulder, Colorado 80301
(303) 442-4030, Ext. 605
Kat.Burns@boulderhumane.org

- d. *Governing Law and Venue.* This Agreement shall be governed by the laws of the State of Colorado, without regard to its conflict of law rules, and any legal action concerning the provisions hereof shall be brought in Boulder County, Colorado.
- e. *No Waiver.* Delays in enforcement or the waiver of any one or more defaults or breaches of this Agreement by either Party shall not constitute a waiver of any of the other terms or obligation of this Agreement.
- f. *Third Parties.* There are no intended third-party beneficiaries to this Agreement.
- g. *Governmental Immunity.* The City and its officers, attorneys and employees, are relying on, and do not waive or intend to waive by any provision of this Agreement, the monetary limitations or any other rights, immunities, and protections provided by the Colorado Governmental Immunity Act, C.R.S. § 24-10-101, *et seq.*, as amended, or otherwise available to the City and its officers, attorneys or employees.
- h. *Subject to Annual Appropriation.* Consistent with Article X, § 20 of the Colorado Constitution, any financial obligation of the City not performed during the current fiscal year is subject to annual appropriation, shall extend only to monies currently appropriated, and shall not constitute a mandatory charge, requirement, debt, or liability beyond the current fiscal year.
- i. *Force Majeure.* No Party shall be in breach of this Agreement if such Party's failure to perform any of the duties under this Agreement is due to Force Majeure, which shall be defined as the inability to undertake or perform any of the duties under this Agreement due to acts of God, floods, fires, sabotage, terrorist attack, strikes, riots, war, labor disputes, forces of nature, the authority and orders of government or pandemics.
- j. *Entire Agreement.* This Agreement constitutes the entire agreement between the Parties and supersedes all prior agreements and understandings, whether written or oral, relating to the subject matter of this Agreement.

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IN WITNESS WHEREOF, the Parties have executed this Agreement for Animal Impoundment Services as of the Effective Date.

City of Louisville, Colorado

Humane Society of Boulder Valley

Christopher M. Leh, Mayor

Kat Burns, Chief Executive Officer

Date: _____

Date: _____

Rafael Gutierrez, Chief of Police

Date: _____

**SUBJECT: APPROVAL OF THE FIRST ADDENDUM TO THE 2024
PAVEMENT MANAGEMENT SERVICES AND PEDESTRIAN
CURB RAMP INVENTORY CONTRACT**

DATE: DECEMBER 17, 2024

PRESENTED BY: KURT KOWAR, PUBLIC WORKS DEPARTMENT

SUMMARY:

Staff recommends approval of the First Addendum to the 2024 Pavement Management Services and Pedestrian Curb Ramp Inventory contract with International Cybernetics Company, LP d/b/a IMS Infrastructure Management Services for the amount of \$17,496. The total contract value is now \$112,140 plus \$9,500 contingency for a total value of \$121,640.

PROJECT DETAILS:

On June 4, 2024, City Council approved the contract with International Cybernetics Company to perform the pavement condition index scoring along with performing an inventory of existing curb ramps citywide for \$94,644 plus \$9,500 contingency for a total of \$104,144. When preparing the original contract, the City did not have records indicating the exact number of ADA ramps throughout the City and needed to estimate based on an assumption of approximately ten (10) curb ramps per road mile. Based on this assumption the original agreement estimated 1,300 ramps. After completion of the LiDAR scanning, it was determined the City has a total of 2,758 ramps. The agreement states the processing and QA/QC of ramps is \$12.00 per ramp. The increase in actual ramps to be processed will result in an increase to the contract of \$17,496.

FISCAL IMPACT:

The costs of the 2024 Pavement Management Services and Pedestrian Curb Ramp Inventory will come from the Pavement Management Fund. The current fund balance shown below reflects all the planned 2024 Pavement Management Projects awarded to date, including the original amount of this contract. No additional projects are expected in 2024.

Projected Funding

Description	Account	Current Budget
2024 Pavement Management	301312-660012	\$6,536,000
2024 Pavement Management (Budget Amendment)	301312-660012	\$251,100
Total Funding:		\$6,787,100

SUBJECT: 2024 PAVEMENT MANAGEMENT SERVICES AND PEDESTRIAN CURB RAMP INVENTORY CONTRACT ADDENDUM**DATE: DECEMBER 17, 2024****PAGE 2 OF 3****Project Expenses**

Description (Previous Awards)		Amount
2024 Concrete Replacement Project		(\$1,390,051)
2024 Street Resurfacing Project		(\$2,450,453)
2024 Geotechnical Testing Services		(\$152,900)
Pavement and Ramp Assessment (Original Contract)		(\$104,144)
2024 Misc Asphalt, Patching, and Alleys		(\$348,052)
Slurry Seal Project		(\$179,568)
Via Appia Striping		(\$251,100)
Misc Purchases and Contracts		(\$41,519)
On-Call Field Inspection Services		(\$30,000)
Sub-Total (Previous Awards):		(\$4,947,787)
Description (This Recommendation)		Amount
Ramp Assessment (Addendum 1)		301312-660012 (\$17,496)
Remaining Funds		\$1,821,817
		:

PROGRAM/SUB-PROGRAM:

The recommended contract supports the Transportation-Infrastructure Maintenance goal of providing a safe, well-maintained effective and efficient multimodal transportation system at a reasonable cost.

STAFF RECOMMENDATION:

Staff recommends approval of the First Addendum to the 2024 Pavement Management Services and Pedestrian Curb Ramp Inventory contract with International Cybernetics Company, LP dba IMS Infrastructure Management Services for \$17,496 and increase the total authorized amount of the contract to \$121,640 and authorize the Mayor, City Manager, Public Works Director, and City Clerk to sign and execute contract documents on behalf of the City.

ATTACHMENT(S):

1. First Addendum to the 2024 Pavement Management Services and Pedestrian Curb Ramp Contract
2. International Cybernetics Company, LP dba IMS Infrastructure Management Services Contract

SUBJECT: 2024 PAVEMENT MANAGEMENT SERVICES AND PEDESTRIAN CURB RAMP INVENTORY CONTRACT ADDENDUM

DATE: DECEMBER 17, 2024

PAGE 3 OF 3

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

EXHIBIT C

Addendum No. 1 to Service Agreement

This Addendum to that certain Services Agreement dated June 4, 2024 is made effective as of December 17, 2024 by and between the undersigned parties.

1. Services to be provided: Increase quantity of ramps being processed by 1,458. When preparing the original contract the City did not have records indicating the number of ADA ramps throughout the City. The original agreement estimated 1,300 ramps. After completion of the lidar scanning it was determined the City has a total of 2,758 ramps.
2. Fees: \$17,496.00
3. Schedule: Revise to April 25, 2025.

CITY OF LOUISVILLE
749 Main Street
Louisville, CO 80027

By: _____
Christopher M. Leh, Mayor

Attest: _____
Genny Kline, Interim City Clerk

Company: International Cybernetics Company, LP DBA IMS Infrastructure Management
Address: 10630 75th Street
Largo, FL 33777

By: John Till Digitally signed by John Till
DN: cn=John Till, c=US, o=ICC-
IMS, ou=ICC-IMS, email=jtill@icc-
ims.com
Date: 2024.12.05 06:15:27 -05'00'

Attest: Lois Somers Digitally signed by Lois Somers
DN: cn=Lois Somers, c=US,
o=International Cybernetics Company, LP,
email=loiss@internationalcybernetics.com
Date: 2024.12.05 09:06:46 -05'00'

**INDEPENDENT CONTRACTOR AGREEMENT
BY AND BETWEEN THE CITY OF LOUISVILLE
AND INTERNATIONAL CYBERNETICS COMPANY, LP DBA IMS INFRASTRUCTURE
MANAGEMENT SERVICES
FOR PAVEMENT MANAGEMENT AND CURB RAMP INVENTORY SERVICES**

1.0 PARTIES

This INDEPENDENT CONTRACTOR AGREEMENT (this "Agreement") is made and entered into this 4th day of June, 2024 (the "Effective Date"), by and between the **City of Louisville**, a Colorado home rule municipal corporation, hereinafter referred to as the "City", and International Cybernetics Company, LP dba IMS Infrastructure Management Services, a Delaware Limited Partnership, hereinafter referred to as the "Contractor".

2.0 RECITALS AND PURPOSE

- 2.1 The City desires to engage the Contractor for the purpose of providing Pavement Management and Curb Ramp Inventory Services as further set forth in the Contractor's Scope of Services (which services are hereinafter referred to as the "Services").
- 2.2 The Contractor represents that it has the special expertise, qualifications and background necessary to complete the Services.

3.0 SCOPE OF SERVICES

The Contractor agrees to provide the City with the specific Services and to perform the specific tasks, duties and responsibilities set forth in Scope of Services attached hereto as Exhibit "A" and incorporated herein by reference. Contractor shall furnish all tools, labor, and supplies in such quantities and of the proper quality as are necessary to professionally and timely perform the Services. Contractor acknowledges that this Agreement does not grant any exclusive privilege or right to supply Services to the City.

4.0 COMPENSATION

- 4.1 The City shall pay the Contractor for Services under this Agreement a total not to exceed the amounts set forth in Exhibit "A" attached hereto and incorporated herein by this reference. For Services compensated at hourly or per unit rates, or on a per-task basis, such rates or costs per task shall not exceed the amounts set forth in Exhibit A. The City shall not pay mileage and other reimbursable expenses (such as meals, parking, travel expenses, necessary memberships, etc.), unless such expenses are (1) clearly set forth in the Scope of Services, and (2) necessary for performance of the Services ("Pre-Approved Expenses"). The foregoing amounts of compensation shall be inclusive of all costs of whatsoever nature associated with the Contractor's efforts, including but not limited to salaries, benefits, overhead, administration, profits, expenses, and outside Contractor fees. The Scope of Services and payment therefor shall only be changed by a properly authorized amendment to this Agreement. No City employee has the authority to bind the City with regard to any payment for any Services which exceeds the amount payable under the terms of this Agreement.
- 4.2 The Contractor shall submit monthly an invoice to the City for Services rendered and a detailed expense report for Pre-Approved Expenses incurred during the previous month.

The invoice shall document the Services provided during the preceding month, identifying by work category and subcategory the work and tasks performed and such other information as may be required by the City. The Contractor shall provide such additional backup documentation as may be required by the City. The City shall pay the invoice within thirty (30) days of receipt unless the Services or the documentation therefor are unsatisfactory. Payments made after thirty (30) days may be assessed an interest charge of one percent (1%) per month unless the delay in payment resulted from unsatisfactory work or documentation therefor.

5.0 PROJECT REPRESENTATION

- 5.1 The City designates Mary Hamann as the responsible City staff to provide direction to the Contractor during the conduct of the Services. The Contractor shall comply with the directions given by Mary Hamann and such person's designees.
- 5.2 The Contractor designates Jim Tourek as its project manager and as the principal in charge who shall be providing the Services under this Agreement. Should any of the representatives be replaced, particularly Jim Tourek, and such replacement require the City or the Contractor to undertake additional reevaluations, coordination, orientations, etc., the Contractor shall be fully responsible for all such additional costs and services.

6.0 TERM

- 6.1 The term of this Agreement shall be from the Effective Date to February 28, 2025, unless sooner terminated pursuant to Section 13, below. The Contractor's Services under this Agreement shall commence on the Effective Date and Contractor shall proceed with diligence and promptness so that the Services are completed in a timely fashion consistent with the City's requirements.
- 6.2 Nothing in this Agreement is intended or shall be deemed or construed as creating any multiple-fiscal year direct or indirect debt or financial obligation on the part of the City within the meaning of Colorado Constitution Article X, Section 20 or any other constitutional or statutory provision. All financial obligations of the City under this Agreement are subject to annual budgeting and appropriation by the Louisville City Council, in its sole discretion. Notwithstanding anything in this Agreement to the contrary, in the event of non-appropriation, this Agreement shall terminate effective December 31 of the then-current fiscal year.

7.0 INSURANCE

- 7.1 The Contractor agrees to procure and maintain, at its own cost, the policies of insurance set forth in Subsections 7.1.1 through 7.1.4. The Contractor shall not be relieved of any liability, claims, demands, or other obligations assumed pursuant to this Agreement by reason of its failure to procure or maintain insurance, or by reason of its failure to procure or maintain insurance in sufficient amounts, durations, or types. The coverages required below shall be procured and maintained with forms and insurers acceptable to the City. All coverages shall be continuously maintained from the date of commencement of Services hereunder. The required coverages are:

- 7.1.1 Workers' Compensation insurance as required by the Labor Code of the State of Colorado and Employers Liability Insurance. Evidence of qualified self-insured status may be substituted.
- 7.1.2 General Liability insurance with minimum combined single limits of \$1,000,000 each occurrence and \$2,000,000 aggregate. The policy shall include the City of Louisville, its officers and its employees, as additional insureds, with primary coverage as respects the City of Louisville, its officers and its employees, and shall contain a severability of interests provision.
- 7.1.3 Comprehensive Automobile Liability insurance with minimum combined single limits for bodily injury and property damage of not less than \$400,000 per person in any one occurrence and \$1,000,000 for two or more persons in any one occurrence, and auto property damage insurance of at least \$50,000 per occurrence, with respect to each of Contractor's owned, hired or non-owned vehicles assigned to or used in performance of the Services. If the Contractor has no owned automobiles, the requirements of this paragraph shall be met by each officer or employee of the Contractor providing services to the City of Louisville under this contract.
- 7.2 The Contractor's general liability insurance and automobile liability and physical damage insurance shall be endorsed to include the City, and its elected and appointed officers and employees, as additional insureds, unless the City in its sole discretion waives such requirement. Every policy required above shall be primary insurance, and any insurance carried by the City, its officers, or its employees, shall be excess and not contributory insurance to that provided by the Contractor. Such policies shall contain a severability of interests provision. The Contractor shall be solely responsible for any deductible losses under each of the policies required above.
- 7.3 Certificates of insurance shall be provided by the Contractor as evidence that policies providing the required coverages, conditions, and minimum limits are in full force and effect, and shall be subject to review and approval by the City. No required coverage shall be cancelled, terminated, or materially changed until at least 30 days prior written notice has been given to the City. The City reserves the right to request and receive a certified copy of any policy and any endorsement thereto.
- 7.4 Failure on the part of the Contractor to procure or maintain policies providing the required coverages, conditions, and minimum limits shall constitute a material breach of contract upon which the City may immediately terminate this Agreement, or at its discretion may procure or renew any such policy or any extended reporting period thereto and may pay any and all premiums in connection therewith, and all monies so paid by the City shall be repaid by Contractor to the City upon demand, or the City may offset the cost of the premiums against any monies due to Contractor from the City.
- 7.5 The parties understand and agree that the City is relying on and does not waive or intend to waive by any provision of this contract, the monetary limitations or any other rights, immunities, and protections provided by the Colorado Governmental Immunity Act, § 24-10-101 et seq., C.R.S., as from time to time amended, or otherwise available to the City, its officers, or its employees.

8.0 INDEMNIFICATION

To the fullest extent permitted by law, the Contractor agrees to indemnify and hold harmless the City, and its elected and appointed officers and its employees, from and against all liability, claims, and demands, on account of any injury, loss, or damage, which arise out of or are connected with the Services hereunder, if such injury, loss, or damage is caused by the negligent act, omission, or other fault of the Contractor or any subcontractor of the Contractor, or any officer, employee, or agent of the Contractor or any subcontractor, or any other person for whom Contractor is responsible. The Contractor shall investigate, handle, respond to, and provide defense for and defend against any such liability, claims, and demands. The Contractor shall further bear all other costs and expenses incurred by the City or Contractor and related to any such liability, claims and demands, including but not limited to court costs, expert witness fees and attorneys' fees if the court determines that these incurred costs and expenses are related to such negligent acts, errors, and omissions or other fault of the Contractor. The City shall be entitled to its costs and attorneys' fees incurred in any action to enforce the provisions of this Section 8.0. The Contractor's indemnification obligation shall not be construed to extend to any injury, loss, or damage which is caused by the act, omission, or other fault of the City.

9.0 QUALITY OF WORK

Contractor's Services shall be performed in accordance with the highest professional workmanship and service standards in the field to the satisfaction of the City.

10.0 INDEPENDENT CONTRACTOR

It is the expressed intent of the parties that the Contractor is an independent contractor and not the agent, employee, or servant of the City, and that:

- 10.1. **CONTRACTOR SHALL SATISFY ALL TAX AND OTHER GOVERNMENTALLY IMPOSED RESPONSIBILITIES INCLUDING, BUT NOT LIMITED TO, PAYMENT OF STATE, FEDERAL AND SOCIAL SECURITY TAXES, UNEMPLOYMENT TAXES, WORKERS' COMPENSATION, AND SELF-EMPLOYMENT TAXES. NO STATE, FEDERAL, OR LOCAL TAXES OF ANY KIND SHALL BE WITHHELD OR PAID BY THE CITY.**
- 10.2. **CONTRACTOR IS NOT ENTITLED TO WORKERS' COMPENSATION BENEFITS EXCEPT AS MAY BE PROVIDED BY THE INDEPENDENT CONTRACTOR NOR TO UNEMPLOYMENT INSURANCE BENEFITS UNLESS UNEMPLOYMENT COMPENSATION COVERAGE IS PROVIDED BY THE INDEPENDENT CONTRACTOR OR SOME ENTITY OTHER THAN THE CITY.**
- 10.3. Contractor does not have the authority to act for the City, or to bind the City in any respect whatsoever, or to incur any debts or liabilities in the name of or on behalf of the City.
- 10.4. Contractor has and retains control of and supervision over the performance of Contractor's obligations hereunder and control over any persons employed by Contractor for performing the Services hereunder.
- 10.5. The City will not provide training or instruction to Contractor or any of its employees regarding the performance of the Services hereunder.

- 10.6. Neither the Contractor nor any of its officers or employees will receive benefits of any type from the City.
- 10.7. Contractor represents that it is engaged in providing similar services to other clients and/or the general public and is not required to work exclusively for the City.
- 10.8. All Services are to be performed solely at the risk of Contractor and Contractor shall take all precautions necessary for the proper and sole performance thereof.
- 10.9. Contractor will not combine its business operations in any way with the City's business operations and each party shall maintain their operations as separate and distinct.

11.0 ASSIGNMENT

Contractor shall not assign or delegate this Agreement or any portion thereof, or any monies due to or become due hereunder without the City's prior written consent.

12.0 DEFAULT

Each and every term and condition hereof shall be deemed to be a material element of this Agreement. In the event either party should fail or refuse to perform according to the terms of this Agreement, such party may be declared in default.

13.0 TERMINATION

- 13.1 This Agreement may be terminated by either party for material breach or default of this Agreement by the other party not caused by any action or omission of the other party by giving the other party written notice at least thirty (30) days in advance of the termination date. Termination pursuant to this subsection shall not prevent either party from exercising any other legal remedies which may be available to it.
- 13.2 In addition to the foregoing, this Agreement may be terminated by the City for its convenience and without cause of any nature by giving written notice at least fifteen (15) days in advance of the termination date. In the event of such termination, the Contractor will be paid for the reasonable value of the Services rendered to the date of termination, not to exceed a pro-rated daily rate, for the Services rendered to the date of termination, and upon such payment, all obligations of the City to the Contractor under this Agreement will cease. Termination pursuant to this Subsection shall not prevent either party from exercising any other legal remedies which may be available to it.

14.0 INSPECTION AND AUDIT

The City and its duly authorized representatives shall have access to any books, documents, papers, and records of the Contractor that are related to this Agreement for the purpose of making audits, examinations, excerpts, and transcriptions.

15.0 DOCUMENTS

All computer input and output, analyses, plans, documents photographic images, tests, maps, surveys, electronic files, and written material of any kind generated in the performance of this Agreement or developed for the City in performance of the Services are and shall remain the sole

and exclusive property of the City. All such materials shall be promptly provided to the City upon request therefor and at the time of termination of this Agreement, without further charge or expense to the City and in hardcopy or an electronic format acceptable to the City, or both, as the City shall determine. Contractor shall not provide copies of any such material to any other party without the prior written consent of the City. Contractor shall not use or disclose confidential information of the City for purposes unrelated to performance of this Agreement without the City's written consent.

16.0 ENFORCEMENT

- 16.1 In the event that suit is brought upon this Agreement to enforce its terms, the parties shall each bear and be responsible for their own attorneys' fees and court costs.
- 16.2 This Agreement shall be deemed entered into in Boulder County, Colorado, and shall be governed by and interpreted under the laws of the State of Colorado. Any action arising out of, in connection with, or relating to this Agreement shall be filed in the courts of Boulder County or the federal district court for the District of Colorado, and in no other court. Contractor hereby waives its right to challenge the personal jurisdiction of the courts of Boulder County and the federal district court for the District of Colorado over it. Colorado law shall apply to the construction and enforcement of this Agreement.

17.0 COMPLIANCE WITH LAWS

Contractor shall be solely responsible for compliance with all applicable federal, state, and local laws, including the ordinances, resolutions, rules, and regulations of the City; for payment of all applicable taxes; and obtaining and keeping in force all applicable permits and approvals.

18.0 INTEGRATION AND AMENDMENT

This Agreement represents the entire Agreement between the parties and there are no oral or collateral agreements or understandings. This Agreement may be amended only by an instrument in writing signed by the parties.

19.0 NOTICES

All notices required or permitted under this Agreement shall be in writing and shall be given by hand delivery, by United States first class mail, postage prepaid, registered, or certified, return receipt requested, by national overnight carrier, or by email transmission, addressed to the party for whom it is intended at the following address:

If to the City:

City of Louisville
Attn: Mary Hamann
749 Main Street
Louisville, CO 80027
email: mhamann@louisvilleco.gov

If to the Contractor:

International Cybernetics Company, LP dba IMS Infrastructure Management Services
Attn: Jim Tourek
10630 75th Street
Largo, FL 33777
email: jtourek@icc-ims.com

Except for notices by email transmission, any notice required or permitted under this Agreement shall be effective when received as indicated on the delivery receipt, if by hand delivery or overnight carrier; on the United States mail return receipt, if by United States mail. Notices by email transmission shall be effective on transmission, so long as no message of error or non-receipt is received by the party giving notice. Either party may by similar notice given, change the address to which future notices or other communications shall be sent.

20.0 EQUAL OPPORTUNITY EMPLOYER

- a) Contractor will not discriminate against any employee or applicant for employment because of age 40 and over, race, sex, color, religion, national origin, disability, genetic information, sexual orientation, veteran status, or any other applicable status protected by state or local law. Contractor will take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to any status set forth in the preceding sentence. Such action shall include but not be limited to the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notice to be provided by an agency of the federal government, setting forth the provisions of the Equal Opportunity Laws.
- b) Contractor shall be in compliance with the applicable provisions of the American with Disabilities Act as enacted and from time to time amended and any other applicable federal, state, or local laws and regulations. A signed, written certificate stating compliance with the Americans with Disabilities Act may be requested at any time during the life of this Agreement or any renewal thereof.

21.0 NO THIRD PARTY BENEFICIARIES

It is expressly understood and agreed that enforcement of the terms and conditions of this Agreement, and all rights of action relating to such enforcement, shall be strictly reserved to City and Contractor, and nothing contained in this Agreement shall give or allow any such claim or right of action by any other third party on such Agreement. It is the express intention of the parties that any person other than City or Contractor receiving services or benefits under this Agreement shall be deemed to be an incidental beneficiary only.

22.0 SUBCONTRACTORS

Contractor may utilize subcontractors identified in its qualifications submittal to assist with non-specialized works as necessary to complete projects. Contractor will submit any proposed subcontractor and the description of its services to the City for approval. The City will not work directly with subcontractors.

23.0 AUTHORITY TO BIND

Each of the persons signing below on behalf of any party hereby represents and warrants that such person is signing with full and complete authority to bind the party on whose behalf of whom such person is signing, to each and every term of this Agreement.

In witness whereof, the parties have executed this Agreement to be effective as of the day and year first above written.

CITY OF LOUISVILLE

By: 
Mayor

Attest: 
City Clerk

CONTRACTOR: John Till

Digitally signed by John Till
DN: cn=John Till, c=US, o=ICC-
IMS, ou=ICC-IMS, email=jtill@icc-
ims.com
Date: 2024.05.21 12:57:47 -04'00'

By: John Till
Title: CFO

Exhibit A – Scope of Services

[See Following Page(s)]



Quote for Professional Services Pavement Management Program Update



Mary K. Hamann, PE, Civil Engineer III
City of Louisville, Colorado

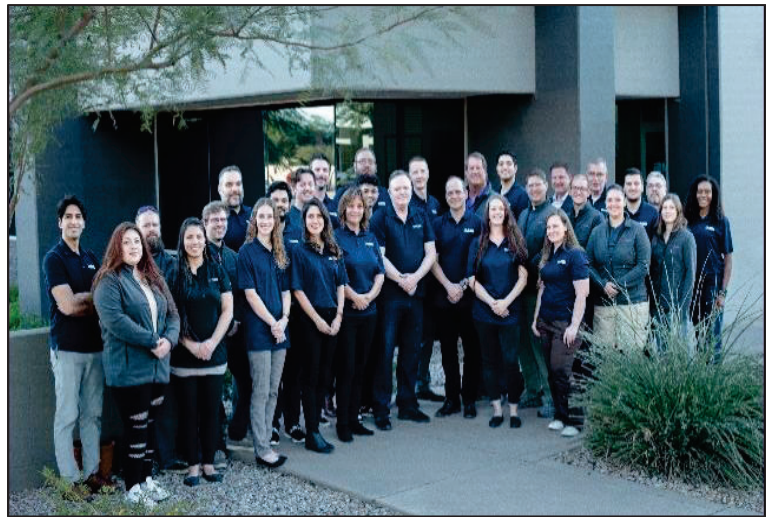
March 26, 2024

IMS Infrastructure Management Services, LP
Jim Tourek, West & South Region Client Services Mgr.

IMS Today and Our History with Louisville

IMS Infrastructure Management Services, LP is pleased to submit a quotation to update the City's pavement management program. IMS is an industry leader with 38 years of pavement and asset management experience. Since our founding in 1985, we have provided similar services to more than 1,000 municipalities across the United States. **Collectively, the IMS engineering team brings more than 350 years of pavement and asset management experience to the table.**

IMS brings significant regional experience and expertise to meet the City's pavement condition assessment, right-of-way asset, and software integration. As we understand, the City of Louisville currently maintains approximately **100 centerline miles** of roadway. IMS has performed objective pavement data collection for **similar Colorado agencies** such as Arapahoe County, Aurora, Boulder County, Centennial, Denver, Eagle, Eagle County, Fort Collins, Fort Morgan, Lakewood, Littleton, **Louisville**, Longmont, Northglenn, Routt County, Steamboat Springs, and many others in Colorado.



Members of the IMS Engineering, Technical and Sales Teams at our December 2022 in-service meeting week.

Similar to the previous projects and to ensure adequate coverage across the network, the Road Surface Tester (RST) will survey the arterial, collector and residential roadways in both directions, resulting in a **survey mileage of an IMS estimated 145 miles**. The RST is equipped with a Laser Crack Measuring System 2 (LCMS-2) that is the most technologically advanced data collection equipment available in the industry.

The prior IMS-City of Louisville collaborative projects (2015, 2018, 2021) were completed using the same Lucity software that's proposed for 2024. This included a network level pavement assessment, a multi-year analysis once IMS collaborated with city staff to set-up the operating parameters, a written report, as well as a web map and imagery.

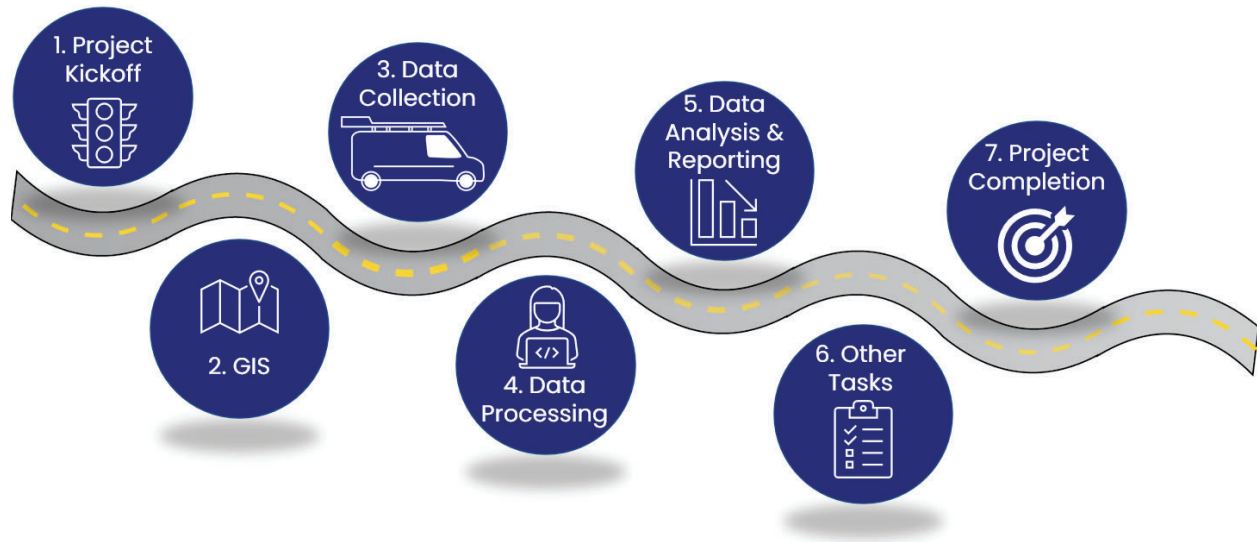
We have added six pavement engineers and nine GIS analysts to our team along with five state-of-the-art Road Surface Testers (RST) equipped with the latest 3D Laser Crack Measurement System (LCMS-2) technology. We have also added Fast Falling Weight Deflectometer (FastFWD) pavement structural testing equipment along with mobile Lidar technology for asset inventories and ADA sidewalk and ramp compliance surveys. The combination of our larger technical team and fleet of testing equipment provides IMS with greater capacity and redundancy for completing larger projects in a timelier manner.

We are confident that IMS will be the ideal partner to ensure that the City achieves its project goals, given our past successful work with the City, our significant regional experience, and our possession of the largest fleet of advanced pavement data collection systems in the United States.

Project Overview

Scope of Work

The IMS project approach for pavement condition and asset inventory projects typically follows the seven steps shown in the graphic below. In this section, we detail the specific tasks and milestones that will be required for the successful completion of this project.



IMS assigns seasoned pavement engineers as the project managers for all our projects. We believe it is imperative that the project manager have the requisite technical and domain knowledge – as well as practical project management experience – to lead the team. Our project management process is based on thorough planning, proactive management of schedules, and constant communication. The result of effective project management is higher quality with respect to project deliverables and satisfied stakeholders.

Kickoff Meeting

IMS has standardized a project approach based upon our 38 years of pavement management experience and the subsequent lessons learned after performing hundreds of projects. Detailed conversations with our clients allow us to tailor a solution to the specific needs of an individual municipality.

A prerequisite for a successful project is an initial project meeting with the City team members and the IMS team. This early communication is critical to ensuring that we are fully aligned with the City's overall vision for this project as well as the specific data needs for the City. Through this project initiation process, we will prepare the project plan for overall implementation. The plan includes:

- Contacts and stakeholders
- Measurable tasks and milestones
- Project approach and specific data collection methods
- Allocation of resources, including personnel and equipment
- Deliverables and schedule
- Performance and schedule risks

We will ensure that the plan remains current with any further data needs. Our Project Initiation Form and GIS Setup Form are part of our process, where the outcome will include a final project plan and an

approved schedule in collaboration with the City's staff and stakeholders. This plan is established before any data collection begins. Project requirements are incorporated in the two project success documents. The project success documents ensure transparency and act as a reference point to ensure all stakeholders are accounted for and involved.

Quality Management Plan (QMP)

Based on discussions with the City during the project initiation and kickoff meetings, IMS will develop a project-specific version of our standard QMP for this project. The plan will address the following:

Phase 1. Project Planning – Before Data Collection

- Project team and schedule
- Equipment calibration and control sites
- Rater calibration

Phase 2. Project Execution – During Collection & Processing

- Fast-tracked data collection, processing, and reporting
- Production data collection and processing
- Routine equipment inspection and calibration

Phase 3. Data Delivery – Post Data Processing

- City acceptance and corrective action procedures
- Final data review
- Database delivery and technical memo



IMS' standard Quality Management Plan (QMP) document that is customized for each project.

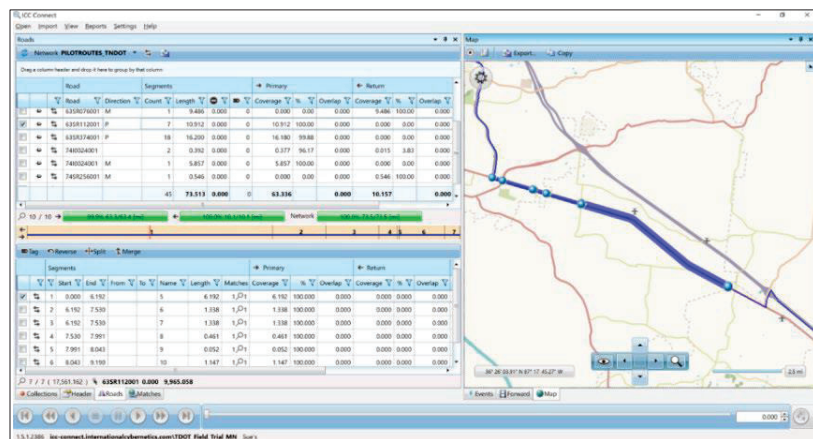
New to the IMS Project Workflow: Our engineering team has worked extensively to improve the AI and data processing algorithms of the LCMS-2 technology. This has resulted in more repeatability, improved automation (quality and speed), and better data. Our stated goals are to continuously improve and build upon the tools at our disposal to deliver the best data to our clients.

GIS Survey Mapping & Network Referencing

Data collection is unique in every jurisdiction, varying by network complexity, the mix of urban and rural roadways, type of terrain, schedule constraints, and most notably, the analysis and data delivery requirements. To facilitate a standard approach that yields deliverables tailored to our clients' needs,

we developed our Unify™

Software Suite that includes Drive™ for data collection, Connect™ for data processing, and Inform™ for online visualization. This comprehensive software relies on street centerline GIS data provided by

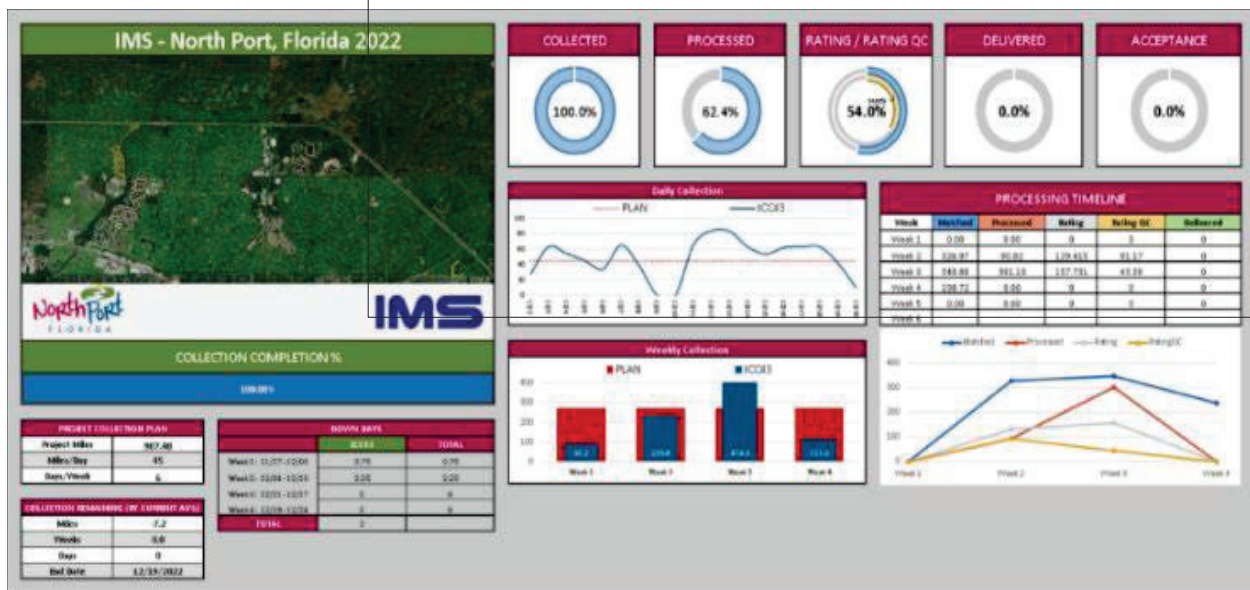


Sample road network loaded into Connect™ software

the City to build all successive processes, which include calibration, collection, processing, analysis, and reporting. The Unify™ Suite eliminates the need to use numerous scripts and transformations to produce the geodatabase and tabular deliverables.

Our technical team will review City-provided roadway network files (expected in an Esri GIS file format) that define the routes to be collected. The GIS will be reviewed against any existing pavement database street segments and roadways. If discrepancies arise, they will be noted and discussed for resolution with the City before the start of data collection. The finalized roadway network will be loaded into the Drive™ software, which defines the pavement network segmentation and attribution to be collected and delivered, minimizing routing problems and location errors.

Sample reporting dashboard showing data collection and processing progress



The GIS files will include attributes such as road section ID, street name, street type, beginning description, ending description, start reference, and end reference for each segment.

Our Unify™ software automatically extracts data from the various sensors on the data collection vehicle and combines it with location information and imagery. The Unify™ Suite workflow provides easy field data collection using the Drive™ software onboard each RST, which seamlessly transfers collected data to Connect™ for spatial analysis and processing. Unify™ software provides our clients with a perfect match between their existing GIS and the resulting condition data and allows us to configure our data deliverable in many formats that are compatible with all pavement management software, GIS, and other management systems.

Connect™ enables daily progress tracking. The field crew will upload the day's collection for office-based data analysts to match against the network for location and completeness. For larger projects, it is customary practice to divide the network into smaller, more manageable segments, such as council districts or maintenance areas.

Pavement Condition Survey

Our two-person field crews will collect both outward facing and downward facing pavement imagery, using one of our RSTs equipped with LCMS-2 3D pavement imaging technology. Pavement surface distresses including load cracking, block cracking, rutting, raveling, reflective cracking, loss of section, bleeding, edge distress, and patched areas as well as right-of-way imagery will be collected on a segment-by-segment basis, with each distress being captured by type, extent, and severity. The data and imagery that is collected is then linked to the City's existing GIS data.

The LCMS-2 system is the highest resolution 3D pavement scanning technology available. Each LCMS-2 system relies on two downward-facing, high-resolution 3D cameras. Combined, the two 3D cameras capture continuous downward imagery for more than a standard lane width. The cameras are coupled with downward-facing lasers that provide constant and consistent illumination of the pavement surface regardless of ambient lighting conditions. The impacts of shadows from trees, buildings, or simply overcast sky conditions are eliminated by the laser illumination.



*IMS Road Surface Tester (RST) equipped with Laser Crack Measurement System (LCMS-2)
(Note: IMS has five RST LCMS-2 equipped systems dedicated to municipal pavement management.)*

The 3D cameras can detect one-millimeter-wide cracks and full-lane-width rutting, as required by ASTM D6433, on the pavement surface at speeds up to 65 mph. Due to the versatility of the LCMS-2 technology, the automated pavement condition survey will be performed at posted speeds, and traffic control will not be necessary for the data collection effort. Pavement data collection and imagery surveys are expected to progress at a rate of between 35 and 50 miles per day for the City.

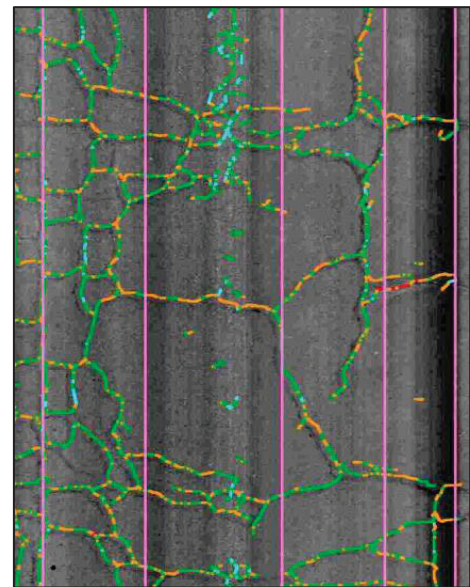
The IMS team then processes the collected data using a combination of advanced analytical tools and rigorous, manual QC/QA performed by IMS' certified Pavement Condition Index (PCI) raters to determine accurate and repeatable PCI values for each roadway segment. Furthermore, we deliver our PCI ratings and supporting data (distress information, rutting, and IRI values) in both spreadsheet and GIS formats for easy review. The data that we provide may be used immediately for decision making or be imported into any pavement management system. During data collection, IMS implements routines that are performed each day of data collection to ensure data consistency. These include:

- Equipment is calibrated, and daily reports are completed.
- All sensors are continually monitored to ensure they are receiving data within specifications.
- The Crew Chief and operator manually monitor the HD digital images, GPS, distress recorder, roughness measurements, and rutting data.
- Each street is noted on the inventory and map, as well as through GPS and assignment of the RST van number.
- Production is tracked and records of coverage are documented.
- A corrective action plan is followed, as necessary.
- All data is backed up and sent to the IMS main office for processing.

ASTM D6433 Pavement Condition Evaluation

During and following the data collection effort, our team will evaluate all collected pavement imagery and surface measurements to arrive at Pavement Condition Index (PCI) values. This is a six-step process that includes the following tasks:

1. **RoadInspect™ Pavement Distress Detection** – Cracks, rutting, and other pavement distresses are automatically detected in both the 2D and 3D pavement images. IRI values are also calculated at this time. *(Note: The RoadInspect™ software was developed by Pavemetrics, the firm that manufactures the LCMS-2 technology.)*
2. **IMS Pavement Distress Classification** – Pavement distresses detected by the RoadInspect™ software are then classified by type (e.g., alligator cracking, bleeding, edge cracking, etc.) and severity (e.g., low, medium, or high) based on predefined criteria (e.g., ASTM D6433). IMS has created a suite of custom tools that include rule-based algorithms in conjunction with artificial intelligence to accurately classify pavement distresses.
3. **IMS PCI Calculation** – Pavement distress data is imported into IMS' PCI calculation software, and PCI values are determined for each roadway segment using a scale from zero (0) to one hundred (100) as defined in ASTM D6433.
4. **IMS Quality Control (QC)** – The IMS project manager then does a review of the data and works with the QC team lead to address any issues that may be identified.
5. **IMS Quality Assurance (QA)** – The IMS project QA Manager independently reviews the rated data and works with our Project Manager and QC team to correct any issues observed.
6. **Client QA** – The IMS Project Manager reviews the findings of the pavement condition data with City staff before beginning any analysis activities. IMS will present the pavement condition data in a Client Review Spreadsheet (CRS) along with maps illustrating pavement conditions for the client to independently review.



LCMS-2 cracking data in QC/QA review stage.

Rutting and Roughness

IMS' LCMS-2 systems detect rutting on asphalt roadways using laser measurements of transverse profiles that are collected continuously as the vans drive at normal traffic speed. With more than 4,000 measurement points collected per transverse profile and sub-millimeter vertical accuracy, the LCMS-2 can define transverse profiles with a high level of precision, accuracy, and repeatability.

Once all the transverse profiles are collected for a roadway, IMS uses the Brazilian Method, which is an industry standard method, to determine the rut area and the deepest (or maximum) rut depth for the profiles. These values, as well as width of rut and color coding, can be seen in the LCMS-2 laser image to the right. Red represents high severity rutting, while orange represents moderate severity rutting. The severities are determined based on maximum rut depth thresholds that are specified in ASTM D6433.

Pavement roughness is evaluated by measuring the accumulated difference in the vertical displacement of a road surface, independent of chassis response, over a prescribed road length (longitudinal profile). This roughness is typically reported via the International Roughness Index (IRI). IRI data is calculated in real time from continuous longitudinal profile data collected by the LCMS-2's 3D profile device. To determine the road profile, data is simultaneously obtained from three devices: a pulse transducer-based distance-measuring instrument (DMI), high-speed 3D laser sensors operating at 112 MHz, and an accelerometer in compliance with ASTM E 950. The LCMS-2 unit conforms to a Class I profiling device, and it can also "pause" over non-valid roadway sections such as localized maintenance activities, railroad crossings, speed bumps, and brick inlays and not affect the IRI value.

Quality Control and Quality Assurance

IMS has developed a unique approach to pavement condition assessments by coupling manual review of distress data with automated algorithms. This more rigorous QC/QA process ensures that the automated distress detection and classification algorithms that we use work correctly. Our Pavement Engineering team fully understands the capabilities and limitations of the state-of-the-art LCMS-2 technologies and sophisticated algorithms that we employ, and our QC/QA steps are extremely important in ensuring the success of the project.

The IMS QC/QA process is comprehensive and makes use of field observations, automated data processing tools, manual data review by our QC team, independent review by our QA manager, and lastly, final review by the City. There are QC/QA checks at each stage of the project to ensure data quality before the data is moved into the next steps.

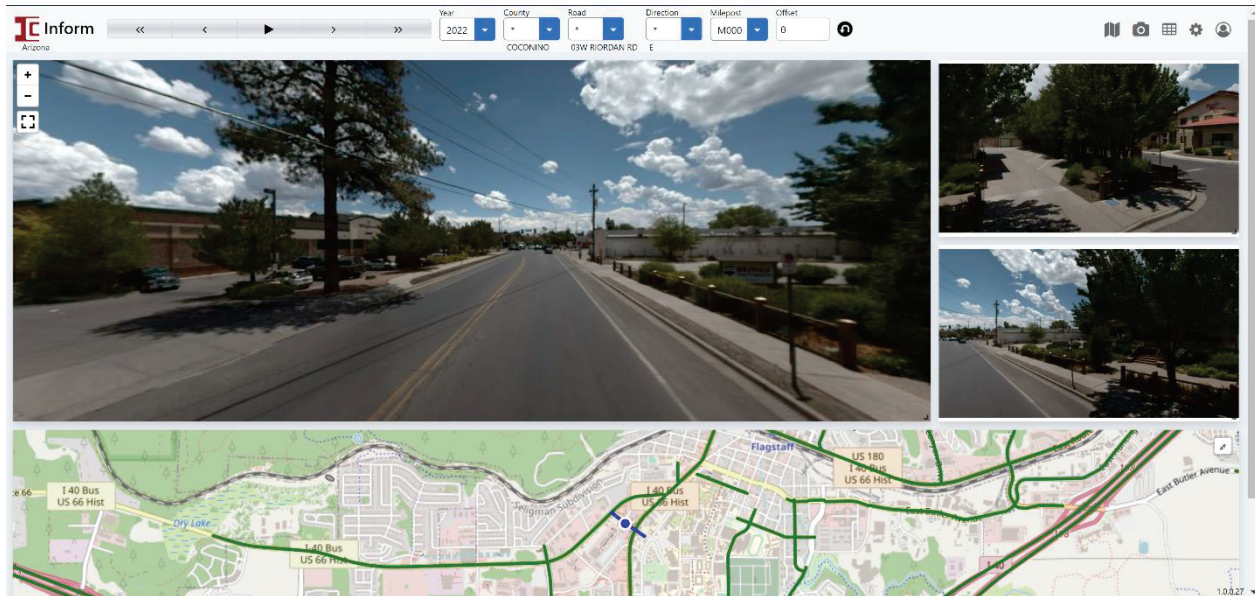
Machine learning and artificial intelligence have made leaps and bounds in speeding up distress identification. And when supplemented with trained pavement raters, field staff, and expert engineers, they establish high data confidence and integrity. The final quality assurance performed by City personnel will ensure that the City has confidence in and takes ownership of the condition data.



New QA Tool! IMS QC/QA interface for manually reviewing automated distress detection and classification results.

Inform Software – GIS Survey Mapping & Network Referencing

Data collection is unique in every jurisdiction. To facilitate a standard approach that yields deliverables tailored to our clients' needs, **we developed our Unify™ Software Suite that includes Drive™ for data collection, Connect™ for data processing, and Inform™ for online visualization.** Our comprehensive software suite relies on street centerline GIS data provided by the City to build all successive processes, which include calibration, collection, processing, analysis, and reporting.



Features:

- Play forward and reverse; step by image
- Easy search using map
- Drop-down lookup using any locators like District, City, Route, Direction, Milepost, etc.
- Go back in time: multiple cycles of data
- Panoramic 360-degree image view with pan/tilt/zoom controls
- U-turn button
- Tabular data
- Detail and summary charts

We will review the City's road network GIS files that define the extents of the survey and compare them against existing pavement database street segments. If discrepancies exist, they will be noted and reviewed with the City before data collection begins. We will load the finalized road network into Drive™, which defines the pavement network segmentation and attribution to be collected, minimizing routing problems and location errors. The GIS files will include attributes such as road section ID, street name, street type, beginning and ending descriptions, and start and end references for each segment. Data collection will then take place using one of our road surface testers (RSTs). Upon completion of data collection, Connect™ is used to automatically extract data from the sensors on the RST and combine it with location information and imagery. The output from Connect™ will be uploaded to Inform™ for convenient visualization.

Year 1 from project completion is included; subsequent years (if desired will have a hosting+ fee.

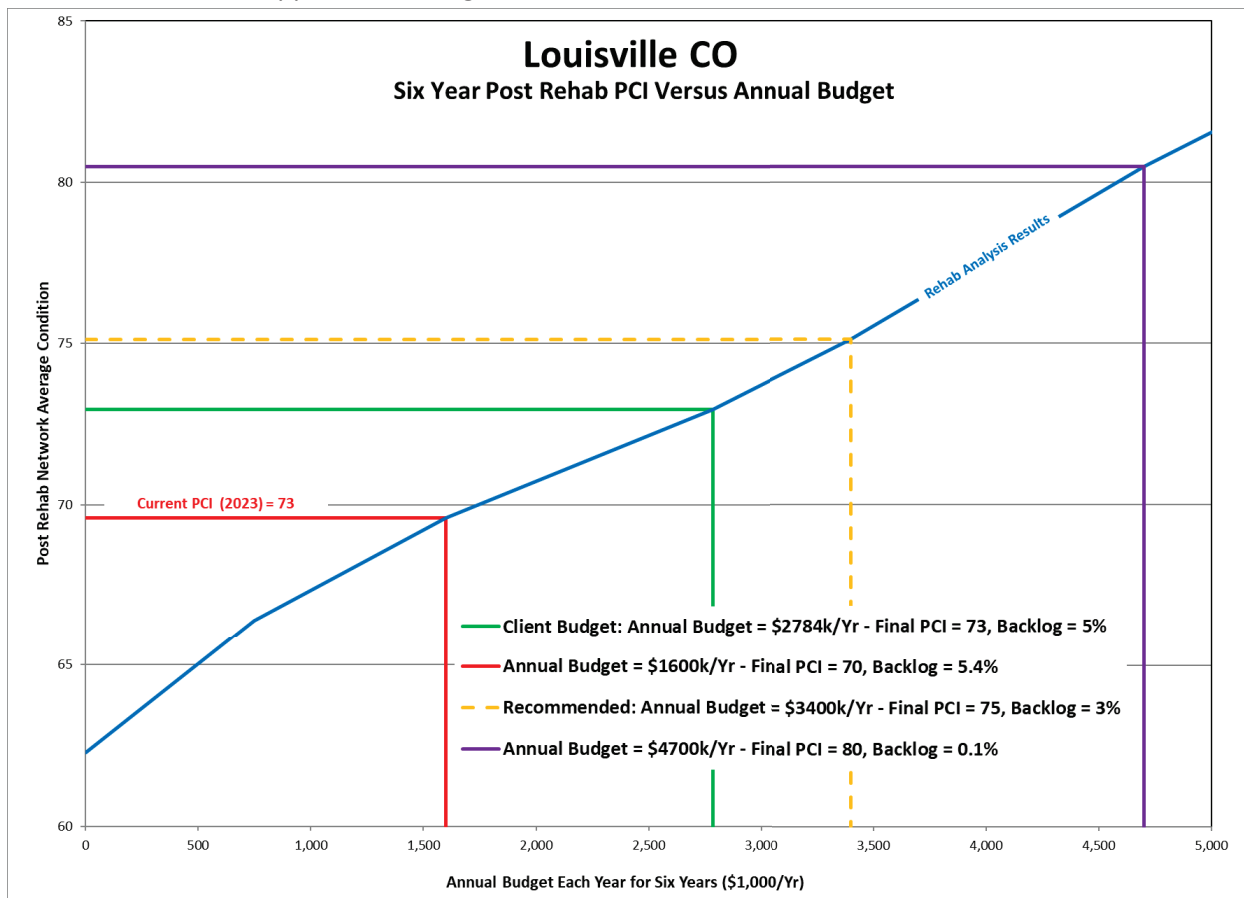
Analysis for the 2024 Project

Once the QC/QA process has been completed, our project team will deliver a Client Review Spreadsheet (CRS). This spreadsheet includes the pavement inventory, life-cycle cost estimates, and the familiar graphs and charts to understand the health of the network. This information will provide quality data, based on sound engineering principles, and realistic budgets for the City staff to utilize in their project selections and internal analyses.

Once the City reviews the PCI data, the Project Manager will set up a meeting with City staff to discuss the analysis requirements and identify additional budget scenarios to prepare. At a minimum, the following pavement management scenarios have been recommended, based on the simplified approach to this project:

- Annual funding required to maintain existing pavement conditions.
- Funding required to maintain an average PCI of 65 over the next 5 years.
- Funding allocation for asphalt overlay and/or surface treatments to maintain an average PCI of 70 over the next 5 years.
- PCI for the network if current funding levels remain the same for the next 5 years.
- Recommended pavement strategies for the various budget scenarios investigated.

We look forward to collaborating with the City staff to ensure that the pavement management program addresses the needs and priorities of the stakeholders involved. Assuming the City will request utilizing the **Lucity software**, similar to what the City of Louisville – 2021-22 (see graph, below) has used for their multi-year analysis. As with most projects, we plan to run budget scenarios and develop paving projects with our streamlined approach utilizing the referenced IMS solution.



Capacity to Perform Work

IMS employs 49 full-time staff, including 8 pavement engineers – five of whom hold PhD degrees in pavement engineering, 10 GIS analysts and technicians, nine independently, OCTA certified ASTM D6433 pavement raters, and 15 trained and experienced field technicians. Together, we complete over 100 pavement and asset management projects annually. We stand second to none in our ability to establish cost-effective pavement management programs for large and small agencies alike, and our team has earned a reputation for excellence over the course of thousands of projects for municipal clients across the United States. Our multi-disciplinary team, led by pavement engineers, has the experience and expertise to assist our clients with full-service pavement and asset management services, software needs assessments, and custom implementations.

Key personnel identified for the project will be assigned to the City for the duration of the project. Our team is accustomed to working on multiple projects at a time, and we adjust resources on a routine basis to ensure that we have the staff and equipment required to meet project milestones.

Proposed Project Schedule

This is a representation of our proposed schedule for the 2024 City of Louisville project, which reflects our improved project workflow. The field surveys are expected to progress at approximately 35 miles per day, and account for an estimated 4-5 days of testing.

Proposed Schedule of <i>7-Months Post-Survey</i>		
Assumes a NTP is issued May 31st, 2024 – <i>Data Collection is Weather Dependent</i>		
Task	Description	Estimated Milestone
1	Executed Agreement/NTP	If by late-May 2024:
2	GIS Acquisition and Validation	June 2024
3	Kick-off with Review Map Iterations and Approval	June 2024
4	RST LCMS-2 Pavement Surveys (145 Test-Miles): * 6-week after GIS verified and Executed Contract	* July 2024
8	QC/QA for Data Collected	August-Oct. 2024
6	Deliver Pavement Condition Data/Client Review Spreadsheet	Late-October 2024
7	Draft Analysis Development & Client Comments	November 2024
8	Final Analysis, Draft & Written Report	December 2024
Opt.	<i>Right-of-Way Assets, IMS Dashboard, Council Presentation</i>	<i>By December 2024</i>

Fee Proposal

The detailed budget presented on the next page is based on the IMS work plan and deliverables. It represents a realistic budget to complete the work, and we are confident we can maintain an on-time, on-budget assignment. IMS is proposing to survey all City-maintained major roads in both directions and all locals in one direction to ensure a sufficient representative sample. Please review our assumptions below and the optional services on the following page:

Louisville, CO: 2024 Base Scope of Services IMS Pavement Management Assessment & Analysis

Task	Activity	Quant	Units	Unit Rate	Total
Project Initiation					
1	Project Initiation	1	LS	\$2,500.00	\$2,500.00
2	Network Referencing & GIS Linkage	100	CL-Mi	\$7.50	\$750.00
3	Network Inventory Checks & Survey Map Development	100	CL-Mi	\$2.50	\$250.00
Field Surveys					
4	RST Mobilization/Calibration	1	LS	\$2,925.00	\$2,925.00
5	RST Field Data Collection (2-pass All Major Roads & 1-pass Locals)	145	T-Mi	\$105.00	\$15,225.00
6	Annual Fee: Downward-Outward Images in Inform (Web Based; No Crack Display)			Included in Base Activities (Yr. 1)	
	a. Data Fee for Hosting			Included in Base Activities (Yr. 1)	
Data Management					
7	Data QA/QC, Processing, Format, & Supply (Excel; File Geodatabase; KML)	145	T-Mi	\$25.00	\$3,625.00
8	Pavement Data Load (Existing Lucy Database)	1	LS	\$6,750.00	\$6,750.00
9	Update Lucy Operating Parameters	1	LS	\$2,250.00	\$2,250.00
10	Lucy 5-Year Pavement Analysis & Budget Development	1	LS	\$4,500.00	\$4,500.00
11	Standard IMS Draft Written Report	1	LS	\$2,500.00	\$2,500.00
	a. Standard IMS Final Written Report	1	LS	\$500.00	\$500.00
12	Project Management	1	LS	\$2,100.00	\$2,100.00
Project Total:					\$43,875.00

Assumptions

- Test miles are calculated based on the number of centerline miles and whether they will require one pass collection, or two pass collection based the number of lanes. We have assumed 2-pass collection for all arterial, collector, and 1-pass of local roadways.
- Prior to kickoff meeting, agency will provide IMS with:
 - Primary POC, secondary POC and other stakeholder contact information.
 - Preliminary centerline GIS (i.e., geodatabase).
- Data collection relies heavily on up to date and topologically sound GIS centerline information.
- Pavement data collection is dependent on the agency's approval of the GIS maps representing the street inventory to be surveyed.
- Pavement data collection is weather dependent and assumes one mobilization to the area. Data cannot be collected if the pavement is wet or if the temperatures are below 32 F or above 95 F.
- Agency will actively participate in submission review and provide comments within a period of time that the agency and IMS will agree to during the kickoff meeting. The current proposed schedule assumes a two-week review period for draft deliverable submissions.

The following tasks highlights several value-added services that IMS could provide in conjunction with the pavement condition assessment:

Louisville, CO: IMS Additional Optional Services
IMS Pavement Management Assessment & Analysis

Value-Added Service Activities:

12	LCMS-2 RST Automated Field Data Collection (Additional Streets per test mile)	1	per T-Mi	\$140.00	\$140.00
13	Annual Fee: Downward & Outward Images as Selected in Inform Continuous Intervals	1	LS/YR	\$2,000.00	\$2,000.00
	a. Data Fee for Hosting (Web Based; No Crack Display) Year 2+	145	T-Mi/YR	\$1.20	\$174.00
					\$2,174.00
12	a. IMS Web-Story Map - Years 2 & 3 Annual Updates of Rehabs; Update	2	YR-EA	\$1,500.00	\$3,000.00
13	FastFWD (Deflection) Mobilization	1	LS	\$2,500.00	\$2,500.00
	a. Deflection Testing (55.5 CL MI. 2-pass & 54 CL MI. 1-pass Testing: 500' spacing)	165	T-Mi	\$150.00	\$24,750.00
	b. Data Analysis of Deflection Testing	1	LS	\$2,250.00	\$2,250.00
	c. Deflection Traffic Control (provided by City, IMS Est. 0-64 Hrs.)	0	HR	\$135.00	\$0.00
					\$29,500.00
14	Annual Fee: Downward Images in Inform Continuous Intervals (Web Based; No Crack Display)	1	EA YR	\$4,000.00	\$4,000.00
	a. Data Fee for Hosting	145	T-Mi	\$2.00	\$290.00
	Right of Way Assets (GPS & Camera Config.: Select Once w/Any Asset Below)	145	T-Mi	\$1.00	\$145.00
	a. Sidewalk Database Development	145	T-Mi	\$22.00	\$3,190.00
	b. Curb Ramp Database Development	145	T-Mi	\$30.00	\$4,350.00
	c. Sign & Support Database Development	145	T-Mi	\$75.00	\$10,875.00
	d. Pavement Markings & Striping Database Development	145	T-Mi	\$50.00	\$7,250.00
	e. Curb & Gutter Database Development	145	T-Mi	\$22.00	\$3,190.00
	f. Traffic Signals/ Flashers. Controllers Database Development	145	T-Mi	\$25.00	\$3,625.00
	g. Street Lights Database Development	145	T-Mi	\$45.00	\$6,525.00
	h. Drop Inlets Database Development	145	T-Mi	\$22.00	\$3,190.00
	i. Driveways Database Development	145	T-Mi	\$22.00	\$3,190.00
	j. Bridges Database Development	145	T-Mi	\$25.00	\$3,625.00
	k. Street Furniture Database Development	145	T-Mi	\$25.00	\$3,625.00
	l. Cattle Guards Database Development	145	T-Mi	\$22.00	\$3,190.00
	m. Speed Humps Database Development	145	T-Mi	\$25.00	\$3,625.00
	n. Guardrails & Roadside Pedestrian Fence Database Development	145	T-Mi	\$22.00	\$3,190.00
	o. Catch Basins/ Drainage Inlets Database Development	145	T-Mi	\$22.00	\$3,190.00
	p. Culverts & Ditches Database Development	145	T-Mi	\$22.00	\$3,190.00
	q. Cabinets Database Development	145	T-Mi	\$22.00	\$3,190.00
	r. Utility Poles Database Development	145	T-Mi	\$45.00	\$6,525.00
	s. Fire Hydrants Database Development	145	T-Mi	\$22.00	\$3,190.00
	t. Medians Database Development	145	T-Mi	\$22.00	\$3,190.00
	u. Valves Database Development	145	T-Mi	\$32.00	\$4,640.00
	v. Manhole Covers Database Development	145	T-Mi	\$25.00	\$3,625.00
	w. Trees Database Development	145	T-Mi	\$55.00	\$7,975.00
15	IMS Web-Story Map of County's Pavement Condition (for External Portal)	1	EA	\$7,500.00	\$7,500.00
	a. Years 2 & 3 Annual Updates of Rehabs; Update	3	EA	\$2,000.00	\$6,000.00
16	IMS Web-Dashboard of County's Pavement Condition (for Internal Staff)	1	EA	\$5,500.00	\$5,500.00
	a. Years 2 & 3 Annual Updates of Rehabs; Update	3	EA	\$2,000.00	\$6,000.00
17	County Commission Presentation - Virtual	1	EA	\$3,500.00	\$3,500.00
	a. Add for an Onsite County Commission Presentation	1	EA	\$2,000.00	\$2,000.00
18	Non-Standard Written Report (Min. 8-Hours; beyond at Hourly Rate)	8	HR	\$150.00	\$1,200.00
19	Additional or Specialty Maps for Reporting (Beyond Typical 2 Sets)	1	EA	\$175.00	\$175.00
20	Additional Hard Copies of the Final Report (>3 Sets Included)	1	EA	\$200.00	\$200.00
21	Functional Class Review	16	HR	\$175.00	\$2,800.00
22	GIS Clean-up Services	6	HR	\$175.00	\$1,050.00

Thank you for your continued interest in working with the IMS team. We value developing and maintaining long-term partnerships with our clients. We will strive to remain an asset and extension of the City of Louisville staff and team. If any questions arise, please do not hesitate to contact me at (480) 741-1847 or jtourek@imsanalysis.com.

IMS Infrastructure Management Services, LP

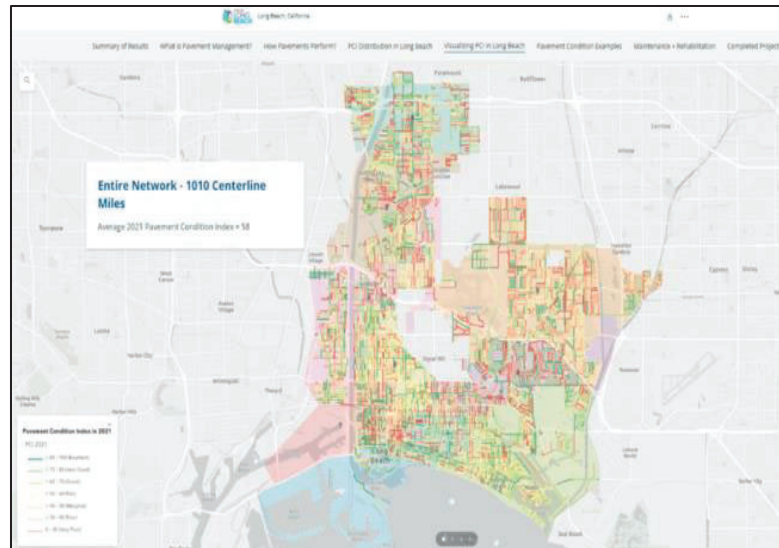


Jim Tourek, Client Services Manager

Pgs. 13 – 14 highlighted some additional services captured above:

Optional: Esri Story Map

IMS is an Esri Authorized Business Partner and an early adopter of Esri technologies. The partnership between IMS and Esri makes unparalleled industry and subject matter expertise available to our clients. Our team of GIS experts are focused on building easy-to-use and easy-to-maintain web-based, geocentric story maps and dashboards to serve not only our clients, but also their constituents. These tools provide a dynamic way to present complicated information visually. Many agencies are already using Esri software and ArcGIS Online, and we look for ways to leverage that existing licensing, subscriptions, and infrastructure to elevate the data we are delivering. We have built story maps for clients to help explain to citizens how a pavement survey works, how the analysis is performed, and how the maintenance and rehabilitation budgets are distributed to maximize the use of scarce funding. In addition to the story maps, we have also deployed agency-focused dashboards to enable managers to easily review the planned work, existing and forecasted conditions, and funding impacts on a map.



IMS interactive Esri GIS story map: City of Long Beach, CA

Project Highlight: Long Beach, CA

Link to live story map: [Long Beach Story Map](#)

IMS is working with the City of Long Beach, CA to web-enable their pavement management plan to engage citizens in the pavement management process. To facilitate this activity, IMS has authored and deployed an Esri Story Map that shares complex engineering information in an easy to understand public-facing framework. A second, password protected configuration as a dashboard exists that allows City engineers to access additional information and data.

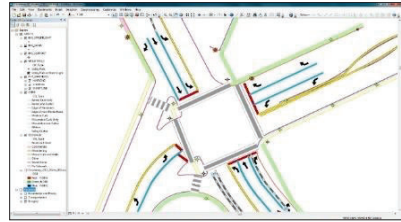
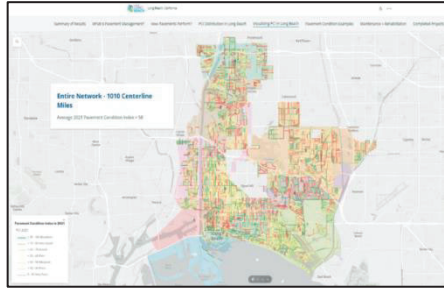
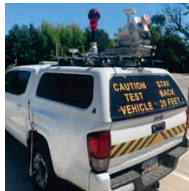
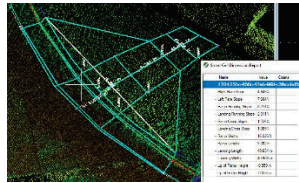
Deliverables

The following products can be delivered to the City:

- Report summarizing the findings of the pavement condition survey
- Client Review Spreadsheet (CRS) with inventory, charts, and graphs
- Esri geodatabase containing updated pavement information including distress information
- Signs geodatabase and multiple views of imagery along with a viewing tool.

Additional Value-Added Services

On the following page, the table presents additional services that the IMS Team can provide for this project. We have performed these services for agencies in Arizona and across the United States to assist agencies in better managing their pavement, sidewalk, and asset inventories.

Technology	Value Added	Photo
Right of Way Asset Collection	Imagery collected during the RST survey can be used to build ROW asset inventories and condition assessments for signs, signposts, curb and gutter, sidewalks, ramps, striping, and many other assets. A subconsultant will be added to the team if this is selected.	
Story Map and/ or Dashboard	IMS is an Esri Authorized Business Partner and an early adopter of Esri technologies. The partnership between IMS and Esri makes unparalleled industry and subject matter expertise available to our clients. Our team of GIS experts are focused on building easy-to-use and easy-to-maintain web-based, geocentric story maps and dashboards to serve not only our clients, but also their constituents. Link to a live story map: Long Beach Story Map	 <i>IMS interactive Esri GIS story map:</i>
Fast Falling Weight Deflectometer (FastFWD)	Deployed for measuring pavement structural capacity and pavement layer stiffness values. This information is combined with pavement distress data to better predict future performance and fine-tune rehab activities. This is frequently used to determine when overlays are no longer effective, and reconstruction is needed.	
Sidewalk Surface Tester (SST)	Deployed for capturing sidewalk inventory and condition data, SSTs may also be deployed to collect data for narrow alleys, parking lots, bike paths, and multi-use trails. SST surveys provide agencies with comprehensive sidewalk condition data that may be used in combination with Lidar sidewalk ramp data to develop detailed ADA transition plans.	
Mobile LiDAR for Sidewalk Ramp Assessments	Deployed to supplement right-of-way inventory surveys by creating a three-dimensional point cloud from which measurements can be extracted. The integrated Ladybug 5+ camera captures high-resolution spherical imagery at defined intervals.	 

March 26, 2024

Mary K. Hamann, PE | Civil Engineer III
City of Louisville
749 Main St.
Louisville, CO 80027

Re.: Proposal for Professional Services – Pedestrian Curb Ramp Assessment

Mary,

IMS Infrastructure Management Services is pleased to submit our quotation in response to the City of Louisville's recent request.

IMS brings significant regional experience and expertise to meet the City's pedestrian curb ramp condition and ADA compliance assessment. IMS has completed similar projects for Fort Worth, Dallas, and Baytown, TX. In addition, we have completed similar projects for Atlanta, GA; Fontana, Porterville, and Upland, CA; Bremerton, WA; North Lauderdale, and Deltona, FL; with we are currently under contract with Moreno Valley, Morgan Hill, Corona, CA; Prince George's County, MD; Davie, New Smyrna Beach, and St. Lucie County, FL.

The fee proposal presented herein is based on the City's estimated:

- 1,300 pedestrian curb ramps

Deliverables will include:

- Geodatabase, containing collected pedestrian curb ramp data.
- Network level maintenance recommendations based on the City's current practices for:
 - Pedestrian curb ramps

Our successful project approach is centered on four principles:

- **Commitment to working closely with City staff.** We understand that every community is unique. Our services are customized to meet your specific needs, ensuring a tailored approach to your infrastructure challenges. We work alongside your staff to ensure all project goals are met or exceeded using the most cost-effective assessment and management methods.
- **High-quality support focused on accurate data and informed decisions.** We believe in the power of objective and repeatable data. Our analyses are rooted in accuracy, ensuring that you have the information needed to make the best decisions for your community.
- **End-to-end solutions.** We have invested in providing professional services powered by end-to-end software solutions, enabling you to make informed decisions with ease.
- **Think outside the box to maximize your return on investment.** We have encountered many issues that similarly sized agencies face and understand the importance of high-quality curb ramp and asset condition data to plan for and justify necessary funding. When you choose IMS, you gain a dedicated partner. Our support backed by decades of proven experience results in better outcomes and often translates into direct program cost savings.

Thank you again for the opportunity to speak with you about our services. Please don't hesitate to reach out with any questions you may have or if I can further assist. I can be contacted by phone at **(480) 741-1847** or by email at jtourek@imsanalysis.com.

Best regards,
International Cybernetics Company, LP dba
IMS Infrastructure Management Services



Jim Tourek
Client Services Manager

Firm Overview

Founded in 1985, IMS has operated continuously as the premier municipal pavement and right of way (ROW) asset management firm in the United States and Canada. IMS was the first firm to bring automated pavement evaluation to the North American market, and we have kept that innovative mindset by continuing to implement state-of-the-art data collection and processing technologies. In May of 2022, IMS merged with International Cybernetics Company, LP. ICC manufactures precision pavement testing equipment. The combination of IMS and ICC yields decades of experience with pavement engineering and analysis, software development, automated data collection equipment manufacturing, and ROW mapping.

In addition to pavement management services, IMS offers complementary services such as:

- ROW asset inventory development using 360-degree imagery and mobile lidar.
- Data visualization services using dashboards, Story Maps, and web applications built on GIS.

Esri Bronze Partnership

Our engineers and data processing team members are well versed in GIS. It is an essential skill given our reliance on georeferenced data for data collection, processing, reporting, and visualization. As an Esri Bronze Partner, IMS uses Esri desktop software and ArcGIS Online – software that many agencies are already using. We look for ways to leverage our clients' existing licensing, subscriptions, and infrastructure to elevate the data we deliver. IMS has built Story Maps for clients to help explain to agency staff and constituents how a curb ramp condition survey is performed, what the data means and how the data enhances an agency's ADA Transition Plan.



FIRM QUALIFICATIONS

- **38 years of experience** helping cities and counties assess, analyze, and manage pavements and ROW assets, **with successful project delivery for more than 1,000 municipalities** in that time.
- **Project teams led by Professional Pavement/Infrastructure Engineers**
- **87 employees** across the United States and Canada, **including 10 engineers – five possessing PhDs**
- Extensive experience with more than **15 pavement and asset management systems**, including, AgileAssets, Cartegraph OMS, Cityworks, Lucity, PAVER, StreetLogix, StreetSaver, VUEWorks, and others.
- **Largest fleet of second-generation Sidewalk Surface Tester (SST) systems dedicated to municipal sidewalk management in the United States**
- Streamlined collection, processing, and data visualization using our Unify™ software suite.

Project Approach

As an innovator in pedestrian curb ramp assessments, we offer several solutions to meet our clients' diverse needs and optional services to add value to their projects. We look for ways to incorporate asset inventory development with traditional curb ramp data collection projects to both reduce budget impacts and provide economy of scale.

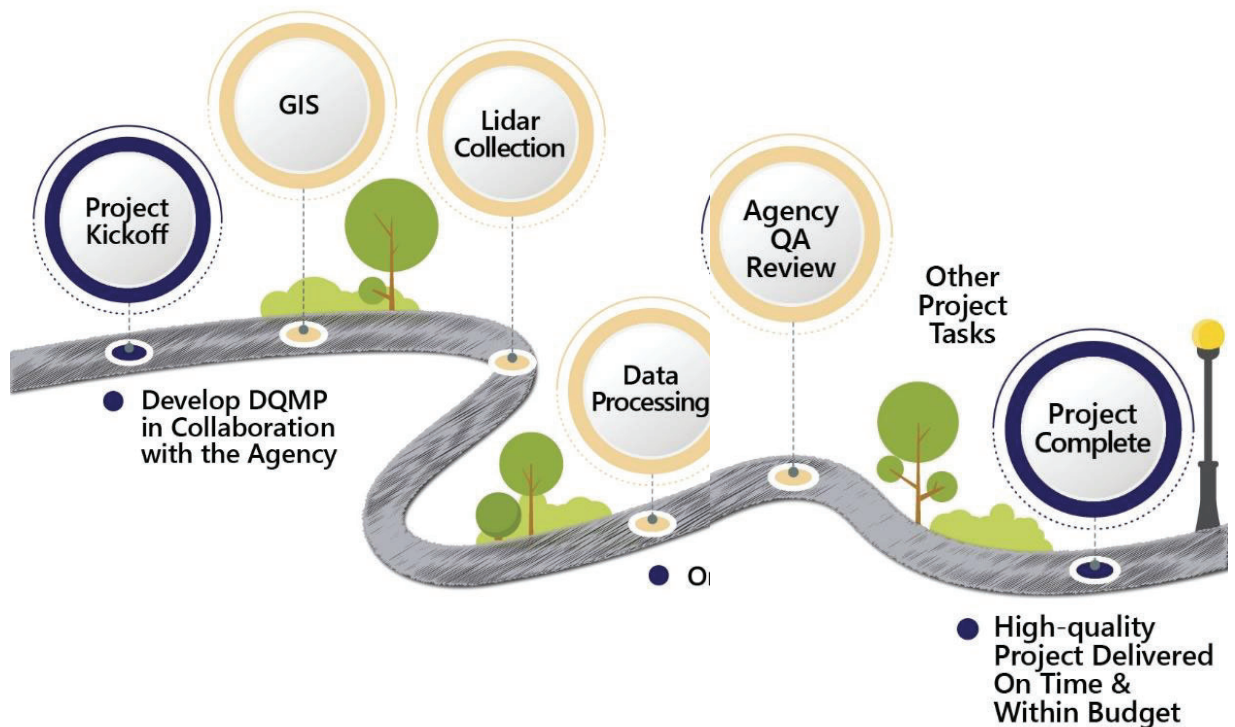
Our unique curb ramp assessment approach delivers the following benefits:

- Flexible industry standard data outputs (Excel, Access, shape files, geodatabase, and KML/KMZ).
- Value-added services to streamline the decision-making process for ramp management for the benefit of an ADA Transition Plan.

IMS continuously improves the quality of data collection on curb ramps for our clients' ADA transition planning. Today, we offer multiple solutions for accurate ramp slope measurements, including Lidar data collection and point cloud extraction, the approach that is being proposed within.

Project Approach

IMS has standardized a project approach based upon our four decades of pavement, curb ramp, and asset inventory management experience and subsequent lessons learned. Our approach to the agency's curb ramps assessment project will follow the seven steps shown in the figure below. In this section, we detail the specific tasks that are required for successful project completion.



Scope of Work

Task 1: Project Initiation and Kickoff Meeting

We will schedule a kickoff meeting to confirm all details of the project with you and the project stakeholders. Based on discussions with you during the project initiation and kickoff meetings, we will develop a project-specific version of our standard Quality Management Plan (QMP) for the project. The QMP will address all quality control (QC) and quality assurance (QA) aspects of project planning and execution as well as data collection, QC monitoring, QA, and delivery.

A critical component of project preparation is ensuring the Master Asset List (MAL) is understood and accepted before the project begins. The MAL acts as a data dictionary and gives full transparency into what curb ramp attribute data can be expected to be included in the final curb ramp database. It also includes all assumptions made about each attribute domain and type, so any subjectivity during rating can be understood clearly. We will ensure that the plan, including the MAL, remains current with any further data needs. This ensures transparency and acts as a reference point for all stakeholders involved with the project.

Task 2: GIS Linkage and Survey Mapping

Shortly after the kickoff meeting, our GIS experts will review the agency provided curb ramp network files (expected in an Esri GIS file format) that define the routes to be collected. Together we will make any necessary updates to your data to create an accurate inventory of the route network to be surveyed. The finalized route network will be loaded into our Drive™ software, which defines the network segmentation and attribution to be collected and delivered, minimizing routing problems and location errors. The GIS files will include attributes such as curb ramp section ID, street name, street type, beginning description, ending description, start reference, and end reference for each segment.

Task 3: Data Collection

We will deploy the appropriate data collection technologies to meet the project goals and objectives. The most common technologies that we deploy include our mobile Lidar systems.

Mobile Lidar for Pedestrian Curb Ramps

To collect pedestrian curb ramp measurements, we will deploy our mobile lidar system. Collected lidar data will be processed in Microstation using IMS' custom "smart cell" technology to extract pertinent ramp ADA measurements, such as slopes, cross slopes, turning areas, and other attributes.

Task 4: Data Processing and Curb Ramp Data Extraction

Once the survey is complete, the curb ramp distress locations will be reported in a GIS database. The data that we provide may be used immediately for decision making or be imported into any pavement management software or incorporated into an ADA Transition Plan for additional analysis and reporting.

Task 5: Signature Multi-step QC/QA Review

IMS has developed a unique approach to curb ramp surveys by coupling the power of automated algorithms with the manual review of distress data. Our team has an expert understanding of the capabilities and limitations of the data collection technologies and the sophisticated algorithms that we employ. This rigorous QC/QA process provides an added measure of confidence that the automated distress detection and classification algorithms have performed accurately.



Our signature QC/QA process is comprehensive and makes use of field observations, automated data processing tools, manual data review by our QC team, independent review by our QA manager, and lastly your final review and approval.

Task 6: Project Closeout

Project deliverables will be sent to you for final approval and acceptance. Once accepted, we will facilitate a final project close-out meeting with you where we will present our findings and recommendations included in the final report. This workshop style meeting is an opportunity to clarify any final questions and to discuss other ways in which IMS can support your curb ramp management program in the future.

Price Estimate

The following estimate was prepared using preliminary information and base services.

Lidar-based Pedestrian Curb Ramp Condition and ADA Survey

Louisville, CO: Curb Ramps Base Scope of Services

IMS 2024 Curb Ramp Detailed Assessment: Estimated 1,200 Ramps

LIDAR - Pedestrian Ramp ADA Compliance Survey						
Task	Activity	Qty	Units	Unit Rate	Discount	Total
Project Initiation						
L-1	Project Initiation & Kickoff	1	LS	\$2,500.00		\$2,500.00
L-2	Curb Ramp Network Referencing & GIS Survey Prep	199	T-Mi	\$27.50		\$5,472.50
L-3	Master Asset List Development	1	LS	\$2,500.00		\$2,500.00
Field Surveys						
L-4	Lidar Mounted Unit Mobilization/Calibration	1	LS	\$2,925.00		\$2,925.00
L-5	Lidar ADA Pedestrian Ramp Field Data Collection (99.5 CL Miles, 2-pass All)	199	T-Mi	\$60.00		\$11,940.00
Data Management						
L-6	Ramp Data Processing and QC/QA	1,300	EST. # Ramps	\$12.00		\$15,600.00
L-7	Process & Deliver Ladybug ROW imagery	1	LS	\$7,500.00		\$7,500.00
L-8	Aggregate Condition Data into Final Geodatabase	1	LS	\$2,331.50		\$2,331.50
Curb Ramp ADA Survey Total:						\$50,769.00

SUBJECT: RESOLUTION NO. 64, SERIES 2024 – A RESOLUTION
APPROVING AN AGREEMENT FOR LEASE OF COLORADO-
BIG THOMPSON PROJECT WATER

DATE: DECEMBER 17, 2024

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

SUMMARY:

Staff recommends approval of the Colorado-Big Thompson (CBT) water rights lease agreement.

In September, a water tap expansion agreement was executed for a tenant of 1775 Cherry Street, Fresca Holding Company, LLC. (Fresca). The agreement was used as a water lease alternative in lieu of water tap fees during the building permit process for proposed modifications at 1775 Cherry Street that triggered a water tap fee expansion. This approach allows large water users to optimize cash flow while paying their equitable share of demands on the water system.

Upon approval, this 5-year lease of CBT units that will increase the City's water supply an equal amount to Fresca water use needs.

FISCAL IMPACT:

The water expansion fee of approximately \$80,000 was paid to City in September. The lease payments and associated charges are approximately \$12,000 to \$14,000 a year which will be fully reimbursed. Legal services were required in the drafting of the agreement and is anticipated for subsequent future water lease extension. Staff time will be also be required in the tracking of the water lease and coordinating payments between the involved parties. These should be incidental to City operations.

PROGRAM/SUB-PROGRAM IMPACT:

One of the main objective for the Water Utility Sub-Program is to allowing 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 agreement for lease of Colorado-Big Thompson Project Water. 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.

SUBJECT: RESOLUTION NO. 64, SERIES 2024

DATE: DECEMBER 17, 2024

PAGE 2 OF 2

ATTACHMENTS:

1. Resolution No. 64, Series 2024
2. Agreement for Lease of Colorado-Big Thompson Project Water

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. 64
SERIES 2024**

**A RESOLUTION APPROVING AN AGREEMENT FOR LEASE OF COLORADO-BIG
THOMPSON WATER**

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, the WTEA requires Fresca to procure supplemental water for use in the City’s water system to counterbalance the temporary increase in annual water demand during the remainder of Fresca’s tenancy of the Property, which such supplemental water may be provided through a lease of Colorado Big Thompson (“C-BT”) Project water; and

WHEREAS, the parties have identified four (4) Acre Foot Units of C-BT Project water available to lease to the City, and a lease agreement has been prepared for such purpose; and

WHEREAS, by this resolution, the City Council desires to approve the lease agreement.

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

Section 1. The City Council hereby approves the Agreement for Lease of Colorado-Big Thompson Project Water (the “Lease”), by and between the City of Louisville and Christen and Kyle Kolb, in essentially the same form as the copy of such Lease that accompanies this resolution.

Section 2. The Mayor is hereby authorized to execute the Lease on behalf of the City, and the Mayor is hereby further authorized to negotiate and approve such revisions to the Lease 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.

PASSED AND ADOPTED this 17th day of December 2024.

Christopher M. Leh, Mayor

ATTEST:

Genny Kline, Interim City Clerk

Resolution No. 64, Series 2024
Page 1 of 1

AGREEMENT FOR LEASE OF COLORADO-BIG THOMPSON PROJECT WATER

This LEASE of the beneficial use of water yielded from the Colorado-Big Thompson (“**C-BT**”) Project (the “**Lease**”) is entered into this ____ day of December 2024 (the “**Effective Date**”), by and between the City of Louisville, a Colorado home rule municipal corporation, acting by and through the City of Louisville Water and Wastewater Activity Enterprise, whose address is 749 Main Street, Louisville, Colorado 80027-1829 (herein after referred to as “**Louisville**”), and Christen and Kyle Kolb, whose address is 11820 Niwot Road, Longmont, CO 80504 (hereinafter collectively referred to as “**Lessor**”) (Louisville and Lessor each being a “**Party**” and collectively the “**Parties**”).

RECITALS

WHEREAS, Lessor owns 20 Acre Foot Units of C-BT Project water (“**C-BT AFUs**”), as administered by the Northern Colorado Water Conservancy District (“**Northern Water**”), and pursuant to Allotment Contract No. 9419 between the Northern Water and Lessor.

WHEREAS, Louisville owns and operates a municipal water supply system that provides water service to its citizens, which requires Louisville to ensure that it has sufficient water supplies to prepare for long-term increases to the demands on its system.

WHEREAS, Louisville entered into a separate “**Water Tap Expansion Agreement**” with Fresca Holding Company, LLC (“**Fresca**”) that specifies the terms and conditions for Fresca to increase its annual water usage for the duration of Fresca’s tenancy at 1775 Cherry Street, Louisville, Colorado 80027 (the “**Property**”).

WHEREAS, pursuant to the Water Tap Expansion Agreement, Fresca is required to procure supplemental water for use in Louisville’s municipal water system to counterbalance the temporary increase in the annual water demand during the remainder of Fresca’s tenancy of the Property.

WHEREAS, the Water Tap Expansion Agreement provides that a lease or bridge supply subcontract of C-BT Project water may be the mechanism by which supplemental water is obtained for use in Louisville’s municipal water system, provided that the lease payments are made by Fresca.

WHEREAS, subject to the terms and conditions of this Agreement, Louisville desires to lease 4 C-BT AFUs per year from Lessor for use in its municipal water supply system located within the Northern Water boundaries.

WHEREAS, Lessor is willing to lease 4 C-BT AFUs to Louisville in accordance with the terms and conditions of this Lease.

WHEREAS, Northern Water rules applicable to the Parties require Northern Water approval of any long-term leases of C-BT AFUs and the Parties intend to seek Northern Water approval of this Lease.

NOW THEREFORE, for good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, Louisville and Lessor agree as follows.

AGREEMENT

1. Water Lease. Lessor hereby leases to Louisville, and Louisville hereby leases from Lessor, the beneficial use of the water allocated to Lessor's 4 C-BT AFUs during the term of this Lease (the "**Leased C-BT Water**"). Because Northern Water sets its quota for the amount of water per C-BT AFU on an annual basis, the amount of water yielded from Lessor's 4 C-BT AFUs may vary based on the final annual quota for the water year that is set by the Northern Water Board for the then-current water year.

2. Term of Lease. The term of this Lease begins on the January 1, 2025 and ends on December 31, 2029 ("**Term**").

3. Lease Payment.

3.1. Initial Lease Year. Louisville shall pay to Lessor \$3,000.00 per C-BT AFU, for a total lease payment of \$12,000.00, for the first (2025) year of the Lease Term. The first year's payment is due in full on or before January 15, 2025.

3.2. Subsequent Lease Years. If Northern Water approves the 5-Year Term for this Lease, the lease rate and total payment shall increase 3.0% over the least rate and the total lease payment for the preceding year of the 5-Year Term, rounded to the nearest whole dollar. The annual inflation adjustment for subsequent lease years is set forth below:

Lease Year	Price Per CBT AFU	Total Lease Payment	Payment Due Date
2025	\$3,000.00	\$12,000.00	Jan. 15, 2025
2026	\$3,090.00	\$12,360.00	Jan. 15, 2026
2027	\$3,183.00	\$12,732.00	Jan. 15, 2027
2028	\$3,279.00	\$13,116.00	Jan. 15, 2028*
2029	\$3,378.00	\$13,512.00	Jan. 15, 2029**

* Jan. 15, 2028 falls on a Saturday and Jan. 17, 2028 is a holiday.

** Jan. 15, 2029 falls on a Monday which is a holiday.

3.3 Additional Charges and Fees. Louisville shall pay for any administrative fees, temporary transfer costs, charges for services, Northern Water's Rule 11 charges, and any periodic charges or assessments related to the Leased Water. To the extent that Northern Water imposes a Rule 11 charge, special assessments, and/or any other fee or charge on Lessor related to the Leased Water, Lessor shall provide a copy of the invoice(s) for such fees and/or charges from Northern Water to Louisville upon receipt. Louisville shall pay

such charges and/or fees attributable to the Leased Water directly to Northern Water not less than twenty-one (21) days after receipt of the invoice(s) from Lessor.

4. Compliance with Northern Subcontracting Rule.

4.1. Northern Water Subcontracting Rule. The Parties acknowledge that Northern Water has adopted the “Rule Governing the Subcontracting of Beneficial Use of Colorado-Big Thompson Project Allotment Contracts” (“**Subcontracting Rule**”) (defining a “subcontract” as any type of agreement [contract, lease, or otherwise] that transfers the beneficial use of C-BT Project water to another for two or more years). Section 3.1 of the Subcontracting Rule requires all subcontracts with a term of two years or more to obtain Northern Water approval. Because this Lease has a term of greater than two years, the Parties agree that: (1) this Lease is valid only if duly approved by Northern Water, (2) the Subcontracting Rule is by this provision made a part of this Lease, and (3) the Parties shall comply with the requirements (including without limitation Sections 5.4 through 5.6) of the Subcontracting Rule.

4.2. Submission of Lease for Approval. No later than December 18, 2024, Lessor shall submit an application for Northern Water approval of the Lease pursuant to the Subcontracting Rule. The Parties shall reasonably cooperate with each other to provide any necessary testimony and information to Northern Water in support of the application. If the Lease is approved by Northern Water, then the Parties shall comply with all conditions of such approval and the Subcontracting Rule.

4.3. Revisions to Lease for Northern Water Approval. The Parties acknowledge the possibility that Northern Water may not approve this Lease or may require the Parties to resubmit a modified lease agreement for approval. If Northern Water does not approve this Lease, then the Parties shall work together in good faith to revise the Lease to accomplish the objectives of the Parties and obtain Northern Water’s approval.

5. Potential Assessments for Transit Losses; Compliance Obligations. Louisville acknowledges that state water administration officials may assess transit losses for delivery of the Leased C-BT Water to Louisville’s point of delivery. Lessor and Louisville shall cooperate for making all necessary arrangements with Northern Water and with state water administration officials to secure delivery of the Leased C-BT Water for Louisville’s use. Louisville’s use and accounting of the Leased C-BT Water shall comply with all policies, rules, and regulations of Northern Water and the Colorado Division of Water Resources.

6. No Guaranteed Firm Yield. This Lease grants Louisville the right to receive delivery of C-BT Project water that is allocated to Lessor’s 4 C-BT AFUs under the variable quota declared annually by Northern Water’s Board, subject to the terms and conditions in this Lease. Louisville acknowledges that the annual volume of water delivered pursuant to this Lease may vary from year to year, depending on the quota established by the Northern Water Board during any given water year. Although Lessor makes no warranty, guarantee, or representation of any kind regarding the specific quantity of physical water each AFU will yield annually, Lessor is obligated

by this Lease to make available the entire annual yield, as established by Northern Water's annual quota declarations, of C-BT Project water allocated to Lessor's 4 C-BT AFUs.

7. Default. If either Lessor or Louisville fails to comply with a term or condition herein, such failure constitutes a default of this Lease. The non-defaulting Party may declare the default by providing written notice to the defaulting Party in accordance with Paragraph 8, below. Upon receipt of this notice of default, the defaulting Party will have 15 days within which to cure the default. If, in the sole discretion of the non-defaulting Party, the default remains uncured after the 15-day cure period, or after any written extension thereof mutually agreed upon by the Parties, the non-defaulting Party may seek any and all available remedies, including damages and specific performance.

8. Notices. 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
City of Louisville
749 Main Street
Louisville, CO 80027

With copy to: Alan G. Hill
Ashley Pollock Zahedi
Curtis, Justus, & Zahedi, LLC
1333 W. 120th Ave., Suite 302
Westminster, CO 80234
alanh@cjzwaterlaw.com
ashleyz@cjzwaterlaw.com

If to Lessor: Christen and Kyle Kolb
11820 Niwot Road
Longmont, CO 80504
kyle@yccs.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.

9. Additional Provisions.

9.1. Entire Agreement. This Lease constitutes the entire agreement between the Parties. No supplement, modification, or amendment of this Lease is binding unless executed in writing by the Parties.

9.2. Counterparts. This Lease may be executed in counterparts, each of which will be considered to be an original, but all of which together constitute one and the same instruments.

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

9.4. Applicable Law and Venue: The laws of the State of Colorado shall be applicable in the enforcement, interpretation, and execution of this Lease. Exclusive venue shall be in the Boulder County District Court.

9.5. Amendment: This Agreement may be amended by mutual agreement of the Parties only if the amendment is in writing, signed by both Parties.

EXECUTED to be effective as of the date set forth above.

LESSOR: **CHRISTEN AND KYLE KOLB**

By: Christen Kolb
Christen Kolb

By: Kyle Kolb
Kyle Kolb

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

By: _____
Christopher M. Leh

Title: Mayor

ATTEST

Genny Kline, Interim City Clerk

**SUBJECT: PRESENTATION – AMERICAN PUBLIC WORKS ASSOCIATION
AWARD**

DATE: DECEMBER 17, 2024

PRESENTED BY: CITY MANAGER’S OFFICE

SUMMARY:

Renee Railsback of the American Public Works Association will be at the December 17 meeting to present the City with an award for creating safer streets.

FISCAL IMPACT:

None

RECOMMENDATION:

None

ATTACHMENT(S):

None



NATIONAL LAW ENFORCEMENT APPRECIATION DAY PROCLAMATION

WHEREAS, National Law Enforcement Appreciation Day was founded in 2015 to recognize officers across the country for the daily sacrifices they make for their communities; and

WHEREAS, National Law Enforcement Appreciation Day, is observed on Thursday, January 9th, 2025, and observants of the day are encouraged to support law enforcement officers by wearing blue, and turning on blue lights at their homes; and

WHEREAS, the health and safety of the residents, visitors, and businesses of the City of Louisville, Colorado are important to quality of life in our community; and

WHEREAS, the City of Louisville, Colorado is the proud home of dedicated law enforcement officers who put their lives on the line to keep our community safe; and

WHEREAS, we appreciate the extraordinary efforts and sacrifices made by law enforcement officers and their family members, on a daily basis in order to protect our homes, workplaces, roadways and places of recreation; and

WHEREAS, the well-being of the City of Louisville, Colorado residents is preserved and enhanced as a direct result of the vigilance of law enforcement officers.

NOW THEREFORE, The City of Louisville, Colorado declares the recognition of National Law Enforcement Appreciation Day on January 9, 2025.

DATED this 17th day of December 2024

Christopher M. Leh, Mayor

ATTEST:

Genny Kline, Interim City Clerk

SUBJECT: ORDINANCE 1876, SERIES 2024 – AN ORDINANCE AMENDING LOUISVILLE MUNICIPAL CODE SECTION 15.18.030 CONCERNING THE 2021 INTERNATIONAL ENERGY CONSERVATION CODE – 1st READING AND SET PUBLIC HEARING FOR JANUARY 21, 2025

DATE: DECEMBER 17, 2024

**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).

Council reviewed the currently adopted amendments to the 2021 IECC at their September 17, 2024 meeting. 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 and Appendix PT – Modeling to a Performance Target (Amendments 2 and 3).

Council also directed staff to bring back a series of amendments that staff previously developed, base on feedback from the public, design professionals, and developers, that are intended to address the feasibility issues and concerns that were raised with the previously adopted amendments to the code. These changes 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.
- 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. These recommendations were provided to City Council at the September 17, 2024 discussion and direction.

The Louisville Sustainability Advisory Board has also provided the attached letter with their recommendations to City Council (Attachment No. 5).

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 does 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 Commercial 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, land owners, 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:

While technology is generally available to meet the heat pump standards, the equipment needed is often difficult to obtain and may be significantly more expensive. The EUI standards themselves do not require all-electric construction but are more easily met with electric infrastructure. The EUI standards also incentivize the use of renewable energy to meet the standards. Much of the feedback that staff has received from the business community focused on the all-electric construction standards, noting that the additional cost and delays in obtaining compliant equipment could impact business attraction and expansion opportunities for the City.

Two notable local jurisdictions, Boulder and Lafayette, have also adopted all-electric construction standards.

Lafayette Code Links:

[Building Code Update | Lafayette Listens](#)

[2023-Lafayette-Colorado-Building-Code-Final](#)

Boulder Code Link:

[Energy Conservation Code | City of Boulder](#)

The purpose of the proposed amendments is to provide more flexibility for business development by providing clarifications and additional pathways for meeting the City's

SUBJECT: ORDINANCE 1876, SERIES 2024

DATE: DECEMBER 17, 2024

PAGE 5 OF 5

energy conservation code amendments. The amendments also include some clean-up items and clarifications from the original draft of the code.

PUBLIC COMMENTS:

Public comments are included as Attachment No. 12.

FISCAL IMPACT:

No fiscal impact is anticipated from the changes to the code.

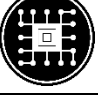
STAFF RECOMMENDATION:

Staff recommends approval of Ordinance 1876, Series 2024 on first reading and setting the public hearing for January 21, 2025.

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 No. 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 No. 1845, Series 2022
11. December 20, 2022 City Council Minutes
12. Public Comments

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 ~~striketrough~~ 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 ~~striketrough~~ 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, 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.

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 + <u>R-10ci</u>
Metal framed	R-21+ <u>R-10ci</u>
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/m², 1 pound per cubic foot = 16 kg/m³.

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 in new construction.

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. 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~~

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~~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 if located outside the thermal envelope. 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 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.

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)
<u>Hotel (Occupancy R-1)</u>	<u>32</u>
Multifamily (Occupancy R-2)	32
Office, small (≥ 0 - 5,000 ft ²)	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.~~

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~~, 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 R401.34
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 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-24 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	<u>R-3</u>
Warm Air Ducts	<u>R-8</u>

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 m²) 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-24 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
<u>Heated Water Pipes</u>	<u>R-3</u>
<u>Heated air Ducts</u>	<u>R-8</u>

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 and 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 _____ day of _____, 2024.

Christopher M. Leh, Mayor

ATTEST:

Genny Kline, Interim City Clerk

APPROVED AS TO FORM:

Kelly PC, City Attorney

PASSED AND ADOPTED ON SECOND AND FINAL READING, this _____ day of _____, 2024.

Christopher M. Leh, Mayor

ATTEST:

Genny Kline, Interim City Clerk

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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 ~~strike through~~ and new text underlined):

1. *Section C101.1 Title*, is amended to insert "the City of Louisville" so the section will read:

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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.

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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

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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

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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

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Maintenance information and system commissioning	C408
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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/m², 1 pound per cubic foot = 16 kg/m³.

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:

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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/ft ²
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/ft ²

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.

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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.

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- ~~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~~

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~~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:~~

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~~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.~~

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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

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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/ft ²)
<u>Hotel (Occupancy R-1)</u>	<u>32</u>
Multifamily (Occupancy R-2)	32
Office, small (≥ 0 - 5,000 ft ²)	19

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Office, medium (5,000 – 50,000 ft ²)	23
Office, large (>50,000 ft ²)	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~~

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~~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:

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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.

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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 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, 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.

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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 R401.34
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 Assemblies shall have R-value of insulation materials equal to or greater than that specified in Table

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R402.1.2 unless an alternative path is specified while using HERS energy rating index of 50.

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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 m²) 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:

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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."*

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~~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 (NEPA 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 R402.1.206.3.~~

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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

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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

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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 (kWh_{eq}), 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.

<u>HERS SCORE NOT INCLUDING OPP</u>	<u>HERS SCORE INCLUDING OPP</u>
<u>5047</u>	<u>0</u>

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

<u>Title</u>	<u>IECC Section</u>
<u>Vapor retarder</u>	<u>R402.1.1</u>
<u>Eave baffle</u>	<u>R402.2.3</u>
<u>Access hatches and doors</u>	<u>R402.2.4.1</u>
<u>Crawl space wall insulation</u>	<u>R402.4.1.2</u>
<u>Maximum fenestration U-factor and SHGC</u>	<u>R402.5</u>
<u>Mechanical Controls</u>	<u>R403.1</u>
<u>Ducts</u>	<u>R403.3 except R403.3.2, R403.3.3, and R403.6</u>
<u>Mechanical system piping insulation</u>	<u>R403.4</u>
<u>Heated water circulation and temperature maintenance systems</u>	<u>R403.5.1</u>
<u>Drain Water heat recovery units</u>	<u>R403.5.3</u>
<u>Mechanical ventilation</u>	<u>R403.6 including E403.6.1</u>
<u>Equipment sizing and efficiency rating</u>	<u>R403.7</u>
<u>Systems serving multiple dwelling units</u>	<u>R403.8</u>
<u>Snow melt and ice systems</u>	<u>R403.9</u>

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<u>Energy consumption of pools and spas</u>	<u>R403.10</u>
<u>Portable spas</u>	<u>R403.11</u>
<u>Residential pools and permanent residential spas</u>	<u>R403.12</u>
<u>Lighting equipment</u>	<u>R404.1</u>
<u>Interior lighting controls</u>	<u>R404.2</u>

RC102.4 Building Envelope. The building thermal envelope shall be greater or equal to the levels of efficiency and SHGC in Table R402.1.2C102.4.

Table RC102.4
Average of the Minimum Insulation and Maximum Fenestration Requirements by Component

<u>Roof</u>	<u>R-60</u>
<u>Above grade walls</u>	<u>R-21</u>
<u>Below grade walls</u>	<u>R-21</u>
<u>Floors</u>	<u>R-38</u>
<u>Non heated slab on grade</u>	<u>R-10 for 4ft</u>
<u>Heated slab on grade</u>	<u>R-15 for 4 ft + R-5 under full slab</u>
<u>Fenestration U-Factor</u>	<u>.30</u>
<u>Fenestration SHGC</u>	<u>.33</u>
<u>Skylight U-Factor</u>	<u>.50</u>
<u>Skylight SHGC</u>	<u>.40</u>

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.

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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 RC102 shall 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:

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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

Building Code Board of Appeals

Meeting Minutes

**May 2, 2024
City Hall, Spruce Room
749 Main Street
6:30pm**

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

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- 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.

Building Code Board of Appeals

Meeting Minutes

**May 16, 2024
City Hall, Spruce Room
749 Main Street
6:30pm**

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.

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- 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.

DRAFT Memorandum

To: Louisville City Council Members
From: Louisville Sustainability Advisory Board
Date: May 15, 2024
Re: Energy Code Amendments

Dear Louisville City Councillors,

The Louisville Sustainability Advisory Board understands that City Council will consider several amendments to the City's building codes at its meeting on 4 June 2024. The Board reviewed and discussed these amendments at its March, April, and May meetings. While City staff provided a thorough report, the Board would have appreciated more information concerning the genesis of the proposed amendments.

We offer some advice on these amendments just below. To frame our advice, we remind City Council that climate change presents humanity with a crisis of unparalleled proportions to which humanity has so far responded inadequately, that the City has set decarbonization goals in an attempt to respond to this crisis, and that the City's latest residential and commercial building codes are integral to achieving these goals. We further remind City Council that the City's latest building codes are not exceptional: several municipalities in Colorado have adopted the 2021 International Energy Conservation Code, and the State of Colorado has essentially mandated widespread adoption; Lafayette and Crested Butte recently adopted building codes with electrification mandates (allowing for certain exemptions), and Boulder is currently considering similar legislation; and the City's commercial building codes were modeled on those of other municipalities including Boulder. We finally remind City Council that the Board wholeheartedly supported adoption of the City's latest building codes, and we again thank City Council for authorizing their adoption.

First, we address the proposed amendments to the City's electric vehicle infrastructure code. City staff have proposed that the City replace its current code with the State of Colorado's

recommendations. While the City's code and the State's recommendations are very similar in many respects, and while the Board generally supports regional alignment on such legislation as building codes, we also recognize that Louisville differs from other communities across Colorado and that Louisville has a celebrated history of sustainability leadership. Of relevance in this case, Louisville has higher rates of adoption of electric vehicles than many other communities across Colorado, and Louisville has more aggressive decarbonization goals than the State and many of its other communities. Accordingly, the Board advises City Council to consider a compromise between the City's electric vehicle infrastructure code and the State's recommendations. Specifically, the Board endorses the Planning Commission's recommendations.

Next, we address the proposed amendments to the City's residential and commercial building codes. Several of these amendments are essentially clarifications or corrections; the Board most certainly supports these amendments. The remaining amendments represent weakenings of the City's building codes as far as efficiency and electrification are concerned; the Board recommends that City Council consider compromises between the City's current building codes and the proposed amendments. We provide brief recommendations for each such amendment.

- *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 if existing equipment is replaced or if additional heating units are installed. Accordingly, existing equipment, no matter its power source, may continue to be used for the extent of its useful lifetime.
- *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 space heating equipment is being retained to serve this function.
- *Post-construction compliance and documentation for new commercial construction:* The Board supports post-construction compliance and documentation, through monitoring and metering, of the energy use intensity standards for new commercial buildings, but we appreciate the burden that such compliance and documentation places on building owners and City staff. Accordingly, we endorse removal of these requirements, but we strongly believe that legislation will mandate monitoring and metering of greenhouse gas emissions in the relatively near future.
- *Minimum heat pump standards:* The Board supports the amended minimum heat pump standards.



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- *Furnace efficiency standards:* The Board recommends maintaining furnace efficiency standards but creating a simple waiver for cases in which products meeting these standards are not readily available.
- *Commercial door U-value standards:* The Board recommends maintaining commercial door U-value standards but creating a simple waiver for cases in which products meeting these standards are not readily available.
- *Electric vehicle infrastructure for altered parking:* The Board recommends that electric vehicle charging standards apply to any added parking but not to any reconfigured parking.
- *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.

The Board strongly believes that legislation will mandate electrification retrofits of existing residential and commercial buildings in the relatively near future. By electrifying their buildings during construction, alteration, or addition, building owners will likely bear lower costs in the long term.

If the City can offer any assistance to meet or incentives to exceed the current building codes, then the Board would be most supportive of such efforts. The Board has recommended to City staff that the City provide incentives for commercial and residential efficiency and electrification upgrades in the next biennial budget.

Thank you for considering our advice.

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

~~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/m², 1 pound per cubic foot = 16 kg/m³.

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/ft ²
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/ft ²

~~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 m²) 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 daylight 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 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.

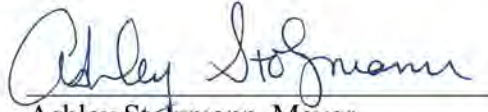
Section 4. If any article, section, paragraph, sentence, clause, or phrase of this ordinance is held to be unconstitutional or invalid for any reason, such decision shall not affect the validity or constitutionality of the remaining portions of this ordinance. The City Council hereby declares that it 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.

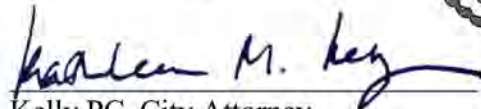

Ashley Stolzmann, Mayor

ATTEST:

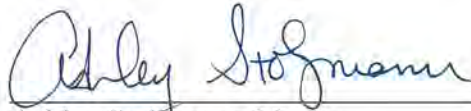

Meredyth Muth, City Clerk



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



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 Kranzendorf, 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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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 emissionsⁱⁱⁱ 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
- City of Lafayette
- Town of Superior
- City of Northglenn
- Boulder County
- City and County of Broomfield
- Town of Erie
- 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.

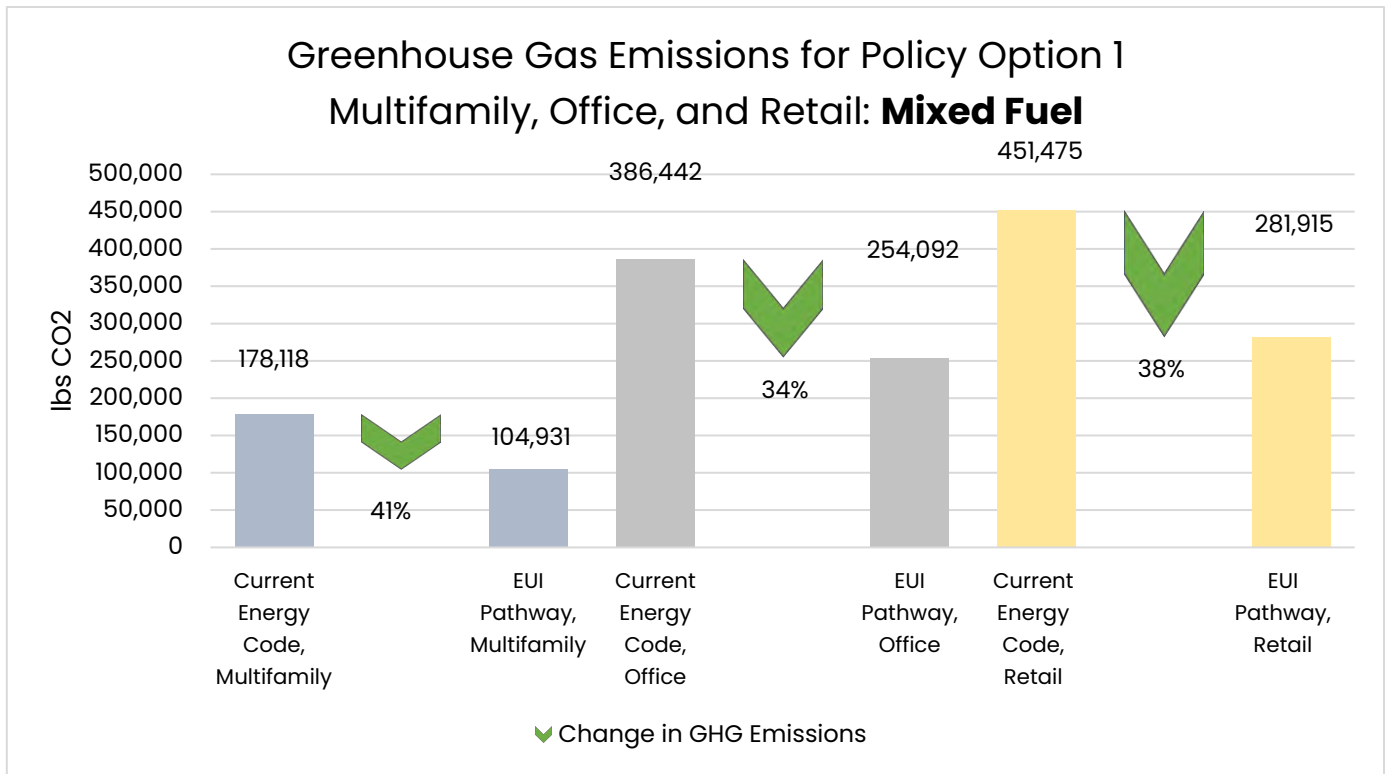


Figure 1: Annual GHG emissions for **mixed fuel** buildings compliant with current code, compared to GHG emissions for buildings compliant with Policy Option 1: Energy performance standards for building types.

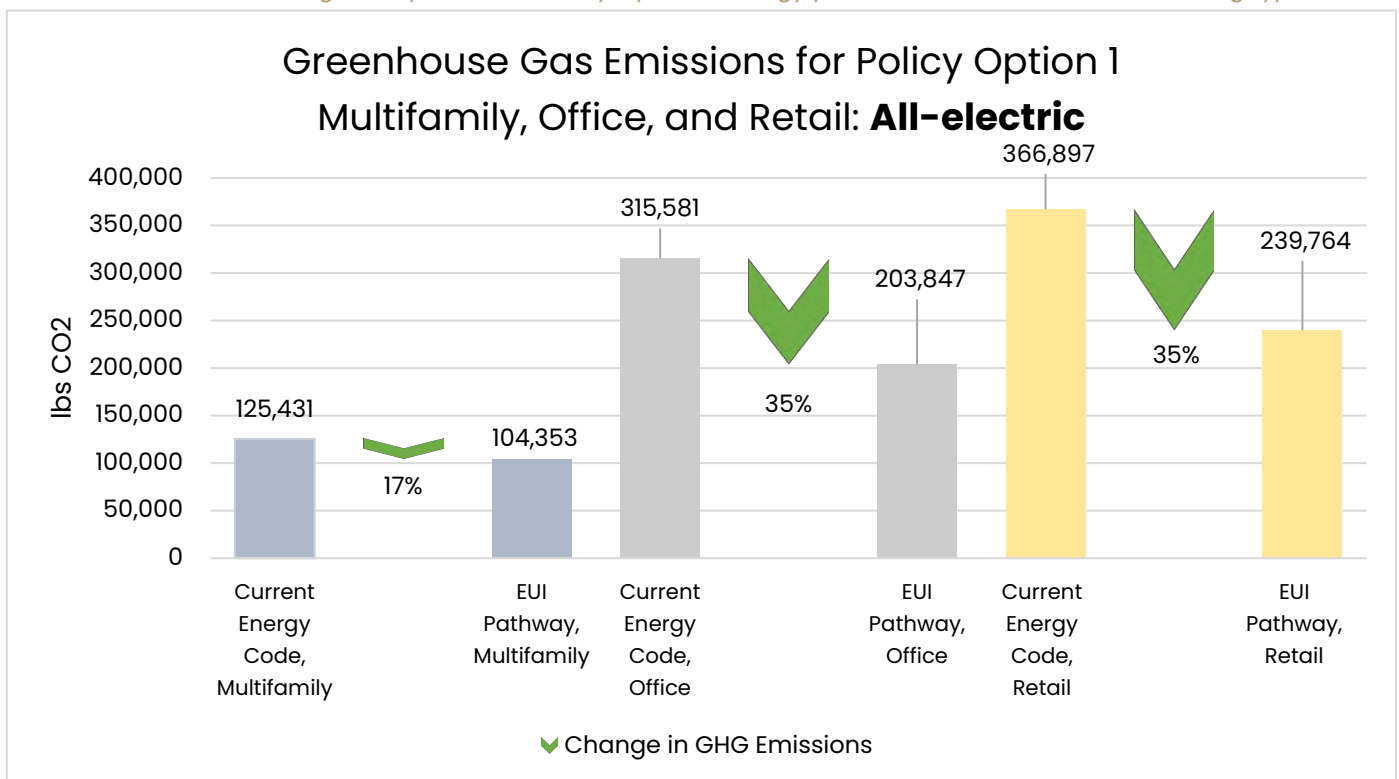


Figure 2: Annual GHG emissions for **all-electric** buildings compliant with current code, compared to GHG emissions for buildings compliant with Policy Option 1: Energy performance standards for building types.

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	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	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	Cost for Code Compliant Building		Net Zero Requirements and Costs for Onsite PV					Net Zero Offsite PV – REC Pricing		
	HVAC System Options	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}
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			964 kW		\$584,178	\$299,878	
Mixed Fuel Option 3	\$630,500	\$158,096	1566 kW			966 kW		\$585,261	\$300,434	
All-Electric Option 1	\$660,000	\$193,161	1449 kW			849 kW		\$515,973	\$264,866	
All-Electric Option 2	\$708,000	\$185,053	1369 kW			769 kW		\$468,337	\$240,413	
All-Electric Option 3	\$3,167,500	\$156,491	1157 kW			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.

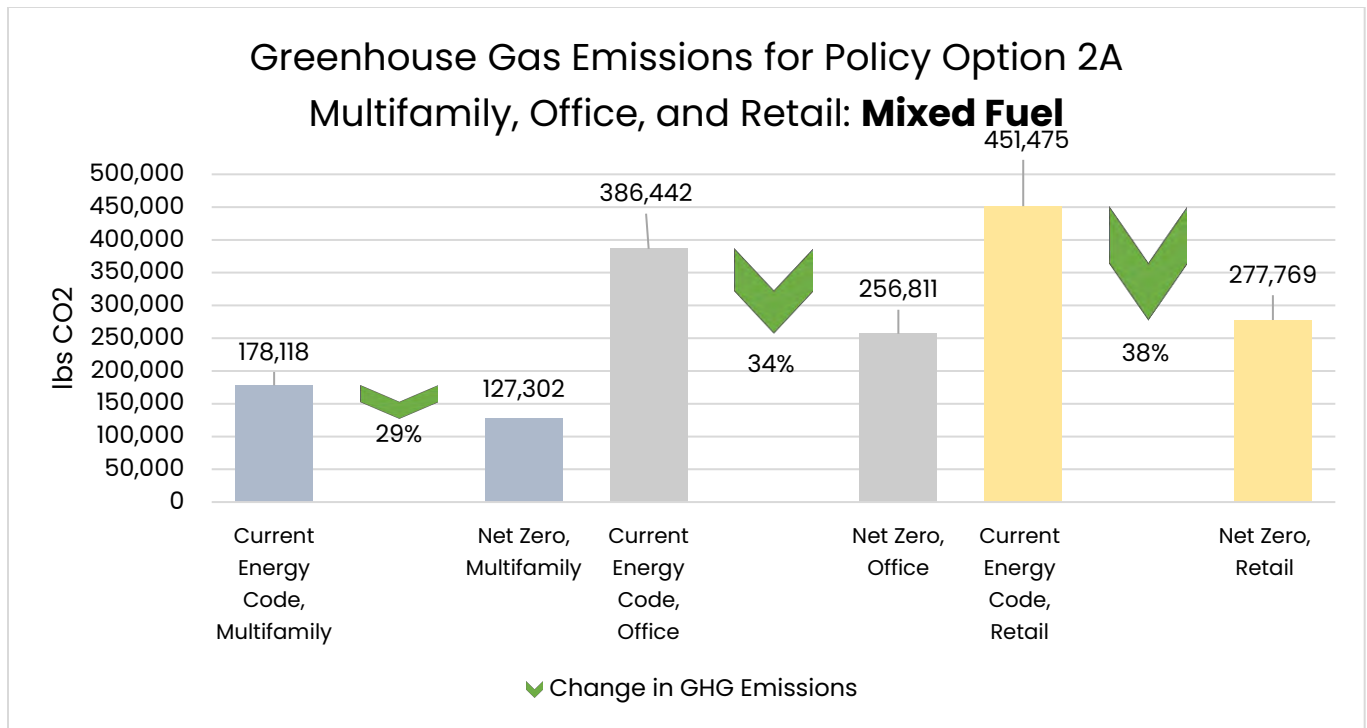


Figure 3: Annual GHG emissions for **mixed fuel** buildings compliant with current code, compared to GHG emissions for **mixed fuel** buildings compliant with Policy Option 2A: Appendix CC, Net Zero.

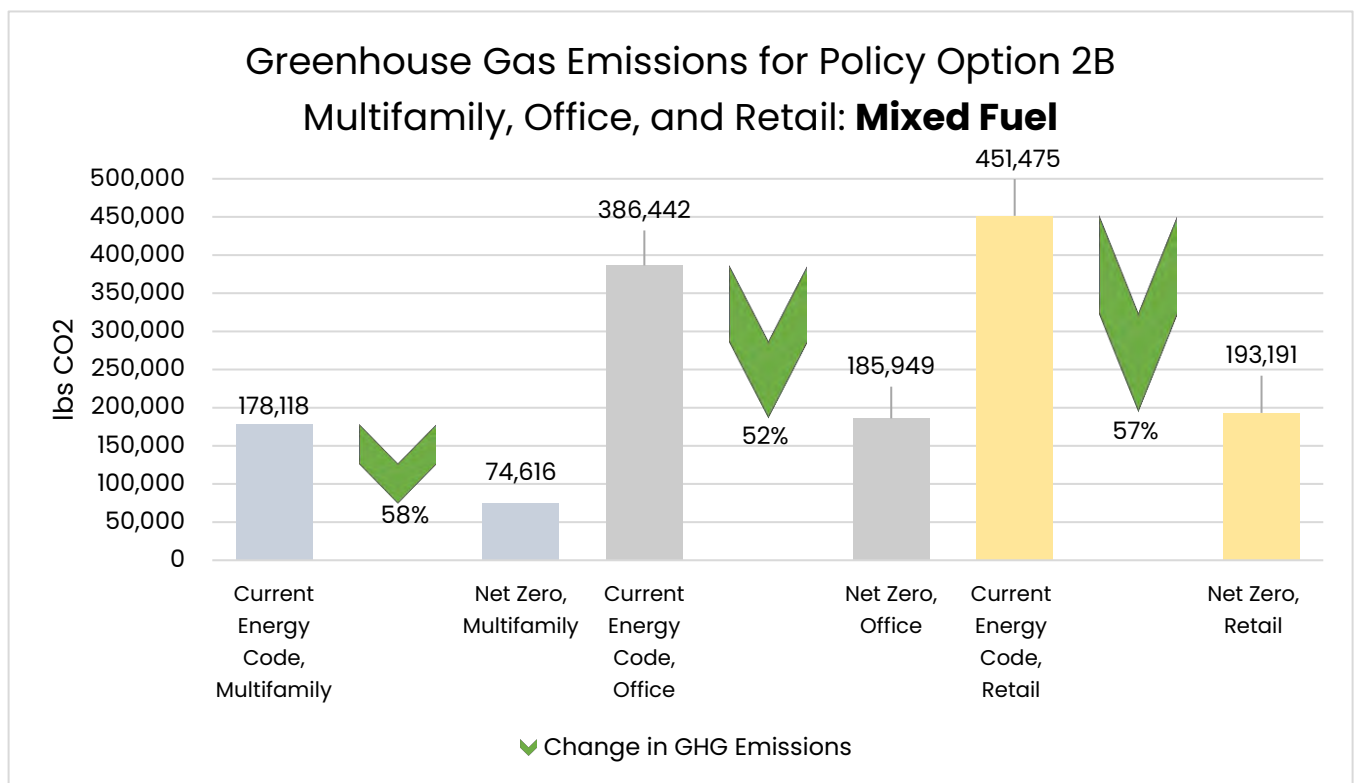


Figure 4: Annual GHG emissions for **mixed fuel** buildings compliant with current code, compared to GHG emissions for **all-electric** buildings compliant with Policy Option 2B: Appendix CC, Net Zero + all-electric.

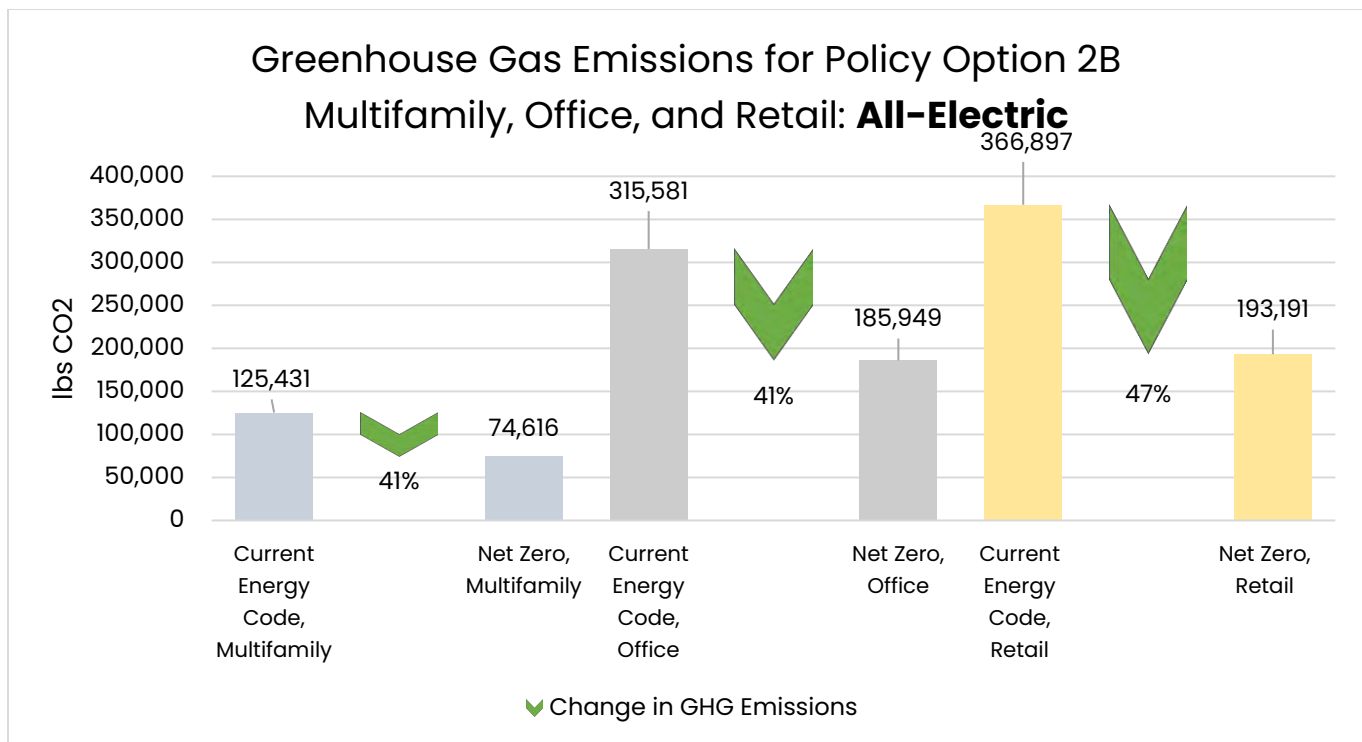


Figure 4: GHG emissions for **all-electric** buildings compliant with current code, compared to GHG emissions for **all-electric** buildings compliant with Policy Option 2B: Appendix CC, Net Zero + all-electric.

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.

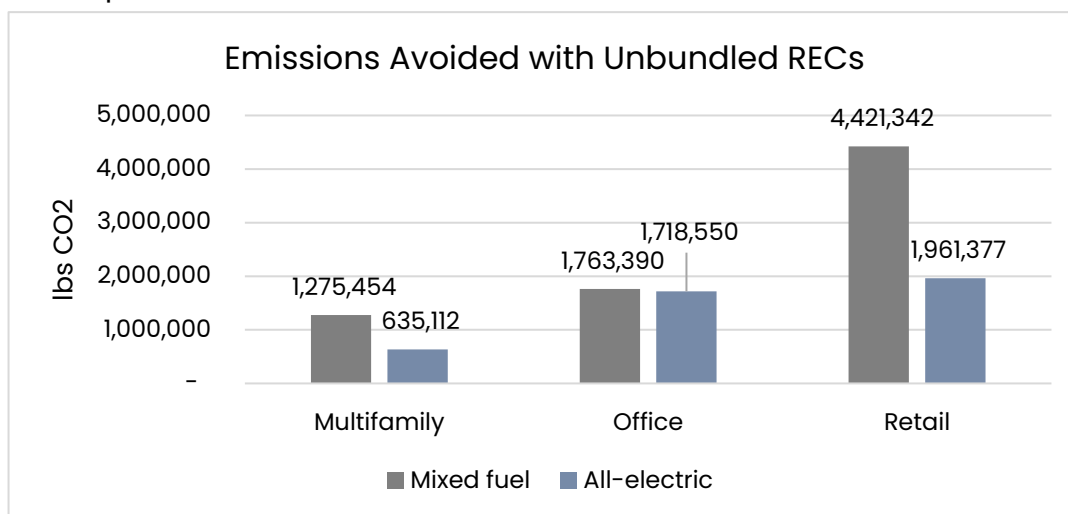


Figure 5: Emissions avoided with unbundled RECs purchased to offset any energy consumption remaining after installing the maximum amount of onsite PV.

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.

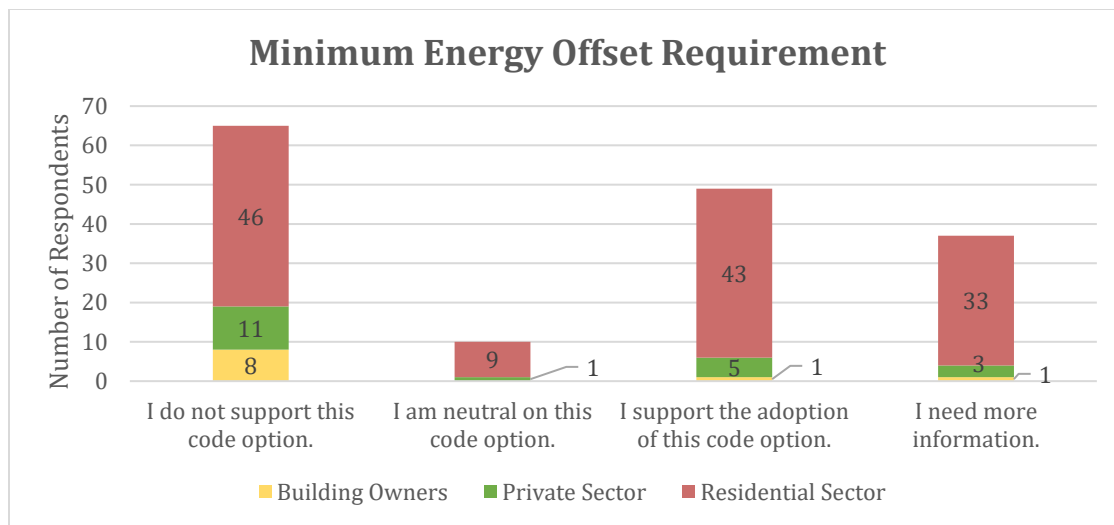


Figure 7: All sector levels of support for Minimum Energy Offset code option. **How supportive would you be of including a minimum energy offset requirement in addition to the 2021 code, which would require on-site or off-site solar?**

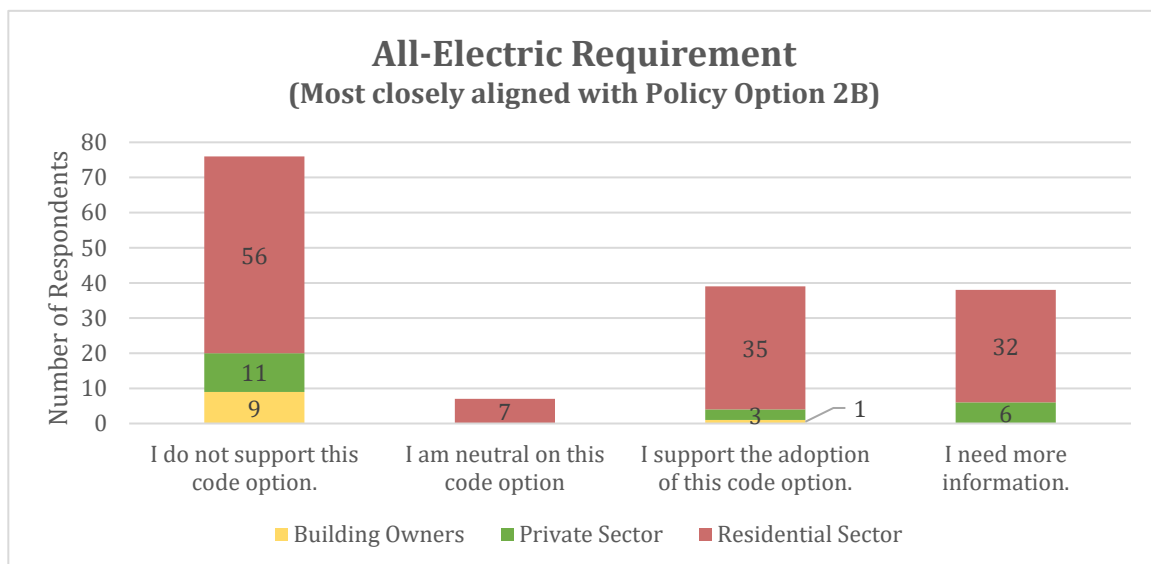


Figure 8: All sector levels of support for All-Electric Requirement code option. **How supportive would you be if the City were to consider an all-electric requirement for new commercial construction code if industrial processes were exempt?**

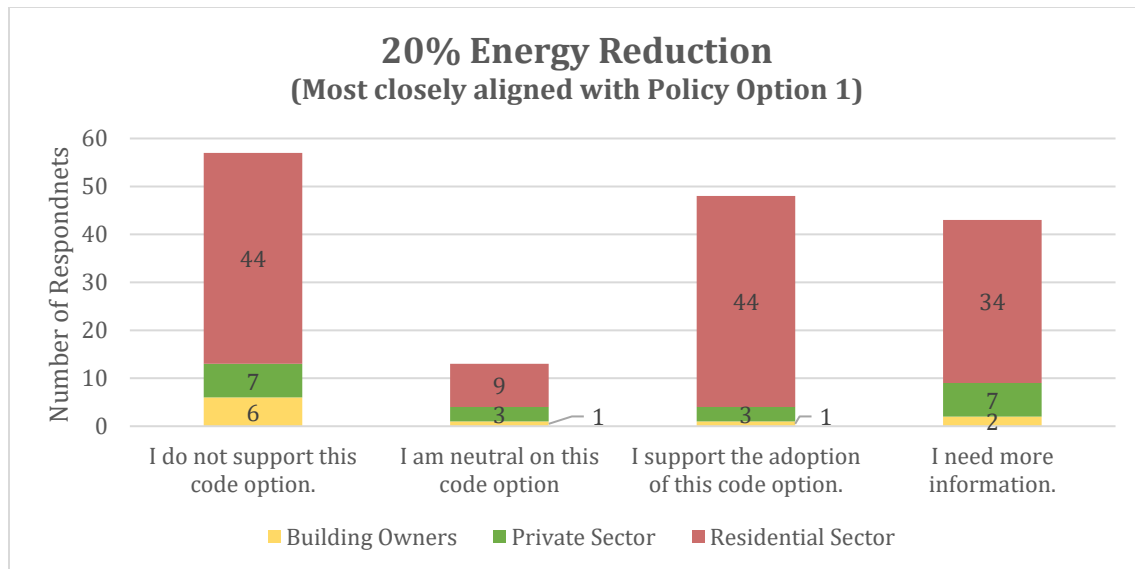


Figure 9: All sector levels of support for 20% Energy Reduction code option. **How supportive would you be if the City were to consider an energy code that required a 20% reduction in energy use from the 2021 energy code for commercial construction?**

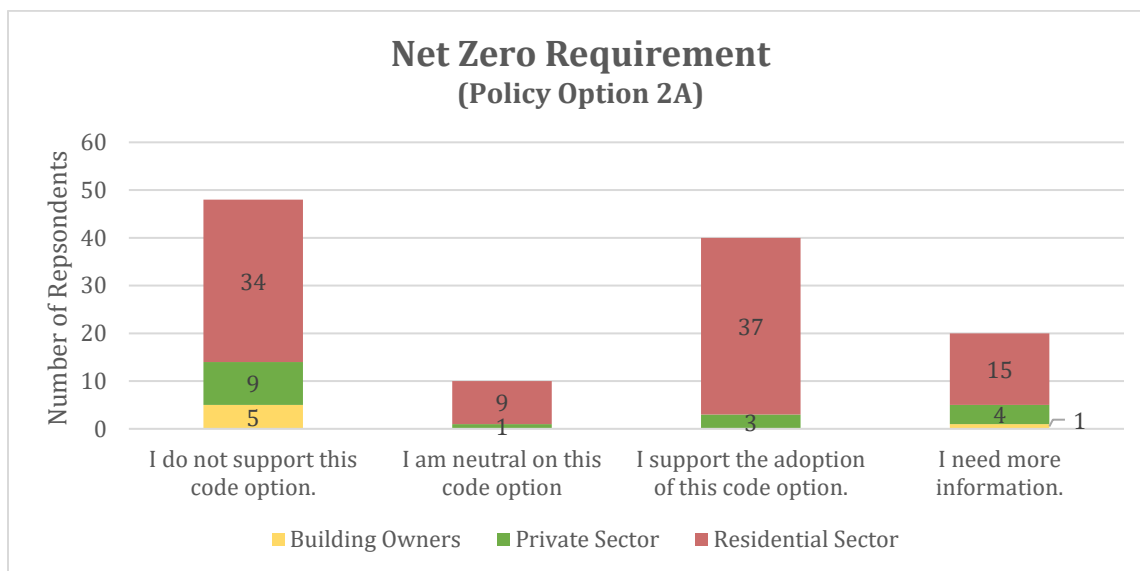


Figure 10: All sector levels of support for Net Zero code option. **How supportive would you be if the City were to consider a commercial energy code that required net zero energy through efficiency and onsite/off-site renewable energy?**

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.

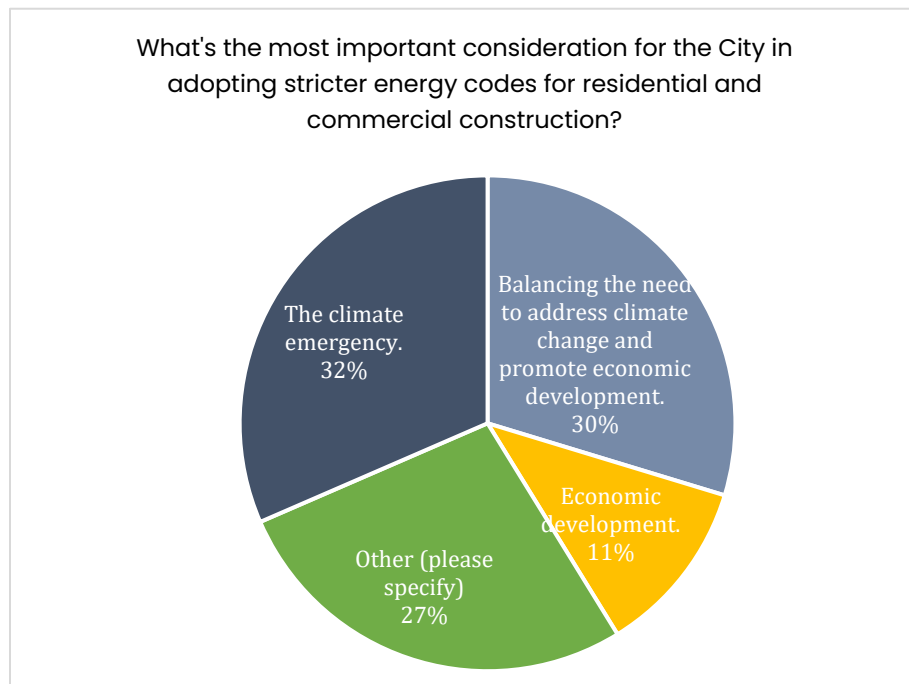


Figure 11: Percentage breakdown of answers for important considerations for stricter energy code.

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.**

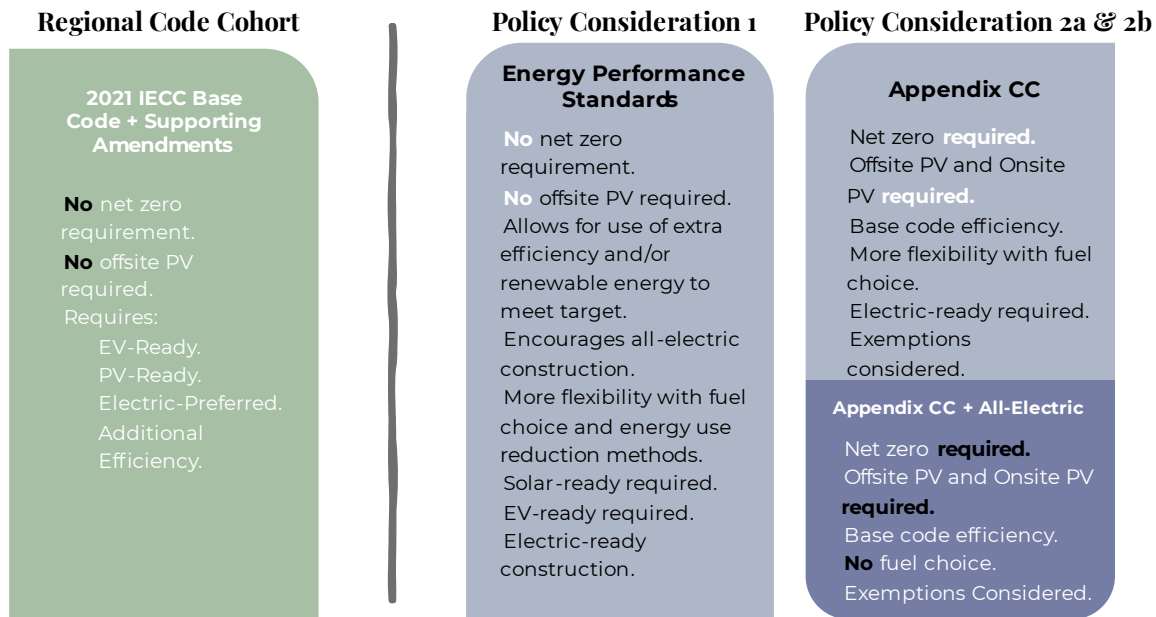


Figure 12: Summary graphic detailing the features of each policy option.

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.

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&sg=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>

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
CO ₂	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:
 - o 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
 - o 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
 - o 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
 - o 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:
 - o 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
 - o 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
 - o 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

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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:
 - o 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
 - o 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



- o 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:
 - o 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
 - o 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
 - o 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
 - o 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:
 - o 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
 - o 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



- o 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:
 - o 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
 - o 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
 - o 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	<i>PV Size Required for Net Zero Energy (kW)</i>	<i>Estimated PV Area (SF)</i>
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 CO₂. 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 CO₂ 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:
 - o 1: 96% efficient gas furnace with SEER 16 split DX cooling
 - 0.92 UEF water heater
 - o 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:
 - o 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
 - o 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
 - o Mixed Fuel Option: 96% efficient furnace with SEER 21 cooling
 - 0.94 UEF water heater
 - o 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	<i>PV Size Required for Net Zero Energy (kW)</i>
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 CO₂ in 2022 and 5,000 lbs CO₂ in 2035. The all-electric options have an estimated average carbon emissions of 6,000 lbs CO₂ 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.

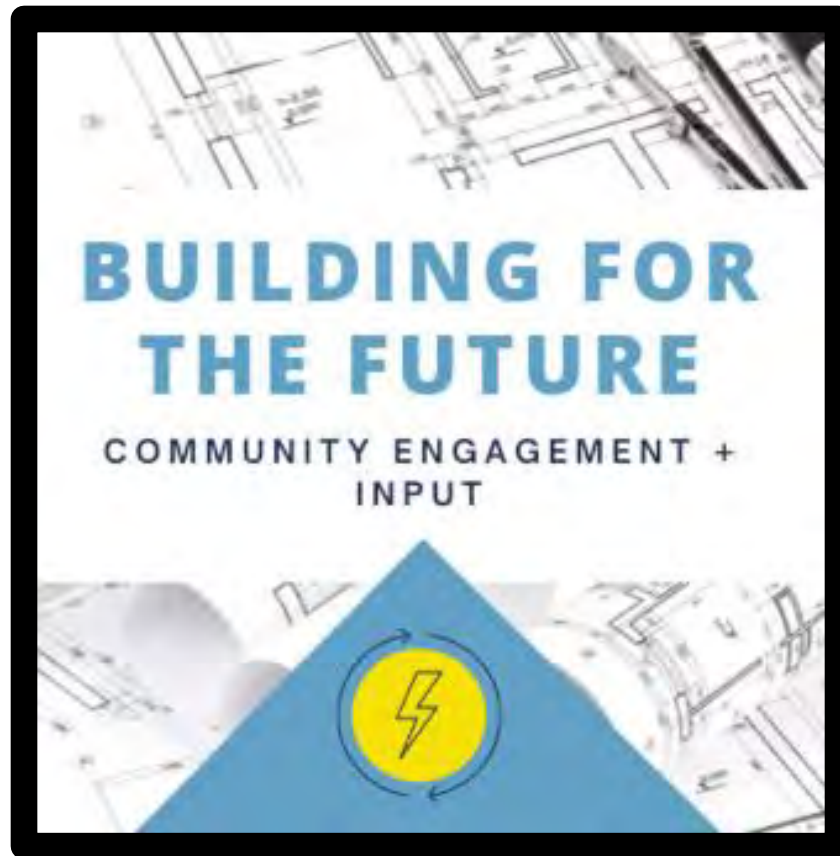
Future Work

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

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. <i>Note: the total number of answers per question may vary from the total number of respondents due to incomplete surveys.</i>	
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.

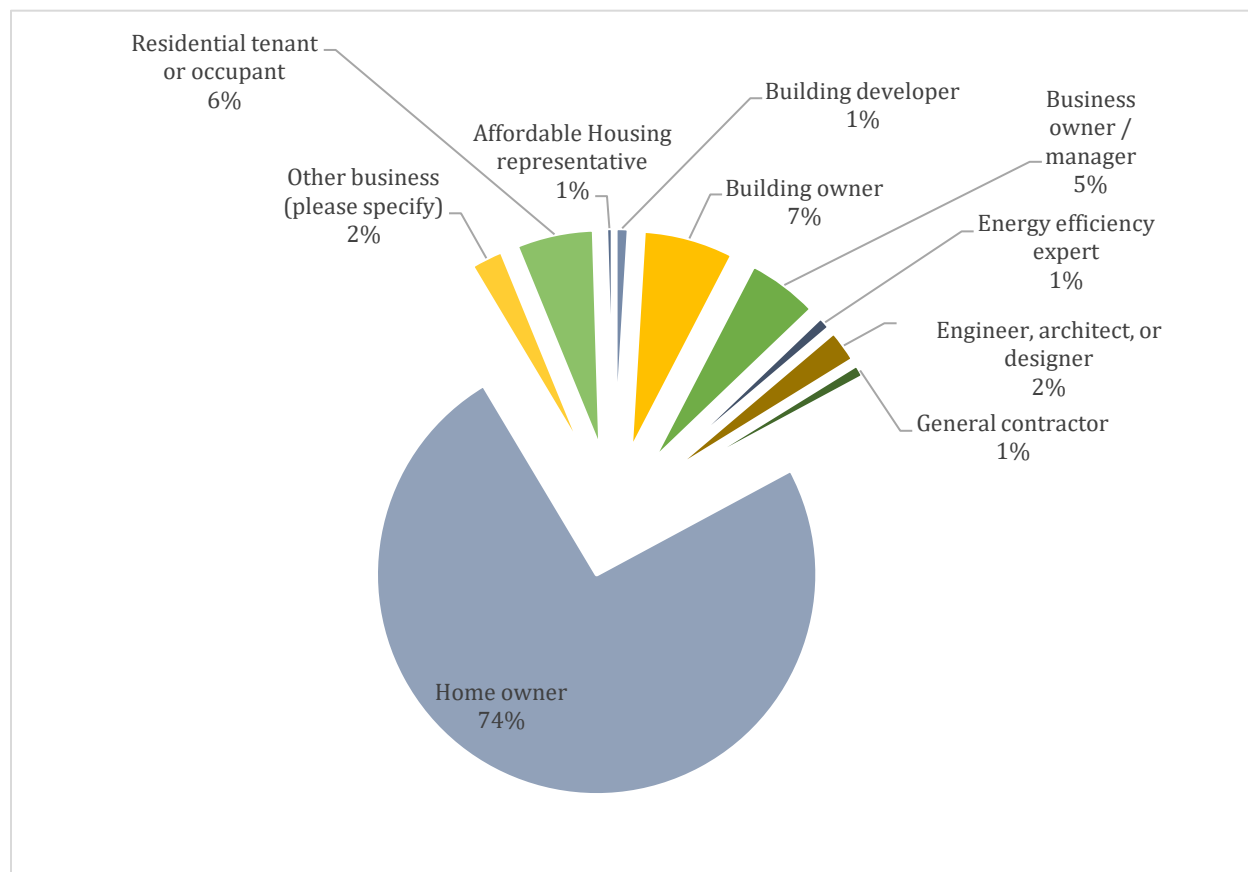


Figure 1: Breakdown of sectors represented in online survey.

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?

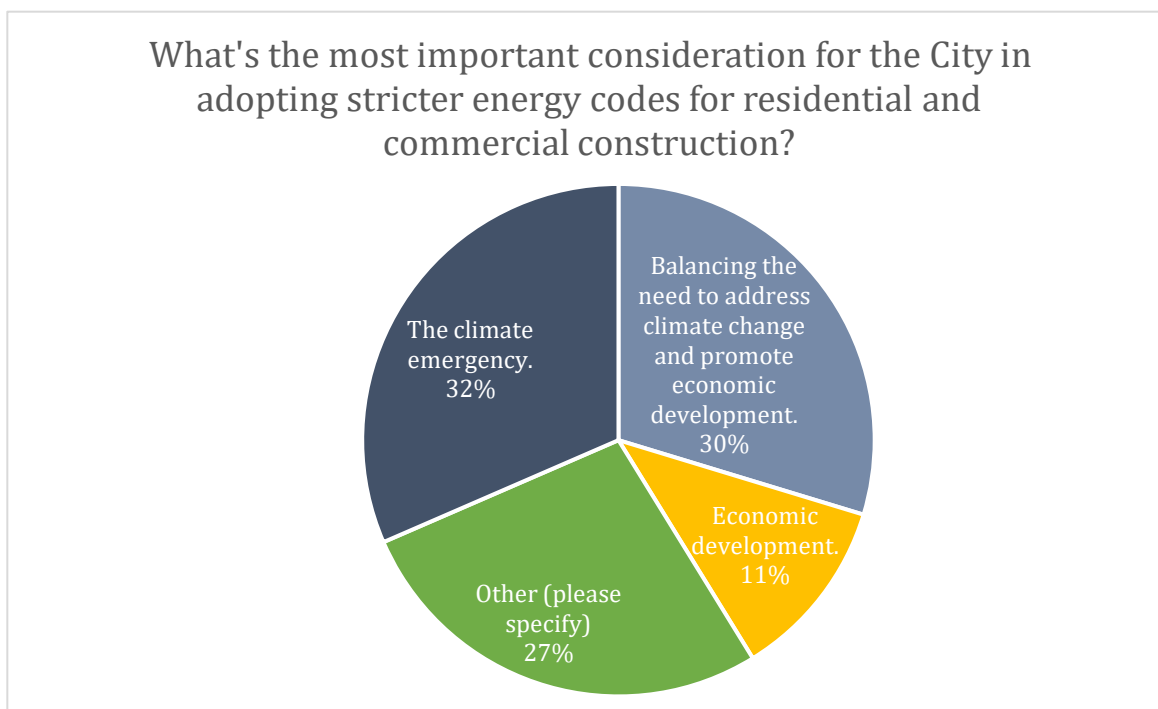


Figure 2: Percentage breakdown of answers for important considerations for stricter energy code.

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?

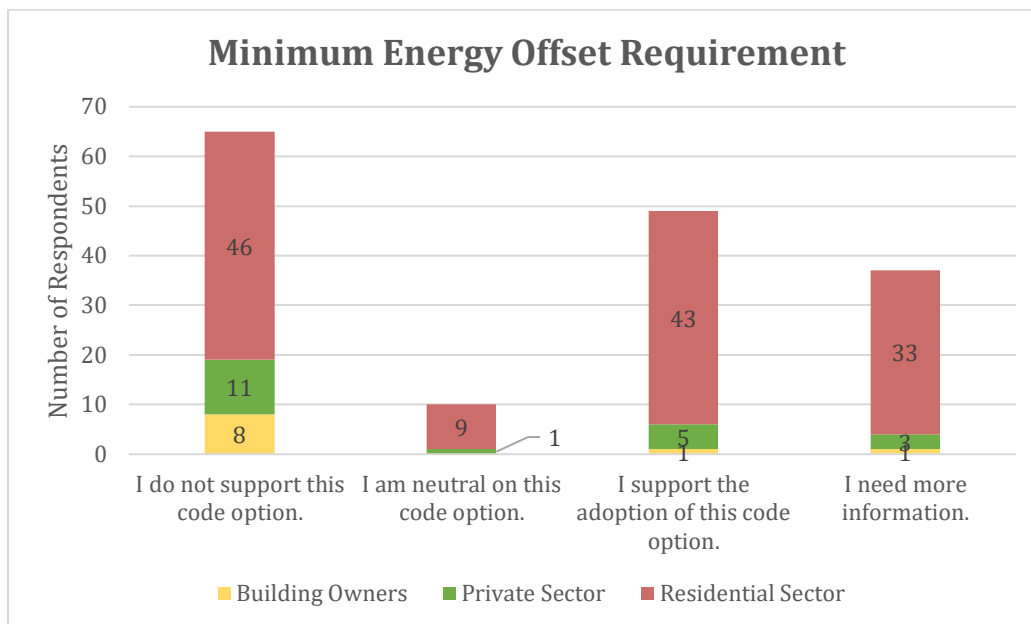


Figure 3: All sector levels of support for Minimum Energy Offset code option.

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?

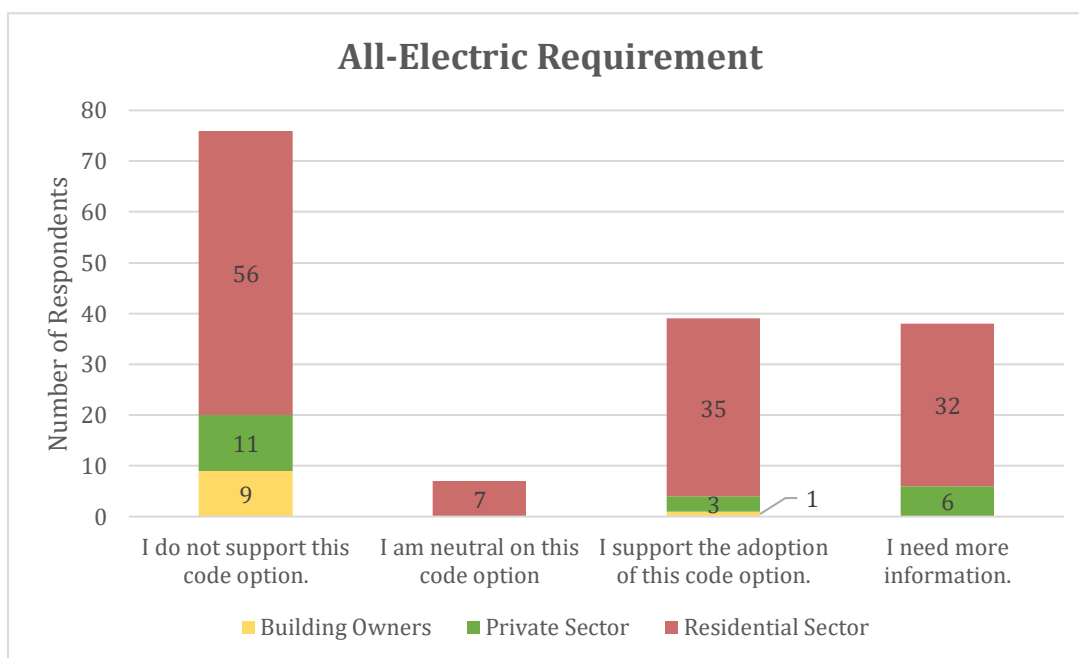


Figure 4: All sector levels of support for All-Electric Requirement code option.

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?

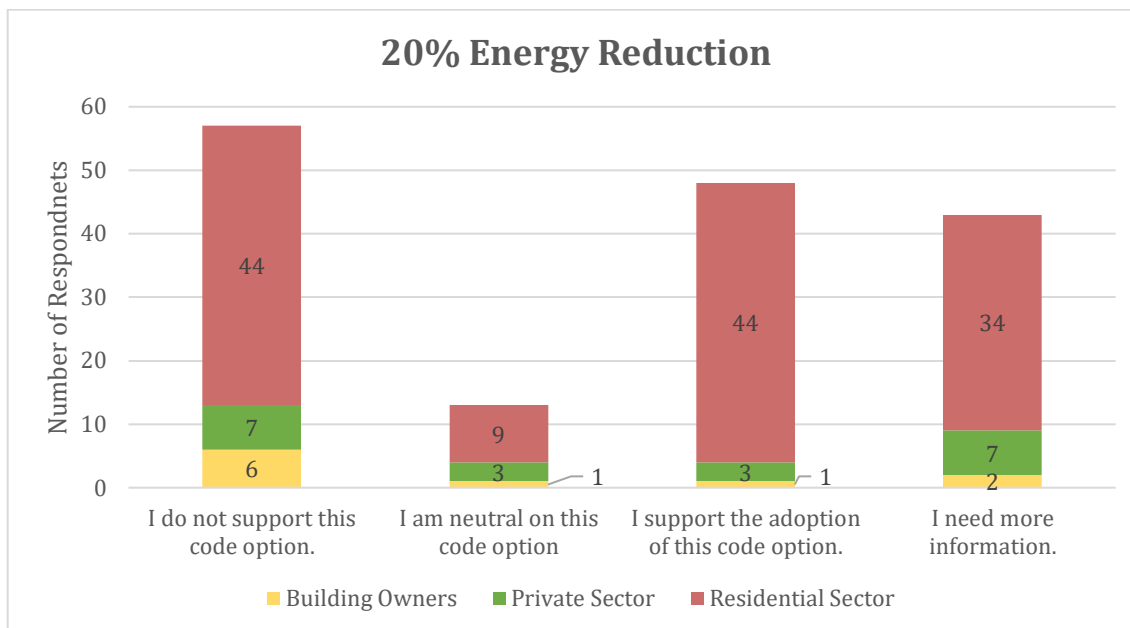


Figure 5: All sector levels of support for 20% Energy Reduction code option.

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?

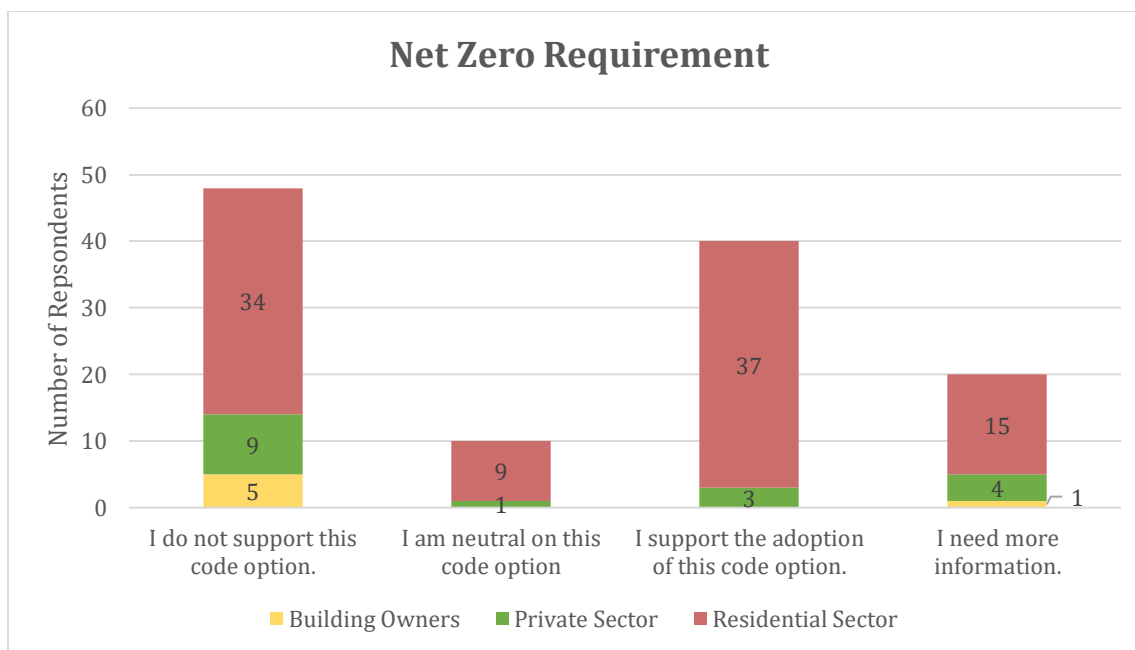


Figure 6: All sector levels of support for Net Zero code option.

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

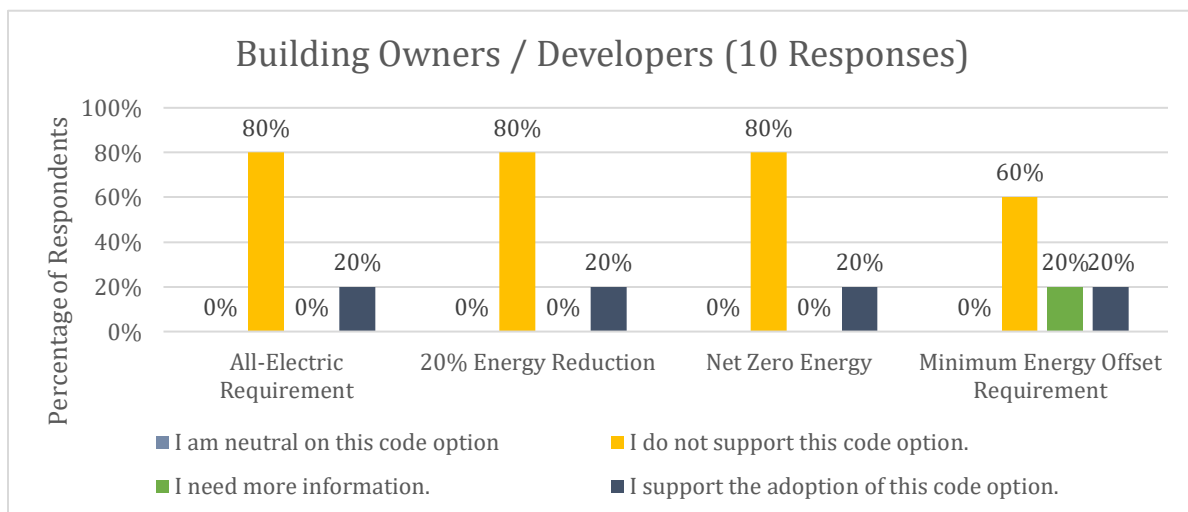


Figure 7: Building Owners / Developers sector levels of support for code options.

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

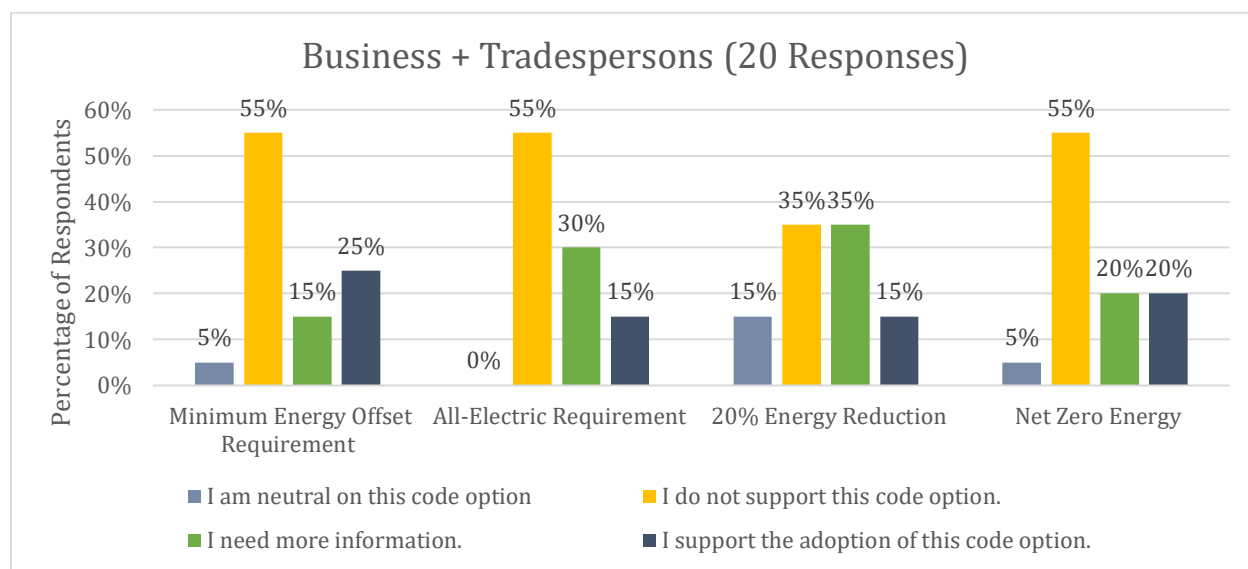


Figure 8: Business + Tradespersons sector levels of support for code options.

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

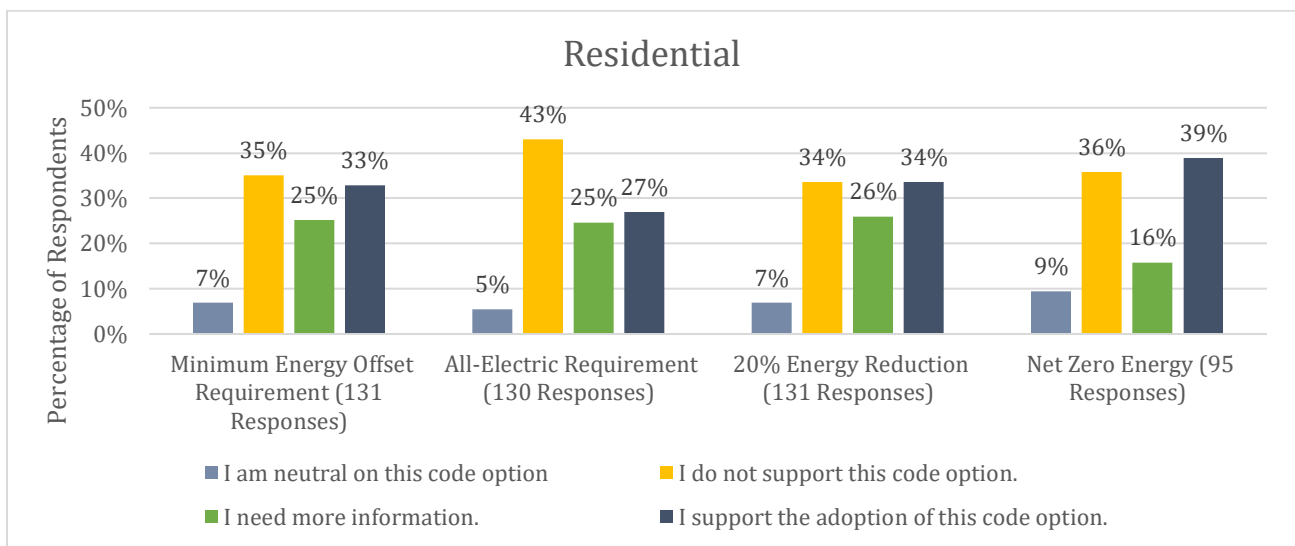


Figure 9: Residential sector levels of support for code options.

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? 15
In your opinion, what is the biggest benefit to the commercial code considerations presented? 23
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?

33
What'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 business 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 much.)
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. 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 regulations
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 losing commercial 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 flexibility.
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 warehouse and pot greenhouse 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 homeowners 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-Environmentalism" 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 potentially drive out low cost 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 there 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, Hospital, 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 insulation 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 quality and worker pulmonary health. Buildings 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 remaining 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 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 desirable, 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' affordability and needs
NOT imposing extra costs on the homeowners
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

- 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 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

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



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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, 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



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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>

Prepared For: DOLA Code Cohort for Northwestern Metro Area / Boulder County

Date Updated: July 5, 2022



SOUTHWEST ENERGY EFFICIENCY PROJECT
CC 12/17/2024



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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.

Prepared For: DOLA Code Cohort for Northwestern Metro Area / Boulder County
Date Updated: July 7, 2022



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. Responses 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 as 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 will 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 have 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. Sustainability 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



**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 entirety 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 ft², 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)	<u>32</u>
Office, small (>5,000 ft ²)	<u>19</u>
Office, medium (5,000 – 50,000 ft ²)	<u>23</u>
Office, large (>50,000 ft ²)	<u>28</u>
School, primary	<u>34</u>
School, secondary	<u>31</u>
Warehouse	<u>11</u>

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.

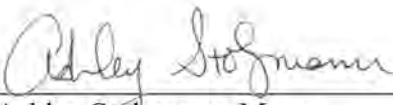
1. All fuel sources serving the building.
2. Energy production from on-site renewable energy systems.
3. Electric vehicle (EV) supply equipment.
4. Data centers representing over 10 percent of total building load or 5 percent of building floor area.
5. Other process loads that represent 10 percent or 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

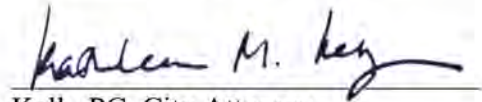
ATTEST:



Meredyth Muth, City Clerk

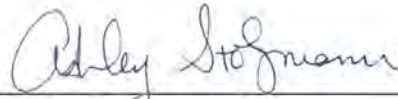


APPROVED AS TO FORM:



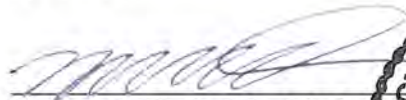
Kelly PC, City Attorney

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 it 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 too 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](tel:303.527.1100)

m. [303.249.1624](tel: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 10 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 and 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 and 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 and adopting an un-modified IECC.

Thank you for your efforts.

Matthew K. Berry, PE



1711 Pearl Street, Suite 300
Boulder, CO 80302
303.865.4942 Direct
303.499.3022 Office
www.ASCENTgrp.com

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SUBJECT: OPEN SPACE DIVISION OPERATIONAL UPDATE

DATE: DECEMBER 17, 2024

PRESENTED BY: ADAM BLACKMORE, PROS DIRECTOR
EMBER BRIGNULL, OPEN SPACE SUPERINTENDENT

SUMMARY:

Per City Council's request staff will present information on the Open Space asset inventory, an operations overview, and provide project updates.

FISCAL IMPACT:

None

RECOMMENDATION:

Informational staff presentation - no action is required.

ATTACHMENT(S):

1. Presentation

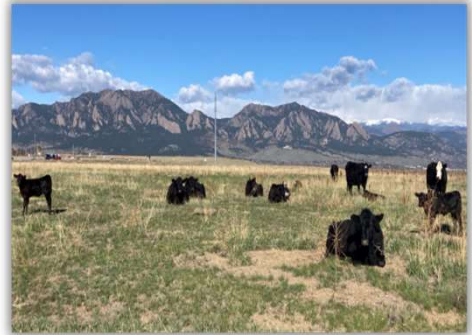
STRATEGIC PLAN IMPACT:

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

Open Space Operational Update

December 17, 2024

Adam Blackmore,
Director of Parks, Recreation, & Open Space
Ember Brignull,
Open Space Superintendent



Open Space is.....

**24% of the City's Land Use but
100% the Heart of the community**

- ▶ Trails
- ▶ Biodiversity
- ▶ Solitude
- ▶ Great Views
- ▶ Land Acquisition
- ▶ Bobcats
- ▶ Prairie Grasses
- ▶ The reason I live here
- ▶ Biking & Alternative Transportation
- ▶ Pollinators
- ▶ Raptors & Wildlife
- ▶ 5am Run
- ▶ Peace
- ▶ Nature
- ▶ Carbon Sequestration



City of Louisville Open Space Division

Open Space Vision: An Open Space program funded for future generations that enriches the experience of living in Louisville by providing opportunities for citizens to reconnect with nature and their cultural heritage while also enhancing their mental and physical well-being.

Open Space Mission: To conserve and restore Open Space through land acquisition and management for the protection of natural and cultural resources and to provide opportunities for education, volunteering and appropriate passive recreation.



12/17/2024

How Far We've Come.....



12/17/2024

Current Portfolio – By The Numbers

Trails

- **32 Miles of City Trails**
 - 25 Miles Maintained by Open Space
 - 15 Miles Soft Surface
 - 10 Miles Hard Surface



Properties

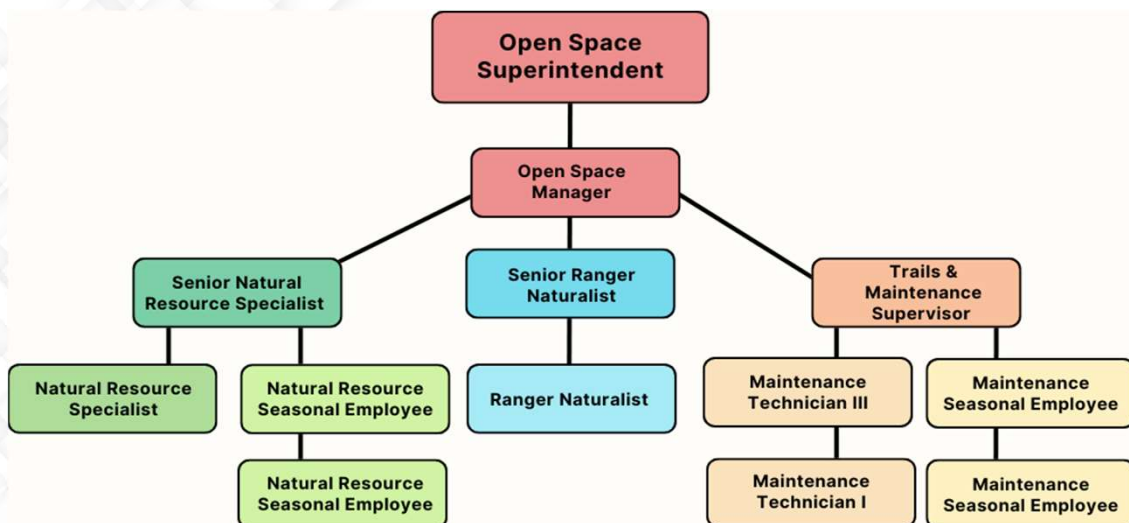
- **29 Total Properties**
 - 17 City Owned Properties
 - 12 Jointly Owned Properties
- **2,000 Acres**

Staff

- Nine Full-Time Employees
- Four Seasonal Employees

12/17/2024

Open Space Division Organizational Chart



12/17/2024

Natural Resource & Fire Mitigation

Wildfire Risk Assessment (WRA):

- Assignments for Open Space
 - 86% Complete
 - First Priority Assignments 100% Complete

Grants Received:

- CSFS Wildfire Mitigation Incentives For Local Government
- Boulder County 1A - Strategic Fuels Mitigation Grant Program



<https://storymaps.arcgis.com/stories/47b11c7f1abe45bcb54d6e9abea1d6e>



12/17/2024

Natural Resource & Fire Mitigation

Why Grazing

- **Fire Mitigation:** Reduces fuel loads, such as dry grass and shrubs, which lowers the intensity and spread of wildfires.
- **Natural Resources:** Controls invasive plants, promoting native plant growth, and improving soil and water health.
- **Land Management:** Replicates the natural grazing patterns of wildlife, like the bison that once roamed here, restoring soil health and biodiversity.



Nate can explain it better in this video



12/17/2024

Partnerships

NRCS & Conservation Districts:

- Grazing rates, utilization, forage sampling, and soil sampling

Bird Conservation of the Rockies:

- Grazing strategies to enhance vegetation height and cover for bird communities
- Develop bird monitoring protocols for the 2025 grazing season

Earth Lab at CU Boulder:

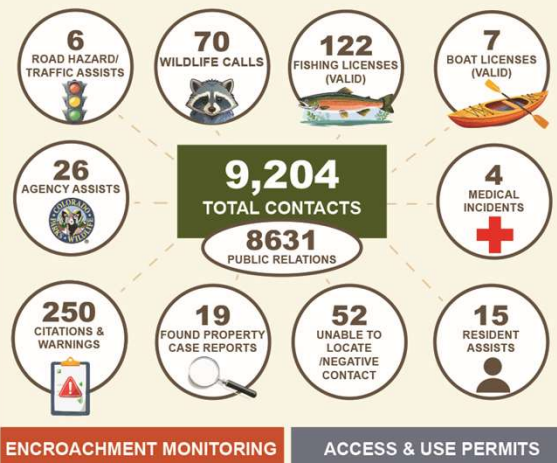
- Evaluating post-fire changes in invasive vegetation, carbon sequestration goals, and strategies to reduce grassland fire risk



12/17/2024

Visitor Use & Safety

The Ranger program builds community through positive interactions that inspire **learning, stewardship, and safety.**



ENCROACHMENT MONITORING

ACCESS & USE PERMITS

Rangers are a vital part of our Education & Outreach program!



12/17/2024

Education & Volunteer Programs

Education Programs

- 1,500 Education Attendees
- 51 Programs Offered



Volunteer Programs

- 1,362 Hours Contributed
- Single Day Events
 - 6 public volunteer events and
 - 6 private volunteer events
- Multi Day Programs
 - Adopt-An-Open Space
 - Raptor Monitoring
 - Weed Whackers
- Open Space Advisory Board



12/17/2024

Outreach & Communication

Website

Open Space Division

Click here for current Trail & Property Closures

TRAILS & MAPS

PERMITS, RULES & REGULATIONS

DOE OFF-LEASH AREA

EXPLORE OPEN SPACE

VOLUNTEER OPPORTUNITIES

WILDLIFE

Educational Booths

Brochures & Stickers

Social Media

1.9 K FB SUBSCRIBERS

Fans of Louisville Open Space and Parks

1.9K followers • 8 following

Highlighting news, events, and biodiversity of Louisville, Colorado Open Space and Parks.

Educational Campaigns

Interpretive Education Panels

Trail Signage

PERMANENT & TEMPORARY

NOTICE OF FENCE INSTALLATION IN PROGRESS

A fence is being installed at Media Lake to shoreline and ground-nesting birds, as well as flora and fauna in the area.

Please stay on the path and keep dogs on leash.

Your cooperation helps preserve this important ecosystem.

Latest Buzz e-Newsletter

1,400 RECIPIENTS

Invasive Noxious Weeds

What is Targeted Livestock Grazing?

The purpose of grazing is the careful use of livestock, such as goats or cattle, to remove unwanted vegetation and maintain the health of the ecosystem.

Benefits:

- Reduces the risk of fire by removing dry vegetation
- Improves soil health and water infiltration
- Controls invasive species
- Provides habitat for native plants and animals
- Reduces the need for herbicides
- Provides a natural and sustainable way to manage land

Additional Annual Operational Objectives

Natural Resources

- Noxious Weed Control
 - 636 total hours
- Wildlife Monitoring & Management
 - Prairie Dogs
 - Raptors
 - Coyotes
 - Fish Stocking
- Restoration
 - Grasses 7 Acres
 - Shrubs
- Development Review

Work Forces

- BOCO Parks & Open Space Youth Corps
- Bridge House: Ready To Work

Trails & Maintenance

- Parking Lot Maintenance & Resurfacing
- Trail Maintenance
- Trail Edge Mowing & Vegetation Clearing
 - 121 Miles
- Upkeep of:
 - Over 200 Signs & Kiosks
 - 51 Benches
 - Replaced Over 22 Outdated Signs
- Waste Disposal of 29 total trash cans
 - 3,072 Trash Cans Emptied Annually
- Human Dimension Studies:
 - Tracking Monthly Use at Davidson Mesa
- Vault Restroom Maintenance
- Snow Removal



12/17/2024

Sales & Use Tax - Budget Amendment

Hecla Phase I Improvements

- Wildlife Habitat Fencing
- Pocket Prairie
- Restoration

Vegetation Transects

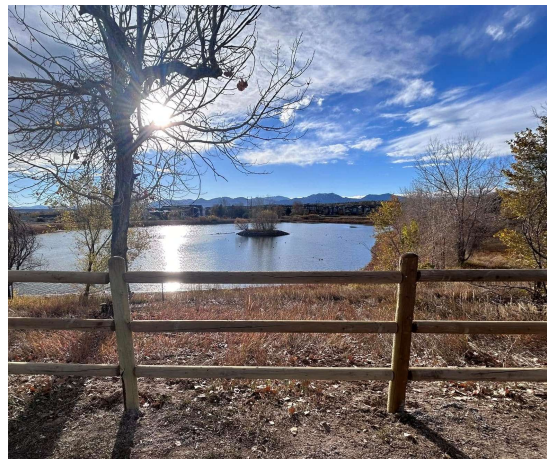
Trail Master Plan

Two New Full-Time Employees

- Open Space Manager
- Open Space Maintenance Technician I

Restoration Equipment

- Seeding Equipment
- Trailer



12/17/2024

Looking Forward.... 2025

Capital Projects:

- PROS Long Range Plan
- Trails Master Plan
- Vegetation Transects
- Wayfinding Signs
- Hecla Trail Resurfacing
- Parking Lot Maintenance
- Signage Upgrades

Operational Projects:

- Wildfire Risk Assessment (WRA) Projects
 - Grazing
 - Mowing
 - Weed Control
 - Restoration
- Establish Acquisition Policy
- Amenity Maintenance & Inventory
- Enforcement
- Education & Outreach
- Natural Resource Scientific Partnerships



12/17/2024

THANK YOU

To conclude, please join us on a quick visual journey through 2024 as we celebrate the incredible accomplishments of our Open Space staff!

From enhancing trails to preserving natural habitats, this video highlights a year of **progress, teamwork, and stewardship** on Open Space; showcasing the hard work, **dedication, and achievements** that made a lasting impact on our community and environment.



12/17/2024

SUBJECT: **ORDINANCE NO. 1889, SERIES 2024 – AN ORDINANCE
AMENDING TITLE 5 OF THE LOUISVILLE MUNICIPAL CODE
CONCERNING LIQUOR AND MARIJUANA LICENSING – 2nd
READING, PUBLIC HEARING (advertised *Daily Camera* 12/8/24)**

DATE: **DECEMBER 17, 2024**

PRESENTED BY: **GENNY KLINE, INTERIM CITY CLERK / SECRETARY, LOCAL
LICENSING AUTHORITY**

SUMMARY:

The attached ordinance is to align Title 5 of the Louisville Municipal Code with Colorado State Statute and Rules that were enacted during the 2024 Colorado General Assembly Session.

Biennial vs. Annual License Renewal and Payment of Local Fees

The State will now allow Liquor and Marijuana License holders to renew their license on a biennial basis rather than an annual basis. Local jurisdictions have the authority to either align with the State or keep the requirement for annual renewal.

The attached ordinance allows for a local biennial license renewal and the option to either pay their local fee in full at the time of renewal or to make one payment at time of renewal and a second payment 12 months after the renewal application is filed.

Changes to Marijuana Licensing Only

- **Persons Prohibited as Licensees**

The State changed language relating to persons prohibited from holding a marijuana license. The language in the attached ordinance aligns the municipal code with state statutes.

- **Modification of Premises**

The State no longer requires the marijuana establishment to apply for a modification of premises when making physical changes to the establishment. The State now asks the applicant to supply information as to the changes that were made at the time of the biennial renewal application. However, the State rules clarify that local jurisdictions may still require approval for modifications.

After consulting with the Director of Community Development, staff is recommending that the current requirements for a modification of premises be maintained at the local level. This will ensure that no material changes are being made to a marijuana establishment without the knowledge of the Local Licensing Authority and Community Development.

- **Retail Marijuana Store Changes**

Retail marijuana stores are now allowed to sell non-infused products (such as soda, chips, snacks, candy, etc.) as long as those food sales are not in excess of 20% of a store's annual gross revenue.

Retail marijuana stores are now allowed to sell marijuana products over the internet and to deliver marijuana or marijuana products to a person outside of the licensed premises.

The attached ordinance aligns the municipal code with the state language for these retail store changes.

The Local Licensing Authority (LLA) has been made aware of the above changes and recommendations and has taken no formal position. The LLA will support any actions taken by Council.

FISCAL IMPACT:

None.

PROGRAM/SUB-PROGRAM IMPACT:

This ordinance supports the Clerk's Office goals by helping to ensure effective and efficient governance as it relates to liquor and marijuana licensing.

RECOMMENDATION:

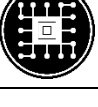
At second reading the Council may:

- Approve Ordinance No. 1889, Series 2024, as submitted
- Amend Ordinance No. 1889, Series 2024, as long as the amendments are not more restrictive than those found in state statutes.

ATTACHMENT(S):

1. Ordinance No. 1889, Series 2024

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. 1889
SERIES 2024**

**AN ORDINANCE AMENDING TITLE 5 OF THE LOUISVILLE MUNICIPAL CODE
CONCERNING LIQUOR AND MARIJUANA LICENSING**

WHEREAS, the State Legislature has enacted various amendments to the State’s liquor and medical marijuana licensing statutes; and

WHEREAS, these amendments include, among other things, authorizing biennial liquor and marijuana licenses, allowing retail marijuana stores to sell limited food items and accept online payments, and revising the list of disqualifying factors for marijuana licensees; and

WHEREAS, City Council desires to amend the City’s liquor and marijuana licensing requirements to more closely align with State law.

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

Section 1. Chapter 5.08 of the Louisville Municipal Code is hereby amended by the addition of a new Section 5.08.035 as follows:

Sec. 5.08.035. Biennial licenses authorized.

A licensee in good standing with the local licensing authority may file an application to renew its license for a two-year period. For purposes of this section, “good standing” shall have the meaning set forth in the Colorado Liquor Regulations.

Section 2. Section 5.08.050 of the Louisville Municipal Code is hereby amended to read as follows (words added are underlined; words deleted are ~~stricken~~):

Sec. 5.08.050. Fees - License fees designated for each class of license.

License fees shall be paid to the city annually, in advance, based on premises located within the city. A licensee granted a biennial license may pay the applicable fee biennially, in advance, or annually as follows: (i) the first payment must be submitted with the biennial license application; and (ii) the second payment must be submitted twelve months after the biennial license application is filed. Fees for the various classes of licenses shall be as established by resolution of the city council.

Section 3. Section 5.10.080 of the Louisville Municipal Code is hereby repealed and reenacted to read as follows:

Sec. 5.10.080. Persons prohibited as licensees.

A. A license shall not be issued to or held by any person contrary to the Colorado Marijuana Code and the rules and regulations promulgated by the State of Colorado.

B. In investigating the qualifications of an applicant, licensee, owner, or manager o, the local licensing authority shall make a finding and determination as to the good moral character and criminal history of such persons in accordance with the standards and procedures set forth in the Colorado Marijuana Code and the rules and regulations promulgated thereunder. In so doing, the local licensing authority may incorporate any findings as to good character and criminal history previously made by the state licensing authority or may, in its sole discretion, make its own findings.

C. The city shall not be required to perform a criminal background check if the state licensing authority has already performed a criminal background check or may, in its sole discretion, perform its own background check. In such case, the local licensing authority may have access to criminal history record information furnished by a criminal justice agency subject to any restrictions imposed by such agency. In the event the local licensing authority considers the applicant's criminal history record, the local licensing authority shall also consider any information provided by the applicant regarding such criminal history record, including but not limited to evidence of rehabilitation, character references, and educational achievements, especially those items pertaining to the period of time between the applicant's last criminal conviction and the consideration of the application for a local license. If the city performs the criminal background check, a fee in the amount established by resolution of city council may be charged for the costs of each fingerprint analysis and background investigation undertaken to qualify new applicants, managers, and any other persons required to be qualified pursuant to the Colorado Marijuana Code, this chapter, and any related rules and regulations. The local licensing authority may verify any of the information an applicant is required to submit.

Section 4. Section 5.10.090 of the Louisville Municipal Code is hereby amended to read as follows (words added are underlined; words deleted are ~~stricken~~):

Sec. 5.10.090. Duration of license; renewal.

A. Upon issuance of a license, the city shall provide the licensee with one original of such license for each medical marijuana business to be operated by the licensee in the city. Each such copy shall show the name and address of

the licensee, the type of facility or business for which it is issued, and the address of the facility at which it is to be displayed.

B. Each license issued pursuant to this chapter shall be valid for a period not to exceed two years ~~one year~~ from the date of issuance and may be renewed only as provided in this chapter. All renewals of a license shall be for no more than two years ~~one year~~. ~~An application for the renewal of an existing license shall be made to the local licensing authority not more than 60 days and not less than 45 days prior to the date of expiration of the license. No application for renewal shall be accepted by the local licensing authority prior to or after such date except as provided in subsection C of this section. The local licensing authority shall act on renewal applications received from the state licensing authority in accordance with the applicable provisions of the Colorado Marijuana Code and the rules and regulations promulgated thereunder.~~ The timely filing of a renewal application shall extend the current license until a decision is made on the renewal.

~~C. Notwithstanding subsection B, a licensee whose license has been expired for not more than 90 days may file a late renewal application upon the payment of a nonrefundable late application fee at the time the renewal application is submitted in the amount as established by resolution of the city council. A licensee who files a late renewal application and pays the requisite fee may continue to operate until a decision is made on the renewal.~~

Section 5. Section 5.10.100 of the Louisville Municipal Code is hereby amended to read as follows (words added are underlined; words deleted are ~~stricken~~):

Sec. 5.10.100. ~~Annual~~ License fee.

Upon and as a condition of issuance of a license or any renewal of a license, the licensee shall pay to the city an annual license fee in an amount as established by resolution of the city council. A licensee granted a biennial license may pay the applicable fee biennially, in advance, or annually as follows: (i) the first payment must be submitted with the biennial license application; and (ii) the second payment must be submitted twelve months after the biennial license application is filed. The ~~annual~~ license fee may be refunded if the application is denied.

Section 6. Section 5.10.130.D of the Louisville Municipal Code is hereby amended to read as follows (words added are underlined; words deleted are ~~stricken~~):

Sec. 5.10.130. Change in manager, employee; change in financial interest; modification of premises.

D. After a license is issued, the licensee shall make no physical change which materially or substantially alters the licensed premises or the usage of the licensed premises from the plans and specifications submitted at the time of obtaining the original license without the prior written consent of the local licensing authority. ~~For purposes of this subsection, physical changes, alterations or modifications of the licensed premises, or in the usage of the premises requiring prior written consent shall be as specified in the rules and regulations promulgated by the state licensing authority.~~ Each application for modification of premises shall be accompanied by an application fee in the amount as established by resolution of the city council. For purpose of this subsection, a modification requiring local licensing authority approval includes, but is not limited to the following:

1. Any increase or decrease in the total physical size or capacity of the licensed premises.

2. The sealing off, creation of, or relocation of a common entryway, doorway, passage, means of public ingress/egress, walk-up window, or drive-up window, to the extent that such modification alters or changes an area in which medical marijuana or marijuana products are sold, tested, or manufactured.

3. Any material change in the interior of the premises that affects the basic character or physical structure of the premises. However, the following types of modifications will not require prior approval: painting and redecorating; the installation or replacement of electric fixtures or equipment, plumbing, refrigeration, air conditioning or heating fixtures and equipment; the lowering of ceilings; the installation and replacement of floor coverings; the replacement of furniture, equipment, and security cameras; and any non-structural remodeling where the remodel does not expand or reduce an area in which medical marijuana or marijuana products are sold, tested, or manufactured.

4. The destruction or demolition, and subsequent reconstruction, of a building that contained the licensed premises.

Section 7. Section 5.11.100 of the Louisville Municipal Code is hereby amended to read as follows (words added are underlined; words deleted are ~~stricken~~):

Sec. 5.11.100. Duration of license; renewal.

A. Upon issuance of a license, the city shall provide the licensee with one original of such license for each retail marijuana establishment to be operated

by the licensee in the city. Each such copy shall show the name and address of the licensee, the type of facility or business for which it is issued, and the address of the facility at which it is to be displayed.

B. Each license issued pursuant to this chapter shall be valid for a period not to exceed two years ~~one year~~ from the date of issuance and may be renewed only as provided in this chapter. All renewals of a license shall be for no more than two years ~~one year~~. The local licensing authority shall act on renewal applications received from the state licensing authority in accordance with the applicable provisions of the Colorado Retail Marijuana Code and the rules and regulations promulgated thereunder. The timely filing of a renewal application shall extend the current license until a decision is made on the renewal.

~~C. Notwithstanding subsection B, a licensee whose license has been expired for not more than ninety (90) days may file a late renewal application upon the payment of a nonrefundable late application fee in the amount established by city council by resolution to the local licensing authority. A licensee who files a late renewal application and pays the requisite fee may continue to operate until a decision is made on the renewal.~~

~~C. D.~~ The local licensing authority may deny a renewal application for good cause pursuant to section 5.11.260.

Section 8. Section 5.11.110 of the Louisville Municipal Code is hereby amended to read as follows (words added are underlined; words deleted are ~~stricken~~):

Sec. 5.11.110. ~~Annual~~ Operating fee.

Upon and as a condition of issuance of a license or any renewal of a license, the licensee shall pay to the city an annual operating fee in an amount established by resolution of the city council. A licensee granted a biennial license may pay the applicable fee biennially, in advance, or annually as follows: (i) the first payment must be submitted with the biennial license application; and (ii) the second payment must be submitted twelve months after the biennial license application is filed. The ~~annual~~ operating fee may be refunded if the application is denied.

Section 9. Section 5.11.140.D of the Louisville Municipal Code is hereby amended to read as follows (words added are underlined; words deleted are ~~stricken~~):

**Sec. 5.11.140. Change in manager; change in financial interest;
modification of premises.**

D. After a license is issued, the licensee shall make no physical change which materially or substantially alters the licensed premises or the usage of the

licensed premises from the plans and specifications submitted at the time of obtaining the original license without the prior written consent of the state and local licensing authorities. ~~For purposes of this subsection, physical changes, alterations or modifications of the licensed premises, or in the usage of the premises requiring prior written consent shall be as specified in the Colorado Retail Marijuana Code and the rules and regulations promulgated thereunder.~~ Each application for modification of premises shall be accompanied by an application fee in amount established by resolution of the city council. For purpose of this subsection, a modification requiring local licensing authority approval includes, but is not limited to the following:

1. Any increase or decrease in the total physical size or capacity of the licensed premises.

2. The sealing off, creation of, or relocation of a common entryway, doorway, passage, means of public ingress/egress, walk-up window, or drive-up window, to the extent that such modification alters or changes an area in which retail marijuana or marijuana products are sold, tested, cultivated, or manufactured.

3. Any material change in the interior of the premises that affects the basic character or physical structure of the premises. However, the following types of modifications will not require prior approval: painting and redecorating; the installation or replacement of electric fixtures or equipment, plumbing, refrigeration, air conditioning or heating fixtures and equipment; the lowering of ceilings; the installation and replacement of floor coverings; the replacement of furniture, equipment, and security cameras; and any non-structural remodeling where the remodel does not expand or reduce an area in which retail marijuana or marijuana products are sold, tested, cultivated, or manufactured.

4. The destruction or demolition, and subsequent reconstruction, of a building that contained the licensed premises.

Section 10. Section 5.11.210.B of the Louisville Municipal Code is hereby amended to read as follows (words added are underlined; words deleted are ~~stricken~~):

Sec. 5.11.210. Prohibited acts.

B. It shall be unlawful for a retail marijuana store:

1. To sell or give away ~~any consumable product, including but not limited to,~~ cigarettes, or alcohol or to sell food in excess of twenty percent of the store's annual gross revenues, or edible products that do not contain marijuana (e.g., soda, candy, and baked goods).

~~2. To sell retail marijuana or retail marijuana products over the internet or to deliver marijuana or marijuana products to a person not physically present in the licensed premises.~~

Section 11. If any portion of this ordinance is held to be invalid for any reason, such decision shall not affect the validity of the remaining portions of this ordinance. The City Council hereby declares that it would have passed this ordinance and each part hereof irrespective of the fact that any one part be declared invalid.

Section 12. The repeal or modification of any provision of the Municipal Code of the City of Louisville 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 and all proper actions, suits, proceedings, and prosecutions for the enforcement of the penalty, forfeiture, or liability, as well as 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 13. 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 3rd day of December 2024.

Christopher M. Leh, Mayor

ATTEST:

Genny Kline, Interim City Clerk

APPROVED AS TO FORM:

Kelly PC, City Attorney

Ordinance No. 1889, Series 2024
Page 7 of 8

PASSED AND ADOPTED ON SECOND AND FINAL READING, this ____ day of _____, 2024.

Christopher M. Leh, Mayor

ATTEST:

Genny Kline, Interim City Clerk

SUBJECT: DISCUSSION/DIRECTION – 2025 CITY OF LOUISVILLE
LEGISLATIVE AGENDA

DATE: DECEMBER 17, 2024

PRESENTED BY: SAMMA FOX, INTERIM CITY MANAGER
MEREDYTH MUTH, INTERIM DEPUTY CITY MANAGER

SUMMARY:

The legislative agenda serves as a guiding document for the City’s engagement in legislative affairs prior to and during the legislative session. The proposed legislative agenda reflects the City’s policy goals as well as local and regional policy issues of importance to the Louisville community. This is an opportunity for City Council to provide feedback on the draft agenda, which is planned to be brought forward for adoption on January 7. Once approved, staff will format and circulate the document to our legislative delegation members.

This year’s document includes language to help individual councilmembers better understand when and how the agenda may be used to support a position as it relates to outside organizations. Staff would like feedback on this new language.

FISCAL IMPACT:

There is no fiscal impact related to this item.

PROGRAM/SUB-PROGRAM IMPACT:

One objective of the Governance & Administration Sub-Program is to provide governance based on a thorough understanding of the community’s diverse interests executed through clear and effective policy direction.

RECOMMENDATION:

Staff requests that the City Council provide feedback on the 2025 Legislative Agenda.

ATTACHMENT(S):

1. Redlined 2024 Legislative Agenda with 2025 Changes
2. Clean Draft 2025 Legislative Agenda

STRATEGIC PLAN IMPACT:

☒		Financial Stewardship & Asset Management	☐		Reliable Core Services
☐		Vibrant Economic Climate	☐		Quality Programs & Amenities

SUBJECT: 2025 LEGISLATIVE AGENDA

DATE: DECEMBER 17, 2024

PAGE 2 OF 2

☒	 Engaged Community	☐	 Healthy Workforce
☐	 Supportive Technology	☒	 Collaborative Regional Partner

202~~4~~⁵ City of Louisville Legislative Agenda

Purpose and Use

The legislative agenda serves as a guiding document for the City's engagement in legislative affairs and is a resource for staff and council.

Members of the City Council may represent the City regional efforts such as the Colorado Municipal League policy committee, Denver Regional Council of Governments, Northwest Mayors and Commissioners Coalition, and more, and may be asked to guide or express positions on legislation.

If this legislative agenda clearly states the City's position, council members may express support, opposition, or recommend amendments. When this occurs, council members should share with all of council during council reports at the next regular council meeting. If the issue is not clearly addressed in this legislative agenda, council members should seek City Council approval before taking any formal action (such as signing a letter) to support or oppose legislation.

Home Rule/Local Control

The City supports local control and municipal government home rule authority. In most cases, local problems are best addressed at the local level and the current authority and powers of municipal governments such as land use, zoning, personnel matters, sales tax, etc. should not be diminished. However, certain issues require statewide and multi-jurisdictional response, which are best addressed through early and meaningful engagement and collaboration with local municipalities.

Positions:

- The City urges state officials to respect Colorado's tradition of local control and allow municipal officials to address local problems at the local level.
- The City generally opposes state legislation that creates unfunded mandates on local municipalities without state funding or other sources of revenue. Unfunded mandates shift the cost burden of state mandates onto local governments, limiting a municipality's ability to provide locally identified government services.
- The City supports liquor and marijuana licensing that allows for local decision-making and collaboration between local and state licensing entities, including but not limited to local opt-in provisions for any new permitting or licensing requirements.
- The City supports maintaining local government authority to regulate oil and gas development at the local level, and the establishment of state rules and regulations that reflect such authority.
- The City supports legislation that provides local governments with additional flexibility, resources, and/or guidance in meeting the challenges of ensuring technology and digital resources are fully accessible.

Community Recovery and Resiliency

The Marshall Fire served as a sobering reminder that all communities in Colorado, regardless of socioeconomic status, must be prepared for climate disasters at all times. While the City continues to recover from the Marshall Fire, the community is working together to increase resilience and preparedness for the next disaster. Ongoing state action and investment is needed in order to mitigate future disasters and ensure our communities are

prepared when disaster strikes. The front-end investment in community resiliency will reduce the state, local, and federal costs of the severe climate disasters we are experiencing today.

Positions:

- The City supports the taskforce to explore a statewide minimum building code for wildfire risk reduction that addresses the expansion of the wildland urban interface into the plains areas, consider suburban community building patterns, and establish a minimum standard that can be applied across various environments and exceeded based on specific geographic needs.
- The City supports increased wildfire mitigation funding for local communities in the plains areas to establish and maintain risk reduction measures on public lands.
- The City of Louisville supports insurance reform that helps residents be better prepared and able to recover from climate disasters, while promoting the homeowners', renter's, and landlord's roles and responsibility in securing insurance coverage. Examples of desired insurance reform include legislation that:
 - Reduces system-wide underinsurance
 - Improves the transparency of the coverage gap that a private property owner or renter has with their existing policy
 - Eliminates the practice of insurance companies requiring contents itemization in total losses to receive the contents' coverage stated in a policy
 - Supports regulating the loss ratio for property and casualty insurance so that premiums paid go to cover losses and do not become excessive
 - Supports exploration of reinsurance for disaster impacts
 - Addresses insurance availability to ensure community members have access to insurance
 - Supports the exploration of public insurance to address availability
- [The City recommends](#) CDPHE ~~should~~ establish standards for acceptable levels of contaminants in water systems, soils, homes, businesses and schools. Without these standards there is no FEMA reimbursement opportunity or insurance standards for coverage.

Tax and Finance Policy

The City supports a fair and consistent state tax policy that preserves and expands the authority of local governments and opposes state exemptions that erode municipal sales taxes, use taxes, property taxes, and other revenue sources.

Positions:

- The City supports fiscally responsible government spending, but believes it is important to address the layers of constraints on state and local government budgets resulting from the Taxpayer's Bill of Rights (TABOR).
- The City supports equitable sharing with municipalities of existing and future state revenues derived from state-collected, locally shared revenues, such as the Cigarette/Tobacco/Vaping Tax, Highway Users Tax Fund, Lottery funds, and Marijuana tax funds.
- With the repeal of the Gallagher Amendment and new tax cuts and exemptions, the City believes it is critical to maintain ongoing residential and commercial property taxes to preserve public service revenues to the state, local governments, fire districts, schools, health providers, and others dependent on property taxes to deliver essential services.

Municipal Administrative Services

The City's administrative services help ensure a high-performing government, including the effective and efficient use of taxpayer funds in providing City services. This includes information technology, human resources, records management, elections, and general government administration. The City supports efforts to ensure that these services can be delivered in a transparent and cost-effective manner.

Positions:

- The City supports increased funding and resources to elevate cyber-security prevention, response, and recovery/rebuilding when attacks occur.
- The City has implemented accessibility measures that assist persons with disabilities in accessing City information and services, as required by HB21-1110. The City supports accessible digital communications but opposes unfunded mandates on local governments without reasonable opportunity to remediate complaints. Given the expense involved with remediation, the City supports dedicated funding and amendments to HB21-1110 to allow reasonable time for municipalities to come into compliance.
- The City supports the exploration of an accessible database to facilitate information and data sharing between the state and municipal courts.

Public Health and Safety

The City supports law enforcement and municipal court policies that ensure public health and safety, thereby improving the quality of life in partnership with the community.

Positions:

- The City supports state-level actions to address gun violence. While regional and local legislation can be effective in reducing gun violence, state action is needed to improve safety and regulatory consistency across jurisdictions.
- The City supports access to quality and affordable healthcare for residents and businesses across Colorado.
- The City supports continued efforts to improve municipal court and law enforcement practices and further refinement of such changes to ensure that victims are adequately protected.
- The City supports statewide efforts to expand mental/behavioral health services, reduce barriers to care, and provide funding to support such initiatives. This includes additional assistance for law enforcement to address community-wide mental health impacts, and mitigate the costs for healthcare and mental health services for persons in custody.
- The City opposes legislation that would prohibit the use of red light cameras and speed radar.

Energy/Environment

The City supports legislation to address climate change by improving energy efficiency, increasing the use of cost-effective renewable energy, and reducing greenhouse gas emissions and dependence on fossil fuels while maintaining the reliability and resilience of energy delivery and local control.

Positions:

- The City supports the state's plan to reduce greenhouse gas emissions through reduced energy consumption, increased use of clean energy and transitioning away from fossil fuels.
- The City supports statewide policies that reduce overall energy demand and consumption, while preserving and expanding local governments' ability to reach their sustainability and climate action goals.
- The City supports the preservation of air quality, renewable energy production and emission reductions through legislative, administrative, and regulatory actions.
- The City supports state efforts to reduce noise impacts and air pollution associated with local metropolitan airport activities.
- The City supports opportunities and funding for municipalities to implement local clean energy strategies and solutions.
- The City supports a regional approach to energy efficient building code implementation to have a greater effect on greenhouse gas emissions but also to increase consistency throughout the region, creating to have less confusion across municipalities for builders.

Transportation

Colorado's transportation infrastructure, which connects our communities and facilitates the movement of people and goods, is essential to the economic vitality of our state and necessary to maintain the high quality of life enjoyed by Coloradans. Appropriate investments in transportation, as one of the largest sectors of greenhouse gas emissions, also further the City's energy and ~~environment~~environmental goals.

Positions:

- The City supports ongoing state and federal funding sources for transportation projects, such as the CO 42 corridor and South Boulder Road, that provide funding for the maintenance of existing infrastructure, multimodal improvements, and other investments that reduce greenhouse gas emissions.
- The City supports regulation and investments that accelerate transportation electrification and other innovative transportation technologies that reduce emissions and congestion.
- The City supports investments that enhance safe and convenient multimodal transportation, including Complete Streets which increase transportation options, improve mobility, and reduce congestion and greenhouse gas emissions, and Vision Zero strategies which improve safety. The City also supports funding for the design and construction of pedestrian underpasses, which achieve many of the goals of Complete Streets and Vision Zero programs.
- The City supports funding for the construction and operation of the Northwest Rail line and the Front Range Passenger Rail to expand multi-modal transportation in the northwest metro region. The City also supports ensuring rail services along this line includes s a-stops in Louisville, supporting the much-delayed obligation of RTD for transit investment in our community.
- The City supports full restoration of transit services that were reduced or cut by the Regional Transportation District (RTD) during the COVID pandemic.
- The City opposes efforts to divest state-owned roads to municipalities without adequate short and long-term funding to meet additional maintenance and operational responsibilities.

Utilities, Telecommunications, and Broadband

The City supports policies that protect Colorado's natural resources and allow the City to maintain facilities efficiently, allowing for reasonable and equitable rates while maintaining optimal quality. The City also supports the local authority to manage all matters related to local telecommunications policy, cable franchising, wireless communication facilities, broadband deployment, public safety communications, rights-of-way management and government access channels.

Positions:

- The City supports the inventorying and protection of water rights, including the protection of municipal water.
- The City supports appropriate water conservation efforts and sustainable water resource management practices by all users.
- The City supports efforts to improve water quality through compliance with state and federal regulations.
- The City supports state policy for consumer protections of utility customers, including broadband customers.
- The City opposes state and federal efforts that complicate deployment of small cell and other wireless infrastructure and create unfunded mandates on local governments and supports federal and state actions removing these preemptions of local control.

- The City supports state efforts to determine the most effective ways to distribute federal funding to promote broadband deployment and equity in the availability and accessibility of broadband services to all Coloradans.
- The City supports state policy and funding to improve public safety telecommunications.
- The City supports the clarification that franchise fees do not include in-kind franchise obligations and supports the repeal of FCC action that creates these limitations on local franchising authority.

Land Use, Development and Revitalization, Housing

The City has a long-standing commitment to managed growth. The City believes strongly that local control and land use planning enhance our ability to meet the goals/mission of the City Comprehensive Plan and improve the overall quality of life. In addition, the City is working to redevelop and revitalize certain areas within the community, and appropriate urban renewal tools must be preserved to support these efforts.

Positions:

- The City supports policies and investments that improve the coordination of land use and transportation, and regional cooperation in land use planning and economic development activities.
- The City supports increased local government funding for the statewide expansion of affordable housing.
- The City supports increased local government and community engagement and impact analysis around the expansion and development of airports.
- The City supports enhancements to Colorado Urban Renewal law that do not unreasonably restrict the use of tax increment financing or eminent domain for redevelopment projects.
- The City supports legislation that encourages and facilitates historic preservation and rehabilitation.
- The City supports transit-oriented development principles, but believes that House Bill 24-1313 – Housing in Transit Oriented Communities may not provide a feasible path for local implementation without bill amendments or clarifications. The City encourages collaborative amendment development with local governments.

2025 City of Louisville Legislative Agenda

Purpose and Use

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Positions:

- The City urges state officials to respect Colorado's tradition of local control and allow municipal officials to address local problems at the local level.
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- The City supports liquor and marijuana licensing that allows for local decision-making and collaboration between local and state licensing entities, including but not limited to local opt-in provisions for any new permitting or licensing requirements.
- The City supports maintaining local government authority to regulate oil and gas development at the local level, and the establishment of state rules and regulations that reflect such authority.
- The City supports legislation that provides local governments with additional flexibility, resources, and/or guidance in meeting the challenges of ensuring technology and digital resources are fully accessible.

Community Recovery and Resiliency

The Marshall Fire served as a sobering reminder that all communities in Colorado, regardless of socioeconomic status, must be prepared for climate disasters at all times. While the City continues to recover from the Marshall Fire, the community is working together to increase resilience and preparedness for the next disaster. Ongoing state action and investment is needed in order to mitigate future disasters and ensure our communities are prepared when disaster strikes. The front-end investment in community resiliency will reduce the state, local, and federal costs of the severe climate disasters we are experiencing today.

Positions:

- The City supports the taskforce to explore a statewide minimum building code for wildfire risk reduction that addresses the expansion of the wildland urban interface into the plains areas, consider suburban community building patterns, and establish a minimum standard that can be applied across various environments and exceeded based on specific geographic needs.
- The City supports increased wildfire mitigation funding for local communities in the plains areas to establish and maintain risk reduction measures on public lands.
- The City of Louisville supports insurance reform that helps residents be better prepared and able to recover from climate disasters, while promoting the homeowners', renter's, and landlord's roles and responsibility in securing insurance coverage. Examples of desired insurance reform include legislation that:
 - Reduces system-wide underinsurance
 - Improves the transparency of the coverage gap that a private property owner or renter has with their existing policy
 - Eliminates the practice of insurance companies requiring contents itemization in total losses to receive the contents' coverage stated in a policy
 - Supports regulating the loss ratio for property and casualty insurance so that premiums paid go to cover losses and do not become excessive
 - Supports exploration of reinsurance for disaster impacts
 - Addresses insurance availability to ensure community members have access to insurance
 - Supports the exploration of public insurance to address availability
- The City recommends CDPHE establish standards for acceptable levels of contaminants in water systems, soils, homes, businesses and schools. Without these standards there is no FEMA reimbursement opportunity or insurance standards for coverage.

Tax and Finance Policy

The City supports a fair and consistent state tax policy that preserves and expands the authority of local governments and opposes state exemptions that erode municipal sales taxes, use taxes, property taxes, and other revenue sources.

Positions:

- The City supports fiscally responsible government spending, but believes it is important to address the layers of constraints on state and local government budgets resulting from the Taxpayer's Bill of Rights (TABOR).
- The City supports equitable sharing with municipalities of existing and future state revenues derived from state-collected, locally shared revenues, such as the Cigarette/Tobacco/Vaping Tax, Highway Users Tax Fund, Lottery funds, and Marijuana tax funds.
- With the repeal of the Gallagher Amendment and new tax cuts and exemptions, the City believes it is critical to maintain ongoing residential and commercial property taxes to preserve public service revenues to the state, local governments, fire districts, schools, health providers, and others dependent on property taxes to deliver essential services.

Municipal Administrative Services

The City's administrative services help ensure a high-performing government, including the effective and efficient use of taxpayer funds in providing City services. This includes information technology, human resources, records management, elections, and general government administration. The City supports efforts to ensure that these services can be delivered in a transparent and cost-effective manner.

Positions:

- The City supports increased funding and resources to elevate cyber-security prevention, response, and recovery/rebuilding when attacks occur.
- The City has implemented accessibility measures that assist persons with disabilities in accessing City information and services, as required by HB21-1110. The City supports accessible digital communications but opposes unfunded mandates on local governments without reasonable opportunity to remediate complaints. Given the expense involved with remediation, the City supports dedicated funding and amendments to HB21-1110 to allow reasonable time for municipalities to come into compliance.
- The City supports the exploration of an accessible database to facilitate information and data sharing between the state and municipal courts.

Public Health and Safety

The City supports law enforcement and municipal court policies that ensure public health and safety, thereby improving the quality of life in partnership with the community.

Positions:

- The City supports state-level actions to address gun violence. While regional and local legislation can be effective in reducing gun violence, state action is needed to improve safety and regulatory consistency across jurisdictions.
- The City supports access to quality and affordable healthcare for residents and businesses across Colorado.
- The City supports continued efforts to improve municipal court and law enforcement practices and further refinement of such changes to ensure that victims are adequately protected.
- The City supports statewide efforts to expand mental/behavioral health services, reduce barriers to care, and provide funding to support such initiatives. This includes additional assistance for law enforcement to address community-wide mental health impacts, and mitigate the costs for healthcare and mental health services for persons in custody.
- The City opposes legislation that would prohibit the use of red light cameras and speed radar.

Energy/Environment

The City supports legislation to address climate change by improving energy efficiency, increasing the use of cost-effective renewable energy, and reducing greenhouse gas emissions and dependence on fossil fuels while maintaining the reliability and resilience of energy delivery and local control.

Positions:

- The City supports the state's plan to reduce greenhouse gas emissions through reduced energy consumption, increased use of clean energy and transitioning away from fossil fuels.
- The City supports statewide policies that reduce overall energy demand and consumption, while preserving and expanding local governments' ability to reach their sustainability and climate action goals.
- The City supports the preservation of air quality, renewable energy production and emission reductions through legislative, administrative, and regulatory actions.
- The City supports state efforts to reduce noise impacts and air pollution associated with local metropolitan airport activities.
- The City supports opportunities and funding for municipalities to implement local clean energy strategies and solutions.
- The City supports a regional approach to energy efficient building code implementation to have a greater effect on greenhouse gas emissions and to increase consistency throughout the region, creating less confusion for builders.

Transportation

Colorado's transportation infrastructure, which connects our communities and facilitates the movement of people and goods, is essential to the economic vitality of our state and necessary to maintain the high quality of life enjoyed by Coloradans. Appropriate investments in transportation, as one of the largest sectors of greenhouse gas emissions, also further the City's energy and environmental goals.

Positions:

- The City supports ongoing state and federal funding sources for transportation projects, such as the CO 42 corridor and South Boulder Road, that provide funding for the maintenance of existing infrastructure, multimodal improvements, and other investments that reduce greenhouse gas emissions.
- The City supports regulation and investments that accelerate transportation electrification and other innovative transportation technologies that reduce emissions and congestion.
- The City supports investments that enhance safe and convenient multimodal transportation, including Complete Streets which increase transportation options, improve mobility, and reduce congestion and greenhouse gas emissions, and Vision Zero strategies which improve safety. The City also supports funding for the design and construction of pedestrian underpasses, which achieve many of the goals of Complete Streets and Vision Zero programs.
- The City supports funding for the construction and operation of the Northwest Rail line and the Front Range Passenger Rail to expand multi-modal transportation in the northwest metro region. The City also supports ensuring rail services along this line includes a stop in Louisville, supporting the much-delayed obligation of RTD for transit investment in our community.
- The City supports full restoration of transit services that were reduced or cut by the Regional Transportation District (RTD) during the COVID pandemic.
- The City opposes efforts to divest state-owned roads to municipalities without adequate short and long-term funding to meet additional maintenance and operational responsibilities.

Utilities, Telecommunications, and Broadband

The City supports policies that protect Colorado's natural resources and allow the City to maintain facilities efficiently, allowing for reasonable and equitable rates while maintaining optimal quality. The City also supports the local authority to manage all matters related to local telecommunications policy, cable franchising, wireless communication facilities, broadband deployment, public safety communications, rights-of-way management and government access channels.

Positions:

- The City supports the inventorying and protection of water rights, including the protection of municipal water.
- The City supports appropriate water conservation efforts and sustainable water resource management practices by all users.
- The City supports efforts to improve water quality through compliance with state and federal regulations.
- The City supports state policy for consumer protections of utility customers, including broadband customers.
- The City opposes state and federal efforts that complicate deployment of small cell and other wireless infrastructure and create unfunded mandates on local governments and supports federal and state actions removing these preemptions of local control.
- The City supports state efforts to determine the most effective ways to distribute federal funding to promote broadband deployment and equity in the availability and accessibility of broadband services to all Coloradans.
- The City supports state policy and funding to improve public safety telecommunications.

- The City supports the clarification that franchise fees do not include in-kind franchise obligations and supports the repeal of FCC action that creates these limitations on local franchising authority.

Land Use, Development and Revitalization, Housing

The City has a long-standing commitment to managed growth. The City believes strongly that local control and land use planning enhance our ability to meet the goals/mission of the City Comprehensive Plan and improve the overall quality of life. In addition, the City is working to redevelop and revitalize certain areas within the community, and appropriate urban renewal tools must be preserved to support these efforts.

Positions:

- The City supports policies and investments that improve the coordination of land use and transportation, and regional cooperation in land use planning and economic development activities.
- The City supports increased local government funding for the statewide expansion of affordable housing.
- The City supports increased local government and community engagement and impact analysis around the expansion and development of airports.
- The City supports enhancements to Colorado Urban Renewal law that do not unreasonably restrict the use of tax increment financing or eminent domain for redevelopment projects.
- The City supports legislation that encourages and facilitates historic preservation and rehabilitation.
- The City supports transit-oriented development principles, but believes that House Bill 24-1313 – Housing in Transit Oriented Communities may not provide a feasible path for local implementation without bill amendments or clarifications. The City encourages collaborative amendment development with local governments.

2024 Louisville City Council Work Plan – 2024 Wrap Up

Number*	Program Area	Issue	Council Time Estimate	Estimated Timeline/ Quarter	FINAL 2024 UPDATE
HIGH PRIORITY					
1H	Community Design	Comprehensive Plan Update 10-Year Update: Include completion of Market/Leakage Study	4-6 Council meetings	Q1-Q4	IN PROGRESS - Completed first round of public engagement and resident survey, with over 2,000 people engaged. - Held public open house, focus groups, and met with 9 city boards and commissions. - Completed existing conditions assessment. - Council affirmed Vision and Values, with expected final review by Council in August. - Second round of community engagement in progress. - Complete plan development and adoption process is anticipated in Q1-Q2 2025.
2H	Community Design	Strategic Land Use Code Revisions as Needed to Move Forward Other Initiatives	TBD	Q1-Q4	IN PROGRESS Passed amendments to development review process which expand eligibility of development application types that can be expedited to the final review stage.

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2024 Louisville City Council Work Plan – 2024 Wrap Up

3H	Open Space, Administration & Support Services	Open Space Management - Continued implementation of regenerative agriculture; maintenance, restoration; asset management; wildfire mitigation - Implementation of 2C ballot question	1-2 Council meetings	Q1-Q3	IN PROGRESS - Fall Regenerative Agriculture Program has concluded with success at Davidson Mesa Open Space. This program will continue in 2025 at multiple Open Space properties. - Per 2C ballot language, Parks & Open Space funds have been separated, and an acquisition reserve has been established. - Multiple projects and staffing additions approved as a part of the 5/7/2024 budget amendment are underway. A new Open Space Manager and Technician I have been hired. Shoreline/Social Trail restoration through fencing installation and equipment purchases for Hecla Open Space, a Fall season Vegetation Study, the removal of invasive Siberian Elm trees at North Open Space, enhancements to Open Space staff workspaces, and the allocation of funds for future Open Space planning work have all been completed as a result of the ballot measure funding.
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2024 Louisville City Council Work Plan – 2024 Wrap Up

4H	Transportation/ Community Design/ Economic Prosperity	Transportation Topics • Future 42 plan next steps • Discuss partnership with LRC for construction of underpasses in the URA (Main St/SBR, SH 42/South, SH42/SBR) • Transportation safety (including pedestrian and bicycle)	2 – 3 Council meetings	Q1 – Q4	IN PROGRESS • Future 42 60% Design in Progress. Phase 1 – South Street design in progress and targeting Summer/Fall 2025 groundbreaking. Finalizing funding with LRC, Lafayette, CMO, CDOT. • Transportation Safety presentation provided. Multiple transportation safety improvements completed including Via Appia lane reduction and various raised crosswalks. Polk/Dahlia corridor 1-year resident survey completed. • Transportation Safety study session scheduled for Feb 2025.
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2024 Louisville City Council Work Plan – 2024 Wrap Up

5H	Community Development	Economic Vitality • Strategic Code Changes (land use/commercial building code) • Review policies for public private partnerships • Explore additional opportunities with urban renewal authority • Retention and expansion of existing businesses • Attraction of new businesses	As Needed	Q1-Q4	IN PROGRESS • LRC and City Council adopted the Downtown Vision Plan for Streetscapes and Public Places in Q4. Staff to publish RFP for design services by end of 2024 with consultant contract and final design development starting in 2025. Design development will include public engagement and engagement with LRC and City Council in 2025. • LRC and Council approved of moving forward with \$10M in bond funds in Q4, anticipated to be split \$9M for the Downtown Vision Plan for Streetscapes and Public Places and \$1M for the South Street Underpass project. • Council passed amendments to expedited PUD and Plat review process. • EVC developed monthly business outreach forum. Several successful forums were held that focused on expanding engagement with different business sectors and areas of town. • Council approved BAP for King Soopers Marketplace project at former Lowes location. • Completed first ever Economic Development Retreat with EV partners.
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6H	Community Design	Affordable Housing • Complete Housing Study & Strategic Plan, including impact fee development • Could include Residential Rental Licenses; ADUs; Inclusionary Housing (affordable, senior, accessible); Public/private partnerships; streamlined zoning; building of new housing; transit oriented development	4-6 Council meetings	Q1-Q4	IN PROGRESS • Council adopted Housing Plan in Q2. • Council adopted IGA with the City of Boulder in collaboration with the Boulder County Regional Housing Partnership (BCRHP) for affordable homeownership and rental compliance program services. • Comp Plan public engagement to explore future land use scenarios to meet housing goals completed in Q4. • Staff and consultants starting development of draft policy and future preferred land use plan in Q4 with anticipated Planning Commission and City Council engagement in Q1 2025. • City Council held discussion/direction to review State ADU law (HB24-1152) and review code options. Staff had anticipated draft ordinance review in Q4, but due to staff turnover, now targeting Planning Commission and City Council review in Q1 of 2025. Deadline for compliance with HB24-1152 is June 30, 2025. • Updates to Inclusionary Housing Ordinance (IHO) delayed due to staff turnover. Anticipate presenting updates to IHO to Planning Commission and City Council in Q1/Q2 of 2025. • Staff has initiated discussion with Boulder County on the potential for additional affordable housing development at Kestrel development. Kestrel property is anticipated to be considered for policy change through
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					the Comp Plan update, which would be followed by land use applications if Comp Plan policies supported. • Staff has continued to engage with CU on Cinnebarre property development and included the property as a focus area for the Comp Plan update. Staff anticipates more formal engagement and to start negotiations on a development agreement following Comp Plan adoption in mid-2025. CU also hosted a public meeting in Q3 to introduce the project to the public and gather community input. • Staff is working on implementation steps for HB24-1313 – Transit Oriented Communities. Staff has met with DOLA staff on compliance options and will be engaging with Council in the first half of 2025. Preliminary reporting from the City to DOLA will be due by June 30, 2025.
7H	Administration & Support Services, Public Works	City Climate Change/Greenhouse Gas Reduction Initiatives: Implementation of internal strategic decarbonization plan for City facilities and operations & community decarbonization plan	3 Council meetings	Q1-Q4	IN PROGRESS • Internal Decarbonization Plan Project implementation is in progress. Many improvements funded in the 2025/2026 budget. • Community Decarbonization Plan (CDP) implementation: Staff initially focused on business strategies while concurrently launching the 1-2-3 Electrify workshop series for single-family homeowners. Staff engaging in outreach to Parco Del Zingaro with hard-to-recycle event and listening session scheduled in April for park residents.

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8H	Administration & Support Services, PROS, Public Works	Fire Hardening/Emergency Preparedness • Fire Hardening Code Revisions • Emergency Preparedness • Cooperation and Partnership (regionally, consortium of cities, emergency notification systems) • Include all types of threats • Potential policy discussions	3-5 Council meetings	Q1-Q4	IN PROGRESS • Council held a discussion on Wildland Urban Interface (WUI) and building hardening code options and directed staff to develop a city-wide structure hardening code in 2024 and consider development of a WUI code with additional regulations beyond the structure hardening code as a future project. • Council adopted city-wide fire hardening code for residential commercial structure in Q4. • Additional buffer strip mowing occurred on open space properties bordering residential property within higher risk areas as determined by the Wildfire Risk Assessment. • Additional grazing completed in 2024. • Restoration and pilot studies to reduce invasive grasses, respectively, on open space properties continue to be evaluated. • BOCO Alert test completed with 38,842 contact points reached. • Released RFP for mitigation outreach contractor. • HMGP Generator Grant funding pursued and awarded. Targeting 2025 install for South WTP generator conversion from Natural Gas to Diesel, Police/Court generator conversion from Natural Gas to Diesel, and new generator at Recreation Center. • Disaster preparedness month events.
MEDIUM PRIORITY					

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1M	Administration & Support Services	Equity, Diversity, and Inclusion –Updates from staff on the implementation of the task force recommendations and next steps.	2-3 Council meetings	Q1 - Q4	IN PROGRESS • EDI work continues while the position is vacant overlapping with many internal and external initiatives such as regional minimum wage, flag displays, and policy updates. • The City continues to make utility bill inserts and the quarterly Community Update newsletter available in Spanish and has added translation links to all email newsletters. Staff continues to evaluate options to deliver additional communications multilingually. • On demand translation services available at City Hall, Library, Recreation Center, PD/Court and in use by some public facing staff via phone app. • City staff responsible for programming events continue working to offer events, music, art and other opportunities that reflect diverse communities. • Completed training for Board and Commission members and City Council. Will offer annually to Boards and Commissions going forward. • Appointed new ADA coordinator. • Continue work on Accessibility Plan including website changes. • Bringing holiday policy for City Council adoption.
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2M	Administration & Support Services	Sustainability Programs	As Needed	Q1-Q4	COMPLETE • Five pilot bag-tax funded commercial programs are complete and are being rebranded as the "Commercial Sustainability Grant" with a permanent structure. • A Building Materials Pick-up program has been launched in partnership with Resource Central. • Five waterwise programs with Resource Central are ongoing. • Residential electrification and energy efficiency rebates are going quickly. • Commercial electrification and energy efficiency rebates are launching. • FreshFood Connect communications are ongoing (this program is seasonal). • Awarded RQAC Regional Air Quality Award for Parks Small Equipment electric conversion and all electric trash truck fleet.
3M	Parks, Recreation, & Open Space	Parks, Recreation, and Open Space Departmental Master Plan	1-2 Council meetings	Q4	IN PROGRESS • Council approved the RFP scope on 10/15/24. • The RFP is out for bid, closing 12/12/24. • Council contract approval anticipated in 2025 Q1. • Adoption/Approval by Council anticipated in 2026.

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4M	Parks, Recreation, & Open Space	Recreation Amenities: Tennis/Pickleball Courts; Multiuse Fields	As Needed		COMPLETE • PPLAB/RAB sub-committee continues to evaluate potential locations and/or community need. • Topic included in Long-Range Plan RFP scope. • Mission Green Tennis Court and Fencing was rebuilt in 2024. • Rec. Center and Centennial Courts received resurfacing. • Funding for the conversion of In-line skating rink to Pickleball courts approved for 2025. • Multiple CIP requests to either convert or add these amenities to the PROS system in the future.
5M	Administration & Support Services	Potential Minimum Wage Adjustments	2-3 Council meetings	Q1-Q4	COMPLETE – City Council discussed in September and decided not to adopt the policy and asked for updates on what others in the region do.
6M	Administration & Support Services; Economic Prosperity	Main Street Closure – Consideration of 2024 closure and planning for potential 2025 closure.	3 Council Meetings	Q1-Q3	IN PROGRESS • Council considered and did not direct closure in 2024. • Currently working to determine interest in potential 2025 closure.
7M	Administration & Support Services	Board & Commission Engagement • Q1 meetings with Advisory Boards • Q2 staff follow up on additional options for engagement • Possible joint meeting with Planning Cmsn re: Comp Plan	4-5 Study Sessions	Q1 - Q4	COMPLETE • Resumed joint board/Council meetings. • Asked for board budget recommendations. • Volunteer appreciation event breakfast recognizing board and commission members, as well as other city volunteers. • Board and commission engagement on the Comprehensive Plan.

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		Possible social/thank you event			Administrative updates including instituting Rules of Procedure and beginning work on new bylaws.
LOW PRIORITY					
1L	Administration & Support Services	Campaign Finance Rules and Limits	2 – 3 Council meetings	Q2	COMPLETE - Adopted Ordinance No. 1872, Series 2024 on 5/7/2024. - New campaign finance regulations were in place for the 2024 election.
2L	Administration & Support Services	Communications/Marketing Automation Software	2-3 Council meetings	Q2	COMPLETE – Council approved in January and this has been implemented.
3L	Community Design	Completion of Old Town Overlay update	2 Council meetings	Q2	ON HOLD – Due to shifting priorities and staff resources.
4L	Community Design	Update Development Impact Fees	1-2 Council meeting	Q1 – Q3	ON HOLD – Due to shifting priorities and staff resources.
Annual/Ongoing					
	Administration & Support Services	2025-2026 Budget Updates/Adoption	4-6 Council meetings	Q1 – Q4	COMPLETE – The 2025/2026 budget was adopted 11/4/2024.
	Utilities	Water, Sewer and Storm Rates: annual update of utility rates	1 Council Meeting	Q1 - Q2	COMPLETE 2024/2025 rate adoption complete. 2025/2026 rate model review to began in Finance Committee during the summer.
	Utilities	Solid Waste/Trash Contract Renewal	3 Council meetings	Q1-Q2	COMPLETE - City Council approved a new five-year contract with Republic Services on 6/18/2024 resulting in the first in the nation fully electric fleet for all residential solid waste removal.

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	Administration & Support Services	Comcast Franchise Renewal	2-3 Council Meetings	Q1-Q4	IN PROGRESS – The renewal is due in 2025, and staff has begun the process.
	Administration & Support Services	Resident Survey	2-3 Council Meetings	Q1-Q2	COMPLETE – Presented to council 7/16/2024
	Administration & Support Services	Council Salary Survey: review results of annual City Council salary survey (if changes are needed)	1 Council meeting or memo	Q3	COMPLETE – City Council discussed at their August 27 meeting and chose to make no changes.
	Administration & Support Services	Airport Impact Mitigation Efforts: Participate in Rocky Mountain Metropolitan Airport Community Noise Roundtable (RMMA CNR)	As Needed	Q1 – Q4	OTHER – The RMMA CNR was dissolved in 2024. However, council has continued to pursue the topic through other avenues.
	Administration & Support Services	Evaluation of all City Council Appointees: City Manager, City Attorney, Judge and Prosecuting Attorney	2 Council meetings/ Exec Session	Q3 - Q4	IN PROGRESS • City Manager complete. • Other appointees to be reviewed at 1/7/25 executive session.
	Administration & Support Services	Council Work Plan Preparation: draft annual Council Work Plan with prioritized items to be addressed in upcoming year	3 Council meetings	Q1 - Q4	IN PROGRESS – The City Council Work Plan approach for 2025 was further refined this year with council setting four priorities, viewed through two lenses, that were utilized throughout the budget process. Council will have a discussion and direction on their work plan in January of 2025, allowing the new council member to get up to speed and engage in the process.
	Administration & Support Services	Board & Commission Interviews/Appointments: conduct interviews for boards & commissions and determine appointments	3 Council meetings	Q4	COMPLETE – The City received a record number of applicants (75) and held interviews 12/9/2024 & 12/10/2024, with appointments anticipated 12/17/2024.

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	Administration & Support Services	Organizational Strategic Plan Update	As needed		IN PROGRESS – The Comprehensive Plan, Resident Survey, and Council's work on identifying 2025 priorities are all important components of organizational planning. A more formal plan update should wait until a City Manager is selected.
	Other	PUDs/Developments Projects Submitted during the Year: once applicant has satisfied all submittal requirements and proposal has been reviewed by the Planning Commission, staff will present to City Council for consideration	Varies	Varies	IN PROGRESS
	Other	Regional Partnerships: continue to consider shared service and/or policy opportunities with neighboring municipalities, such as: Marshall Fire Recovery; Transportation, Northwest Rail; Minimum wage; Affordable Housing; Residential/Commercial building code cohort	Varies	Varies	IN PROGRESS – This year Louisville continued participation in all listed items and participated in additional partnerships such as regional minimum wage analysis, staff representation on the Colorado Wildfire Resiliency Code Board (developing State-minimum WUI code), and more.
	Other	Consent Items: staff processes small/non-controversial issues by adding to consent agenda for consideration. Council sometimes removes these items from consent agenda and discusses during regular meeting.	Varies	Varies	IN PROGRESS

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	Other	Municipal Code Updates: staff drafts and presents updates to Municipal Code as part of ongoing efficiency and operational improvement efforts - Commercial Energy Code	Varies	Varies	IN PROGRESS • Commercial Energy Code amendments came to council, went to a discussion/direction, and are scheduled to return to council for adoption in January 2025. • Council adopted updated EV charging code for new developments to match the State Electrical Board minimum standards. • Council completed discussion/direction on ADU ordinance in Q2. Staff will be conducting further community outreach and drafting a code for Planning Commission and Council consideration in Q1 2025.
	Other	Unanticipated Issues: each year numerous issues arise that cannot be reasonably foreseen that require Council consideration	Varies	Varies	ONGOING - 2024 has a myriad of unexpected issues including turnover, emergent maintenance, and large-scale incidents such as CrowdStrike and outages.

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2024 Council Work Plan

- Wrap Up -

December 17, 2024

Samma Fox, Interim City Manager



1

Purpose and Expectations

- Final Update on the 2024 Council Work Plan
- Celebrate and acknowledge accomplishments
- Consider and reflect on progress, in advance of 2025 Council Work Plan discussion/direction – January 2025



2

2024 Recap



3

We had some challenges



"I'm right there in the room, and no one even acknowledges me."

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4

We did a lot!

- CORE SERVICES!
- Resilience Sculpture
- Pet Memorial
- New Communications Systems (Including Text Messages!)
- Open Space/Parks 2C Actions
- Mental Health Co-Responders
- Park Re-Openings
- Decreased Employee Turnover
- New EDI Training
- ~350K Rec. Membership Visits
- Library Visitors ^15%
- Tickets Processed by Court ^26%
- Many Systems Improvements
- Disaster Preparedness Trainings and Exercises
- Very High Number of Projects
- Ward Meetings



5

We did some impressive things

- The Regional Air Quality Council has selected the City of Louisville for its “CLEAN AIR CHAMPION” award!
- First all electric refuse fleet!
- Individual and Group Awards & Recognitions
 - American Water Works Association
 - Museum
 - American Public Works Association
 - LPD Honored by Support the Shield
 - Best Public Golf Course in Colorado
- 10% Reach on Comp Plan Engagement!



6

2024 Council Work Plan



7

Overview

35 Items!

- 8 High Priority Items
- 7 Medium Priority Items
- 4 Low Priority Items
- 16 Annual/Ongoing Items



8

High Priority Items

- Comprehensive Plan Update
- Strategic Land Use Code Revisions
- Open Space Management
- Transportation Topics
- Economic Vitality
- Affordable Housing
- Climate Change / Greenhouse Gas Reduction Initiatives
- Fire Hardening / Emergency Preparedness



9

High Priority Item Status

- 8 High Priority Items
- All In-Progress – On Track
- All large, complex, on-going initiatives
- All likely to continue into the 2025 Council Work Plan
- Highlights...
 - CP Engagement / Vision and Values
 - Development Code Improvements
 - New Open Space Staff
 - Award Winning Bike/Ped Safety Improvements
 - EV Day and Business Attraction
 - Housing Plan Adopted
 - Decarbonization Efforts
 - Fire Hardening
 - BOCO Alert Test
 - Disaster Preparedness Month



10

Medium

- Equity, Diversity, and Inclusion
- Sustainability Programs
- Parks, Recreation, and Open Space Long-Range Plan
- Recreation Amenities
- Potential Minimum Wage Adjustments
- Potential Main St. Closure
- Boards and Commissions Engagement



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Medium Priority Item Status

- 7 Medium Priority Items
- 4 Complete, 3 In Progress
- Many of these are large, complex, and on-going items
- EDI & Sustainability are lenses for all priorities in the proposed 2025 Council Work Plan
- Highlights...
 - EDI Training for Boards, Commissions, and Council
 - Digital Accessibility Plan
 - Bag Tax Programs
 - Board/Commission Meetings with City Council
 - Minimum Wage Discussions & Regional Coordination
 - Volunteer Appreciation



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Low

- 4 low priority items
- 2 complete – 2 on hold

On hold items, due to shifting priorities, legislative mandates, and staff resourcing include Updates to Old Town Overlay and Development Impact Fees.

• Highlights...

- Adopted New Campaign Finance Regulations
- Implemented New Communications Software



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Ongoing

- 16 Items
- 6 Complete
 - 2025/2026 Budget Adopted (every 2yrs)
 - Utility Rates (annual)
 - Solid Waste Contract (every 5 yrs)
 - Resident Survey (every 4 yrs)
 - Board & Commission Appoints (annual)
- 9 In Progress – Comcast Franchise Renewal, Appointee Evaluations, Partnerships, PUDs, Consent Items, Strategic Planning, Council Work Planning, and Unanticipated Issues.
- 1 Other – RMMA CNR disbanded, though work still pursued



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Thank you!

- To council for your leadership!
- To staff for your work!
- To the community for your support!



2024 Recap

Just some of the things staff accomplished this year.

None of which is possible without collaboration and coordination across the City.



Parks

Parks, Athletic Fields, Cemetery

- 8,800 acres mowed
- 45 burials & 43 plots sold
- 155+ field preparations, Five 3-day tournaments
- 200+ trash cans changed per week -10,400 per year
- 270+ snow/ice management hours
- Implemented first all-electric mower

Forestry

- 55 trees planted
- 39 trees removed (34 due to EAB)
- 65 trees contracted for pruning
- Forestry Corp pilot program (Tree Tender) and grant collaboration with PLAY Boulder- 16 trees planted and trained youth participants on urban tree canopy maintenance

Streetscapes/Horticulture

- 1312 annuals and 578 perennials planted
- 6 new or renovated landscape beds
- 36 varieties specific to support pollinators
- 27 varieties that are Native
- 26 varieties that are low water / xeric
- 15 varieties with a fire rating 7.5 or above

Other Highlights

- 95% battery conversion- small power tools (blowers, trimmers, chain saws, etc.)
- 5 Eagle Scout projects
- Resiliency and Pet Memorial sculpture installations
- Regional Air Quality Council - Clean Air Champion
- Implemented digital / software playground inspection reporting



Recreation, Senior Center, & Golf

- Overall quality of the Recreation Center 94% satisfaction in resident survey
- Overall quality of the Senior Center 91% satisfaction in resident survey
- 2,256 youth sports participants
- 6,423 child watch participants
- 7,206 Zoom fitness class attendees
- 342,468 membership visits & 26,697 daily admissions at Rec Center
- 2,280 facility rentals & 293 park shelter rentals
- Summer day camp serviced 133 kids
- 433 swim classes offered with 2,249 enrollments
- Produced the largest junior golf programming in the state of Colorado
- Produced the 5th largest PGA Jr Camp, by participation, in the U.S.
- Named Best Public Golf course in Colorado by NBC / GolfPass golfers
- Overall quality of Coal Creek Golf Course 86% satisfaction by Louisville residents
- Served over 9,601 senior meals through November
- Served 1,126 lattes for seniors
- Over 1,000 participants in 43 senior day trips
- 2,117 volunteer hours logged for senior programs



PROS CIP Projects

Parks

- Playground renovations of Joe Carnival & Meadows Parks including re-opening celebrations
- Resurfacing, new fencing and reopening of Mission Green tennis court
- Installation of new signage for Centennial & Annette Brand parks
- Xeric garden @ White House (with Sustainability)
- Installation and opening ceremony of Resilience sculpture @ City Hall (with Cultural Services)

Rec & Senior Center

- Locker room renovations for counters, sinks and mirrors
- Resurfacing of indoor track (with Facility Services)

Open Space

- Installation of trail wayfinding signage phase one, Powerline Trail
- Close-out of 104th Street Trail construction (with Public Works)
- Installation of fencing for vegetation restoration at Hecla Lake OS

Golf

- Extension of golf cart path for hole 13, missing since 2013 flood (with Public Works)



Public Works

First in the country all-electric refuse truck fleet!!

CIP Projects Completed

- Polk/Dahlia restriping and safety improvements
- Via Appia restriping and safety improvements
- 104th Street Trail
- Yearly Concrete, Asphalt , Sanitary and Storm Projects
- Downtown Vision Plan
- Drainageway A-1 Floodplain reduction
- South Boulder Road Ditch Lining

Engineering Tasks

- ROW Permits processed – 300
- Phone calls responded to – 697
- General Emails to Public Works responded to - 150
- Development submittals reviewed (Planning referrals, civil plans, material submittals, other requests) – 86
- Positions filled – 2
- Traffic Control Orders submitted – 21



Public Works

Water and Wastewater

- 1.3 billion gallons of water delivered
- 660 million gallons of wastewater treated
- Projects Completed
 - Utility Master Plan
 - Technology Upgrades at the Water Treatment Plants
 - Design of the Wastewater Plant Solids Handling Improvements w/ construction underway
 - Continued work on Windy Gap Firming Project

Facilities Tasks

- Received 2,000 work orders, completed 1,950
- Steinbaugh Pavilion Repairs
- Resolved long-standing water leaks at Police Department and City Services
- Assisted with Museum staff on restoration of Historic Rex Curtain
- Installed Mini Split HVAC at CTC lift station to prevent over heating



IT

- Welcomed five new team members
- Completed 27 projects
- Resolved 3,783 help desk tickets
- Completed 404 hours of professional training and certification
- Implemented new Zoom phone system allowing employees to work and communicate from anywhere
- Separated and upgraded critical infrastructure to mitigate risks associated with cyber threats, enhancing the security of our water systems
- Completed redundant internet connection to ensure minimal downtime during disruptions and improve reliability
- Enhanced GIS mapping that supports multiple divisions including Marshall Fire Recovery
- Improved SCADA system for great operational efficiency and service delivery of the City's water system



Finance

- Processed 35,790 sales tax returns – an almost 25% increase from 2023
- Issued 1,575 business licenses – an over 70% increase from 2023
- Issued over 11,500 pay checks
- Completed 2025-26 Budget Process
- Began offering free sales tax seminars on a quarterly basis to help business owners understand sales tax requirements in Louisville, allow them to ask questions specific to their business, and equip them with the tools necessary to be successful with voluntary compliance
- Implemented the Simpler reporting software tool for all Tyler users in the City. This is an efficient way for staff in various departments to get real-time data, review prior and current year transactions, and see their YTD budget utilization as well as future year budget info for their department.



City Clerk/Municipal Court

- Municipal Court processed 1,432 tickets – up from 1,057 in 2023, a 26% increase
- Upgraded Council Chambers AV System
- Uploaded 45,157 documents to Central Records system totaling 99,176 pages
- Permitted 43 Special Events
- Processed 141 CORA Requests
- Renewed or transferred 70 existing liquor licenses; processed 3 new licenses
- Updated board and commission application process to make it ADA compliant
- Completed integration of Building Department EnnerGov software with Central Records software LaserFiche for permanent retention of building permits
- Updated Campaign Finance Regulations
- Oversaw 2024 Ward I Election
- Coordinated first ever EDI training for Boards and Commissions and City Council (in conjunction with Cultural Services)



4/19/2023

Police Department

- Hired 12 new employees
- Implemented Co-Responder program in partnership with Boulder County
- Created a department Peer Support Team
- Implemented a web-based Administrative and Training records management system
- Started an E-bike patrol team
- Developed a robust marketing and recruitment campaign
- Collaborated with PROS staff and Open Space Rangers, local community members and businesses, and BVSD on development of an E-bike safety campaign and associated events
- Received over \$320,000 in Federal and State grant funds to support co-responder services, in-service training, high visibility traffic and DUI enforcement, and some equipment needs
- 19,029 Police staff responses to incidents and other calls for service
- Generated over 2,000 Police reports and investigations
- Processed 593 public records requests



4/19/2023

Cultural Services

- Nearly 600 Library events drawing over 20,700 community members
- Library welcomed over 3,700 new cardholders and nearly 200,000 visitors through November, marking an exciting 15.5% increase in visitors from last year!
- Checked out 435,651 physical materials through November and over 96,000 eMaterials which is a 12.4% increase over last year
- Library commitment to reaching all community members remained strong, with our dedicated team delivering 571 books to Homebound patrons
- Strengthened educational partnerships, connecting with 2,434 elementary students and 550 middle and high school students through dynamic school visits
- Museum held 48 programs and tours with 3,625 attendees
- Museum instagram followers increased by 13% and eNewsletter nearly doubled to reach almost 2000 subscribers
- The American Association for State and Local History awarded the Museum a Leadership in History Award of Excellence for work collecting and documenting personal accounts and recovery with the Marshall Fire Story Project



4/19/2023

Community Development

- Held first EV day event with participation from business sectors across the City
- 30+ meetings with brokers
- Hosted 8 Business Beats
- 2,081 building permits received
- 1,616 building permits finalized with 301 certificates of occupancy issued
- 13,529 inspections completed
- 383 Marshall Fire homes now complete
- 101 Marshall Fire homes under construction
- 50 new historic preservations processed
- Comprehensive Plan
 - 3 rounds of community engagement, including 2 open houses and about 5 pop up events; 3 community surveys with total participants well over 2,000
 - Existing conditions report completed
 - Affirmed Vision and Values
- Processed 25 new land use applications
- Processed 5 code amendments
- Housing Plan Adopted
- Fire Hardening Ordinance Adopted
- Downtown Vision Plan Adopted (in conjunction with Public Works)



4/19/2023

Human Resources

- Launched Employee HUB – a SharePoint portal for employee information and communication
- 125 total recruitments, ~1500 Interviews conducted
- Onboarded 210 employees (55 full time and 155 part time)
- 2024 Attrition rate: 2024 – 18% (37 employees), 8% improvement from 2023
- Implemented new automated NeoGov Onboarding and Offboarding program for employees
- Held 4 major Employee Appreciation Events (Pancakes in the Park, Ice Cream Social, Fall Festival and Holiday Lunch)
- STEP Leadership Development Program: 10 employees completed and graduated this 8-month program
- Implemented NeoGov LEARN Learning Management system – roll out Q1 2025
- Implemented new ID Badging system for all employees (in conjunction with LPD and IT)
- Created and implemented Louisville Medical Leave Program to be competitive with the State FAMILI program



4/19/2023

City Manager's Office

- Launched GovDelivery in July and sent 801,086 emails notices across multiple mailing lists since the launch date; includes new text message service
- Processed 36 property/liability insurance claims & 23 workers comp claims
- Completed Resident Survey
- EcotoberFest
- Received \$2.5M grant from DOLA for generators
- Closed out 2013 flood projects with FEMA
- Held BoCo Alert Test – adding more than 34,842 points of contact reached
- Processing final close out of Marshall Fire insurance claim with Travelers
- City SheLeads Gov watch party was highlighted by the International City Management Association
- Hosted first volunteer appreciation brunch since COVID
- Disaster Preparedness Month



4/19/2023

Re-Energizing Louisville

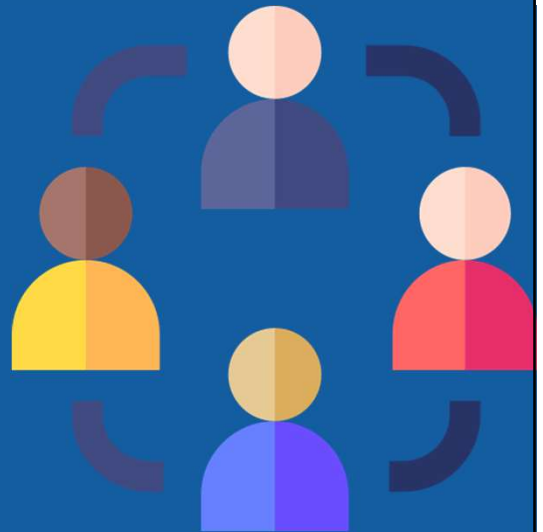
State of the City

Mayor Chris Leh
November 14, 2024

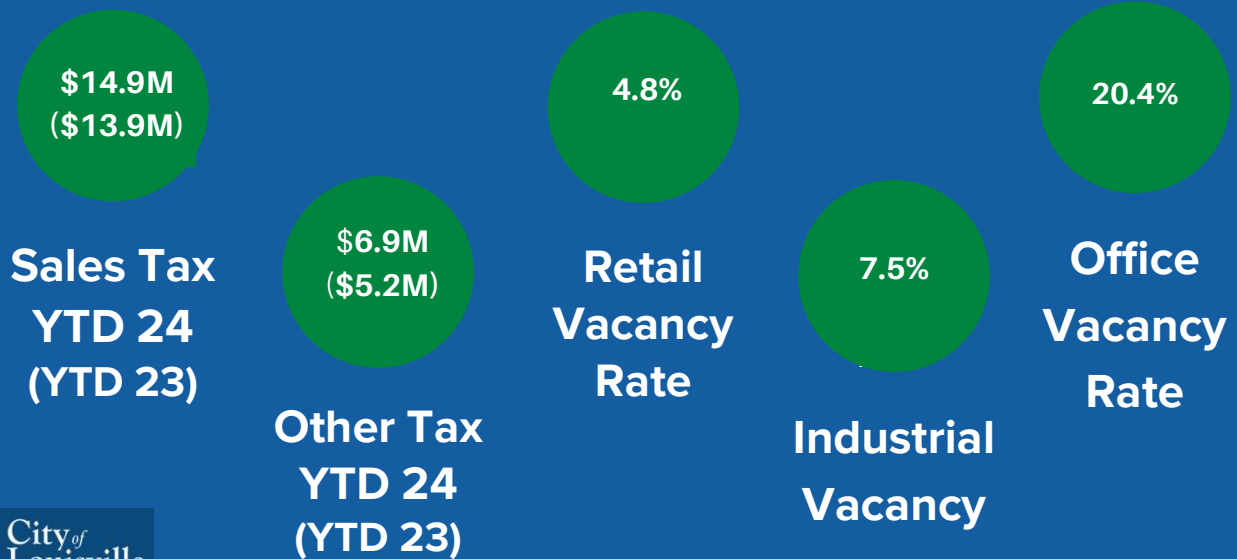


Louisville Today

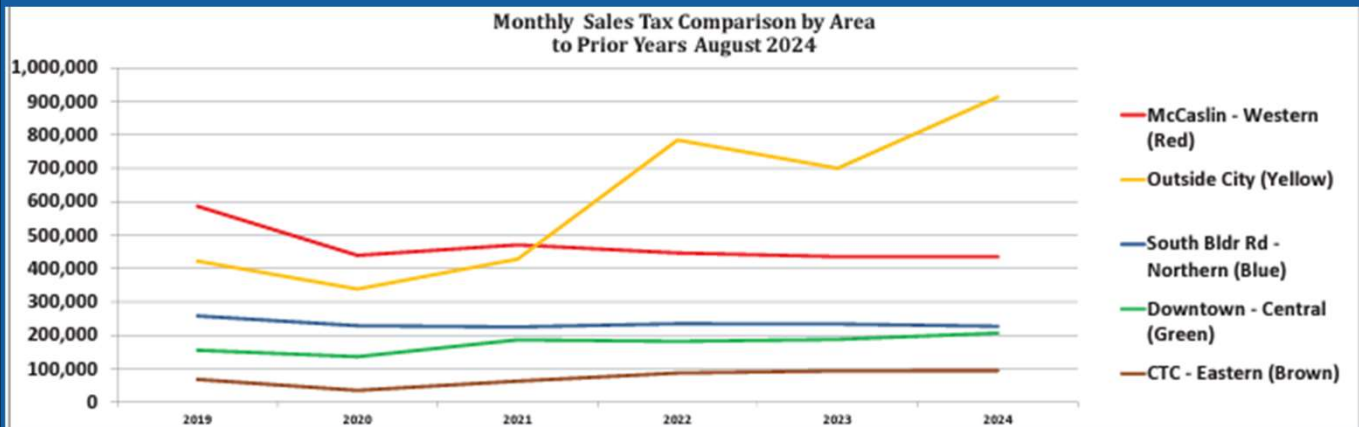
- Population: 19,570 people (2023)
- Median household income: 25K. (2021; only Superior \$132K and Erie \$140K are higher in BoCo)
- MHI Change: 50% (2011-21 Highest in BoCo)
- Ave. Home Price: \$831K in 2021 (up 132% since 2011)
- Lack of Affordability: In 2023, household would have to earn >\$200K to afford median home price (74% could not afford their current home)
- Average rent: \$1,961 (2021; up 58% since 2012)
- Median age: 43 (2021; Highest in BoCo)
- 25-44 year-olds: Dropped 27% (2011-21)
- Single family homes : 70%



Economic Snapshot



Revenue by Area



Council Work Plan Priorities

Economic Vitality
Comp Plan
Strategic Land Use Revisions
Affordable Housing
Open Space
Climate Change/Sustainability
Fire Hardening/Preparedness



How It Started

Affordable Housing

- Preliminary Discussions

Downtown

- Facade Improvement Program

South Boulder Road

- Alfalfa's - Closed

McCaslin Corridor

- Old Sam's Club - Closed (comm)
- Lowe's
- Initiative
- Biodesix
- Regal Theater for Sale

Redtail Ridge

- NW Parkway Authority



How It's Going

Affordable Housing

- Two Projects Recently Approved

Downtown

- Property Improvement Program
- Downtown Vision Plan

South Boulder Road

- Shamrock

McCaslin Corridor

- Relish
- King Soopers Marketplace
- Compromise on Gas Stations
- Biodesix
- University of Colorado

Redtail Ridge

- Final Platting Approved

Future Projects

Redtail Ridge

AdventHealth Avista Health

King Soopers

University of Colorado



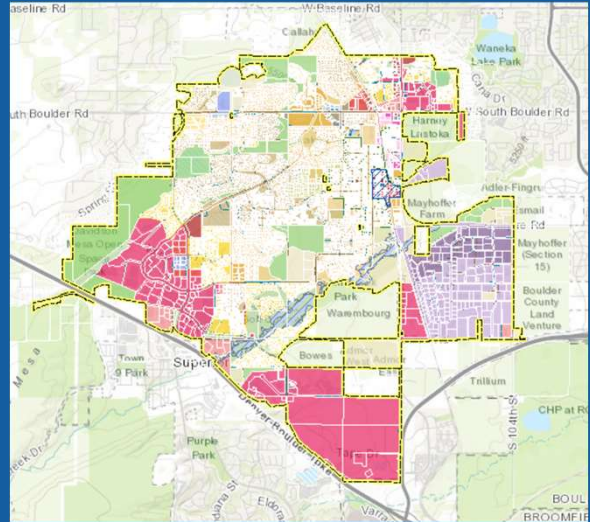
Future Projects

Downtown Vision Plan



Improvements In The Planning Process

- Energy Code Amendments
- Planning Code Revision
- Concept Plans
- Streamlined PUD Reviews
- BAP



Regional Collaboration to Attract & Retain Business Along the US 36 Corridor

- Bioscience
- Aerospace
- Quantum Computing
- University of Colorado



City / Chamber Collaboration

- State of the City
- Pints in the Park
- Dinner on Main
- Summerfest
- Awards
- Ecotoberfest
- Economic Vitality Day
- Regional Economic Vitality



Re-Energizing Louisville

State of the City

Mayor Chris Leh
November 14, 2024



