

Board Briefing



TO: Board of Directors

FROM: Debra A. Johnson, General Manager and CEO

DATE: October 21, 2021

SUBJECT: Board Briefing Documents – October 2021

A handwritten signature in blue ink, likely belonging to Debra A. Johnson, the General Manager and CEO.

This addition to the Board Briefing documents for the month of October can be found on the landing page entitled "Board Briefing" website: <https://www.rtd-denver.com/board-briefing-documents>.

Once reviewed, should Board members have questions regarding the subject matter or information items, a detailed inquiry should be sent to board.office@rtd-denver.com.

Listed below are the Board Briefing documents by topic and date:

Updates

- Unaudited Monthly Financial Statements – August 2021
- Status of Federal COVID-19 Grant Relief Funding Through August 2021
- LiVE Income-based Fare Discount Program – September 2021
- RTD Forecast Model – Short, Medium, and Long-Term Econometric Forecasts of RTD Sales and Use Tax Revenues – September 2021
- Bus Operations Service Availability – September 2021
- Rail Operations – August 2021
- Advisory Committee for People with Disabilities August – September 2021
- Summary of Monthly Purchasing Activity and New Contracts – August 2021
- Contracts Pending Award/Contracts Awarded/Current Solicitations in Process/Upcoming Solicitations as of October 15, 2021

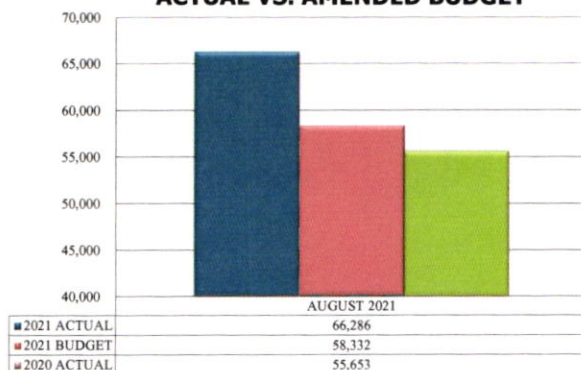
Unaudited Monthly Financial Statements - August 2021

AUGUST 2021 ACTUAL VS. BUDGET		YTD 2021 ACTUAL VS. BUDGET		AUGUST 2021 VS. 2020		YEAR TO DATE 2021 VS. 2020	
S&U TAX 13.6%	↑	S&U TAX 7.6%	↑	S&U TAX 19.1%	↑	S&U TAX 19.5%	↑
RIDERSHIP -3.6%	↓	RIDERSHIP -1.3%	↓	RIDERSHIP 33.8%	↑	RIDERSHIP -24.4%	↓
FARE REVENUE 10.7%	↑	FARE REVENUE 7.1%	↑	FARE REVENUE 22.1%	↑	FARE REVENUE -3.5%	↓

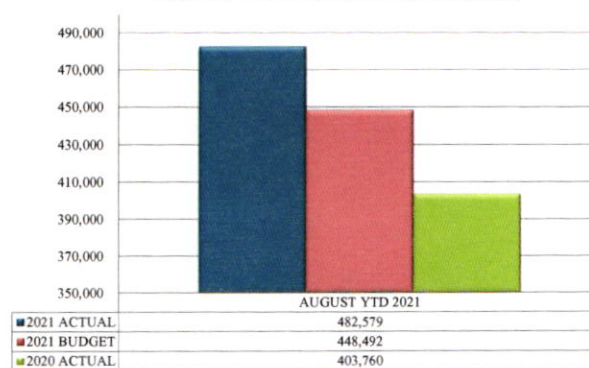
SALES AND USE TAX AUGUST 2021

(In Thousands)	2021 ACTUAL	2021 AMENDED BUDGET	VARIANCE	VARIANCE %	2020 ACTUAL	VARIANCE TO 2020	VARIANCE % TO 2020
MONTH	66,286	58,332	7,954	13.6%	55,653	10,633	19.1%
YTD	482,579	448,492	34,087	7.6%	403,760	78,819	19.5%

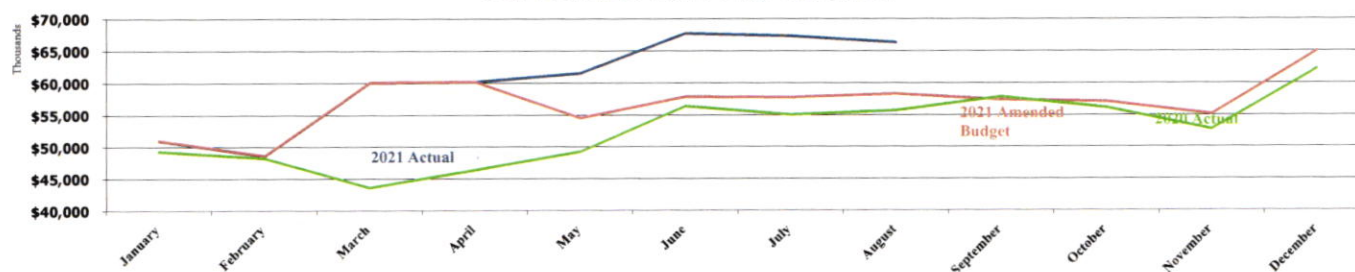
S&U TAX - AUGUST 2021
ACTUAL VS. AMENDED BUDGET



S&U TAX - YTD
ACTUAL VS. AMENDED BUDGET



SALES AND USE TAX TRENDS

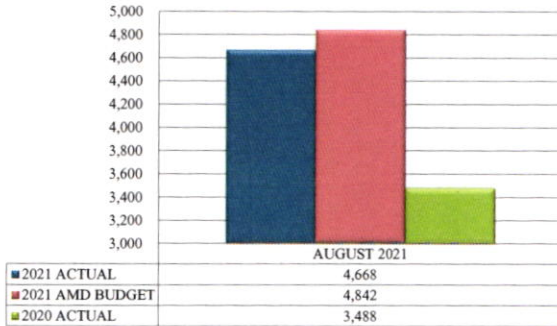


RIDERSHIP (BOARDINGS) AUGUST 2021

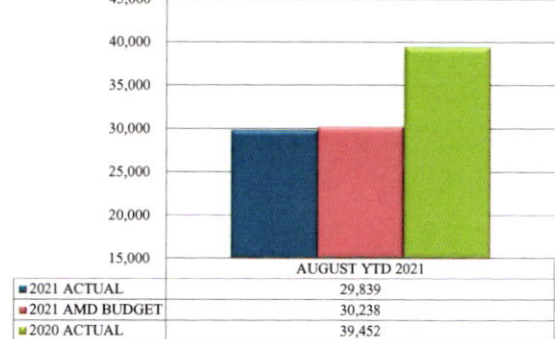
(In Thousands)

	2021 ACTUAL	2021 AMENDED BUDGET	VARIANCE	VARIANCE %	2020 ACTUAL	VARIANCE	VARIANCE % to 2020
MONTH	4,668	4,842	(174)	-3.6%	3,488	1,180	33.8%
YEAR TO DATE	29,839	30,238	(399)	-1.3%	39,452	(9,613)	-24.4%

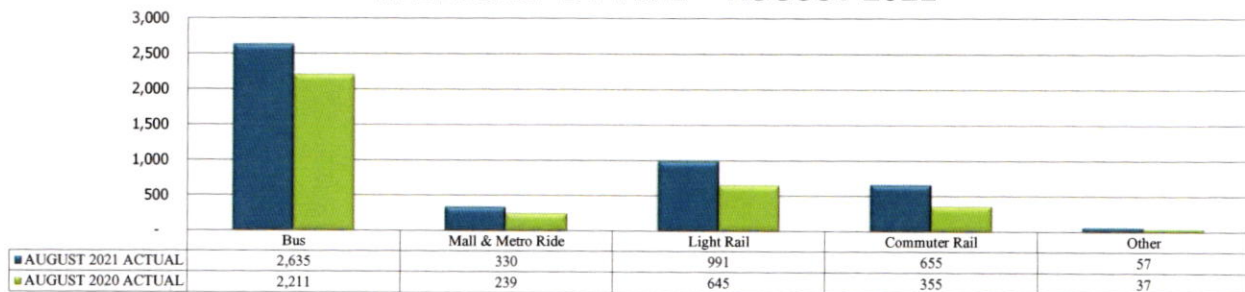
**RIDERSHIP - AUGUST 2021
ACTUAL VS. AMENDED BUDGET**



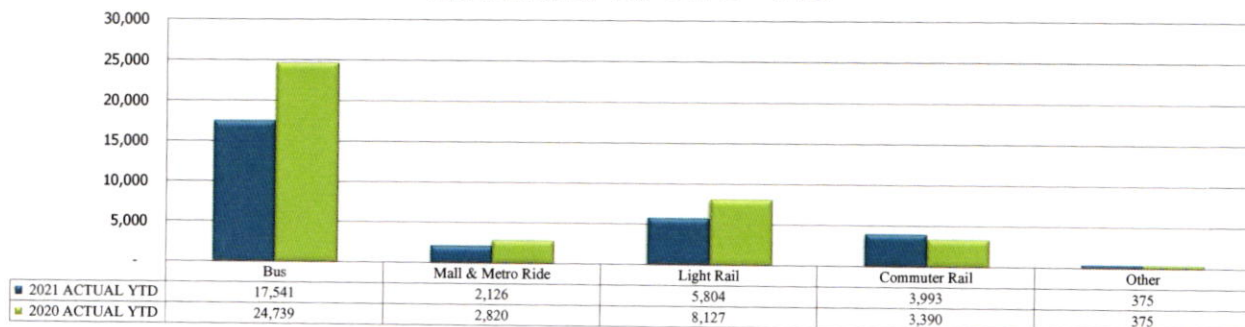
**RIDERSHIP - YTD
ACTUAL VS. AMENDED BUDGET**



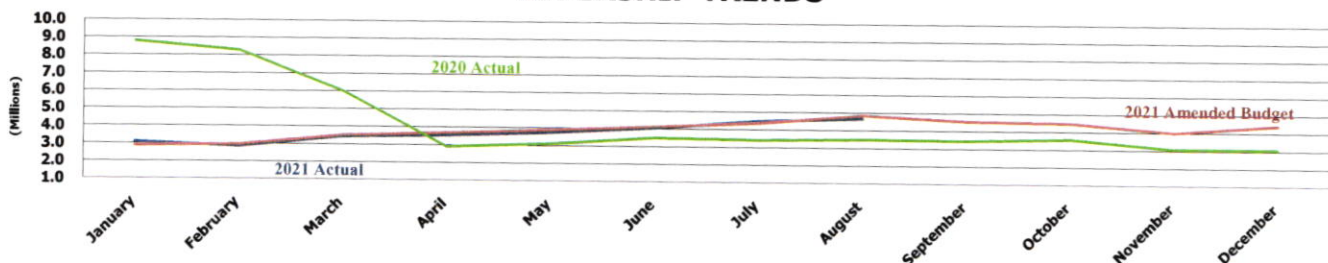
RIDERSHIP BY TYPE - AUGUST 2021



RIDERSHIP BY TYPE - YTD



RIDERSHIP TRENDS

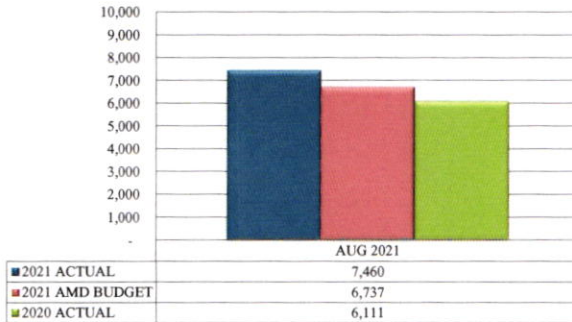


Fares were suspended on April 5, 2020 and resumed on July 1, 2020 due to the COVID-19 pandemic.
The N Line opened on September 21, 2020. Fares were suspended for the first week and then were only local fares for the first six months through March 27, 2021.

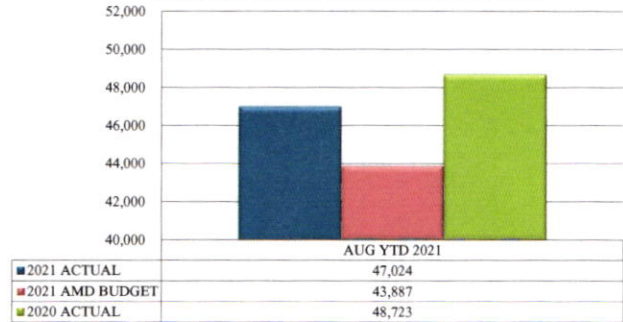
FARE REVENUE AUGUST 2021

(In Thousands)	2021 ACTUAL	2021 AMENDED BUDGET	VARIANCE	VARIANCE %	2020 ACTUAL	VARIANCE	VARIANCE % to 2020
MONTH	7,460	6,737	723	10.7%	6,111	1,349	22.1%
YEAR TO DATE	47,024	43,887	3,137	7.1%	48,723	(1,699)	-3.5%

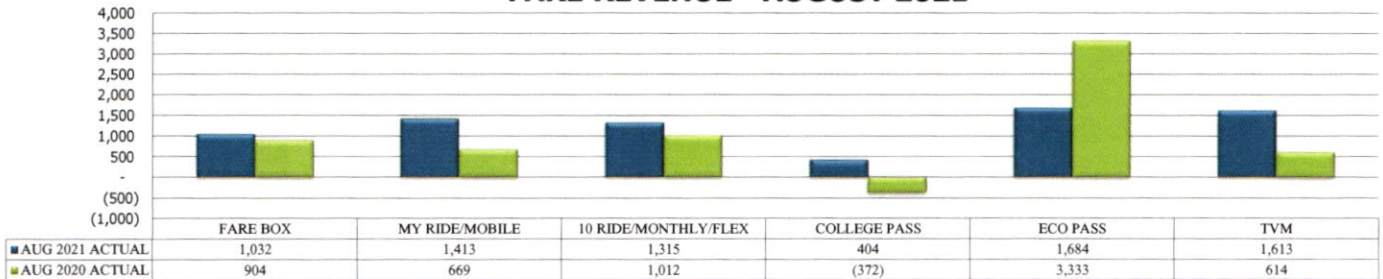
**FARE REVENUE - AUGUST 2021
ACTUAL VS. AMENDED BUDGET**



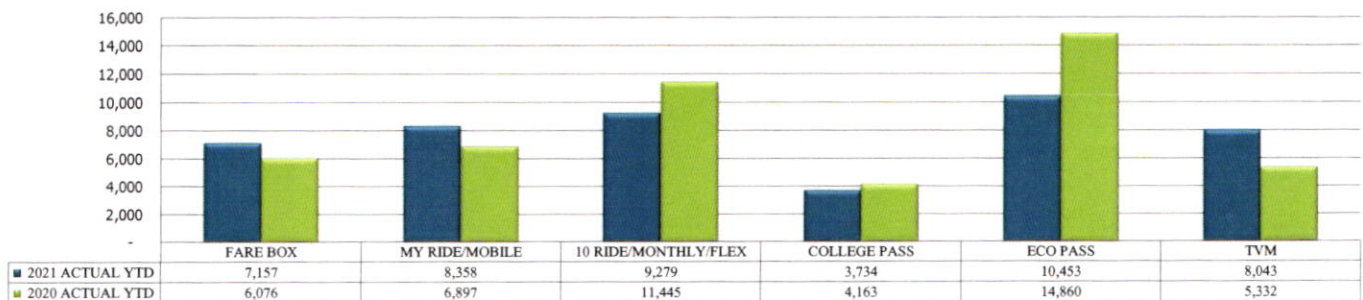
**FARE REVENUE - YTD
ACTUAL VS. AMENDED BUDGET**



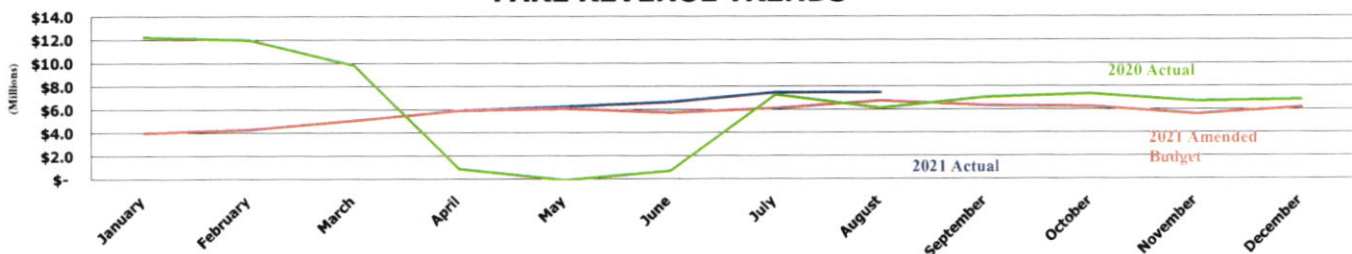
FARE REVENUE - AUGUST 2021



FARE REVENUE - YTD



FARE REVENUE TRENDS



Fares were suspended on April 5, 2020 and resumed on July 1, 2020 due to the COVID-19 pandemic.
The N Line opened on September 21, 2020. Fares are suspended for the first week and then will be only local fares through March 27, 2021.
The fourth quarter 2020 SB 154 ratio was 67.0% which exceeds the statutory minimum of 30.0%

**REGIONAL TRANSPORTATION DISTRICT
STATEMENT OF NET POSITION - COMBINED**

AUGUST 31, 2021

(UNAUDITED)

(In Thousands)

	2021 Base System	2021 FasTracks Project	2021 FasTracks Ops	2021 Combined	Dec 31, 2020 Combined	Change
ASSETS						
CURRENT ASSETS:						
Cash & Cash Equivalents	\$ 293,700	\$ 356,797	\$ 45,068	\$ 695,565	\$ 657,567	\$ 37,998
Receivables:						
Sales Taxes	81,063	54,042	-	135,105	114,958	20,147
Grants	45,461	-	-	45,461	5,485	39,976
Other (less allowance for doubtful accts)	4,709	4,884	-	9,593	8,551	1,042
Total Net Receivables	131,233	58,926	-	190,159	128,994	61,165
Inventory	34,096	-	-	34,096	34,253	(157)
Restricted Debt Service/Project Funds	37,681	86,032	-	123,713	88,497	35,216
Other Assets	9,366	1,903	367	11,636	9,817	1,819
TOTAL CURRENT ASSETS	506,076	503,658	45,435	1,055,169	919,128	136,041
NONCURRENT ASSETS:						
Capital Assets:						
Land	171,457	693,005	-	864,462	860,458	4,004
Land Improvements	1,307,245	4,533,961	-	5,841,206	5,838,359	2,847
Buildings	297,053	392,883	-	689,936	689,916	20
Revenue Earning Equipment	769,755	774,940	-	1,544,695	1,361,911	182,784
Shop, Maintenance & Other Equipment	198,667	7,965	-	206,632	394,412	(187,780)
Construction in Progress	58,350	66,650	-	125,000	133,676	(8,676)
Total Capital Assets	2,802,527	6,469,404	-	9,271,931	9,278,732	(6,801)
Accumulated Depreciation	(1,616,316)	(1,265,500)	-	(2,881,816)	(2,678,674)	(203,142)
Net Capital Assets	1,186,211	5,203,904	-	6,390,115	6,600,058	(209,943)
TABOR Reserves	9,048	10,189	-	19,237	19,258	(21)
Restricted Debt Service/Debt Service Reserves	28,147	65,157	-	93,304	94,771	(1,467)
Deposits	1,500	-	-	1,500	1,500	-
TOTAL NONCURRENT ASSETS	1,224,906	5,279,250	-	6,504,156	6,715,587	(211,431)
TOTAL ASSETS	\$ 1,730,982	\$ 5,782,908	\$ 45,435	\$ 7,559,325	\$ 7,634,715	\$ (75,390)
DEFERRED OUTFLOW OF RESOURCES	\$ 33,961	\$ 24,950	\$ -	\$ 58,911	\$ 61,812	\$ (2,901)

(1) Primarily for draws submitted on the Eagle FFGA

(2) Increase in receivables for billings for annual Eco and College passes

**REGIONAL TRANSPORTATION DISTRICT
STATEMENT OF NET POSITION - COMBINED**

AUGUST 31, 2021

(UNAUDITED)

(In Thousands)

	2021 Base System	2021 FasTracks Project	2021 FasTracks Ops	2021 Combined	Dec 31, 2020 Combined	Change
LIABILITIES						
CURRENT LIABILITIES:						
Accounts & Contracts Payable	\$ 36,462	\$ 14,272	\$ 4,295	\$ 55,029	\$ 89,774	\$ (34,745)
Current Portion of Long Term Debt	61,748	13,660	-	75,408	77,096	(1,688)
Accrued Compensation	24,961	-	-	24,961	27,408	(2,447)
Accrued Interest Payable	3,546	28,304	-	31,850	19,556	12,294
Other	21,067	2,001	(600)	22,468	19,173	3,295
TOTAL CURRENT LIABILITIES	147,784	58,237	3,695	209,716	233,007	(23,291)
NONCURRENT LIABILITIES:						
Long Term Debt	294,083	2,865,026	-	3,159,109	3,222,791	(63,682)
Other Long-Term Liabilities	-	568,290	-	568,290	568,290	-
Net Pension Liability	284,791	-	-	284,791	284,791	-
TOTAL NONCURRENT LIABILITIES	578,874	3,433,316	-	4,012,190	4,075,872	(63,682)
TOTAL LIABILITIES	\$ 726,658	\$ 3,491,553	\$ 3,695	\$ 4,221,906	\$ 4,308,879	\$ (86,973)
DEFERRED INFLOW OF RESOURCES	\$ 25,346	\$ 4,978	\$ -	\$ 30,324	\$ 25,655	\$ 4,669
NET POSITION						
Net Investment in Capital Assets	\$ 859,707	\$ 1,813,862	\$ 11	\$ 2,673,580	\$ 2,813,989	\$ (140,409)
Restricted - Debt Service, Projects and Deferrals	40,741	113,330	-	154,071	120,345	33,726
Restricted - TABOR Reserves	13,917	4,887	4,237	23,041	26,861	(3,820)
Restricted - FasTracks	-	248,702	-	248,702	216,395	32,307
FasTracks Internal Savings Account (FISA)	-	129,304	-	129,304	123,523	5,781
Board Appropriated Fund	26,200	414	12,501	39,115	41,968	(2,853)
Capital Replacement Fund	-	414	12,501	12,915	15,768	(2,853)
Unrestricted Operating Reserve/Mgt Reserve	15,400	-	12,501	27,901	15,400	12,501
Unrestricted Fund	301,072	414	-	301,486	231,843	69,643
Net Pension Liability - Represented	(244,099)	-	-	(244,099)	(244,099)	-
TOTAL NET POSITION	\$ 1,012,938	\$ 2,311,327	\$ 41,751	\$ 3,366,016	\$ 3,361,993	\$ 4,023
TOTAL LIABILITIES & NET POSITION	\$ 1,764,942	\$ 5,807,861	\$ 45,446	\$ 7,618,246	\$ 7,696,527	\$ (78,281)

STATEMENT OF REVENUE, EXPENSES AND CHANGE IN NET POSITION - COMBINED

AUGUST 31, 2021

(UNAUDITED)

(In Thousands)

	YTD Base System Actual	YTD Base System Amd Budget	YTD FasTracks Project Actual	YTD FasTracks Project Amd Budget	YTD FasTracks Operations Actual	YTD FasTracks Operations Amd Budget	YTD System Wide Actual	YTD System Wide Amd Budget	\$ Favorable (Unfavorable)	% Favorable (Unfavorable)	
OPERATING REVENUE:											
Passenger Fares	\$ 32,177	\$ 30,245	\$ 4	\$ -	\$ 14,847	\$ 13,642	47,028	43,887	3,141	7.2%	
Advertising, Rent and Other	2,715	2,621	-	-	446	922	3,161	3,543	(382)	-10.8%	
Total Operating Revenue	34,892	32,866	4	-	15,293	14,564	50,189	47,430	2,759	5.8%	
OPERATING EXPENSES											
Bus Operations	177,552	189,992	-	-	-	-	177,552	189,992	12,440	6.5%	(1)
Rail Operations	37,132	47,178	-	-	43,157	54,715	80,289	101,893	21,604	21.2%	(2)
Planning	2,408	5,387	31	1,499	-	-	2,439	6,886	4,447	64.6%	(3)
Capital Programs	28,497	34,233	855	11,062	1,142	2,000	30,494	47,295	16,801	35.5%	(4)
Safety, Security and Asset Management	14,096	16,552	-	-	5,867	7,941	19,963	24,493	4,530	18.5%	(5)
General Counsel	9,054	11,079	125	155	-	-	9,179	11,234	2,055	18.3%	(6)
Finance and Administration	31,292	33,644	33	-	-	-	31,325	33,644	2,319	6.9%	(7)
Communications	7,313	9,060	-	-	31	38	7,344	9,098	1,754	19.3%	(8)
Executive Office	5,504	6,840	-	-	-	-	5,504	6,840	1,336	19.5%	(9)
Board Office	739	673	-	-	-	-	739	673	(66)	-9.8%	
FasTracks Service Increase	(13,216)	(13,216)	13,216	13,216	-	-	-	-	-	0.0%	
Depreciation and Other Non-Departmental	75,808	65,564	161,209	135,473	2,475	39,215	239,492	240,252	760	0.3%	
Total Operating Expenses	376,179	406,986	175,469	161,405	52,672	103,909	604,320	672,300	67,980	10.1%	
OPERATING INCOME/(LOSS)	(341,287)	(374,120)	(175,465)	(161,405)	(37,379)	(89,345)	(554,131)	(624,870)	70,739	11.3%	
NONOPERATING REVENUE (EXPENSES)											
Sales & Use Tax	289,547	269,198	161,296	101,547	31,735	77,747	482,578	448,492	34,086	7.6%	
Operating Grants	117,904	195,526	2,368	787	31,085	-	151,357	196,313	(44,956)	-22.9%	(10)
Investment Income	264	-	7,320	-	-	-	7,584	-	7,584	0.0%	
Other Income	1,945	2,107	5,882	5,546	-	69	7,827	7,722	105	1.4%	
Gain/(Loss) Capital Assets	788	-	(385)	-	-	-	403	-	403	0.0%	
Interest Expense	(8,832)	(9,685)	(98,803)	(93,877)	-	-	(107,635)	(103,562)	(4,073)	-3.9%	
Net Nonoperating Revenue (Expense)	401,616	457,146	77,678	14,003	62,820	77,816	542,114	548,965	(6,851)	-1.2%	
INCOME BEFORE CAPITAL GRANTS	60,329	83,026	(97,787)	(147,402)	25,441	(11,529)	(12,017)	(75,905)	63,888	-84.2%	
Capital Grants and Local Contributions	13,103	13,943	(1,704)	31,264	-	-	11,399	45,207	(33,808)	-74.8%	
INCREASE/(DECREASE) IN NET POSITION	\$ 73,432	\$ 96,969	\$ (99,491)	\$ (116,138)	\$ 25,441	\$ (11,529)	\$ (618)	\$ (30,698)	\$ 30,080	-98.0%	

(1) Variance is due to call back of laid-off frontline employees in January

(2) Variance is due to lower labor, repair parts and purchased transportation

(3) Variance is due to projects budgeted but not yet started

(4) Variance is due to timing of project expenses not yet incurred, many of which are grant-funded

(5) Variance is due to lower outside security services costs

(6) Variance is due primarily to timing of outside counsel costs related to litigation as well as lower insurance claims costs

(7) Variance is due to timing of outside IT services costs for projects.

(8) Variance is due to timing of outside printing costs for schedules, other outside services and special events.

(9) Variance due to coding of certain budgeted compensation done at the Executive level for confidentiality purposes regarding January layoffs

(11) Variance due to timing of drawing grant fund draws for CRRSAA and ongoing 5307 preventive maintenance grants

REGIONAL TRANSPORTATION DISTRICT
1% SALES AND USE TAX REVENUE - SYSTEM WIDE

AUGUST 31, 2021

(In Thousands)

2021 ACTUAL VS. AMENDED BUDGET

	January 2021	February 2021	March 2021	April 2021	May 2021	June 2021	July 2021	August 2021	September 2021	October 2021	November 2021	December 2021	Total Year To Date
Actual	\$ 50,966	\$ 48,590	\$ 60,070	\$ 60,174	\$ 61,503	\$ 67,700	\$ 67,289	\$ 66,286	\$ -	\$ -	\$ -	\$ -	\$ 482,579
Amended Budget	51,015	48,639	60,119	60,223	54,540	57,855	57,770	58,332	57,360	57,057	55,104	64,989	683,004
Favorable/(Unfavorable)	\$ (49)	\$ (49)	\$ (49)	\$ (49)	\$ 6,963	\$ 9,845	\$ 9,519	\$ 7,954					
% Favorable/(Unfavorable) - Month	-0.1%	-0.1%	-0.1%	-0.1%	12.8%	17.0%	16.5%	13.6%					
% Favorable/(Unfavorable) - YTD	-0.1%	-0.1%	-0.1%	-0.1%	2.5%	5.0%	6.7%	7.6%					

2021 VS. 2020 ACTUALS

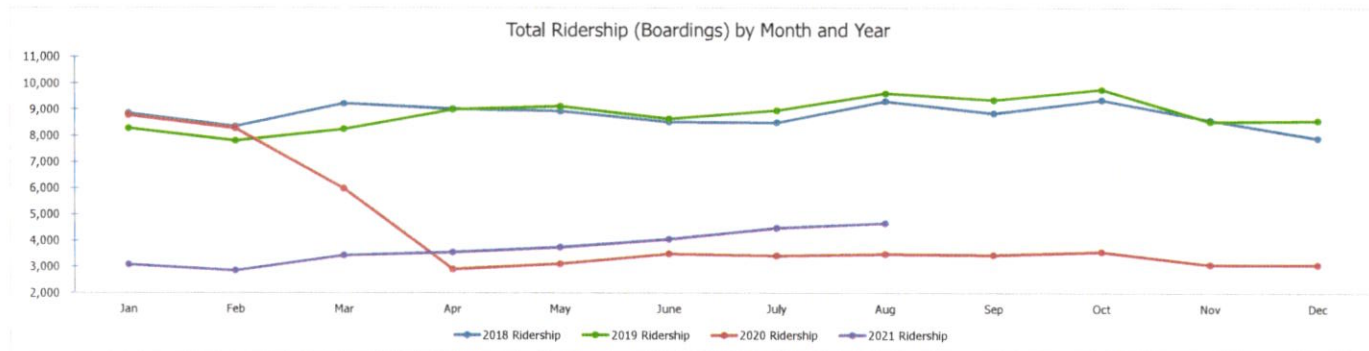
Net Sales & Use Tax Received	January	February	March	April	May	June	July	August	September	October	November	December	Total
2021	\$ 50,966	\$ 48,590	\$ 60,070	\$ 60,174	\$ 61,503	\$ 67,700	\$ 67,289	\$ 66,286	\$ -	\$ -	\$ -	\$ -	\$ 482,579
2020	49,293	48,223	43,604	46,315	49,235	56,393	55,044	55,653	57,796	56,151	52,740	62,218	632,665
Change from to 2020	\$ 1,673	\$ 367	\$ 16,466	\$ 13,859	\$ 12,269	\$ 11,307	\$ 12,245	\$ 10,633					
% Increase/(Decrease) by Month vs. 2020	3.4%	0.8%	37.8%	29.9%	24.9%	20.1%	22.2%	19.1%					
% Increase YTD vs. 2020	3.4%	2.1%	13.1%	17.3%	18.9%	19.1%	19.6%	19.5%					

REGIONAL TRANSPORTATION DISTRICT
RIDERSHIP (BOARDINGS) BY MONTH, YEAR AND MODE
(UNAUDITED)

2021 RIDERSHIP/BOARDINGS (in Thousands)																
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	YTD 2021	YTD 2020	Change	% Change
Fixed Route	1,881	1,740	2,056	2,079	2,127	2,187	2,357	2,530	-	-	-	-	16,957	23,609	(6,652)	-28.2%
Flatiron Flyer	41	40	48	53	55	66	73	87	-	-	-	-	462	950	(487)	-51.3%
FlexRide & Special Services	13	14	15	15	15	16	16	18	-	-	-	-	122	181	(59)	-32.6%
Total Bus Service	1,935	1,793	2,120	2,147	2,196	2,268	2,447	2,635	-	-	-	-	17,541	24,739	(7,198)	-29.1%
C Line	29	-	-	-	-	-	-	-	-	-	-	-	29	1,096	(1,067)	-97.4%
D Line	77	95	120	123	132	167	179	193	-	-	-	-	1,086	732	354	48.4%
E Line	153	142	176	189	207	219	282	287	-	-	-	-	1,654	1,515	139	9.2%
F Line	-	-	-	-	-	-	-	-	-	-	-	-	-	645	(645)	-100.0%
H Line	90	83	100	105	116	152	157	173	-	-	-	-	975	1,536	(561)	-36.5%
L Line	25	22	27	26	26	30	32	31	-	-	-	-	219	266	(47)	-17.6%
R Line	57	53	65	69	75	79	85	85	-	-	-	-	569	785	(217)	-27.6%
W Line	123	111	128	144	161	181	202	222	-	-	-	-	1,271	1,552	(280)	-18.1%
Total Light Rail	555	506	616	656	717	827	937	991	-	-	-	-	5,804	8,127	(2,324)	-28.6%
A Line	268	256	327	343	393	435	481	486	-	-	-	-	2,989	2,611	378	14.5%
B Line	7	6	6	8	9	11	13	12	-	-	-	-	72	126	(54)	-43.1%
G Line	46	40	47	55	60	71	82	76	-	-	-	-	477	653	(175)	-26.9%
N Line	44	38	46	51	52	64	80	81	-	-	-	-	455	-	455	0.0%
Total Commuter Rail	366	339	426	456	514	581	657	655	-	-	-	-	3,993	3,390	603	17.8%
Access-a-Ride	24	25	30	33	35	39	41	43	-	-	-	-	270	235	34	14.5%
Access-a-Cab	7	7	7	8	7	7	7	6	-	-	-	-	56	53	3	5.0%
Vanpool	6.32	6	6	6	5	6	6	8	-	-	-	-	50	87	(37)	-42.5%
Total Revenue Service	2,893	2,674	3,204	3,305	3,474	3,729	4,095	4,339	-	-	-	-	27,713	36,632	(8,919)	-24.3%
Mall Shuttle	184	171	226	241	268	318	388	330	-	-	-	-	2,126	2,681	(555)	-20.7%
MetroRide	-	-	-	-	-	-	-	-	-	-	-	-	-	139	(139)	-100.0%
Total Non-Revenue Services	184	171	226	241	268	318	388	330	-	-	-	-	2,126	2,820	(694)	-24.6%
Total System	3,077	2,845	3,431	3,546	3,742	4,047	4,482	4,668	-	-	-	-	29,839	39,452	(9,613)	-24.4%

2021 % Change from 2020 by Month	-64.9%	-65.6%	-42.7%	22.3%	20.4%	15.9%	31.1%	33.9%	-24.4%
2021 % Change from January 2021	0.0%	-7.5%	11.5%	15.2%	21.6%	31.5%	45.7%	51.7%	21.2%
2021 % Change from 2019 Monthly Average	-65.1%	-67.7%	-61.1%	-59.8%	-57.6%	-54.1%	-49.2%	-47.1%	-57.7%

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
2018 Ridership	8,849	8,348	9,220	9,009	8,931	8,519	8,496	9,314	8,850	9,360	8,591	7,901	105,388
2019 Ridership	8,270	7,792	8,244	8,986	9,111	8,640	8,952	9,609	9,358	9,759	8,534	8,568	105,824
2020 Ridership	8,775	8,281	5,991	2,899	3,107	3,492	3,419	3,488	3,448	3,572	3,075	3,070	52,617
2021 Ridership	3,077	2,845	3,431	3,546	3,742	4,047	4,482	4,668					29,839



REGIONAL TRANSPORTATION DISTRICT
FASTRACKS INTERNAL SAVINGS ACCOUNT (FISA)
(In Thousands)

2021 AMENDED BUDGET

	Risk Level	Actual		Estimated			Estimated in MTFP 2022	Estimated in MTFP Cash Flow 2023-2026	Estimated in LRP 2027-2030	Estimated in LRP 2031-2040	Total
		2013-2018	2019	2020	2021	2013-2021					
IDENTIFIED SOURCES:											
Limit Fastracks funding increases for bus and paratransit expansion to CPI	Medium	\$ 36,107	\$ 13,377	\$ 15,441	\$ 17,658	\$ 82,583	\$ 20,034	\$ 85,883	\$ 94,956	\$ 273,651	\$ 557,107
Reduce FasTracks Minimum Unrestricted Fund Balance from \$150 million	Medium	-	-	-	-	-	-	-	-	-	-
Reduce FasTracks Operating and Maintenance Fund Balance from 3 to 2 month	Medium	-	-	-	-	-	-	-	-	-	-
Defer the Union Pacific Railroad (UPRR) relocation for the SW Corridor Extension	Low	9,000	-	-	-	9,000	-	-	-	-	9,000
Achieve project underruns on FasTracks projects currently under contract ¹	Low	40,804	-	15,500	-	56,304	-	-	-	-	56,304
Sales and lease opportunities for all RTD properties ²	Low	14,078	-	601	-	14,679	-	-	-	-	14,679
Request local financial participation in projects above the current 2.5%	Low	22,179	-	-	-	22,179	-	-	-	-	22,179
Restore FISA drawdowns for operations between 2031-2040 ³	Low	-	-	-	-	-	-	-	16,601	-	16,601
FasTracks sales and use tax collections above adopted budget ⁴	Low	3,207	-	-	-	3,207	-	-	-	-	3,207
Sales tax audit parity	Low	-	-	-	-	-	-	-	-	-	-
Total Sources		125,375	13,377	31,542	17,658	187,952	20,034	85,883	111,557	273,651	679,077
IDENTIFIED USES:											
US36 Project draws ¹		(2,113)	(36)	(103)	(3,877)	(6,129)	-	-	(33,304)	-	(39,433)
North Metro Project draws		(22,338)	-	-	-	(22,338)	-	-	-	-	(22,338)
Southeast Rail Extension (SERE) Project draws		(22,179)	-	-	-	(22,179)	-	-	-	-	(22,179)
Debt service and operations funding ^{1,3}		(2)	-	-	-	(2)	-	(44,144)	(16,601)	-	(60,747)
2021/2022 Northwest Rail Study		-	-	-	(8,000)	(8,000)	-	-	-	-	(8,000)
Total Uses		(46,632)	(36)	(103)	(11,877)	(58,648)	-	(44,144)	(49,905)	-	(152,697)
Net Sources and Uses		\$ 78,743	\$ 13,341	\$ 31,439	\$ 5,781	\$ 129,304	\$ 20,034	\$ 41,739	\$ 61,652	\$ 273,651	\$ 526,380
FasTracks Internal Savings Account Balance		\$ 78,743	\$ 92,084	\$ 123,523	\$ 129,304	\$ 129,304	\$ 149,338	\$ 191,077	\$ 252,729	\$ 526,380	\$ 526,380

¹ Includes approved changes from 2020-2025 Midterm Financial Plan adopted in October 2019 and Long Range Plan adopted in October 2018, plus changes proposed in 2020 Amended Budget.

² Sale of Civic Center air rights for \$8,063 less \$2,500 cost of NAMS study - these are Base System funds; plus Fort Lupton property sale of \$4,096; plus Alameda property sale of \$5,140, plus Montbello property sale of \$601

³ The Long Range Financial Plan adopted in 2018 restores funds drawn from the FISA for operations and debt service to the FISA to the extent of available funding in FasTracks.

⁴ The transfer of FasTracks sales and use tax revenues in excess of the annual adopted budget to the FISA was approved by the Board in October 2016.

Status of Federal COVID-19 Grant Relief Funding Through August 2021

RTD received three federal grant apportionments as replacement funding due to significant revenue losses resulting from the COVID-19 Pandemic. The intent of each apportionment is to maintain public transit services which are considered an essential service. Each of the apportionments may be drawn through the Federal Transit Administration (FTA) on a reimbursement basis for eligible expenditures. Those grants are summarized below, including the status regarding RTD's progress to date in drawing those funds.

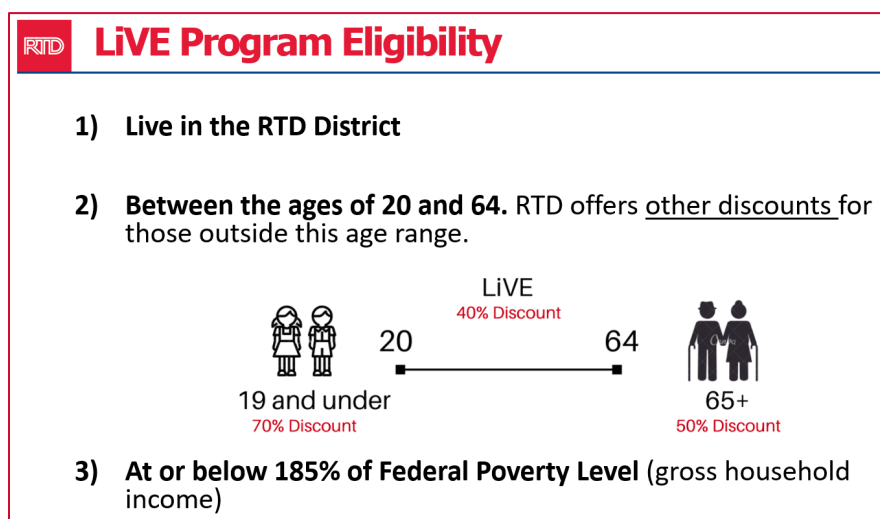
- Coronavirus Aid, Relief and Economic Security (CARES) Act: Awarded in May 2020 and fully drawn in 2020
- Coronavirus Response and Relief Supplemental Appropriations Act (CRRSAA): Awarded in January 2021 with grant execution in May 2021. Approximately 90% is designated for transit service deployment over six runboards beginning June 2021. The remaining 10% is designated for elimination of certain 2021 cost-reduction actions and other initiatives
- American Rescue Plan Act (ARPA): Awarded in March 2021 with no draws to date. Eligible expenditures are those that are incurred for maintaining service including compensation, fuel and purchased transportation

	CARES	CRRSAA	ARPA	Total	% of Total Drawn
RTD Apportionment	\$ 232,253,946	\$ 203,367,528	\$ 338,468,333	\$ 774,089,807	
Grant Draws					
Employee Wages and Benefits	(146,908,920)	(72,108,343)	-	(219,017,263)	64.4%
Contracted Transportation - Bus	(36,380,870)	(23,053,269)	-	(59,434,139)	17.5%
Contracted Transportation - Rail	(48,964,156)	(12,574,646)	-	(61,538,802)	18.1%
Total Drawn	(232,253,946)	(107,736,258)	-	(339,990,204)	
Remaining to be Drawn	\$ -	\$ 95,631,270	\$ 338,468,333	\$ 434,099,603	
% of Total Drawn	100.0%	53.0%	0.0%	43.9%	

LiVE Income-based Fare Discount Program – September 2021

Background

Launched in July 2019, the RTD LiVE Program is designed to make transit more affordable for individuals with a household income at or below 185 percent of the Federal Poverty Level. LiVE fares provide a 40 percent discount from RTD's full fare rates for eligible customers.



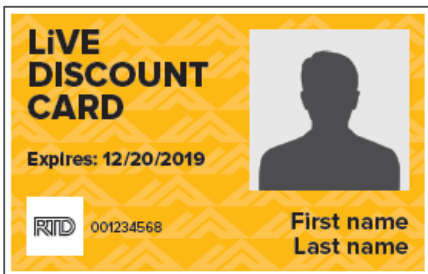
Application

- Applicants can register online at colorado.gov/PEAK, the Colorado State benefits site.
- Denver Human Services (DHS) also accepts applications by phone.
- The program is available to residents of all counties within the RTD service area.
- In-person application will be available soon.
- Applicants who are actively enrolled in SNAP, Medicaid, or Colorado Works are automatically income-qualified for LiVE. This is referred to as categorical eligibility. PEAK can automatically approve the application if the application is complete and the other eligibility criteria are fulfilled.
- Applicants who are not enrolled in these programs must provide income information and documentation, which is verified by DHS.
- Every applicant is required to provide a photo suitable for an ID during or shortly after the LiVE application, otherwise the application cannot be processed. If a photo is uploaded but not useable (for example, an image of an existing ID card), RTD will reach out to the customer.
- DHS provides customer service related to eligibility and applications and can assist with all aspects of the process. The DHS LiVE team also promotes other RTD fare discounts.

LiVE Discount Identification Card

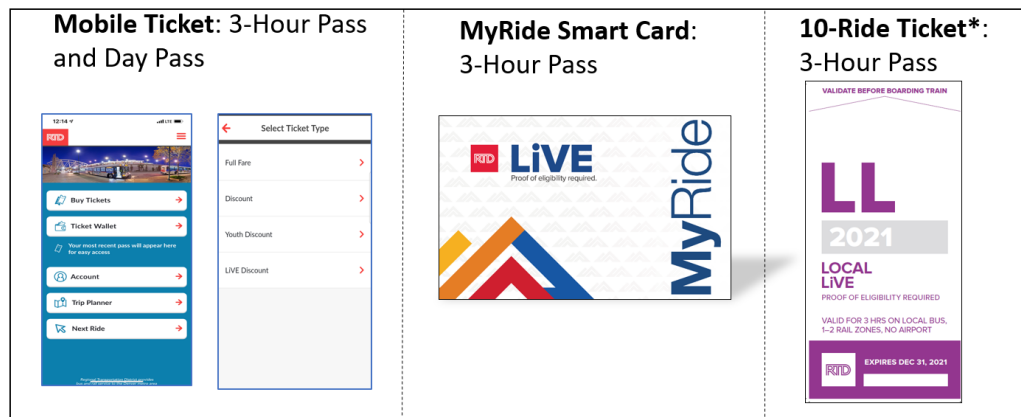
- An approved applicant will receive the LiVE Discount ID card in the mail within two weeks of approval, together with a welcome letter about LiVE fares, fare products, and how to use the card.
- This card is not a method of fare payment. It is proof that the customer is eligible for the discount.
- Customers must present LiVE Discount ID cards to the bus operator or fare inspector when using a LiVE fare product.

- The LiVE Discount ID card is valid for one year.
- To receive a new card, a new application is required, which can be submitted as early as 90 days before the expiration date printed on the old card.
- RTD can order a re-print if a card is lost or stolen or if the customer did not receive it in the mail.



LiVE Fare Products Available

- LiVE mobile 3-hour and day passes in the RTD Mobile Tickets, Transit, Lyft, or Uber app
- LiVE MyRide stored value card – available to purchase and reload online, at RTD sales outlets, or at King Soopers or Safeway stores in the RTD service area
- LiVE 10-Ride tickets – only available to government agencies and nonprofit organizations through the RTD Nonprofit Program



Recent Activities

- PEAK functionality: A new real-time application status report in PEAK was implemented that will serve as a tool for enhanced case management and reporting. RTD is working with the Governor's Office of Information Technology to correct remaining issues related to the report.
- Communications: RTD updated the LiVE informational brochure that will be provided to community partners. The agency used the recent work on the PEAK application and notifications as a guide for updating the brochure. The brochure is expected to be available in electronic and hardcopy format by early November.
- RTD fare products: RTD worked with the mobile ticketing vendor to offer mobile LiVE 10-ride ticket packs (bundle of 10 mobile three-hour passes) in the RTD Mobile Tickets app, Transit, Lyft, and Uber apps. These mobile ticket packs are now available.

- Outreach Case Coordinator: The coordinator attended orientation meetings for clients of the Denver, Aurora/Englewood, and Westminster parole offices to promote the LiVE program and take applications.

Current and Planned Activities

- Outreach Case Coordinator: The coordinator will continue to attend orientation events by the Denver, Aurora/Englewood, and Westminster parole offices. The coordinator is also working with Servicios De La Raza, Building Bonds, and Labor Depot on an ongoing or as-needed basis. In addition, the coordinator will be delivering LiVE brochures to community organizations. The coordinator will continue to reach out to other potential partner organizations and expand the types of events attended.
- In-person Application Option: DHS is planning to open a welcome center as well as several locations in the community where individuals will be able to request assistance, including for LiVE applications. The timing has not been finalized.
- Communications: After updating the LiVE informational brochure and the LiVE wording in the PEAK application and notifications, RTD will work to revise other LiVE materials to ensure that updates are made globally.
- Outreach: RTD will organize several workshops regarding the LiVE program and the application process for organizations participating in RTD's nonprofit program, incorporating the revised LiVE application verbiage as well as design improvements to the PEAK homepage, login functionality, and upcoming additions to fare products and payment options.
- LiVE Fare Products:
 - RTD has finished the design of the LiVE 10-ride ticketbooks (booklet of ten paper three-hour passes) that will be available to individual customers by the end of 2021. Currently, paper tickets are only available to governmental and nonprofit organizations through the RTD nonprofit program.
 - RTD has been working with the mobile ticketing vendor to implement a functionality that will allow customers to purchase mobile tickets or load mobile stored value at RTD sales outlets. Customers will be able to pay for the mobile tickets or mobile stored value with all payment methods that are accepted by RTD sales outlets, including cash. This will give customers who have a smartphone but have no access to a credit or debit card the opportunity to take advantage of the convenience of mobile ticketing, including the LiVE mobile day pass. This functionality is expected to be available in November 2021.

Enrollment

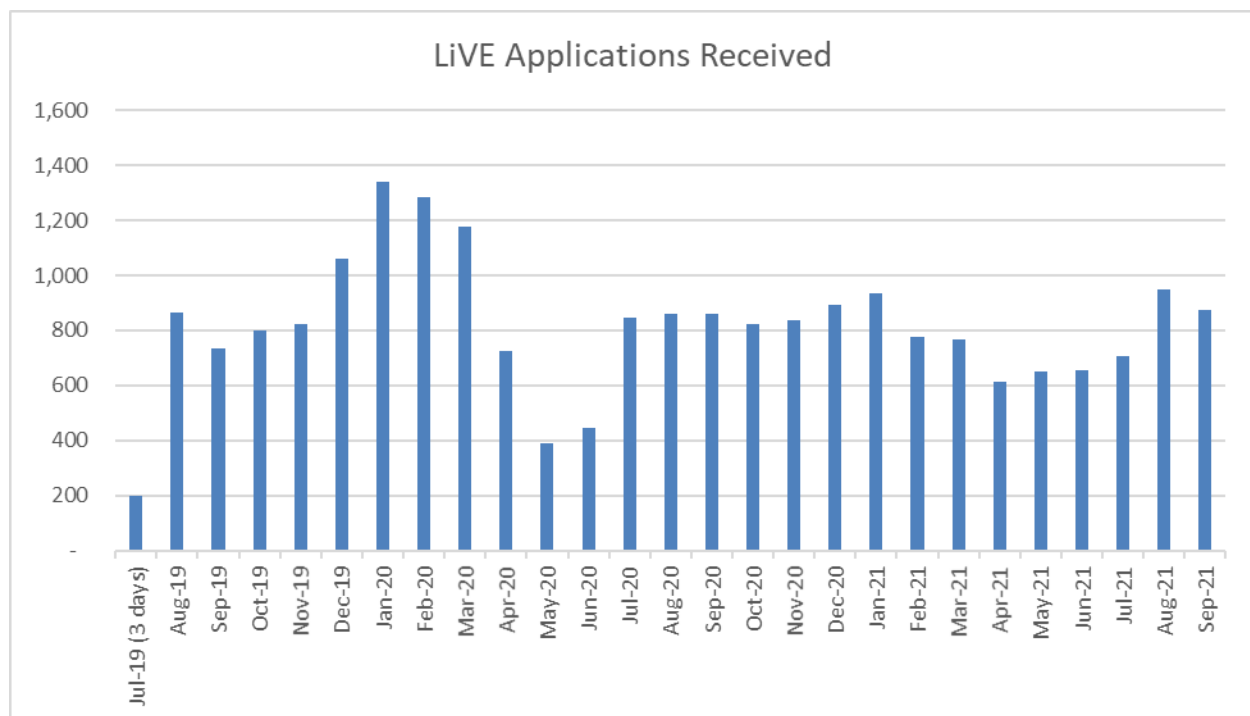
In September 2021, 872 LiVE eligibility applications were submitted. In the same month, 460 were approved, 622 were denied, and 281 were pending at the end of the month.¹

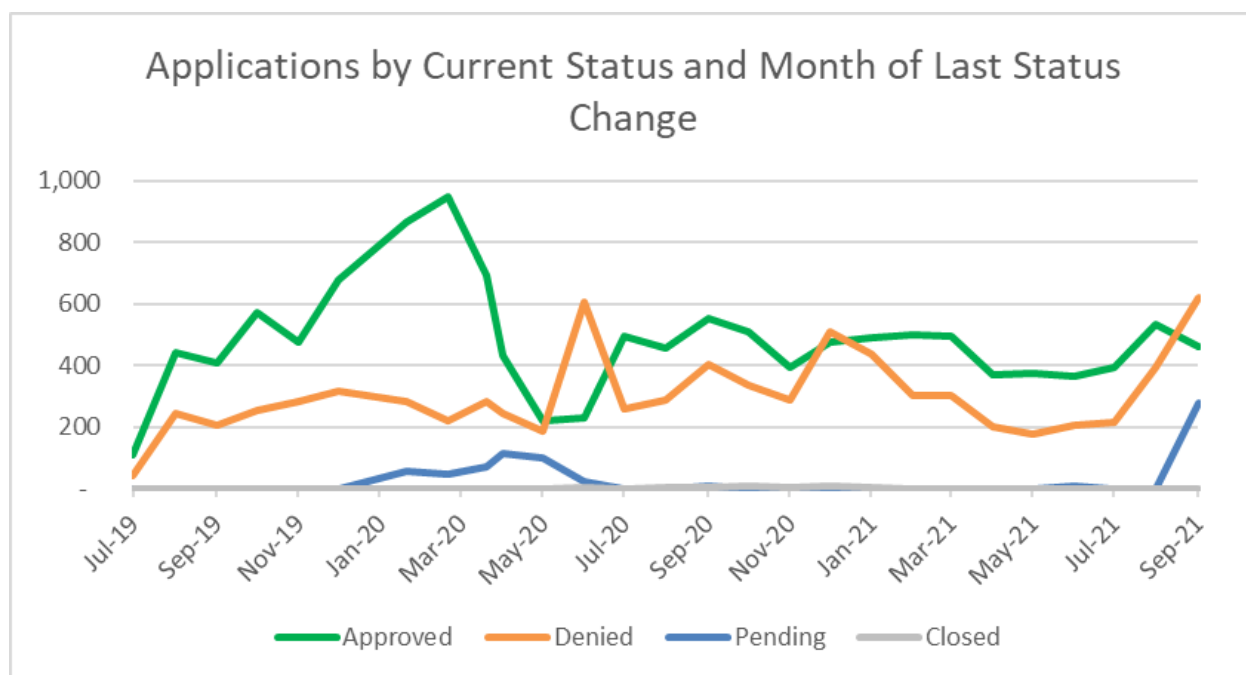
Note that the number of denials was unusually high in September due to a clean-up effort of aged incomplete applications, most of them submitted without a photo. The customers whose applications were denied received a notification letter informing them of the reason for the denial, options for re-applying, and how to get help with the application and/or photo uploads.

Between the implementation of the program and September 30, 2021, 21,853 LiVE eligibility applications were submitted, 12,960 (59%) were approved, 8,129 (37%) were denied, 719 (3%) were pending as of the end of the month, and 45 (0.21%) were closed.

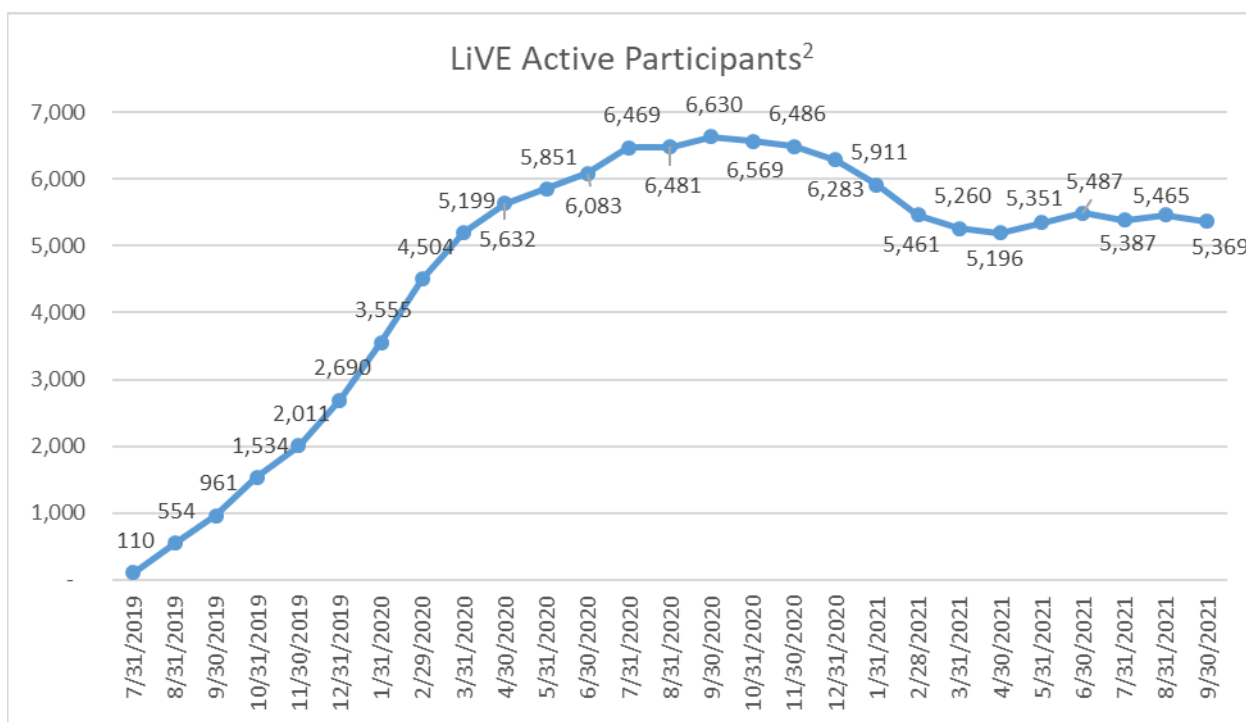
Applications by Current Status and Month of Last Status Change

	Approved – Categorically Eligible	Approved – Manual	Denied – Age	Denied – Out of District	Denied – Income	Denied – Incomplete Application	Denied – Already Enrolled	Denied – Duplicate Application	Pending – Waiting for Photo	Pending – Waiting for CBMS	Closed – Other	Grand Total
Jul-19 (3 days)	102	8	33	7	1			1				152
Aug-19	369	75	172	49	18	1	1	2	1			688
Sep-19	339	68	125	62	14	2		2				612
Oct-19	367	206	145	51	27	27	2	3				828
Nov-19	333	144	183	59	8	31	2					760
Dec-19	500	179	195	61	19	39	2	2				997
2019	2,010	680	853	289	87	100	7	10	1	-	-	4,037
Jan-20	679	186	200	62	14		5	4	58			1,208
Feb-20	743	206	147	43	10		3	16	47			1,215
Mar-20	513	182	180	55	21		14	13	74			1,052
Apr-20	341	92	138	3	16	71	12	5	117			795
May-20	188	31	53	3	8	116	5	4	99			507
Jun-20	196	36	94	6	6	482	6	13	24		5	868
Jul-20	375	121	133	5	16	91	11	6			2	760
Aug-20	373	83	162	6	20	87	11	4			4	750
Sep-20	434	122	151	1	17	222	7	6	7		3	970
Oct-20	368	144	125	6	14	168	16	6	2		8	857
Nov-20	341	53	155	8	8	96	14	8	1		5	689
Dec-20	391	85	150	52	19	269	7	13			7	993
2020 YTD	4,942	1,341	1,688	250	169	1,602	111	98	429	-	34	10,664
Jan-21	398	95	158	86	14	155	15	9			4	934
Feb-21	391	108	94	66	10	116	12	6			2	805
Mar-21	424	70	104	44	17	121	11	6			1	798
Apr-21	320	49	88	49	12	42	10	2				572
May-21	331	43	107	41	16		8	5	1		1	553
Jun-21	282	86	120	59	9	5	7	8	7		1	584
Jul-21	297	99	128	58	13		12	4			1	612
Aug-21	404	130	146	77	9	129	20	15			1	931
Sep-21	373	87	126	89	11	372	13	11	140	141		1,363
2021 YTD	3,220	767	1,071	569	111	940	108	66	148	141	11	7,152
Grand Total	10,172	2,788	3,612	1,108	367	2,642	226	174	578	141	45	21,853





Note that the spikes in denials are due to clean-up of aged incomplete applications.



The 12,960 individuals who were approved for the LiVE program between July 2019 and September 30, 2021, provided a mailing address³ in the following counties: Denver 6,383, Arapahoe 2,627, Jefferson 1,372, Adams 1,302, Boulder 747, Douglas 147, Broomfield 61, and Weld 45. Note that some counties are only partially in the RTD District. 276 participants reside in the RTD District but provided a mailing address in a county outside of the District, which is acceptable under the program rules.

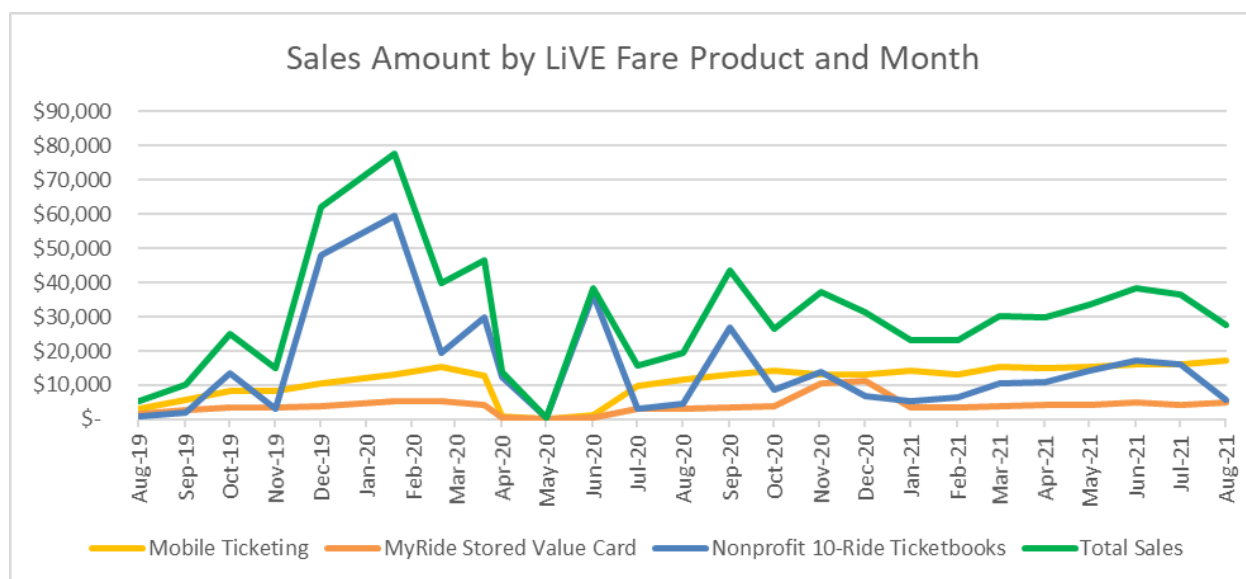
Usage – Fare Product Sales

Determining the number of trips taken with a mobile day pass and when the pre-purchased 10-ride tickets are used is currently not possible. Fare product sales are being leveraged to assess usage of the program.

In August 2021, LiVE MyRide card holders used their cards for 2,180 trips. Mobile app users bought 5,937 mobile LiVE 3-hour passes and day passes. Nonprofit organizations bought 3,090 LiVE paper tickets.³

From the implementation of the LiVE program through August 31, 2021, RTD issued 1,515 LiVE MyRide cards that were used for 35,361 trips. Mobile app users bought 98,067 mobile 3-hour passes and day passes. Nonprofit organizations bought 205,172 LiVE paper tickets.⁴

	Mobile Ticketing		MyRide				Nonprofit 10-Rides		Total
	# of 3-Hour and Day Passes	Sales Amount	Cards Issued	# of Trips	Value Loaded	Value Used	# of Tickets	Sales Amount	Total Sales Amount
Jul-19	-	\$ -	-	-	\$ -	\$ -	-	\$ -	\$ -
Aug-19	849	\$ 2,980	52	150	\$ 1,450	\$ 300	400	\$ 720	\$ 5,150
Sep-19	1,758	\$ 5,688	59	660	\$ 2,700	\$ 1,300	1,050	\$ 1,890	\$ 10,278
Oct-19	2,603	\$ 8,142	57	1,260	\$ 3,550	\$ 2,450	7,440	\$ 13,392	\$ 25,084
Nov-19	2,727	\$ 8,304	44	1,470	\$ 3,500	\$ 2,750	1,800	\$ 3,240	\$ 15,044
Dec-19	3,537	\$ 10,552	47	1,630	\$ 3,700	\$ 3,050	25,320	\$ 47,952	\$ 62,204
Total 2019	11,474	\$ 35,666	259	5,170	\$ 14,900	\$ 9,850	36,010	\$ 67,194	\$ 117,760
Jan-20	4,508	\$ 12,944	74	2,040	\$ 5,200	\$ 3,900	32,592	\$ 59,651	\$ 77,795
Feb-20	5,293	\$ 15,414	82	2,040	\$ 5,150	\$ 4,000	10,490	\$ 19,314	\$ 39,878
Mar-20	4,335	\$ 12,740	54	1,970	\$ 4,050	\$ 3,750	16,440	\$ 29,876	\$ 46,665
Apr-20	391	\$ 1,031	9	130	\$ 400	\$ 250	6,870	\$ 12,434	\$ 13,865
May-20	-	\$ -	1	1	\$ -	\$ -	260	\$ 482	\$ 482
Jun-20	458	\$ 1,383	11	-	\$ 500	\$ -	18,600	\$ 36,315	\$ 38,198
Jul-20	3,443	\$ 9,767	47	1,200	\$ 3,100	\$ 2,250	1,580	\$ 2,925	\$ 15,792
Aug-20	4,159	\$ 11,708	30	1,320	\$ 3,150	\$ 2,450	2,560	\$ 4,608	\$ 19,466
Sep-20	4,807	\$ 13,055	39	1,350	\$ 3,300	\$ 2,550	14,440	\$ 27,018	\$ 43,373
Oct-20	5,099	\$ 14,132	39	1,520	\$ 3,750	\$ 2,850	5,340	\$ 8,532	\$ 26,414
Nov-20	4,749	\$ 12,951	191	1,350	\$ 10,400	\$ 2,500	7,750	\$ 13,950	\$ 37,301
Dec-20	4,905	\$ 13,162	348	1,440	\$ 11,150	\$ 2,650	3,750	\$ 6,899	\$ 31,211
Total 2020	42,147	\$ 118,287	925	14,361	\$ 50,150	\$ 27,150	120,672	\$ 222,002	\$ 390,439
Jan-21	5,619	\$ 14,171	48	1,470	\$ 3,550	\$ 2,700	4,450	\$ 5,270	\$ 22,991
Feb-21	4,915	\$ 13,305	39	1,790	\$ 3,550	\$ 3,300	3,020	\$ 6,376	\$ 23,231
Mar-21	5,713	\$ 15,451	33	1,950	\$ 4,000	\$ 3,650	5,850	\$ 10,598	\$ 30,049
Apr-21	5,422	\$ 14,927	29	2,070	\$ 4,300	\$ 3,950	5,810	\$ 10,715	\$ 29,942
May-21	5,494	\$ 15,449	38	2,060	\$ 4,050	\$ 4,000	7,750	\$ 14,112	\$ 33,611
Jun-21	5,712	\$ 16,074	47	2,110	\$ 4,950	\$ 4,150	9,580	\$ 17,244	\$ 38,268
Jul-21	5,634	\$ 16,144	46	2,200	\$ 4,400	\$ 4,350	8,940	\$ 16,092	\$ 36,636
Aug-21	5,937	\$ 17,174	51	2,180	\$ 4,900	\$ 4,250	3,090	\$ 5,657	\$ 27,730
Total 2021	44,446	\$ 122,694	331	15,830	\$ 33,700	\$ 30,350	48,490	\$ 86,062	\$ 242,456
Total	98,067	\$ 276,647	1,515	35,361	\$ 98,750	\$ 67,350	205,172	\$ 375,258	\$ 750,656



¹These numbers do not sum because the most recent status change for an application, which is shown in the table below, may not be in the month when the application was submitted.

²LiVE enrollment is valid for 12 months. This chart shows the number of actively enrolled customers as of the last day of each month.

³In order to limit RTD's handling of personally identifiable information for LiVE participants, RTD only stores the mailing address of participants but not the home address. In most cases, however, home address and mailing address are the same or in the same county.

⁴ It is not known how many individual customers received LiVE tickets from nonprofit organizations since the number of tickets issued to each client depends on the organization and the client's situation. Also, most government and nonprofit organizations do not buy ticket books on a monthly basis, therefore the sales can vary considerably from month to month.

Information and Resources

The following information and materials are available on the RTD LiVE website at rtd-denver.com/LiVE

- General information
- Short videos
- Link to PEAK application
- Step-by-step application instructions
- LiVE information card
- Q&A document
- Partner Toolkit
- Help resources



Business Research Division (BRD)

Leeds School of Business, University of Colorado

RTD Forecast Model

Short, Medium, and Long-Term Econometric
Forecasts of RTD Sales and Use Tax Revenues:
September 2021 Update

Authors: Robert McNown, Miles Light, Brian Lewandowski,
Richard Wobbekind, Jacob Dubbert

September 2021



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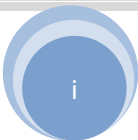
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Glossary of Terms

Nominal Variables: Refer to data in actual, current dollars. The value expressed in the money of the day.

Real Variables: Refer to data in inflation-adjusted terms.

Current Dollar Values: Refer to data in actual, current dollars. The value expressed in the money of the day. (Same as “nominal”)

Cointegrating Relation: The long-run equilibrium relation between two or more variables.

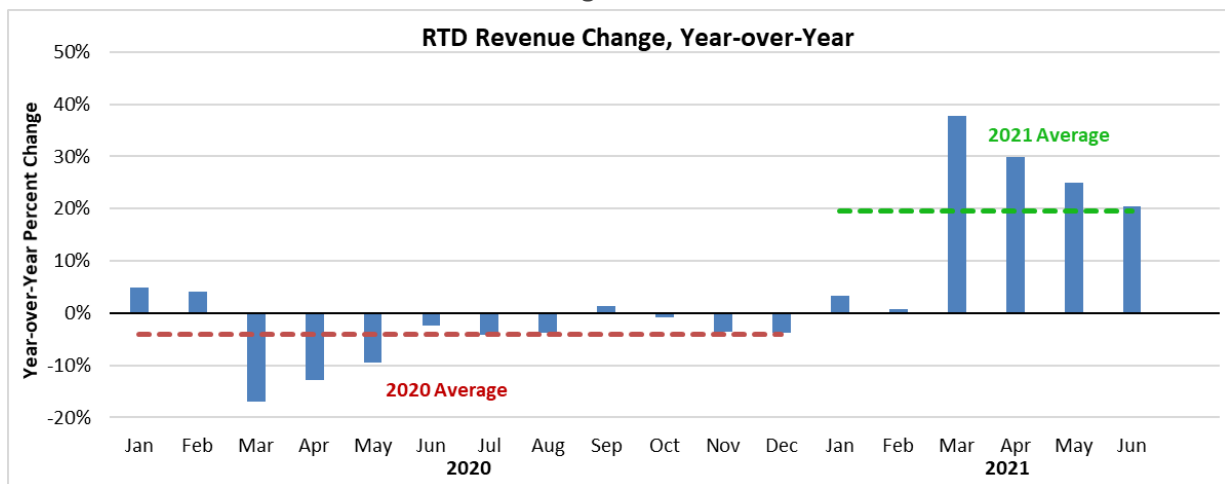
Error Correction Model: The dynamic relation between variables that follow a cointegrating relation.

Vector Autoregression: A general category of time-series models that incorporates dynamic relations among two or more variables.

Executive Summary

While the pandemic-induced recession had a swift, negative impact on RTD sales and use taxes in 2020, retail sales staged a speedy recovery that lifted RTD sales and use taxes to record levels. From January through July of 2021, RTD posted record revenue for each respective month in the series going back to 1980. Revenue swung from a 4.1% decline in 2020 to 19.6% growth in 2021 (through July), and growth through July was up 12.9% compared to the same non-pandemic period in 2019.

Figure 1



RTD revenues are collected primarily within seven metropolitan counties (the “district”): Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, and Jefferson, as well as a portion of Weld County. Colorado and the Denver Metro region posted strong, above average economic growth following the 2007-2009 “Great Recession.” RTD recorded 10 consecutive years of sales and use tax growth averaging 5.9% between 2010 and 2019. The pandemic recession created a drop in GDP, led to an unprecedented decline in employment, and caused a sharp decrease in RTD revenue. The economy, labor market, and RTD revenue are all in recovery mode.

A model was developed to examine fundamental relationships between U.S. and Colorado economic growth, and between Colorado and the district. It forecasts short-term, medium-term, and long-term RTD sales and use tax revenue, and accounts for economic and demographic (e.g., population age) shifts over time.

Economic Update

- The COVID-19 pandemic created a sharp and profound negative impact upon the economy. The National Bureau of Economic Research pegged the pandemic-induced recession as the shortest on record for the U.S., lasting just two months. The economic recovery has been remarkable in terms of output and income, but the labor market has been slower to recover.
- Real (inflation-adjusted) U.S. GDP increased at a seasonally adjusted annual rate (SAAR) of 6.3% in Q1 2021 and 6.5% in Q2 2021. Real GDP in the second quarter reached a new peak, rising 0.8% above the prior peak recorded in the first quarter of 2021. Real (inflation-adjusted) GDP is projected to increase 6% in 2021 and remain strong (4.3%) in 2022.

RTD Sales and Use Tax Forecasting Model

- Despite the recession and record losses in employment and wage and salary income, personal income posted strong gains in 2020 due to a record increase in government transfer receipts (e.g., unemployment benefits, household stimulus checks). Transfer receipts are now decreasing with waning government stimulus, but government-supported income is now being replaced with record levels of employee earnings, leading to record personal income.
- The personal savings rate spiked to record levels during the recession and remains elevated, increasing the potential for continued strength in consumption.
- Nationally, employment remained down 3.5% from the prior peak as of August 2021, but Colorado employment was comparatively better at -2.9%. The national unemployment rate dropped to 5.2% in August, while Colorado's rate dropped to 5.9%. Colorado had the 4th-highest labor force participation rate in the country in August.
- Nationally, inflation averaged 5.2% year-over-year from May through August 2021.

Short-Term Outlook

- RTD sales and use tax revenue increased 6% in 2018 and 4% in 2019. Revenue subsequently declined by 4.1% in 2020, due to the pandemic. Revenue is projected to rebound in 2021, growing 16.3% to a record-high \$736 million.
- Coming off a recession year, employment is projected to increase 3% in 2021 and 4.8% in 2022. Statewide total personal income was unaffected by the recession due to government assistance; personal income growth accelerated 4.9% in 2020 and is projected to increase 14.7% in 2021. The unemployment rate is projected to average 5.9% in 2021 and to improve further to 3.4% in 2022.
- The Governor's Executive Order that extended the retail sales tax filing deadline and waived penalties caused a delay in the RTD's sales and use tax collections early in the pandemic. This suggested a more pronounced decline in RTD revenue than actually occurred as delayed revenue showed up as late payments.
- The forecasting model also provides information on uncertainty that is inherent in any forecast through construction of confidence bounds on total RTD revenues. The mean forecast for 2021 of \$736 million is bracketed by 67% confidence bounds of \$706 million on the low side and \$764 million for the upper bound.
- The mean forecast for 2022 is \$768 million, bound by a lower bound of \$683 million and an upper bound of \$849 million.
- The 67% upper- and lower-bound estimates illustrate the broad uncertainty behind economic conditions that pose upside opportunities and downside risks to the forecast.
- Quarterly growth exhibits more volatility than annual growth, and use taxes are more volatile than sales taxes. The third and fourth quarters tend to be the largest revenue quarters for RTD.
- Forecasts of national indicators that are used to drive state and district forecasts come from Moody's Analytics. The national indicators have outperformed expectations for the national economy in the first half of 2021.
- The government response to this pandemic reversed the usual paradigm. Instead of declining income, the direct government transfers resulted in sharply higher household

income and spending than the model predicted. Thus, sales tax revenue outperformed expectations.

- For the short-term forecast, the BRD estimates have been above the actual revenue 73 times and below the actual revenue 88 times, and a simple average of the error has been - 0.8%, with a 4.5% standard deviation (including the rapid revenue swings during the pandemic recession).

Medium-Term Outlook

- The impact of COVID-19 on the retail and restaurant industries, employment, income, and tourism weighed heavily on retail sales activity.
- The past two post-recession recovery periods lasted 4.5 years and 4.75 years, before RTD revenues returned to their previous revenue peaks. However, RTD will surpass the prior revenue peak after just two years (2020 and 2021) from the onset of the current recession due to both the nature of the recession and the government response.
- Modeling three economic scenarios helps to accommodate the broad uncertainty surrounding the U.S. economy. These scenarios may be taken as plausible bounds on RTD revenue growth over the medium-term period; the greatest variation in forecasts occurs during the first three years.
- Under the baseline scenario, RTD total tax revenues are projected to grow by 52.2% between 2020 and 2027, reaching \$963 million by the end of the medium-term horizon.
- A more optimistic scenario under which the national economy experiences a faster rebound yields cumulative revenues 1.5% higher than the baseline scenario over the seven-year horizon; however, the 2027 total is 1.9% above the baseline forecast.
- A second alternative scenario in which the national economy experiences slower growth in the near term yields a cumulative 7-year forecast 1.7% below the baseline scenario.
- There may be higher inflationary pressure on the horizon caused by excess household savings, high commodity prices, and a sudden tightening of the labor market.
- Reflecting on the forecast accuracy before the pandemic, the medium-term forecasts have proven to have a small margin of error. Five years out, the 2014 forecast for 2019 was high by 2.1%. The 2015 forecast for 2019 was high by 4.4%, the 2016 forecast for 2019 was low by 2.3%, the 2017 forecast for 2019 was low by 1.7%, and the 2018 forecast for 2019 was high by 1.4%.

Long-Term Outlook

- After revenue growth of 4.8% for the decade ending in 2020 (in current, nominal dollars), revenue projections for the next three decades average 4.9% (2021–2030), 2.9% (2031–2040), and 2.2% (2041–2050); the 30-year average is 3.3% (2021–2050).
- Long-term revisions are due, in part, to higher expectations in the short-term forecast that increased the revenue base for the long-term forecasts.
- The BRD long-term forecasting model incorporates population growth and shifts in the age distribution of the population as key factors influencing the rate of growth in output, employment, and sales.

Project Overview

In an effort to provide consistent and accurate RTD revenue forecasts, a new sales and use tax forecasting system was commissioned in 2010. The Business Research Division (BRD) of the Leeds School of Business at the University of Colorado Boulder was contracted to develop a model for projecting RTD revenues over the short term (2022), medium term (2027), and long term (2050). This model has been regularly updated and fine-tuned to portray best-available revenue forecasts that are specific to Colorado's Front Range economy.

The BRD collaborates with the RTD administration in order to forecast sales and use tax revenues, and to identify the key drivers that will impact RTD's tax revenue stream. Since project inception, the BRD research team has been working closely with the RTD administration in order to better understand the existing forecast system, to collect and organize relevant data, and to develop the three sets of projections.

This report presents the revenue projections at the three forecast horizons, with some discussion of the economic forces driving these forecasts. The model uses vector autoregression (VAR) techniques in order to capture a mix of long-term, stable relationships, as well as short-term "deviations" from these long-term trends. These relationships connect RTD tax revenue components to key macroeconomic drivers, such as retail sales. The methodology is described in detail in the main body of this report.

RTD revenue data, state retail sales, and state taxable sales are available through July 2021. Data after these dates represent forecasts. Additional revenue from medical and retail marijuana sales are in the RTD receipts. Adjustments to the model were necessary to accommodate the gap year (July 1, 2017–June 30, 2018) in retail marijuana collections caused by Senate Bill 17-267. As such, RTD *taxable sales* in this report are based on RTD sales tax revenues excluding retail marijuana taxes. Therefore, these data are actually RTD taxable sales excluding marijuana sales. However, the forecasts reported for RTD sales tax revenues include the forecasts of RTD retail marijuana revenues. This construction was necessary to produce a series without the discontinuity over the period from July 2017 through June 2018 to produce reasonable revenue forecasts.

In 2016, revenue from Electronic Shopping and Mail-Order Houses (i.e., ecommerce) became a significant contributor to RTD's sales tax revenue. Ecommerce accounted for over 8% of the total sales taxes collected in 2020.

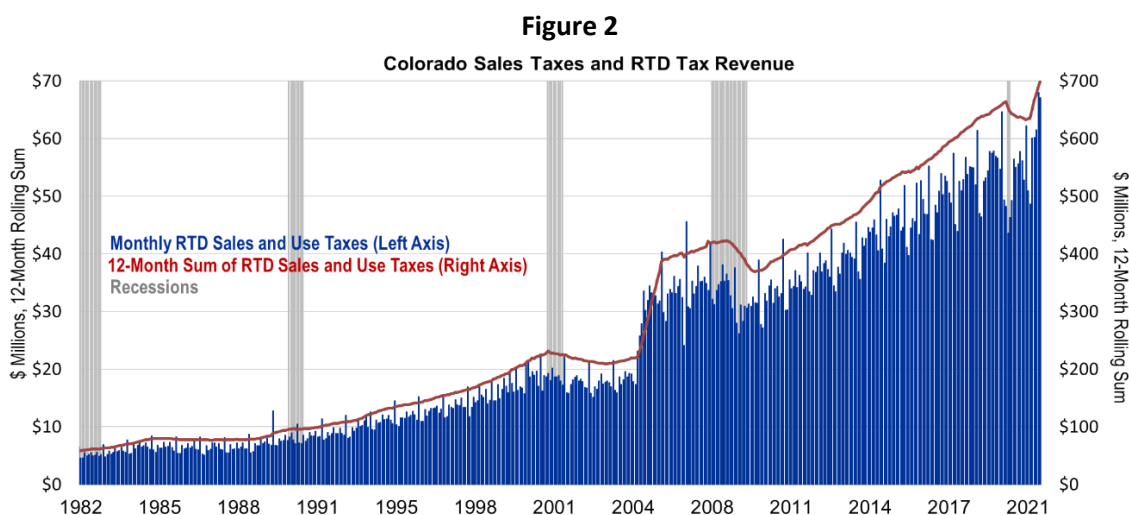
Given the pandemic recession's impact on specific sectors of the economy, the BRD began modeling major components of RTD's sales taxes (e.g., restaurants, auto sales, ecommerce, grocery, etc.). Modeling the components of retail sales taxes produces forecasts that accommodate the volatility in the subcomponents.

The methodology and model descriptions may be found in Appendix A.

Forecasts: Short Term, Medium Term and Long Term

Short-Term Forecasts

Summary: Following the Great Recession, RTD recorded 10 consecutive years of sales and use tax growth averaging 5.9% (2010-2019). The pandemic-induced recession caused RTD sales and use tax revenue to decline 4.1% in 2020, recording year-over-year losses for nine months in 2020. RTD is poised for a revenue recovery in 2021, posting growth of 19.6% year-over-year during the first seven months of 2021, with projections of 16.3% growth for the full year.



All equations are estimated using monthly data to produce monthly forecasts that are aggregated into quarterly or yearly data. Historical data for Colorado and national economic variables were retrieved in September 2021, with much of the data current through June 2021. RTD revenue data and state retail sales and taxable sales data are current through July 2021. All reported data after these dates are forecasts.

The short-term forecast relies on the Baseline Scenario from Moody's Analytics. These national macroeconomic indicators drive the forecasts of the Colorado economy.

Colorado Economy Forecasts

As background to the revenue forecasts, data on Colorado economic indicators are presented in Table 1. Key indicators of Colorado economic activity reflect the COVID-19 economy in 2020, and the rebound in 2021 and 2022. The unemployment rate averaged 7.3% in 2020, but is projected to improve to 5.9% in 2021 and 3.4% in 2022. Personal income grew in 2020 despite the record loss in employment and employee earnings. Moderate nominal income growth is projected in the medium-term, but *real* income growth will be comparatively lower due to inflation.

Table 1

Colorado Economic Indicators					
Year	Consumer Price Inflation	Percent Change Personal Income	Percent Change Retail Sales	Unemployment Rate	Percent Change Employment
2020 ^a	1.95	4.92	4.93	7.29	-5.16
2021	2.18	14.17	11.74	5.93	2.98
2022	2.83	6.85	5.29	3.38	4.78

^aHistorical data.

Annual Tax Revenue Forecasts

The following table presents the expected changes in RTD base sales tax revenues and the driving force behind these changes: taxable sales. From 2010 through 2019, district taxable sales recorded 10 consecutive years of growth averaging 6.1%. Taxable sales fell 3% in 2020, but are projected to increase 16.4% in 2021 and 4.9% in 2022. Sales tax revenues are anticipated to change in stride, falling 2.6% in 2020, but rebounding 16.4% and 3.6% in 2021 and 2022, respectively. Note that the model uses RTD sales tax revenue (less marijuana revenue) to impute taxable retail sales in the seven-county RTD district because retail marijuana is no longer assessed the 2.9% retail sales tax rate for the state. However, retail marijuana is taxed 1% for the special districts, leading to a difference in taxable sales and sales taxes.

Table 2

District Taxable Retail Sales and RTD Base Sales Tax Revenues				
Year	District Taxable Retail Sales	District Taxable Retail Sales Percent Change	Base Sales Tax Revenue Forecast	Base Sales Tax Revenue Percent Change
2020 ^a	59,910,663,579	-2.99	353,505,582	-2.58
2021	69,758,301,866	16.44	411,385,051	16.37
2022	73,163,627,643	4.88	426,052,209	3.57

^aHistorical data.

The Short-Term Use Tax Revenue Forecast

In this model, use tax revenues are directly related to Colorado use tax collections reflecting the broader geographical base for the use tax. Households and businesses residing within the district but purchasing taxable goods outside the district are required to pay a use tax on these purchases at the same rate as the sales tax. Illustrating the volatility, use tax revenues fell 1.1% in 2015, but increased 7.5% in 2016, 4.6% in 2017, and 25.7% in 2018 before falling 16% in 2019 and 20.4% in 2020. The forecast calls for rebounding use taxes in 2021 and 2022. The volatility of use taxes is apparent in both annual and quarterly data.

Table 3

CO Taxable Sales and Use Tax Revenues				
Year	Percent Change in State Taxable Sales	Percent Change in State Use Taxes	RTD Base Use Tax Revenues	Percent Change in RTD Base Use Tax Revenue
2020 ^a	-0.9	-30.3	26,093,224	-20.4
2021	15.8	23.0	29,917,442	14.7
2022	5.7	31.6	34,968,549	16.9

^aHistorical data.

Combining sales and use tax revenue forecasts, the BRD model projects total RTD revenue to increase 16.3% in 2021 and 4.5% in 2022, reflecting the near-term rebound in output, employment, and employee earnings.

Table 4

Forecasted Percent Changes of Sales, Use, and Total Revenues			
Year	Sales Tax Revenues	Use Tax Revenues	Total Revenues
2020 ^a	-2.6	-20.4	-4.1
2021	16.4	14.7	16.3
2022	3.6	16.9	4.5

^aHistorical data.

Upper- and Lower-Bound Estimates for Baseline Forecast

The previous tables present only medium-level forecasts, which should be interpreted as the mean values within a range of probable outcomes. All forecasting exercises involve elements of uncertainty, although information about possible forecast errors is seldom presented. Uncertainty arises from the errors in equation specification and estimation, and from the forecasts of the national variables that drive the state variables. Although information on the latter source of uncertainty is not available, the probabilistic high and low forecast bounds that incorporate possible errors in fitting the equations are presented. The values of the high and low forecast bounds are computed as 67% confidence bounds, meaning that a 0.67 probability exists that the interval between low and high forecast values will contain the actual value of the variable being predicted.

The following table displays the 67% confidence bounds on total RTD revenues through 2022. The wide 67% confidence interval reflects uncertainty. The possible range is as low as \$705.8 million and as high as \$764.4 million for 2021. The 2021 lower and upper bounds range -4% to +4% relative to the medium forecast. The confidence bound widens in 2022 with greater uncertainty. The 2022 upper- and lower-bound estimates are -11.1% and +10.5% different than the medium baseline forecast, showing greater uncertainty one year out. This shows that it is not impossible or unrealistic that revenue could grow stronger over the next year relative to the medium forecast, as well as the exposure to the downside risk posed by economic threats.

Table 5

Upper and Lower Bound Forecasts of Total Revenues (\$)			
Year	Low Forecast	Medium Forecast	High Forecast
2020 ^a	632,664,678	632,664,678	632,664,678
2021	705,795,641	735,504,155	764,378,946
2022	682,918,894	768,367,930	849,177,898

^aHistorical data.

Quarterly Tax Revenue Forecasts

More detailed information on the forecasts is provided by the quarterly figures. Quarterly growth was volatile in 2016, but proved much more stable in the years that followed (2017-2019). However, volatility was unmatched in 2020. For the remainder of the short-term forecast (through 2022), year-over-year growth will range between 2% and 16.5%.

Table 6

Sales, Use, and Total Tax Revenues (\$)			
Quarter	Sales Tax Revenues	Use Tax Revenues	Total Revenues
2020Q1 ^a	130,903,757	10,215,996	141,119,753
2020Q2 ^a	142,022,327	9,920,836	151,943,163
2020Q3 ^a	156,520,420	11,972,331	168,492,751
2020Q4 ^a	159,729,466	11,379,545	171,109,011
2021Q1 ^a	148,351,593	11,274,293	159,625,886
2021Q2 ^a	177,158,690	12,463,677	189,622,367
2021Q3	183,402,598	12,947,479	196,350,077
2021Q4	176,728,871	13,176,955	189,905,826
2022Q1	159,743,392	14,101,081	173,844,472
2022Q2	180,404,578	14,481,930	194,886,508
2022Q3	185,420,488	14,845,307	200,265,795
2022Q4	184,518,557	14,852,597	199,371,154

^aHistorical data.

Table 7

Year-over-Year Percent Changes RTD Revenues			
Quarter	Total Sales Tax	Total Use Tax	Total Sales and Use Tax
2020Q1 ^a	-0.02	-31.78	-3.28
2020Q2 ^a	-5.51	-33.65	-8.06
2020Q3 ^a	-2.27	-1.43	-2.21
2020Q4 ^a	-2.25	-9.33	-2.75
2021Q1 ^a	13.33	10.36	13.11
2021Q2 ^a	24.74	25.63	24.80
2021Q3	17.17	8.15	16.53
2021Q4	10.64	15.80	10.99
2022Q1	7.68	25.07	8.91
2022Q2	1.83	16.19	2.78
2022Q3	1.10	14.66	1.99
2022Q4	4.41	12.72	4.98

^aHistorical data.

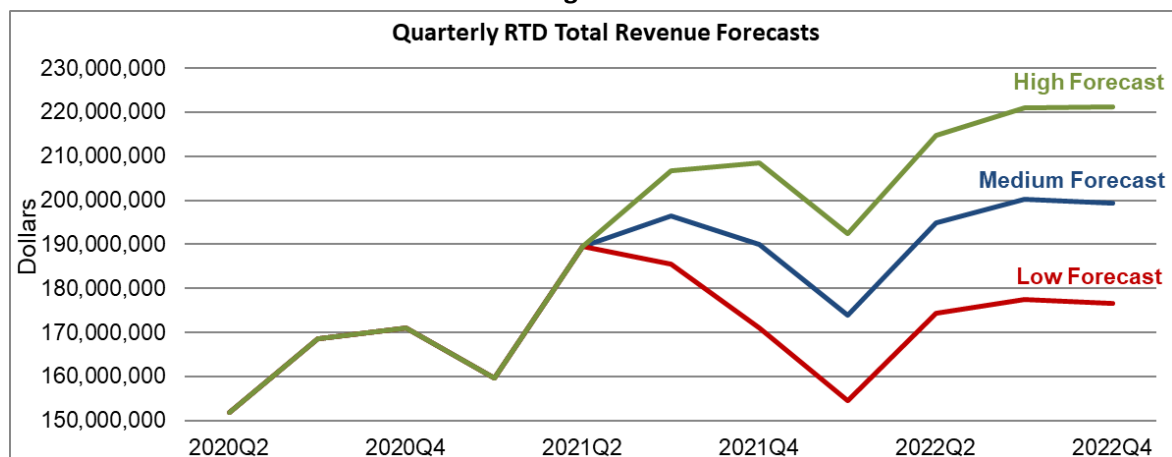
The following table displays the 67% confidence bounds on total quarterly short-term RTD revenues.

Table 8

Upper and Lower Forecast Bounds Total Sales and Use Tax (\$)			
Quarter	Low Forecast	Medium Forecast	High Forecast
2020Q1 ^a	141,119,753	141,119,753	141,119,753
2020Q2 ^a	151,943,163	151,943,163	151,943,163
2020Q3 ^a	168,492,751	168,492,751	168,492,751
2020Q4 ^a	171,109,011	171,109,011	171,109,011
2021Q1 ^a	159,625,886	159,625,886	159,625,886
2021Q2 ^a	189,622,367	189,622,367	189,622,367
2021Q3	185,562,732	196,350,077	206,622,510
2021Q4	170,984,657	189,905,826	208,508,183
2022Q1	154,541,714	173,844,472	192,343,225
2022Q2	174,469,002	194,886,508	214,653,035
2022Q3	177,414,633	200,265,795	220,958,731
2022Q4	176,493,546	199,371,154	221,222,907

^aHistorical data.

Figure 3



Medium-Term Forecasts

Summary: The BRD short-term forecasting model is extended to produce forecasts over the time horizon through 2027. Using different assumptions about the future course of the national economy, three alternative projections are derived from the same equation specifications. Under the baseline scenario, which leverages the Baseline macroeconomic scenario from Moody's Analytics, RTD total tax revenues are projected to grow by 52.2% from the end of 2020 to 2027.

Two alternative scenarios produce variations in the short-term revenue forecast (1-3 years), but growth rates generally converge in the medium term (7 years). An alternative scenario in which the national economy experiences a stronger short-term growth pattern yields a 55.1% increase from 2020-2027. Under stronger economic conditions, this scenario out-produces the baseline scenario nearly every year of the medium-term forecast. In the second alternative, in which the economy

grows more slowly in the short run, there is a 49.5% increase between 2020 and 2027, with slower growth recorded in the first two years. The differences in the cumulative revenue from 2020 to 2027 illustrate the impact of slower and faster growth in the short run. The optimistic scenario produces cumulative (2020-2027) revenue \$86.8 million above the baseline scenario, and the pessimistic scenario produces cumulative revenue \$100.1 million below the baseline scenario. These alternative scenarios allow for a reasonable degree of uncertainty about possible outcomes for the U.S. economy and may be taken as plausible bounds on RTD revenue growth over the medium-term period.

The BRD short-term forecasting model is adapted to produce forecasts over the medium-term horizon through 2027. This time frame has been chosen to conform to the RTD investment planning horizon for FasTracks. The specifications of the equations for these medium-term forecasts are the same as for the short-term model, and these are also estimated with monthly data.

Over any medium-term period, the U.S. economy can be subjected to shocks producing outcomes that are difficult to anticipate. One reasonable way to present forecasts that incorporate the uncertainty about future policy or unpredictable economic shocks is to develop results for alternative scenarios. In addition to a baseline case, two alternative outcomes are presented: one allowing for stronger growth than the selected baseline and the other assuming generally slower economic growth. As an alternative method of incorporating uncertainty into the forecast, statistics-based confidence bounds for the baseline scenario are also generated, producing high- and low-forecast bounds based on 67% confidence intervals.

Baseline Sales and Use Tax Revenue Forecasts

The Baseline RTD forecast is based on macroeconomic conditions described by Moody's Analytics in the "Baseline Forecast". Moody's Baseline Forecast is constructed with a 50% probability that the U.S. economy will perform better and a 50% probability that it will underperform. This scenario assumes that COVID-19 cases have peaked, and the U.S. reaches close to "herd resistance" by September. The Fed commits to keeping interest rates low into 2023. Downside risks to this forecast include another spike in COVID cases, labor constraints, inflation, and constrained supply chains that slow the economic recovery.

Real GDP grows 6% in 2021 and 4.3% in 2022; the average through the medium-term forecast is 3.1%. The unemployment rate improves to 5.5% in 2021 and falls below 4% in 2022. After an unprecedented performance in 2021, retail sales increase more moderately through the medium term.

Table 9

National Economic Indicators: Baseline Scenario						
Year	Consumer Price Inflation	Percent Change Retail Sales	Percent Change Real GDP	Unemployment Rate	Percent Change Employment	Personal Income
2020 ^a	1.25	0.30	-3.39	8.10	-5.73	6.53
2021	4.38	18.94	6.01	5.45	2.79	6.28
2022	3.50	5.07	4.32	3.57	3.97	-0.06
2023	2.37	2.51	2.29	3.46	1.52	4.78
2024	2.31	2.94	2.76	3.73	0.76	4.95
2025	2.31	3.24	2.46	4.06	0.37	4.60
2026	2.30	3.23	2.18	4.21	0.40	4.49
2027	2.16	2.92	1.97	4.25	0.45	4.60

^aHistorical data. Note: Represents annual averages of the month-to-month growth rate.

Colorado retail sales grew 3.4% in 2019 and 4.9% in 2020. Strong growth of 11.7% is projected for 2021, followed by normalized growth of 5.3% in 2022; the simple average of 5.3% is projected for the medium-term forecast horizon. In the medium-term forecast, state retail sales growth outperforms the nation every year of the forecast period beginning in 2022.

Colorado personal income growth is projected to increase 14.2% in 2021. The annual average unemployment rate in 2021 improves to 5.9%, and total employment grows 3%. The employment rebound surpasses the prior peak in 2022. With rebounding employment and wages, and elevated wealth and savings, retail sales continue to advance.

Table 10

Colorado Economic Indicators					
Year	Consumer Price Inflation	Percent Change Retail Sales	Percent Change Personal Income	Unemployment Rate	Percent Change Employment
2020 ^a	1.95	4.93	4.92	7.29	-5.16
2021	2.18	11.74	14.17	5.93	2.98
2022	2.83	5.29	6.85	3.38	4.78
2023	2.75	3.97	7.34	3.30	2.17
2024	2.71	4.02	7.84	4.08	1.31
2025	2.71	3.98	7.76	4.91	0.90
2026	2.71	4.17	7.76	5.35	1.02
2027	2.67	3.90	7.86	5.51	1.15

^aHistorical data. Note: Represents annual averages of the month-to-month growth rate.

Colorado taxable sales decreased 0.9% in 2020, but return to strong growth for the remainder of the forecast horizon. RTD taxable sales will average 5.8% growth through 2027 after a 3% decline in 2020. RTD sales tax revenue follows a similar path as taxable sales.

Table 11

Percent Change in Taxable Sales and RTD Revenues: Baseline Scenario						
Year	CO Taxable Sales	RTD Taxable Sales	RTD Sales Tax Revenues	CO Use Taxes	RTD Use Tax Revenues	RTD Total Tax Revenues
2020 ^a	-0.86	-2.99	-2.58	-30.30	-20.39	-4.06
2021	15.77	16.44	16.37	22.98	14.66	16.25
2022	5.73	4.88	3.57	31.56	16.88	4.47
2023	4.23	4.04	4.31	6.75	5.43	4.40
2024	4.12	3.81	5.12	3.73	2.64	4.93
2025	4.10	3.72	4.55	4.19	2.59	4.40
2026	4.22	3.92	5.13	3.58	2.20	4.92
2027	3.91	3.55	4.65	3.25	1.65	4.43

^aHistorical data.

RTD use tax revenue fell 16% in 2019 and 20.4% in 2020. A strong rebound is projected over the next two years: 14.7% in 2021 and 16.9% in 2022, with simple average growth of 6.6% over the medium-term forecast horizon (2021-2027). With 90% of RTD tax revenues coming from sales tax, the yearly changes in total revenues closely track those for sales tax revenues.

Table 12

Forecasts of RTD Revenues (\$): Baseline Scenario			
Year	Sales Tax Revenues	Use Tax Revenues	Total RTD Revenues
2020 ^a	589,175,971	43,488,707	632,664,678
2021	685,641,751	49,862,403	735,504,155
2022	710,087,014	58,280,916	768,367,930
2023	740,721,192	61,447,767	802,168,960
2024	778,619,601	63,071,032	841,690,632
2025	814,050,630	64,707,590	878,758,220
2026	855,839,652	66,129,952	921,969,604
2027	895,633,066	67,224,390	962,857,456

^aHistorical data.

In this baseline scenario, the mean forecast in the BRD model calls for a 52.2% increase in total RTD revenues from 2020 to 2027. Allowing for uncertainty in the model estimation and equation errors, 67% confidence bounds can be estimated. These interval forecasts show a lower-bound increase of 25.8% in RTD revenues for the 2020–2027 forecast period and a 74.6% increase in the high-range forecast.

Table 13

Upper and Lower Bound Forecasts of Total Revenues (\$)			
Year	Low Forecast	Medium Forecast	High Forecast
2020 ^a	632,664,678	632,664,678	632,664,678
2021	705,795,641	735,504,155	764,378,946
2022	682,918,894	768,367,930	849,177,898
2023	705,938,705	802,168,960	891,374,111
2024	729,299,767	841,690,632	941,444,867
2025	751,908,193	878,758,220	987,530,926
2026	777,304,627	921,969,604	1,045,845,626
2027	796,013,109	962,857,456	1,104,913,990

^aHistorical data.

As an alternative approach to incorporating economic uncertainty into the forecasts, the next section describes two scenarios that examine the implications of potentially divergent shocks to the national economy—one positive and one negative—for district taxable sales and RTD tax revenues.

Optimistic Scenario

Moody's "Alternative Scenario 1 – Upside – 10th Percentile" represents a more optimistic outcome over the coming four years compared with the Baseline Forecast. In this scenario, the current wave of COVID-19 cases decrease faster than expected, vaccination adoption increases, and travel, tourism, and retail benefit from the improvement in the pandemic. Real GDP grows strongly in 2021 (6.2%) and 2022 (6.2%) before moderating. The unemployment rate quickly improves, and retail sales post strong growth.

Table 14

National Economic Indicators: Optimistic Scenario						
Year	Consumer Price Inflation	Percent Change Retail Sales	Percent Change Real GDP	Unemployment Rate	Employment	Personal Income
2020 ^a	1.25	0.30	-3.39	8.10	-5.73	6.53
2021	4.47	19.39	6.23	5.40	2.86	6.50
2022	4.14	7.29	6.21	3.07	4.70	1.61
2023	2.41	3.36	1.84	2.92	1.61	5.08
2024	2.28	3.49	1.97	3.14	0.79	4.85
2025	2.32	3.84	2.66	3.51	0.38	4.66
2026	2.31	3.62	2.48	3.76	0.40	4.52
2027	2.16	2.87	1.95	3.96	0.45	4.61

^aHistorical data.

Table 15

Percent Change in Taxable Sales and RTD Revenues: Optimistic Scenario					
Year	CO Taxable Sales	RTD Taxable Sales	RTD Sales Tax Revenues	RTD Use Tax Revenues	RTD Total Tax Revenues
2020 ^a	-0.86	-2.99	-2.58	-20.39	-4.06
2021	16.01	16.70	16.55	14.70	16.42
2022	7.69	6.74	4.18	18.30	5.14
2023	4.98	4.67	4.85	6.27	4.96
2024	4.62	4.18	5.52	3.29	5.34
2025	4.47	4.10	4.94	2.19	4.73
2026	4.55	4.20	5.04	2.77	4.87
2027	3.88	3.54	4.51	1.84	4.32

^aHistorical data.

In this optimistic scenario, total RTD tax revenues reach \$981 million in 2027, which is 1.9% above the medium forecast under the baseline scenario. This scenario yields revenue growth rates faster than the baseline projections through 2025; 2026 and 2027 growth rates are nearly the same as the baseline rate of growth. Total revenues grow by 55.1% between 2020 and 2027. Cumulative revenues from 2020-2027 are 1.5%, or \$86.8 million above the baseline scenario.

Table 16

Forecasts of RTD Revenues (\$): Optimistic Scenario			
Year	Sales Tax Revenues	Use Tax Revenues	Total RTD Revenues
2020 ^a	589,175,971	43,488,707	632,664,678
2021	686,673,089	49,880,613	736,553,702
2022	715,402,327	59,009,029	774,411,356
2023	750,093,563	62,709,343	812,802,906
2024	791,473,937	64,770,255	856,244,191
2025	830,547,658	66,191,666	896,739,324
2026	872,367,231	68,024,225	940,391,457
2027	911,735,128	69,275,912	981,011,041

^aHistorical data.

Pessimistic Scenario

Moody's "Alternative Scenario 2 – Downside – 75th Percentile" is constructed with a 75% probability that the U.S. economy will perform better and a 25% probability that it will underperform. This slower-growth scenario is caused by a resurgence in COVID cases that impacts travel, tourism, and retail. Consumer confidence and consumer spending both are negatively impacted, as is spending on business and leisure travel.

Real GDP increases 5.7% 2021, but slows to 2.4% in 2022; the medium-term average is 3%. The unemployment rate improves steadily, dropping below 5% in 2023. Retail sales grow moderately after a robust (18%) 2021.

Table 17

National Economic Indicators: Pessimistic Scenario						
Year	Consumer Price Inflation	Percent Change Retail Sales	Percent Change Real GDP	Unemployment Rate	Employment	Personal Income
2020 ^a	1.25	0.30	-3.39	8.10	-5.73	6.53
2021	4.26	17.95	5.71	5.94	2.39	5.70
2022	2.54	1.27	2.37	5.69	1.53	-3.28
2023	2.24	3.90	2.33	4.43	1.86	4.60
2024	2.33	3.52	2.99	4.60	0.84	5.50
2025	2.36	3.95	2.86	4.20	1.02	5.23
2026	2.32	3.18	2.48	4.24	0.39	4.55
2027	2.17	2.82	2.14	4.28	0.43	4.66

^aHistorical data.

Table 18

Percent Change in Taxable Sales and RTD Revenues: Pessimistic Scenario					
Year	CO Taxable Sales	RTD Taxable Sales	RTD Sales Tax Revenues	RTD Use Tax Revenues	RTD Total Tax Revenues
2020 ^a	-0.86	-2.99	-2.58	-20.39	-4.06
2021	15.08	15.83	16.21	14.66	16.10
2022	1.84	1.10	0.78	14.40	1.71
2023	5.24	4.96	5.13	4.20	5.06
2024	4.66	4.24	5.27	3.30	5.12
2025	4.88	4.57	5.17	2.79	4.99
2026	4.30	3.98	4.91	2.79	4.75
2027	3.81	3.48	4.44	1.80	4.25

^aHistorical data.

In this pessimistic scenario, total RTD tax revenues reach \$946 million in 2027, which is 1.8% below the medium forecast under the baseline scenario. This scenario yields revenue growth rates slower than the baseline projections through 2022, then faster growth rates through 2025. Total revenues grow by 49.5% between 2020 and 2027. Cumulative revenues from 2020-2027 are 1.7% below, or \$100.1 million lower than the baseline scenario.

Table 19

Forecasts of RTD Revenues (\$): Pessimistic Scenario			
Year	Sales Tax Revenues	Use Tax Revenues	Total RTD Revenues
2020 ^a	589,175,971	43,488,707	632,664,678
2021	684,689,165	49,862,817	734,551,982
2022	690,051,361	57,041,849	747,093,210
2023	725,450,067	59,437,361	784,887,428
2024	763,664,124	61,400,718	825,064,843
2025	803,119,030	63,112,044	866,231,074
2026	842,543,512	64,874,006	907,417,518
2027	879,910,607	66,042,661	945,953,268

^aHistorical data.

Summary across the Three Scenarios

RTD revenues rebound above prior peak levels in 2021 across all three scenarios. In the baseline scenario, revenue grows 52.2% to \$962.9 million in the medium term (through 2027). The pessimistic scenario presents slower growth early in the forecast horizon, followed by faster growth, growing to \$946 million by 2027, netting 49.5% growth over the period. The optimistic scenario records growth that results in an increase of 55.1% over the period, to \$981 million, with outperforming growth in this scenario early in the forecast horizon.

The timing of future revenue changes differs across the three scenarios. This difference reveals how revenues may shift, but they eventually end up relatively close to each other. The difference in total RTD revenues between the pessimistic and optimistic scenarios is 3.7% in 2027, but the cumulative revenue differences are 3.2% between the pessimistic and optimistic scenarios.

Table 20

Forecasts of Total RTD Revenues (\$): Summary of Three Scenarios			
Year	Baseline Scenario	Optimistic Scenario	Pessimistic Scenario
2020 ^a	632,664,678	632,664,678	632,664,678
2021	735,504,155	736,553,702	734,551,982
2022	768,367,930	774,411,356	747,093,210
2023	802,168,960	812,802,906	784,887,428
2024	841,690,632	856,244,191	825,064,843
2025	878,758,220	896,739,324	866,231,074
2026	921,969,604	940,391,457	907,417,518
2027	962,857,456	981,011,041	945,953,268

^aHistorical data.

Table 21

Percent Changes in Total RTD Revenues: Summary of Three Scenarios			
Year	Baseline Scenario	Optimistic Scenario	Pessimistic Scenario
2020 ^a	-4.06	-4.06	-4.06
2021	16.25	16.42	16.10
2022	4.47	5.14	1.71
2023	4.40	4.96	5.06
2024	4.93	5.34	5.12
2025	4.40	4.73	4.99
2026	4.92	4.87	4.75
2027	4.43	4.32	4.25

^aHistorical data.

The baseline scenario presents the BRD's most likely forecast for RTD tax revenues over the years 2020–2027. After 2020, revenue grows steadily during this period, achieving an overall increase of 52.2% between 2020 and 2027, to \$962.9 million in 2027.

Long-Term Forecasts

The BRD long-term forecasting model incorporates age shares of the population as a key factor influencing the rate of growth in real output and in state and district sales that determine RTD sales and use tax revenues. This model projects annual growth rates in real RTD tax revenues to 2050. Forecast summary information is presented in both constant (real) and current (nominal) terms.

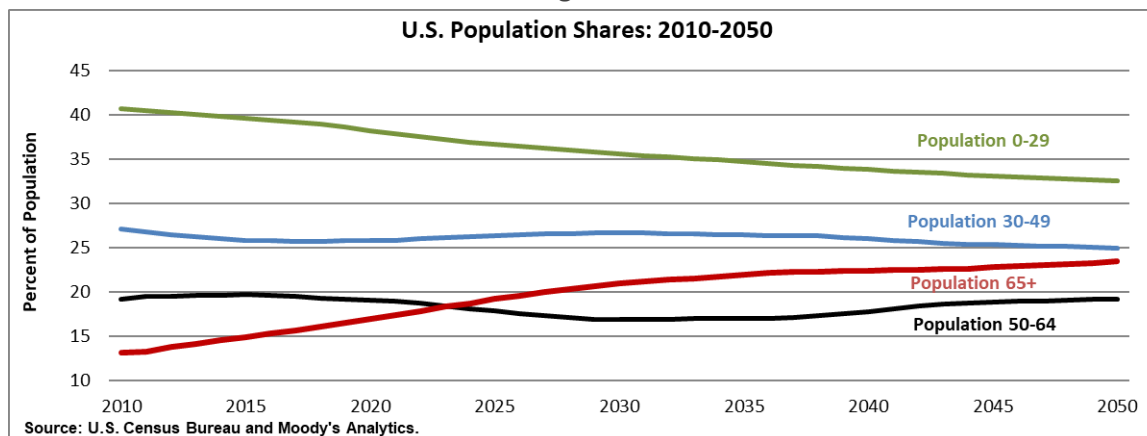
Synopsis: *Coming off a lower base for 2020 but a much stronger 2021, the September 2021 long-term forecast reflects moderate growth in the first 10 years of the forecast horizon, slowing in the final decade. Over the entire 30-year period, RTD's total tax revenues in nominal (current dollar) terms are projected to grow by 3.3% per year on average, while the real (inflation adjusted) growth rate is 0.9%.*

This forecast is for three decades: 2021–2030, 2031–2040, and 2041–2050.

National Economic and Demographic Trends

Growth in real output (GDP) is positively related to the proportion of the population that is upper middle age (30–49 and 50–64) as this group contributes highly productive workers to the labor force due to their experience and training. Although population shares change slowly, over the period 2010–2030 the proportion of the population in this productive age group is projected to decline, from 46.2% to 43.4%, contributing to a slowing rate of growth in real output between now and 2030. The prime population proportion then increases to 44% by 2050. However, total population growth rates slow throughout the 30 year forecast period, reducing real output growth rates with each advancing decade.

Figure 4



In addition to a slowing of total U.S. population growth over the next three decades, the differing growth rates of key age groups will have negative effects on economic growth. Growth rates of the most productive age group (30–64), as well as the total population, will be slower during the current decade as well as the final decade of the 2040s compared with the previous 10-year period (Table 22), producing some slowing in the rate of growth in output. Across the three decades of the forecast period, growth in real GDP slows considerably during the final decade compared with the periods from 2021–2030 and from 2031–2040. (See the BRD forecast in Table 23; the Moody's projections are presented only for comparison with the BRD forecasts and do not play a role in the long-term BRD projections of any real variables after 2027.) Growth in the current decade was distorted by the negative impact of the COVID-19 pandemic on the economy, and the strong growth that should follow in the recovery (although from a markedly lower 2020 base). The demographic drag dampens growth in the final two decades of the forecast horizon, partially offsetting the positive influences of increases in productivity and human and physical capital that account for the long-run trend in GDP growth. During the final 10 years, the share of the productive age group stabilizes, but the total population growth rate continues to decline. The net effect of these demographic changes is a further decline in the real GDP growth rate into the final decade of the forecast.

Table 22

Average Annual Percentage Rates of Growth			
	U.S. Pop Total	U.S. Pop 30–64	U.S. Pop 65 and Over
2011-2020 ^a	0.63	0.33	3.24
2021-2030	0.49	0.18	2.65
2031-2040	0.33	0.40	1.01
2041-2050	0.18	0.24	0.62
2021-2050	0.33	0.27	1.43

^aHistorical data through 2019.

Table 23

Average Annual Percentage Rates of Growth				
Years	U.S. Real GDP BRD	U.S. Real GDP Moody's	U.S. Real Retail Sales BRD	U.S. Real Retail Sales Moody's
2011-2020 ^a	1.63	1.63	2.01	2.01
2021-2030	2.31	2.80	1.25	2.14
2031-2040	1.23	2.07	0.50	1.28
2041-2050	0.45	1.93	0.09	1.32
2021-2050	1.33	2.26	0.61	1.58

^aHistorical data through 2020.

The BRD's projected rate of growth in real GDP from 2021–2030 and from 2031–2040 are slightly below Moody's growth during the two decades, and notably slower in the last 10 years (2041–2050). Over the 30-year forecast period, the BRD model projects 1.3% average growth and the Moody's model projects 2.3% average growth. The BRD forecast of retail sales growth is below Moody's for the forecast horizon.

Growth in U.S. retail sales is driven first by growth in output, which is then moderated by demographic forces. The BRD forecasts show sluggish growth in retail sales during the last two decades of the forecast (Table 24 reports rates of growth in real, inflation-adjusted terms).

Both Moody's and BRD forecast modest growth rates in each of the three forward-looking decades. Notably, retail sales grow at a slower pace than GDP.

Colorado and District Retail Sales, Taxable Sales, and RTD Sales and Use Tax Revenues

Following the COVID-19 pandemic's impact on the economy early in the current decade, growth rebounds for retail sales and taxable sales at the state and district levels. Over the long term, the national economic environment is reflected in the Colorado forecast. The combined influence of national economic forces and changing demographics leaves the state and the district with quite low rates of growth in sales and taxable sales during the final decade of the forecast as shown in the following tables and figures.

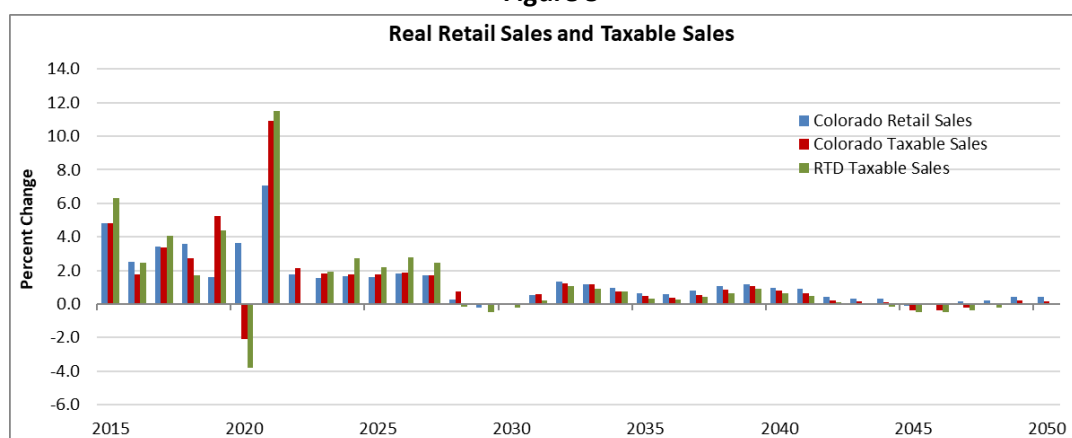
Colorado retail sales growth over the next three decades is slightly higher than for the nation. Colorado taxable sales and RTD taxable sales also tend to outperform national retail sales growth (with the exception of RTD taxable sales in the final decade). The very low growth rates for RTD taxable sales during the final decade reflects the persistent slowdown in total population growth in Colorado, and especially in the district.

Table 24

Average Annual Percentage Rates of Growth, Real Dollars			
Years	CO Retail Sales	CO Taxable Sales	RTD Taxable Sales
2011-2020 ^a	3.67	3.62	3.53
2021-2030	1.71	2.23	2.22
2031-2040	0.92	0.79	0.60
2041-2050	0.30	0.05	-0.12
2021-2050	0.97	1.02	0.90

^aHistorical data through 2020.

Figure 5



This long-term forecast ends in 2050. During this period, retail activity faces demographic drag in the state. The long-term average real growth rate for RTD taxable sales is 0.9%, reflecting the slow long-term (30-year) growth.

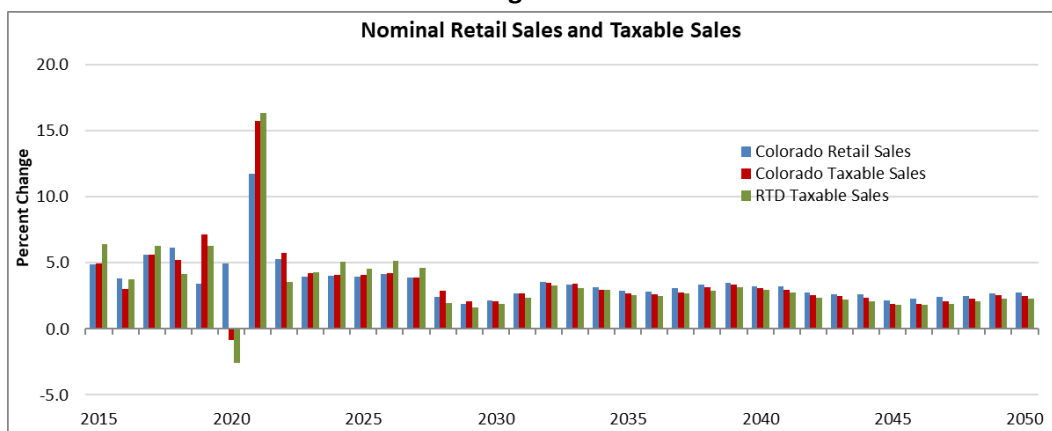
Looking at nominal growth rates in RTD taxable sales shown in Table 25, the decade from 2021-2030 and the following decade are expected to produce growth of 4.9% and 2.8%, respectively. The pattern of growth rates in Colorado taxable sales and RTD taxable sales are both consistent with that of retail sales growth, with average growth rates for the last decade of the forecast (2.2%) being the weakest for all three sales variables. These rates of growth for nominal sales appear in the next table and figure.

Table 25

Average Annual Percentage Rates of Growth, Nominal Dollars			
Years	CO Retail Sales	CO Taxable Sales	RTD Taxable Sales
2011-2020 ^a	5.46	5.41	5.32
2021-2030	4.32	4.86	4.85
2031-2040	3.16	3.03	2.84
2041-2050	2.60	2.34	2.17
2021-2050	3.36	3.40	3.28

^aHistorical data through 2020.

Figure 6



Future RTD sales tax revenues are forecasted by multiplying the effective rate of taxation by the district taxable sales forecasts. Assuming no further changes in the RTD effective tax rate beyond those implied by the reinstatement of the vendor allowance, the rates of growth in RTD sales tax revenues for 2016 and beyond are identical to those of district taxable sales. Since the use tax base is not directly observable, it is still necessary to estimate an equation to forecast RTD use tax revenues. In this equation, RTD use tax revenues are driven by Colorado use tax revenues and indirectly by the value of single family residential building permits. Revenue forecasts in real and nominal terms over the next three decades are summarized in the following tables and charts and in Appendix A.

Table 26

Average Annual Percentage Rates of Growth, Real Dollars			
Years	RTD Sales Tax	RTD Use Tax	Total RTD Revenues
2011-2020 ^a	3.18	0.57	2.98
2021-2030	2.22	3.25	2.29
2031-2040	0.60	0.83	0.62
2041-2050	-0.12	0.24	-0.10
2021-2050	0.90	1.43	0.9

^aHistorical data through 2020.

Figure 7

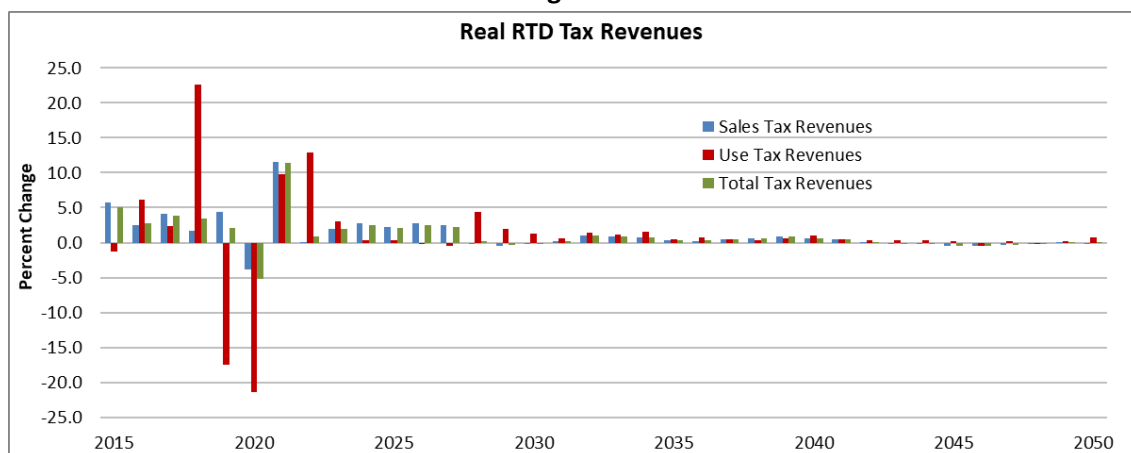
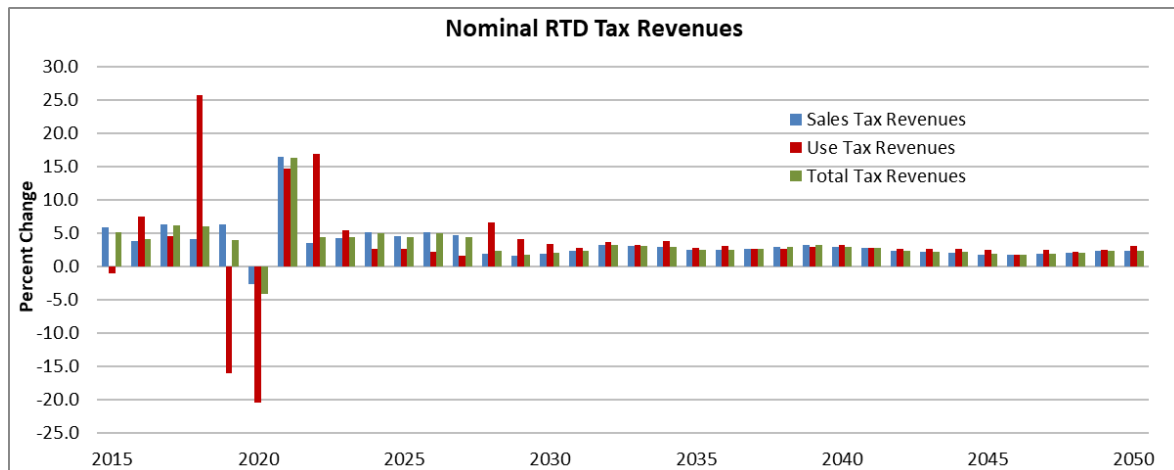


Table 27

Average Annual Percentage Rates of Growth, Nominal Dollars			
Years	RTD Sales Tax	RTD Use Tax	Total RTD Revenues
2011-2020 ^a	4.96	2.31	4.76
2021-2030	4.85	5.90	4.92
2031-2040	2.84	3.07	2.86
2041-2050	2.17	2.54	2.19
2021-2050	3.28	3.83	3.32

^aHistorical data through 2020.

Figure 8



Forecast Evaluation

Actual RTD sales and use tax data are now available through June 2021, allowing for error evaluation through Q1 2021. For the short-term forecast, the BRD estimates have been above the actual revenue 73 times and below the actual revenue 88 times, and a simple average of the error has been -0.8%, with a 4.5% standard deviation (including the rapid revenue swings during the pandemic recession). The March 2021 forecast for Q1 and Q2 2021 were low by 1.4% and 9.9%, respectively, illustrating the rapid recovery of revenue in the second quarter of 2021. The short-term and medium-term forecasts were revised upward in September 2021. The average 30-year forecast growth rate in nominal dollars ending in 2050 is 0.16 percentage points higher than the March forecast.

Appendix A: Models for the Three Forecast Horizons

Three models have been developed and estimated for forecasting RTD sales and use tax revenues at the short term (2022), medium term (2027), and long term (2050). All three models consist of dynamic equations that link RTD district retail sales and sales and use tax revenues to underlying national and state economic indicators. Forecasts of the national indicators that are needed to drive the state and district forecasts come from Moody's Analytics. Population projections that enter the equations of the long-term model come from Moody's Analytics and the Colorado Demography Office. Colorado economy forecasts are derived from updated specifications of the Colorado Economy Model.

Key Econometric Concepts

The equations of the RTD forecast model rely on modern techniques of econometric time series analysis. Each equation specifies a dynamic relationship between two or more variables, capturing both a long-run equilibrium relation and short-run dynamic adjustments toward this equilibrium. Such equations are called error correction models (ECMs) and are a type of vector autoregression (VAR) model. Following time series analysis traditions, these equations may embody complex dynamic behavior that is based on rigorous examination of historical patterns in the data. Unlike univariate (ARIMA) methods, which are sophisticated representations of trends and cycles, VAR models include explanatory variables in each equation to allow persistent departures from trends and possible turning points.

In the error correction model, a long-run equilibrium relation is joined with a short-run dynamic adjustment mechanism. The long-run relation is called the cointegrating equation, which captures the common trends in the variables of interest. For example, district taxable sales and state retail sales are expected to move together as a result of common underlying economic processes; they are therefore referred to as "cointegrated" variables. Naturally, one will observe short-run departures from this common pattern, but with a tendency for one variable to adjust back toward the equilibrium relation. For example, the district economy may lag behind changes in the Colorado economy, but departures from the common trends governing these two variables will vanish within several months. These dynamic adjustments back toward the equilibrium relation are captured by the ECM.

This framework is illustrated with a simplified version of the relation between district taxable sales (TXBLSALES_RTD) and retail sales of Colorado (TRDR_TTL).

$$\begin{aligned} \text{DLOG}(\text{TXBLSALES_RTD}) = & -0.205 * \text{LOG}(\text{TXBLSALES_RTD}(-1)) + 0.210 * \text{LOG}(\text{TRDR_TTL}(-1)) - \\ & 0.512 * \text{DLOG}(\text{TXBLSALES_RTD}(-1)) + 0.741 * \text{DLOG}(\text{TRDR_TTL}) + 0.403 * \text{DLOG}(\text{TRDR_TTL}(-1)) - \\ & 0.034 * \text{LOG}(\text{CPIUUS_GAS}(-1)/\text{CPIUUS_TTL}(-1)) - 0.03745 * @SEAS(1) + 0.040 * @SEAS(5) - \\ & 0.033 * @SEAS(7) + 4.125 \end{aligned}$$

Here DLOG() transforms any variable into its rate of change, so that the left hand side term is interpreted as the rate of change in RTD taxable sales. Looking at the first two terms on the right hand side, one sees that RTD taxable sales respond negatively to the level of taxable sales in the previous period and positively to the previous period's level of Colorado retail trade. These two

terms capture the error correction mechanism: if RTD taxable sales are too high relative to the level of Colorado retail trade, then TXBLSALES_RTD will tend to decline in the following period. In this situation the relation between RTD taxable sales and Colorado retail sales is out of equilibrium, requiring future adjustments to restore equilibrium between these two cointegrated variables.

A more complex adjustment back toward equilibrium is embodied in the following three terms on the right hand side of the equation ($-0.512 \cdot DLOG(TXBLSALES_RTD(-1)) + 0.741 \cdot DLOG(TRDR_TTL) + 0.403 \cdot DLOG(TRDR_TTL(-1))$). Past rates of change in RTD taxable sales and current plus past changes in Colorado retail trade also impact the rate of adjustment in RTD taxable sales in the current period. Additional independent variables, such as the price of gasoline ($-0.034 \cdot LOG(CPIUUS_GAS(-1)/CPIUUS_TTL(-1))$), can also be included in error correction equations, and this specification also contains three seasonal dummy variables and a constant term.

This particular specification of lags and differences is the result of experimenting with various alternatives and selecting the equation that meets standard diagnostic criteria, such as uncorrelated residuals and statistically significant coefficients. For example, it is natural to allow all 12 months to enter into the equation as seasonal variables, but only 3 of these were found to have statistically significant effects. Similar cointegrating equations and ECMs are developed for the other key variables in the RTD forecast model.

Since the ECM is expressed in rates of change, this is the natural form in which the forecasts of district taxable sales can be generated. Given historical and forecasted values of all right-hand side variables, the ECM produces forecasts of district taxable sales based on the forecasted month-to-month changes.

Econometrics explicitly allows for random errors in the equations and in the estimation of their coefficients. These sources of error will be reflected in the model's forecasts, and the resulting uncertainty can be estimated through simulation methods. This uncertainty is presented in the form of interval forecasts given by the model's mean forecast plus and minus one standard deviation of the forecast error. The upper and lower bounds of these 67% confidence interval forecasts provide statistically based high and low forecasts for each time period within the forecast horizon.

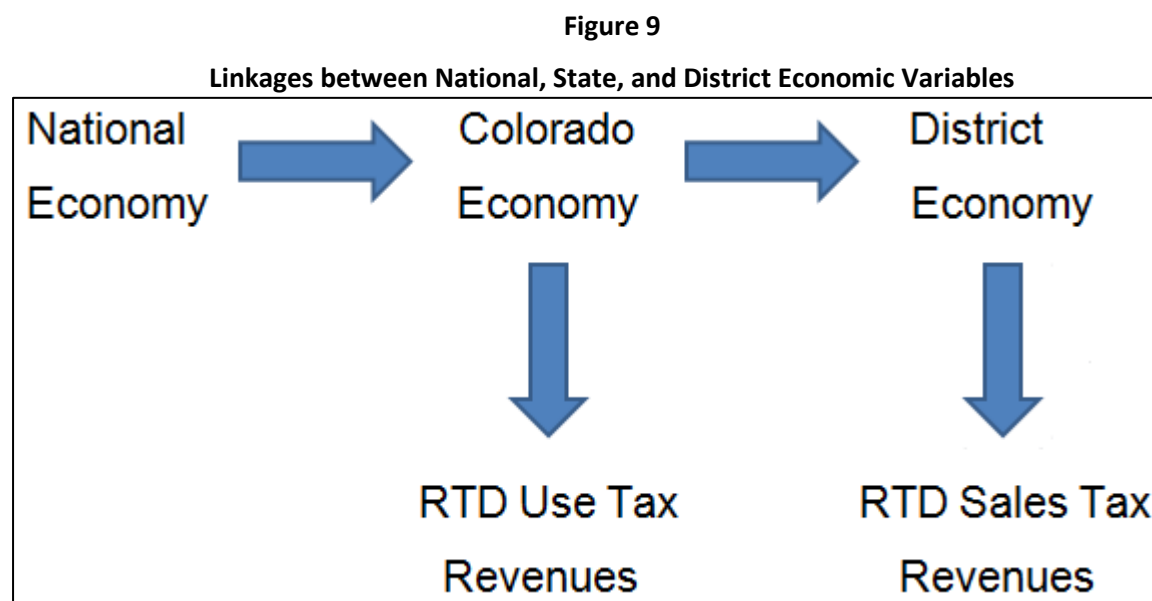
Comparisons and Linkages between the Three Models

All three models are grounded in the cointegration and ECM methodology, and all three generate statistically based interval forecasts of RTD sales and use tax revenues. The short-term and medium-term models are estimated using monthly data and produce forecasts at that same frequency. These monthly forecasts of sales and use tax revenues are then aggregated to quarterly series for the short-term forecasts and to annual data for the medium term.

The specifications of individual equations in the short-term and medium-term models are the same, and therefore the baseline forecasts over a one-year horizon are identical. Variables and forecasts in these two models are expressed in nominal values.

In order to forecast district level variables (e.g., RTD taxable sales, use tax revenues), it is necessary to model and forecast economic variables at the state level. The Colorado Economy Model previously developed for OSPB provides the framework for predicting state economic variables, such

as Colorado retail trade and Colorado taxable sales. These key Colorado variables are driven by corresponding national variables and related state series, such as personal income. The linkages between the economic variables at the national, state, and district level are shown in the following figure:



The primary drivers from the national economy are personal income, employment, and retail sales, and these contribute to the determination of Colorado retail sales and, in turn, RTD taxable sales. Given the effective rate of sales taxation, RTD sales tax revenues are then given by a simple algebraic identity.

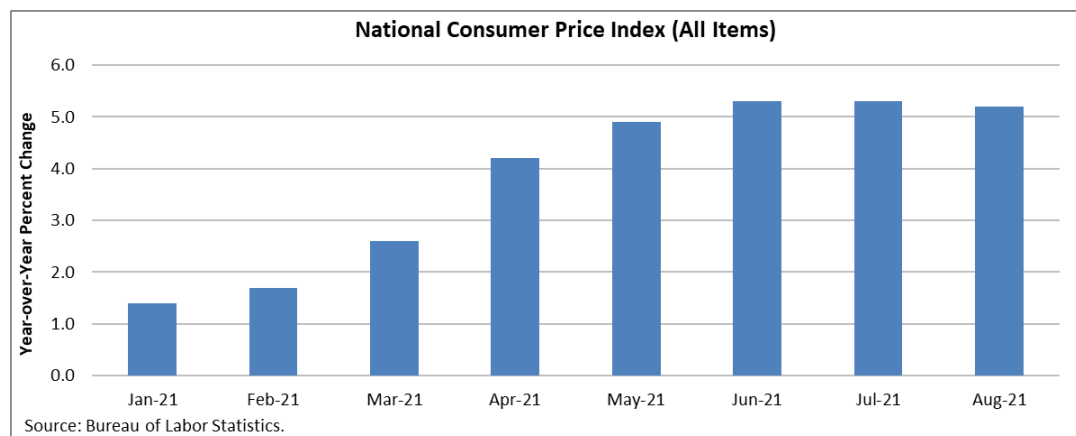
Recognizing that large shocks to the national economy are likely to occur at some time over the seven-year forecast horizon, the possibility of such shocks is incorporated in the medium-term forecast by the use of two alternative national economic scenarios from Moody's Analytics. These alternative scenarios allow for the possibility of faster economic growth in the near term in one case and for slower long-term growth in the other. These scenarios also provide alternative bounds that complement the statistically based lower-bound forecasts from the econometric model.

The long-term model equations are fundamentally different from those of the other models, and are designed to capture gradual structural adjustments in the economy due to changing demographics. This model relies on population projections from Moody's Analytics and from the Colorado State Demography Office to drive the forecasts of all real national economic variables, state and district retail sales and taxable sales, and therefore RTD sales and use tax revenues. Whereas Moody's forecasts of national economic indicators are used to drive the short-term and medium-term Colorado Economy Model forecasts, BRD researchers have developed equations for key national variables for the long-term forecasts. Only Moody's Consumer Price Index (CPI) forecast is used for converting forecasts of real variables into nominal values in the long-term forecasts.

Higher inflation could have an impact on the RTD forecast. Currently, the real-dollar RTD forecast is constructed as nominal dollars adjusted to the Consumer Price Index (CPI). For most of the previous decade, the inflation rate has been low – between 0.5% and 2.0% annually.

However, market disruptions and supply-chain discord associated with current events creates additional risk of above trend and above target CPI. Year-over-year prices grew an average of 5.2% from May through August 2021.

Figure 10



A combination of factors that may cause higher inflation within the next 12-24 months include:

- Excess savings by households who remained employed during the pandemic. As the economy continues to rebound, most households are expected to boost spending well above historical averages. This abnormally high spending can create demand-pull inflation.
- High commodity prices. Several staple commodities, such as copper, lumber, and wheat reached all-time highs in 2021. This causes potential cost-push inflation. Such effects are currently seen in home-construction costs.
- Sudden tightening of labor markets. As the economy reopens, labor markets have tightened, leading to wage growth. Wage growth is considered to be the largest contributor to inflation. Even though national and state unemployment rates are higher than pre-pandemic levels, many businesses face difficulties finding qualified and willing workers, and this has led to wage increases especially for low wage workers.

The RTD forecast model currently incorporates annual US inflation that rises to 4.4% in 2021, with Denver metro area inflation over 2.8% in 2022. The BRD team will continue to monitor the situation and may adjust expected inflation when sufficient evidence emerges to suggest changing inflation expectations.

The Input Data—Sources and Description

This section describes the data used to estimate equations and generate forecasts from the three models. There are three levels of data: national variables, Colorado data, and district (RTD) data.

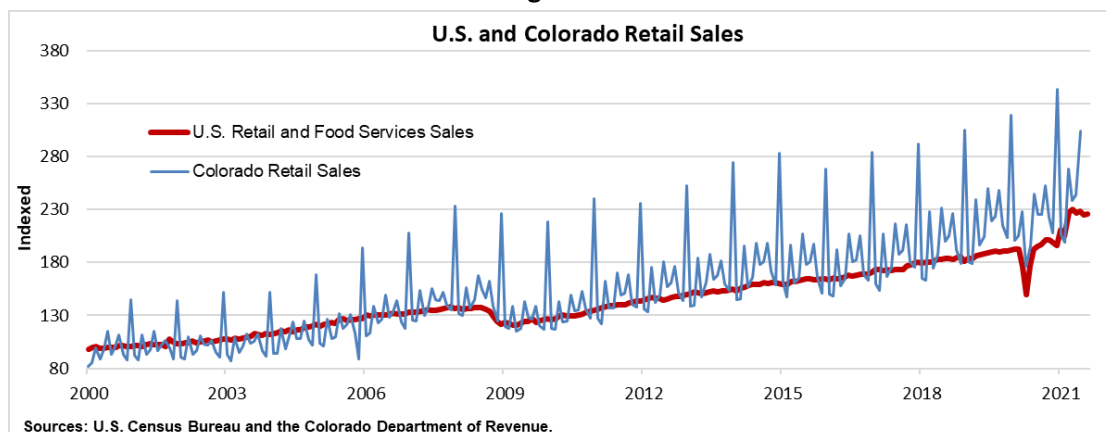
National Statistics and Forecasts: National data, such as U.S. retail sales and U.S. GDP figures, track closely to state indicators. Typically, higher U.S. retail sales indicate higher retail sales in Colorado. National statistics for GDP and retail sales are published frequently, and several forecasts for these

indicators are available. The Colorado Economy Model that drives the district level variables relies on these national variables to forecast corresponding state variables.

Some key national indicators are:

- **U.S. Retail Sales:** Obviously, this indicator tracks closely to Colorado's retail sales. This indicator, along with its forecasted levels, is a central part of the Colorado Economy Model and the RTD district model.
- The figure below shows the relationship between U.S. retail sales and Colorado retail sales over the past two decades. The Colorado sales values are not seasonally adjusted (the U.S. figures are), but the two series are clearly closely related. The data have been standardized to show the common movement of the two variables. U.S. retail sales change direction at the same time as Colorado retail trade. It can also be seen that, over time, the overall level of trade trends diverge slightly for these two series. In 2000 through 2006, U.S. retail sales were, for the most part, greater than Colorado sales, but from 2009 to 2020 the opposite was true. This implies that U.S. retail sales were growing more slowly than Colorado sales over the past 15 years.

Figure 11



- **National Income:** U.S. GDP, personal income, and disposable income serve as common indicators for the state of the national economy. U.S. GDP plays a key role in the long-term model. U.S. personal income is a predictor of Colorado personal income, which enters into the equation for Colorado retail trade.
- **Consumer Price Index and Components:** In forecasting sales and use tax revenues, it is vital to distinguish between taxable and nontaxable expenditures and to consider how the composition of household expenditures changes over time. In the short run, the proportion of expenditures going to taxable items can vary with changes in the relative prices of goods and services that are tax exempt. Gasoline prices are one example of a CPI component that fluctuates dramatically, affecting the share of taxable/nontaxable retail sales. This variable is included in the current specification of some equations in the forecasting model. The CPI is also used to convert between nominal and real values of personal income and retail sales.

- Population by Age: In the long-term model, the age distribution of the population plays an important role in the forecasts of retail sales and taxable sales. For example, the rate of growth in the prime working-age population of the United States is used in the equation for national GDP. Population projections come from Moody's Analytics.

Regional Economic Variables: The equations in the forecasting model are based on basic relationships between corresponding variables at national, state, and district levels. National data, such as U.S. retail sales and U.S. personal income, track closely to local indicators. While national level retail trade sales are a reliable indicator of general trends in Colorado retail sales, the inclusion of state-specific economic variables, such as Colorado personal income, can improve the explanatory and forecasting power of the model.

- Colorado and Denver Metro Personal Income: Total wages are obtained on a quarterly basis by industry (or aggregated) and by county from the Bureau of Labor Statistics (not seasonally adjusted). This information is posted online with a six-month time lag. The data source is the Quarterly Census of Employment and Wages (QCEW). Because the survey only asks for total wages disbursed for the quarter, and not for the month, we cannot see an alternative method for obtaining monthly data by county. This survey solicits information from the employer's location, not from the employees' residence, so some wages leak out of the Denver Metro region. Personal income data for the state of Colorado are sourced from the Bureau of Labor Statistics on a quarterly basis. (Data sources: Bureau of Labor Statistics, www.bls.gov; Bureau of Economic Analysis, www.BEA.gov)
- State and District Populations by Age Group: In the long-term model, retail sales and taxable sales at state and local levels are affected by the age distribution of the relevant population. Data on population by age groups come from the U.S. Census Bureau's U.S. Population Projections and Population Estimates, and the Colorado State Demography Office in the Colorado Department of Local Affairs.
- Colorado and Denver Metro Employment: Employment by industry and metropolitan area is from the Bureau of Labor Statistics. The Current Employment Statistics (CES) is a survey of employers and is available monthly, with a one- to two-month lag. These numbers are revised as the QCEW data become available. If county-level data are necessary, the QCEW employment data are available, but lag six months.
- Taxable and Total Retail Sales and Tax Revenue Data: The Colorado Department of Revenue (DOR) is the primary source for taxable sales, sales tax revenues, and use tax revenues. From the collection of sales tax revenues each month and the knowledge of the effective rate of taxation, the department computes the value of taxable sales (revenues divided by the tax rate). At the state level, this procedure produces data on sales tax revenues and taxable sales that are entirely consistent. However, the DOR computes taxable sales based on the tax laws that apply to state sales tax collections, and these laws previously differed in their treatment of RTD tax collections. In 2014, HB 13-1272 effectively changed the RTD base to be the same as the state tax base.

We apply the same DOR data construction procedure to compute RTD taxable sales. Sales tax revenues collected by RTD are divided by the RTD effective rate of taxation to produce RTD taxable sales. In addition to providing consistency between the taxable sales and revenues data, this procedure allows future changes in RTD tax rates to be incorporated (e.g., anticipated changes in the vendor allowance).

In recent updates of the RTD revenue forecasts, the BRD team has modelled and forecast specific components of sales tax revenues to improve the accuracy of total revenue forecasts. This disaggregation of sales tax revenues became advisable during the recent economic turmoil as various components moved in entirely different patterns during the pandemic and into the recovery. Important examples of components that are now modeled separately are online commerce sales, which were unusually strong during the pandemic, and eating and drinking places sales, which dropped dramatically. These several components of RTD taxable sales are driven by corresponding industry sales at the national and state levels. The summation of the various components is now reported as total RTD sales tax revenues.

The BRD Long-Term Forecast Model—Analytical Framework

Most long-term economic forecasting exercises employ a production function framework to project real output (GDP). With this approach, output is a function of labor supply, capital stock, and technology. From projections of these three determinants, predicting output is straightforward. However, forecasting these three inputs is a daunting task that is often handled with arbitrary assumptions about their long-run growth rates. There is little reason to believe that projections of the growth rates in the three inputs would produce more reliable forecasts than directly projecting output.

However, the BRD long-term forecasting model borrows some useful elements from this framework. Modeling real output growth for the national economy is the starting point of the BRD forecasting model, and all other variables in the BRD model are also expressed in real (inflation-adjusted) terms. This puts aside the task of forecasting inflation, which depends on national political issues, Federal Reserve behavior, and changes in global resource prices. Since inflation rates can be expected to impact RTD revenues and costs symmetrically, incorporating inflation into the analysis is an unnecessary complication.

Although the BRD model does not estimate a production function or make assumptions about the long-run growth in inputs, a production relation implicitly underpins the framework. The growth in a nation's labor force, capital stock, and technology is affected by the age distribution of the population. Substantial theoretical and empirical literature on the "demographic dividend" establishes the impact that age distribution has on economic growth, working through the three determinants of real output.¹ The use of the age distribution of the population in forecasting long-

¹David E. Bloom, David Canning, Günther Fink, and Jocelyn E. Finlay, "Does age structure forecast economic growth?" *International Journal of Forecasting* 23 (2007) 569–585, and Thomas Lindh and Bo Malmberg, "Demographically based global income forecasts up to the year 2050," *International Journal of Forecasting* 23 (2007) 553–567, are two recent articles illustrating this approach.

term economic growth in general, and RTD tax revenues in particular, has several important advantages:

- Sound economic theory and empirical evidence supports the existence of a stable, predictive relation between output and age structure. Output growth is positively related to the working age share of the population, according to the aggregate production relation, and it is negatively related to the dependency ratio, according to life cycle models of saving.
- The age structure of the population is predictable with reasonable accuracy, and projections are provided by the Social Security Administration and published by the Census Bureau. Underlying demographic processes (fertility rates, mortality rates, immigration) change slowly over time, allowing accurate age-specific population projections. Furthermore, older portions of the age distribution of the population can be projected with great accuracy because for the next 30 years, the population over the age of 30 depends only on mortality rates and immigration—the former being highly predictable.
- In terms of the production function framework, the age distribution can impact output through each of the three inputs. By affecting the savings rate, age structure influences real business investment and the growth in capital stock. One form of investment is in R&D, which contributes to productivity growth. In addition, new physical investment embodies latest technologies, thereby contributing to productivity growth. The labor force is obviously directly related to the age structure through the size of the working age population. Also, experienced workers tend to be more productive than new entrants to the labor force, so an older workforce shows higher output per worker.
- The ultimate goal is to forecast (taxable) retail sales, not output. Given the equivalence of output and income, a simple consumption function links retail sales to output or, equivalently, to gross national income. However, the relation between aggregate consumption and aggregate income is expected to vary over time with changes in the age structure of the population. Therefore, the equation for (national) retail sales includes the population age shares, as well as aggregate income.
- By the same reasoning, the age distribution affects the relation between total retail sales (the model's key national variable) and taxable sales (the relevant state and district variables). For example, the consumption pattern of people 65 and older shows a higher proportion of spending on nontaxable items compared with younger individuals who spend more on taxable goods as they establish new households.

The BRD model employs this framework to produce long-term forecasts over the period ending 2050. Business cycle fluctuations come into play only during the current decade as the economy gradually moves toward capacity output. These business cycle fluctuations play a role in the medium-term forecasts previously developed for RTD, and the forecasts presented here build on these 2020–2027 forecasts. The short-term and medium-term forecasts presented in the earlier sections of this report employ nominal (current dollar) values of all variables, while the long-term analysis is based on real variables. Both real (inflation adjusted) and nominal forecasts of total RTD revenues are presented in this section of the report to allow comparisons with other forecasts and to permit either real or nominal budgetary analysis. The data presented through the end of 2020 are historical observations, while data from 2021 to 2050 represent forecasts.

The equations of the long-term BRD model employ the same dynamic error correction/cointegration framework as the short- and medium-term models. All variables in these equations are expressed in real terms, and projected real variables from the equations are converted to nominal values using Moody's forecasted national CPI. Both real and nominal values are presented in the tables and charts of this section.

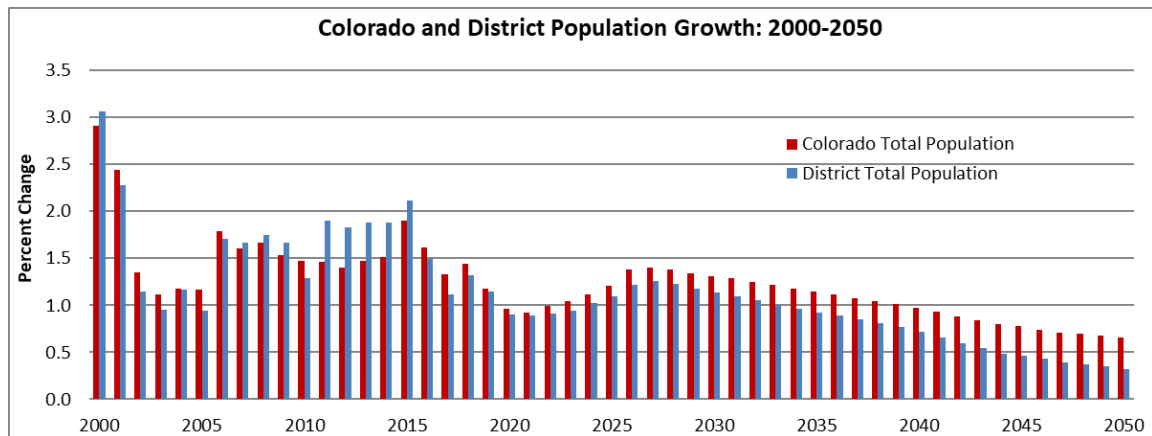
National output growth is determined by population shares as indicated by the previous discussion. National retail sales growth is driven by output growth, moderated by changes in age shares of the population. State and district sales and taxable sales are similarly related to national and state sales, as well as state and district population shares. State and district sales growth rates, in turn, determine the growth in RTD sales and use tax revenues.

National retail sales and Colorado personal income are key factors driving Colorado retail sales in the long-term forecasting model. But differences in population growth rates and age distribution for the nation, the state, and the district affect the relations between sales at the three geographical levels. The growth rate of Colorado's working-age population, for example, affects personal income growth in the state, which in turn feeds into the determination of Colorado retail sales. Slowing growth of this prime working-age population therefore indirectly contributes to the declining growth in Colorado retail sales, Colorado taxable sales, and therefore RTD taxable sales. On the other hand, moderate growth in the total population of the state adds to the growth in Colorado taxable sales, offsetting to some extent the adverse effects of changing population age shares on the other sales and tax revenue variables.

Population forecasts are sourced from the Office of the Colorado State Demographer and from Moody's Analytics. Colorado population forecast revisions by age and by county were released in late 2020, and showed slower net migration to the state and the district (note: new Colorado and district population estimates and projections will be released in October 2021).

Overall, population growth in Colorado and in the district affects the growth in sales and therefore in sales tax revenues. While total U.S. population growth declines steadily over the three decades of the long-term forecast, the state and the district exhibit somewhat different patterns in expected growth rates as shown in the following figure. The estimated population growth rate for the district and for the state peaked in 2015, followed by a decade of rather flat growth rates, and then began a long period of decline. If birth rates increase, or the state experiences stronger net immigration, the trend may be altered somewhat.

Figure 12



In addition to variations in the rate of total population growth, the changing population age structure also affects the growth rates of sales and tax revenues in the long-term projections. For Colorado and the district, the proportion of those in the prime working-age group and those in the youngest age group (0 to 29 years of age) are projected to decline throughout most of the forecast period, while the share of the aging population will grow. These trends will adversely impact total and taxable sales in the state and the district.

Figure 13

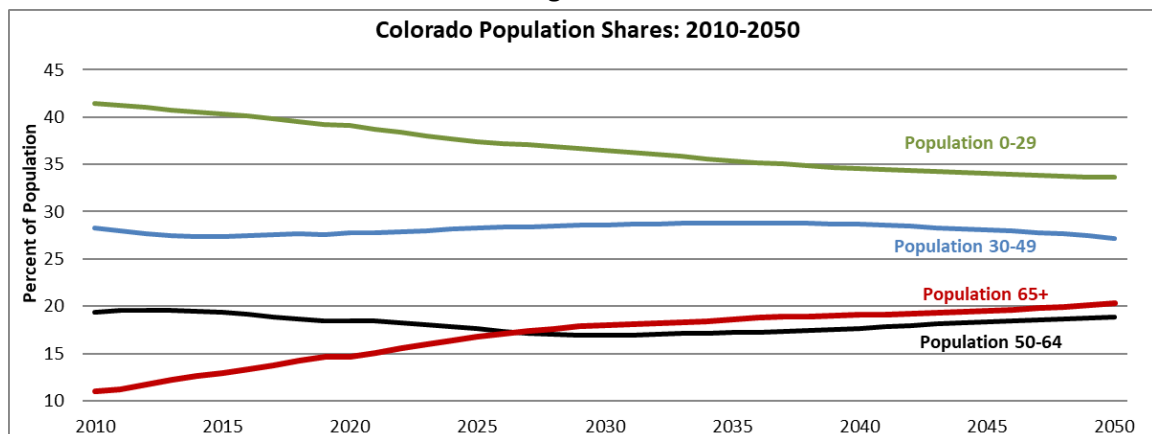
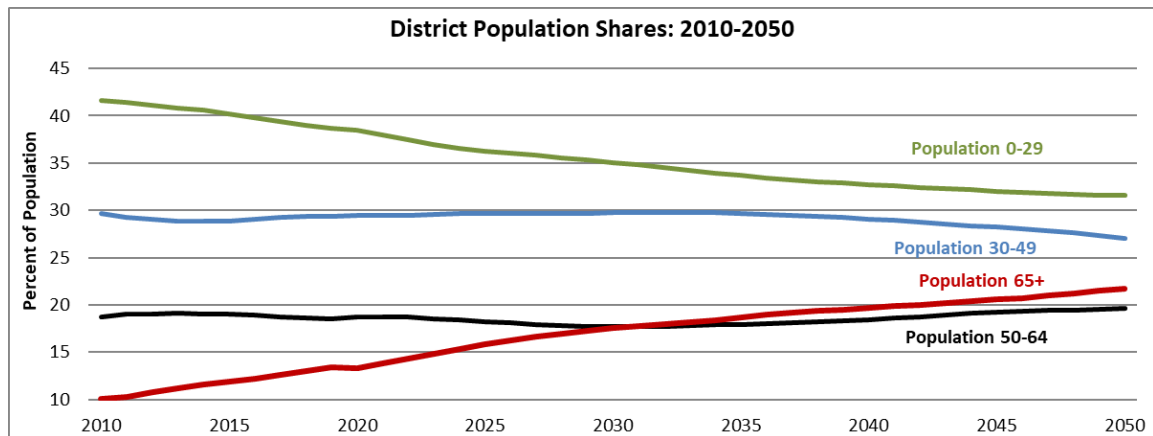
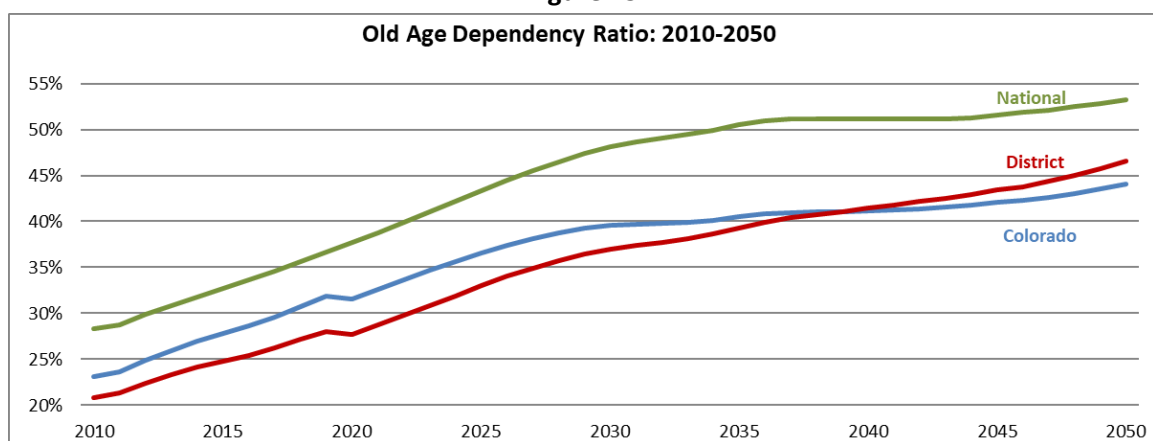


Figure 14

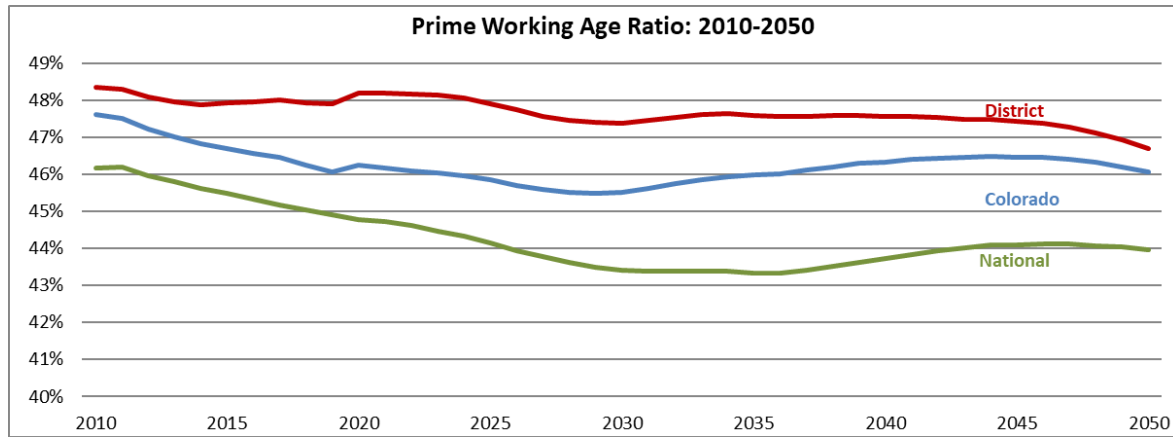
The following two figures further demonstrate changing demographics over time, modeled by the old-age dependency ratio and the prime working-age ratio. These ratios target more precisely the changing size of the retired and working populations as they affect income and retail sales.

The old-age dependency ratio increases throughout the forecast horizon, but Colorado and the district remain below the national ratio.

Figure 15

Conversely, the primary working-age ratio for the district falls through 2030, with some leveling of this decline between 2030 and 2045 followed by further decline to 2050.

Figure 16



Appendix B: Yearly Revenue Forecasts, 2015–2050

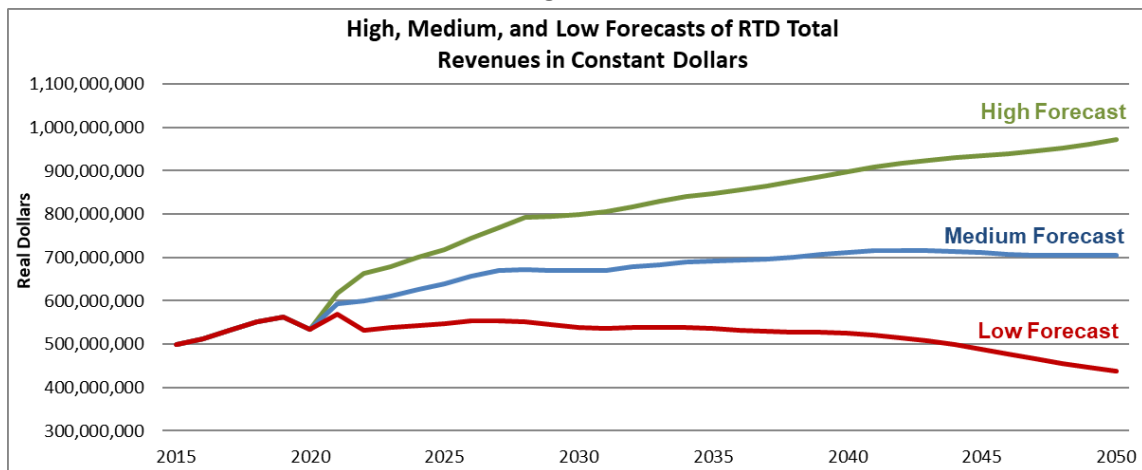
The following tables and figures show forecasted levels of RTD total revenues, summing base and FasTracks components of sales and use taxes. High and low forecasts are given by the median forecast plus or minus one forecast standard error, which defines an approximate 67% confidence band for these interval forecasts. Since the long-term BRD model is expressed in real (inflation-adjusted) terms, the table below presents forecasts of inflation-adjusted revenues using 2010 as the base year.

Table 28

Annual Forecasts of Total RTD Revenues (Inflation Adjusted to 2010 Base Year) (\$)			
Year	Low	Median	High
2015 ^a	498,282,526	498,282,526	498,282,526
2016 ^a	512,127,981	512,127,981	512,127,981
2017 ^a	532,154,187	532,154,187	532,154,187
2018 ^a	550,780,471	550,780,471	550,780,471
2019 ^a	562,500,704	562,500,704	562,500,704
2020	533,013,025	533,013,025	533,013,025
2021	569,664,528	593,642,980	616,948,514
2022	532,578,766	599,216,755	662,236,937
2023	537,786,800	611,095,376	679,052,201
2024	543,027,483	626,712,316	700,988,071
2025	547,200,716	639,515,743	718,675,012
2026	552,954,821	655,865,821	743,988,085
2027	554,308,280	670,491,295	769,413,175
2028	550,919,915	671,501,070	792,082,225
2029	544,383,066	669,546,013	794,708,959
2030	538,840,732	668,762,827	798,684,922
2031	535,637,964	670,462,332	805,286,700
2032	537,830,127	677,685,339	817,540,551
2033	538,737,288	683,812,046	828,886,803
2034	538,689,299	689,158,974	839,628,649
2035	535,501,425	691,549,557	847,597,689
2036	531,709,710	693,515,943	855,322,176
2037	528,774,987	696,526,290	864,277,592
2038	526,956,164	700,838,328	874,720,493
2039	526,688,111	706,894,675	887,101,240
2040	524,703,171	711,438,265	898,173,358
2041	521,296,482	714,793,148	908,289,815
2042	515,077,362	715,599,017	916,120,673
2043	507,550,971	715,346,541	923,142,110
2044	499,086,770	714,414,253	929,741,736
2045	488,321,851	711,464,473	934,607,096
2046	476,811,865	708,047,380	939,282,896
2047	466,103,690	705,716,463	945,329,237
2048	455,897,733	704,179,705	952,461,678
2049	447,087,479	704,360,921	961,634,362
2050	438,099,278	704,707,907	971,316,535

^aHistorical.

Figure 17



Since budget planning more commonly employs nominal (current dollar) values, the inflation-adjusted (real) forecasts are converted to current dollars using Moody's Analytics annual forecasts of the national CPI for urban households. This adjustment with the national CPI is consistent with the conversions to real values used throughout the BRD long-term modeling project. Although local CPI data are available, these may be less reliable than the national data due to smaller samples in the price surveys.

Figure 18

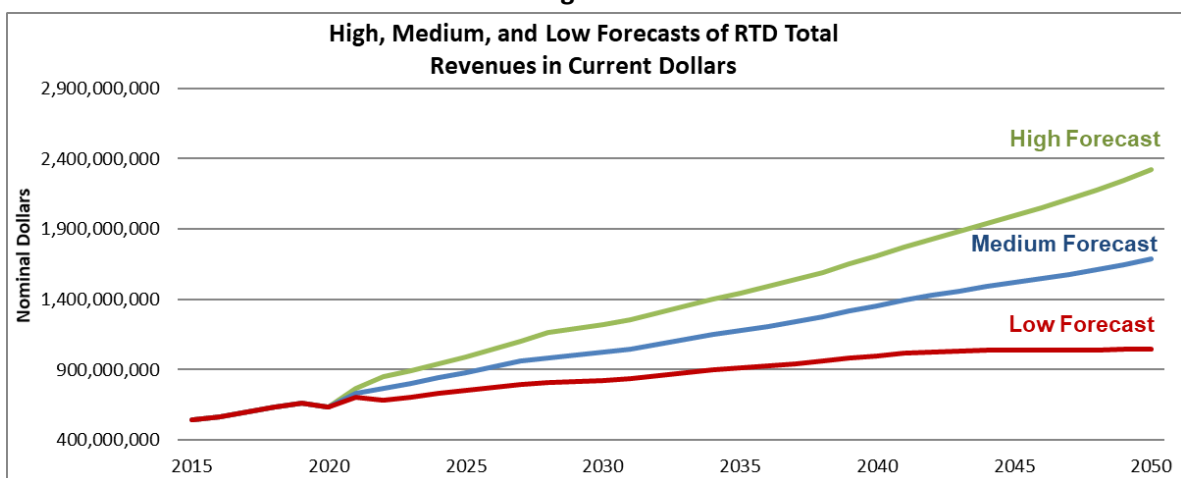


Table 29

Annual Forecasts of Total RTD Revenues in Current Dollars (\$)			
Year	Low	Median	High
2015 ^a	541,518,282	541,518,282	541,518,282
2016 ^a	563,622,277	563,622,277	563,622,277
2017 ^a	598,187,188	598,187,188	598,187,188
2018 ^a	634,191,824	634,191,824	634,191,824
2019 ^a	659,418,232	659,418,232	659,418,232
2020	632,664,678	632,664,678	632,664,678
2021	705,795,641	735,504,155	764,378,946
2022	682,918,894	768,367,930	849,177,898
2023	705,938,705	802,168,960	891,374,111
2024	729,299,767	841,690,632	941,444,867
2025	751,908,193	878,758,220	987,530,926
2026	777,304,627	921,969,604	1,045,845,626
2027	796,013,109	962,857,456	1,104,913,990
2028	808,027,969	984,882,977	1,161,737,984
2029	815,364,981	1,002,831,289	1,190,297,597
2030	824,150,440	1,022,864,727	1,221,579,013
2031	836,831,295	1,047,468,438	1,258,105,582
2032	858,632,438	1,081,907,811	1,305,183,183
2033	878,884,627	1,115,556,522	1,352,228,417
2034	898,135,613	1,149,007,821	1,399,880,030
2035	912,557,998	1,178,482,539	1,444,407,079
2036	926,282,861	1,208,162,875	1,490,042,888
2037	941,835,705	1,240,628,519	1,539,421,333
2038	959,832,529	1,276,552,911	1,593,273,294
2039	981,216,374	1,316,939,980	1,652,663,585
2040	999,943,563	1,355,810,585	1,711,677,607
2041	1,016,260,194	1,393,479,238	1,770,698,281
2042	1,027,095,095	1,426,947,281	1,826,799,467
2043	1,035,258,294	1,459,101,612	1,882,944,929
2044	1,041,328,604	1,490,602,521	1,939,876,437
2045	1,042,175,107	1,518,405,458	1,994,635,809
2046	1,040,915,441	1,545,719,613	2,050,523,786
2047	1,040,881,707	1,575,974,130	2,111,066,553
2048	1,041,494,334	1,608,692,302	2,175,890,270
2049	1,044,811,834	1,646,041,680	2,247,271,526
2050	1,047,236,411	1,684,540,047	2,321,843,684

^aHistorical.

Appendix C: A Qualitative Assessment of Colorado's Economy

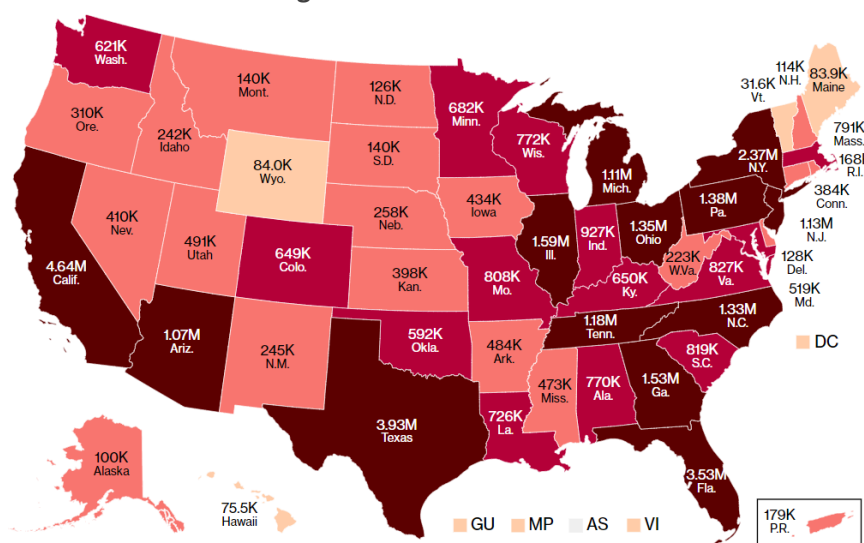
This qualitative assessment of the U.S. and Colorado economies is intended to serve as context for the RTD sales and use tax forecast. In the process of compiling an annual business and economic outlook for Colorado, the BRD has developed local indicators that can be used to complement the results from the econometric models.

Summary: The U.S. and Colorado economies experienced significant recoveries following the pandemic recession. Both the U.S. and Colorado observed significant increases in GDP, employment, and wage and salary income; and sharp declines in jobless claims and unemployment. Colorado real GDP increased 1.4% year-over-year in Q1 2021 (13th-best nationally), and at an annualized rate of 7.9% quarter-over-quarter (5th-best). Colorado lost 376,300 jobs from February through April 2020 (-13.3%). The state added back 293,400 jobs by August 2021, but remained down 2.9% from peak. The state ranked 18th for year-over-year job growth. Additionally, the state's unemployment rate decreased to 5.9% in August (35th-lowest), while the labor force participation rate was 4th-highest.

COVID-19

The United States had the highest number of reported COVID-19 cases and deaths in the world as of September 2021. While Colorado has the 21st-largest population in the United States, the state recorded the 24th-highest number of cases, the 29th-highest number of deaths, and the 39th-highest rate of cases per capita.

Figure 19: COVID-19 Cases

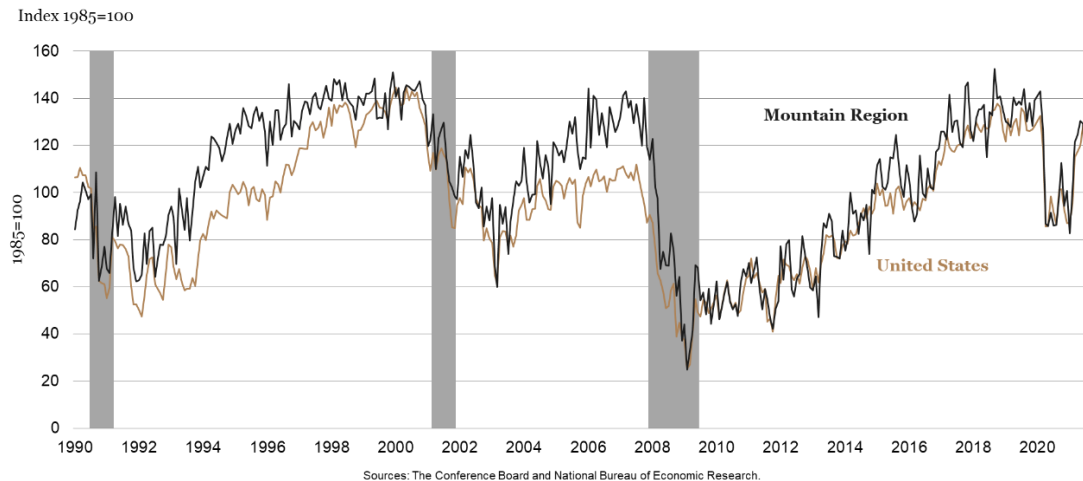


Source: Bloomberg.

Confidence

The Consumer Confidence from the Conference Board recorded a decrease in Consumer Confidence for August 2021—the lowest level since February 2021, but still up markedly from the prior year. The Mountain Region often exceeds the national index, though it rested just below the national reading in August.

Figure 20: Index of Consumer Confidence



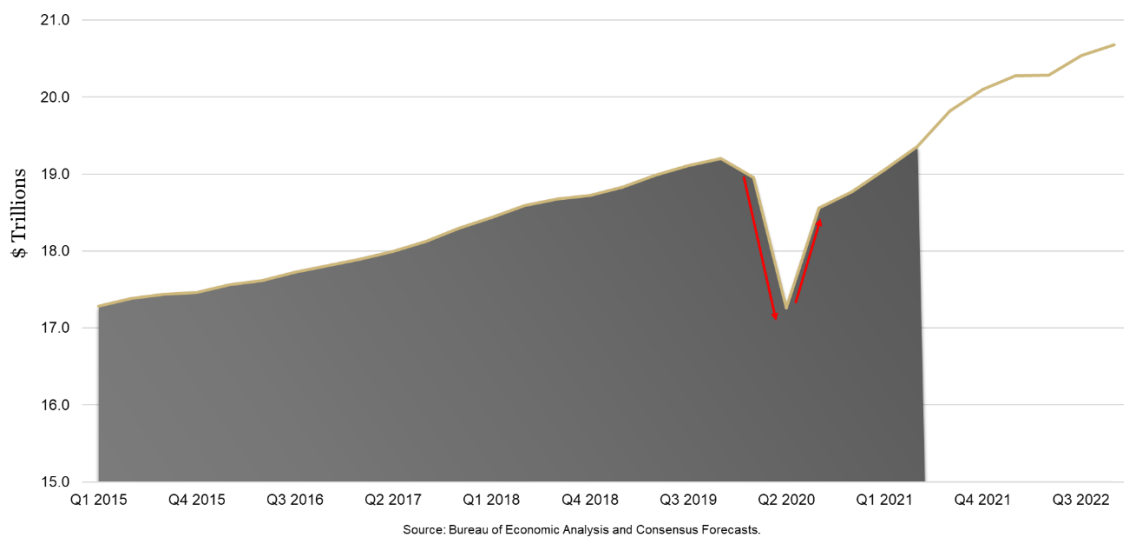
The Leeds Business Confidence Index (LBCI), a forward-looking index of economic and industry growth expectations, revealed that Colorado business leaders' confidence improved ahead of Q2 and Q3 2021 from the record low observed last year; however, optimism was tempered ahead of Q4 2020 and Q1 2021 as the COVID-19 Delta variant increased cases and deaths, inflation spiked, and supply chain disruptions persisted. Despite the expressed caution, sentiment remained in positive territory heading into the final quarter of the year.

Gross Domestic Product

The pandemic recession was officially marked by the National Bureau of Economic Research as the shortest U.S. recession (two months) dating back to the mid-1800s when dating recessions began. The recession caused a record decline in GDP, followed by a record rebound. Growth continued into 2021—national real GDP increased at seasonally adjusted annual rate (SAAR) of 6.3% in Q1 2021 and 6.5% in Q2 2021. Personal consumption expenditures continued to surge, up 11.4% and 11.8% in the first two quarters of the year driven by both an increase in goods (27.4% and 11.6%) and services (3.9% and 12%). Gross private fixed investment increased 13% and 3% in the first two quarters, but inventories fell. Government consumption fell 1.5% in the second quarter, and the trade deficit widened. GDP is expected to grow 5.9% in 2021, according to Consensus Forecasts, followed by 4.3% growth in 2022.

In Q1 2021 (newest available data), Colorado's real GDP increased 1.4% year-over-year but grew at an annualized rate of 7.9% from Q4 2020 to Q1 2021. Nationally, Colorado ranked 5th in quarter-over-quarter growth.

Figure 21: United States Real Gross Domestic Product



Jobless Claims

Initial jobless claims illustrate the immediate and profound impact of the pandemic on employment. Initial filings in the United States spiked to record levels in March and April 2020. While initial claims have fallen 94% from the early days of the pandemic, the 354,000 initial claims filed the week of August 21, 2021 are 62% higher than the average in 2019 (comparing to a pre-pandemic year). Like the nation, Colorado's jobless claims have shown vast improvement from the early days of the pandemic, but the 2,717 initial claims filed the week of September 4, 2021 were 62% above the average in 2019.

Figure 22: United States Initial Jobless Claims

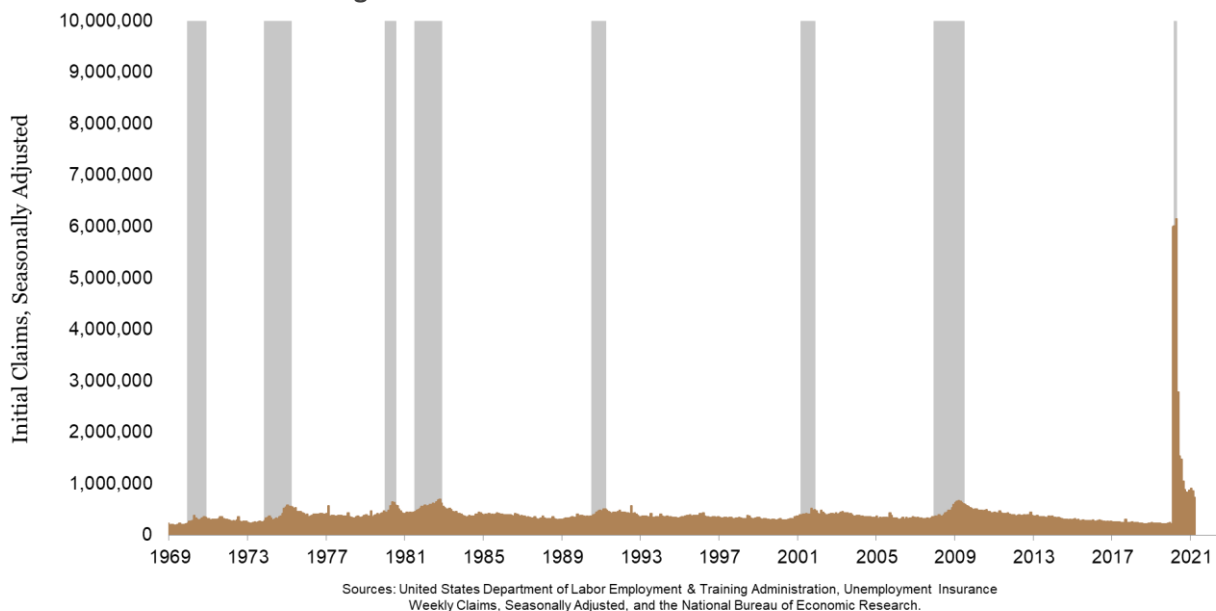
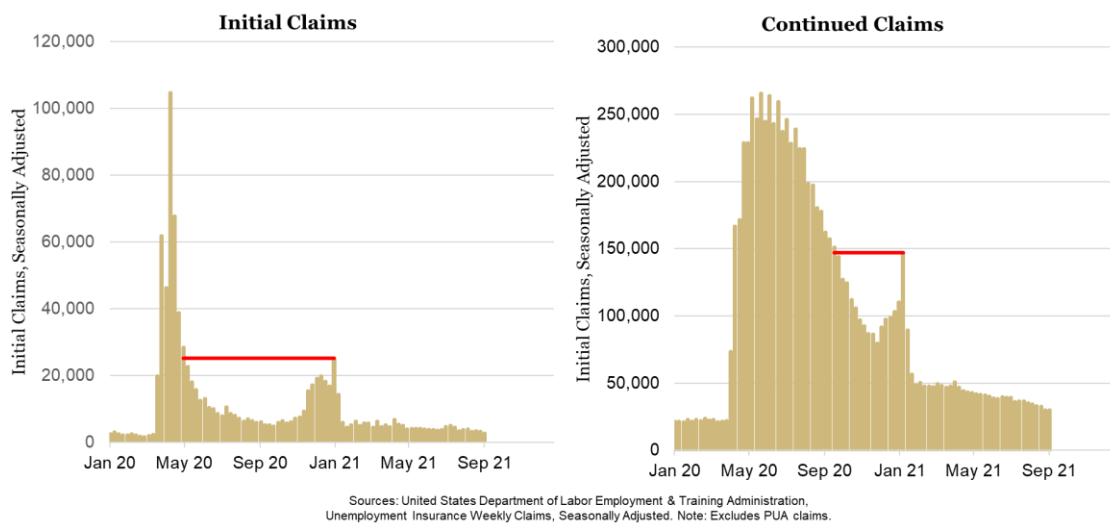


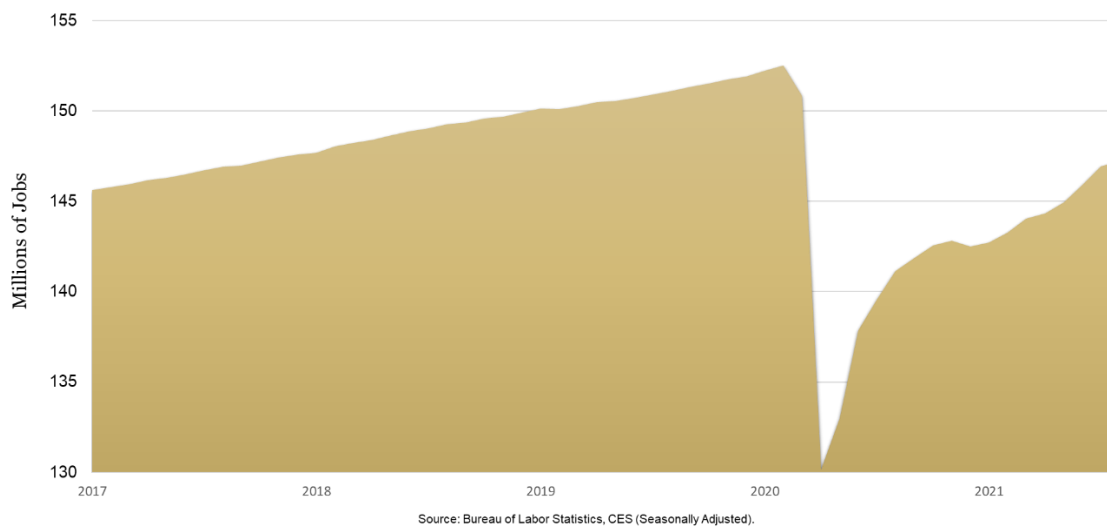
Figure 23: Colorado Initial and Continued Jobless Claims



Employment and Wages

The United States lost 22.4 million jobs in March and April 2020 due to the pandemic recession. From May 2020 through August 2021, the nation added back 17 million jobs, leaving a jobs deficit of 5.3 million jobs (-3.5%).

Figure 24: United States Employment (Jobs Added Month-over-Month)

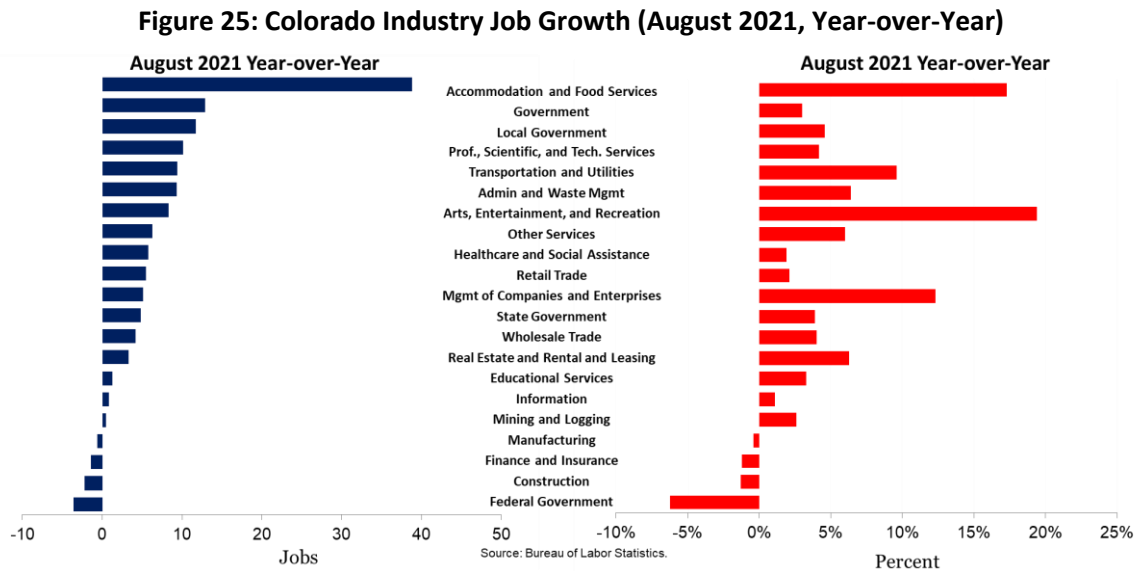


Colorado lost 376,300 jobs in early 2020, before adding back a combined 293,400 jobs from May 2020 through August 2021, according to the Bureau of Labor Statistics. Compared to the pre-pandemic peak, Colorado's total employment remains down 82,900 jobs (-2.9%). The combined Denver-Aurora-Lakewood and Boulder MSAs made up 62.5% of non-farm employment in Colorado in August 2021.

Leading up to the pandemic, historically low unemployment rates in Colorado, especially in the Denver Metro area, led to a shortage of skilled workers. Colorado unemployment hit a record low of 2.5% in 2019 before spiking to 12.1% in April 2020. Unemployment decreased to 5.9% in August 2021, ranking the state 35th, but the state also had the 4th-highest labor force participation rate.

Within the state, the Boulder MSA (4.9%) had the lowest rate in July 2021 (newest data available), while the Pueblo MSA had the highest rate (8.6%). The Denver MSA's unemployment rate was 6%.

Industry employment gains in Colorado year-over-year in August 2021 were led by Accommodation and Food Services; Government; and Professional, Scientific, and Technical Services. Four industries recorded year-over-year job losses in August: Federal Government, Construction, Finance and Insurance, and Manufacturing.

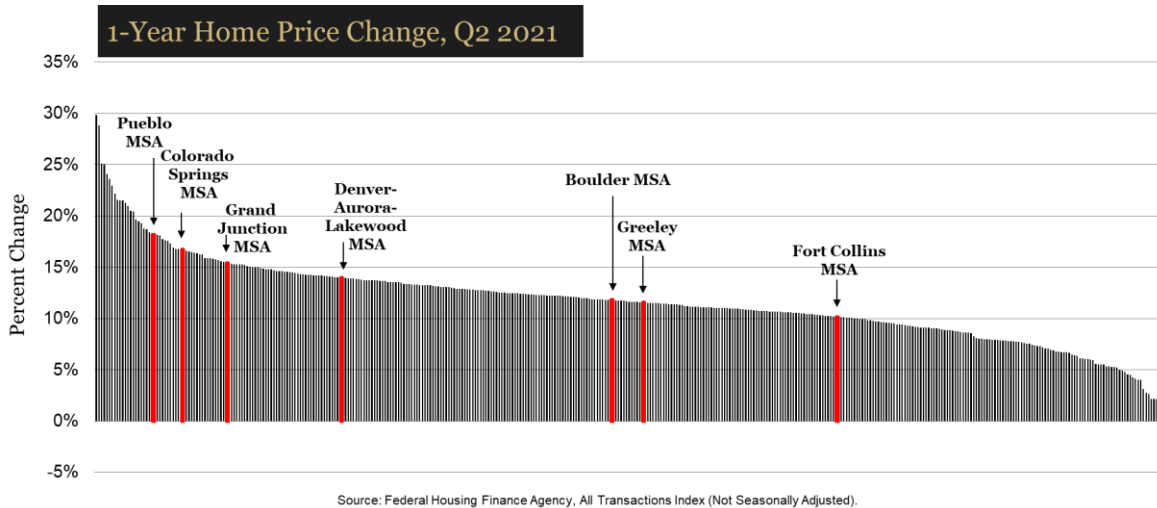


In Q1 2021, Colorado had the 17th-highest personal income in the nation, and the state ranked 11th in per capita personal income, at \$70,511. The simple average of the 50 states was \$64,431. The state's growth in per capita personal income ranked 47th, at 13%. Over the past 10 years, Colorado per capita personal income has remained higher than the national average.

Real Estate

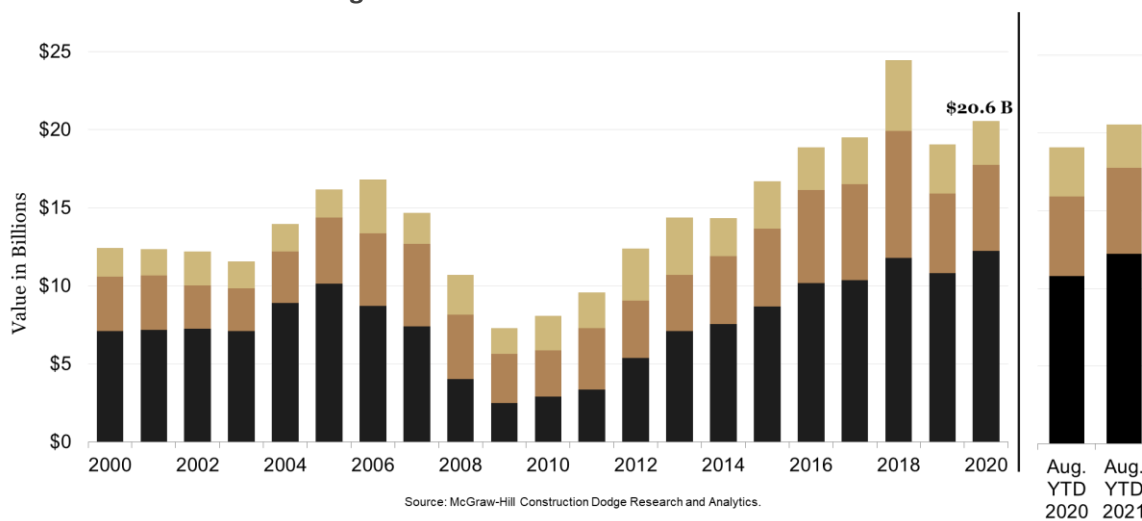
The most recent data from the Federal Housing Finance Agency (FHFA) All Transactions Index show that home prices in Colorado increased 13.8% year-over-year in Q2 2021 (14th-highest), signalling that the COVID-19 pandemic has had little effect on the housing market. The Purchase-Only index increased 20.1% year-over-year (12th).

Figure 26: Federal Housing Finance Agency Home Price



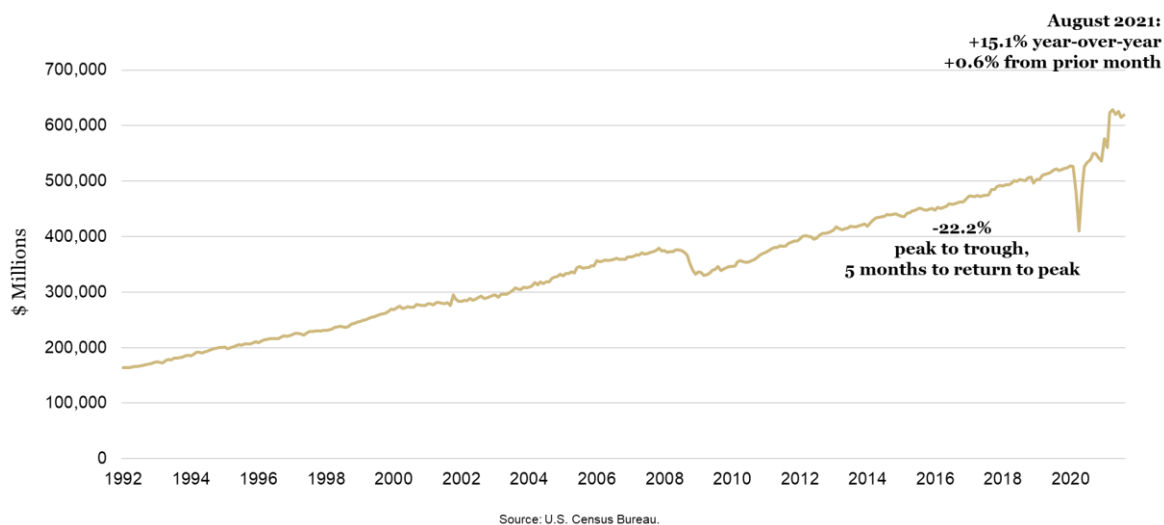
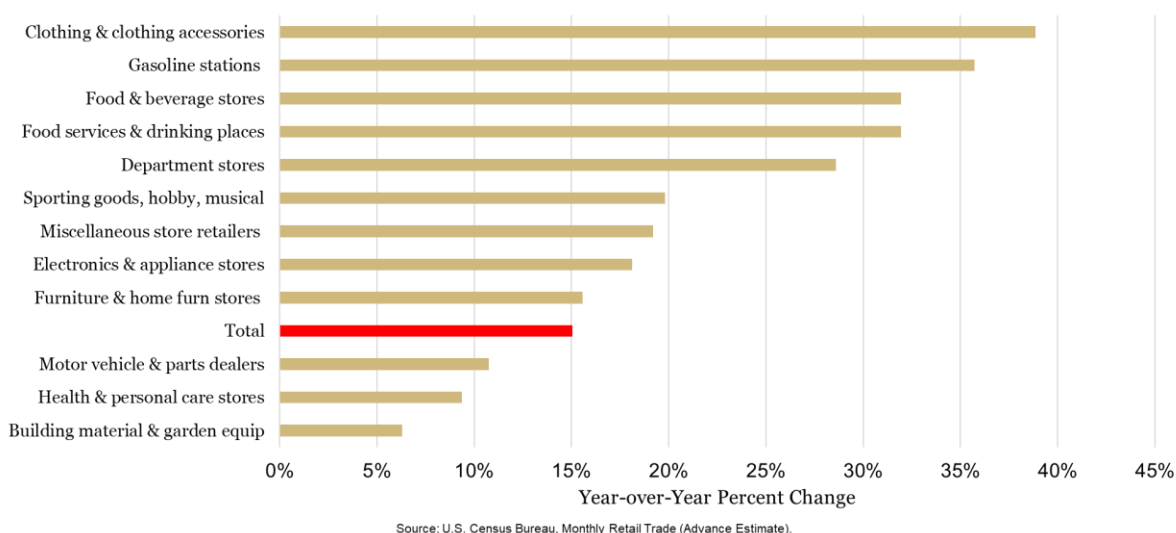
The total value of construction is determined when permits are pulled rather than when activity is put into place. Colorado recorded \$20.6 billion in construction in 2020, a 3.6% increase year-over-year. Led by residential, strong growth continued into 2021, with the state recording 7.8% growth year-do-date in August.

Figure 27: Colorado Value of Construction



Retail Sales

National retail and food services sales increased 15.1% year-over-year and 0.7% month-over-month in August 2021. Most categories recorded strong growth, including food services and drinking places (30.6%), sporting goods (22.5%), clothing stores (64.2%), and building materials (15.4%).

Figure 28: Retail Trade and Food Services Sales**Figure 29: Retail Trade and Food Services Sales, August 2021 Year-over-Year**

E-Commerce

Internet sales continue to expand at a rapid rate. As technology advances through tablets and mobile devices, consumers have greater ability to make digital purchases and access the nation's e-commerce landscape. The stay-at-home orders exacerbated the already-rapid shift to online purchases. According to the U.S. Census Bureau, e-commerce sales increased strongly year-over-year in Q2 2020 (43.8%), Q3 (36.1%), and Q4 2020 (32%). Growth continued into 2021, up 39.1% year-over-year in Q1 2021. However, building off the much larger base of sales, growth slowed in the second quarter of 2021 to 9.3%. E-commerce represented 13.3% of retail sales in Q2 2021.

Appendix D: Prolonged Recession Scenario

In response to a request by RTD staff, the BRD research team added a fourth scenario modeling the impact of a prolonged recession. The team leveraged a U.S. macroeconomic scenario titled, “Alternative Scenario 4 – Downside – 96th Percentile.”

This scenario represents a 96% probability that the economy will perform better and a 4% probability that it will perform worse. This protracted slump is caused by the COVID-19 pandemic lasting longer than generally expected. In this scenario, the vaccine rollout goes slower than expected, and resistant strains rise, causing the recovery to stall, especially as some state and local governments impose new restrictions.

After real GDP fell in 2020, GDP records a strong rebound in 2021 (5.2%) before retrenching, falling 1.8% in 2022 and 0.3% in 2023, followed by a moderate recovery. This prolonged recession has sustained, detrimental impacts on the labor market, pushing unemployment rates past 10% in 2023. Retail sales decrease 7% nationally in 2022 and 1% in 2023 before beginning to rebound.

Following the pandemic recession in 2020, RTD revenue posts strong gains in 2021, but falls with the double-dip recession in 2022 (-1.5%). However, RTD revenue begins posting growth again in 2023, ranging between 1.1% and 6.2% in the medium-term horizon.

Table 30

National Economic Indicators: Recession Scenario				
Year	Consumer Price Inflation	Percent Change in Retail Sales	Percent Change Real GDP	Unemployment Rate
2020 ^a	1.25	0.30	-3.39	8.10
2021	4.17	17.17	5.23	6.06
2022	0.73	-7.03	-1.82	8.82
2023	0.80	-1.01	-0.34	10.29
2024	1.88	6.97	3.36	9.09
2025	2.17	6.10	4.35	7.63
2026	2.54	4.74	3.43	6.77
2027	2.52	3.25	2.91	6.23

^aHistorical.

Table 31

Colorado Economic Indicators: Recession Scenario					
Year	Consumer Price Inflation	Percent Change Retail Sales	Percent Change Personal Income	Unemployment Rate	Percent Change Employment
2020 ^a	1.95	4.92	4.93	7.29	-5.16
2021	2.15	14.14	10.21	6.42	2.21
2022	2.12	6.98	-6.21	10.13	-2.30
2023	1.85	7.58	0.19	11.83	-1.00
2024	2.38	7.82	7.47	9.52	2.64
2025	2.56	7.54	6.95	6.89	3.20
2026	2.71	7.60	5.69	5.97	2.24
2027	2.78	7.73	4.40	5.64	1.89

^aHistorical data.

Table 32

Forecasts of RTD Revenues (\$): Recession Scenario			
Year	Sales Tax Revenues	Use Tax Revenues	Total RTD Revenues
2020 ^a	589,175,971	43,488,707	632,664,678
2021	684,011,745	49,869,396	733,881,141
2022	667,780,568	55,073,992	722,854,560
2023	678,215,962	52,489,755	730,705,716
2024	718,011,806	52,848,874	770,860,680
2025	762,723,484	56,153,728	818,877,212
2026	806,391,674	58,909,189	865,300,863
2027	844,943,648	60,577,166	905,520,814

^aHistorical data.

Bus Operations Service Availability – September 2021

RTD fixed-route bus operations provided 99.78% of all scheduled hours of bus service in September 2021. Lost service hours due to personnel-related reasons, compared to the same month (September) last year. Lost service hours for personnel-related reasons are as follows:

- September 2021 – 38.61 hours
- September 2020 – 85.12 hours
- Year-to-date hours for 2021 – 578.64 hours
- Year-to-date hours 2020 – 1672.72 hours

Emergency bus and elevator bridges and the COVID-19 pandemic contributed towards service/staffing challenges in September 2021.

While RTD did provide 99.78% of all scheduled hours of service in the month, it was necessary to cover 1,239 shifts with RTD operators working voluntary overtime (no mandates), representing approximately 8,572 hours of service. Additionally, RTD's contractor partners, First Transit and Transdev, covered 1,145 shifts, or approximately 9,481 hours of service, with operators working a combination of primarily voluntary overtime with some mandating.

Additional information regarding bus operator headcount follows: The below recruitment/retention, and headcount tables reflect employees who were separated due to retirements, resignations, and termination. These figures do not reflect reduction-in-force (RIF) and recall numbers.

Recruitment/Retention				
Category	Hired	Separated	Hired	Separated
2021			2020	
September	3	11	0	20
Year to Date *	69	129	148	245

Bus Operator Headcount – September 2021				
Category	Budgeted	Current	Vacancies	Vacancy Ratio
PT	102	78	24	23.53%
FT	850	720	130	15.29%
Total	952	798	154	16.18%

Rail Operations August 2021

Rail On-Time Performance	Month	Service Availability	On Time Performance	YTD On-Time Performance
Light Rail Operations	August	99.76%	94.90%	94.57%
A, B, G Line – Commuter Rail	August	95.3%	93.7%	95.45%
N Line – Commuter Rail	August	95.4%	92.1%	90.6%

Light Rail Mean Distance Between Failures	Month	Actual	Goal
Light Rail Vehicles	August	40,503 miles	> 25,000 miles
Light Rail Maintenance of Way (MOW)	August	1604.0 hours *	> 2,500 hours

* Multiple Signal Failures

Light Rail Preventable Accidents	August	Year to Date
Light Rail Operations	0	0

Recruitment/Retention **				
	2021		2020	
	Hired	Separated	Hired	Separated
August	9	11	0	6
Year to Date	35	54	107	86

** Includes Operator and Operator Trainees

Light Rail Operator Headcount				
	Budgeted	Current	Vacancies	Vacancy Ratio
Part-Time	2	2	0	0%
Full-Time	190	167	23	12.6%
Total	192	169	23	

Advisory Committee for People with Disabilities Report August/September 2021

The Advisory Committee for Persons with Disabilities (ACPD) met in both August and September 2021. The topics discussed are provided as follows:

August 2021:

- COVID-19 Status and Recovery
 - The former Assistant General Manager (AGM) of Safety and Security provided an update on COVID-19 and indicated that positive employee COVID cases are dropping and masks and physical distancing remain in effect at RTD. He also indicated that Transportation Security Administration (TSA) mask mandate would remain in effect beyond September 2021
- System-Wide Fare Study and Fare Equity Analysis
 - Senior Manager of Transit Oriented Communities, Bill Sirois, delivered a presentation and outlined that he is partnering with the Manager of Transit Equity, Carl Green, on this effort
- RTD ADA Complaint Process
 - Senior Manager of Civil Rights Division, Zamy Silva, provided an overview on the established ADA complaint process
- Light Rail Update
 - AGM of Rail Operations, Dave Jensen, provided an update on ADA Light Rail High Block Signage and Recording capabilities and indicated that both are in progress anticipated to be completed by the end of September 2021.
- Update on the 16th Street Mall Project
 - Project Manager for the 16th Street Mall Reconstruction project, Andy Mutz, provided a project update

September 2021:

- In Memoriam: Anne Hillyer
 - Committee acknowledged the passing of the ADA Specialist/Investigator, Anne Hillyer as well as her diligent work to serve people with disabilities. Committee members suggested a plaque be provided to Ms. Hillyer's family in her honor
- RTD Recruitment
 - Senior Manager of Human Resources, Racel McMurray, provided information regarding the push to increase the recruitment of persons with disabilities; it was recommended that ACPD Members attend meetings with Human Resources and provide input/recommendations
- American Rescue Plan Update
 - Budget Analyst IV, Todd Nikkel, reported that RTD services have returned to 70% of pre-pandemic ridership and noted that Federal rescue and relief funding has been leveraged to sustain operations
- High Block Signage Update
 - General Superintendent of Rail Transportation, Duane Sayers, reported that ADA compliant light rail high block signage had been installed throughout the district
- Reimagine RTD Update
 - Senior Manager of Transit Oriented Communities, Bill Sirois, and Reimagine RTD facilitator, Julie Skeen, provided an overview of the intended long and short-term



impacts of the project. They sought community input and asked ACPD committee members to provide recommendations

- Elevator Service Updates
 - 38th & Blake Street Station
 - Senior Manager of Commuter Rail Contract Services, Mike Millage, reported that a series of elevator outages have occurred at this station. Mr. Millage reported that he was working with Denver Transit Operators (DTO) to reach a solution
 - Englewood Station
 - Manager of Facilities Maintenance Contracted Public Facilities, Sean Moran, reported that the elevator at Englewood station was out of order due to issues with code compliance and that he was working with the city of Englewood to reach a solution
- ACPD Recruitment Drive
 - ADA Manager, Gabe Christie, reported that ACPD committee recruitment closed on September 24th and that new members would be selected in time for the ACPD and Access-a-Ride Paratransit Advisory Committee (APAC) November 2021 combined meeting
- ACPD and APAC Joint Meeting Pilot Feedback
 - Senior Manager of Civil Rights Division, Zamy Silva, sought feedback regarding the pilot meeting structure of the ACPD/APAC joint meetings. Feedback from ACPD members indicated that the current meeting structure was supported by a majority of members

Summary of Monthly Purchasing Activity and New Contracts - August 2021

This summary is in four parts as listed below:

- Part I is a summary of purchasing activity for the month of August 2021 as compared to August 2020
- Part II is a listing of all new contracts issued during the reporting month in excess of \$100,000
- Part III is a group of graphs illustrating purchasing activity for the reporting month compared to the previous years
- Part IV is a printout of the Monthly Purchase Order Activity Report



PART I
PURCHASING ACTIVITY AUGUST 2021 – AUGUST 2020

SUMMARY OF PURCHASE ORDER, CONTRACTS, PETTY				
CASH AND PURCHASING CARD ACTIVITY FOR THE MONTH OF				
Aug. 2021 COMPARED TO Aug. 2020				
		Aug. 2021		Aug. 2020
1. Purchase Order Activity				
A. Total Purchase Orders Prepared:		358		445
B. Total Dollars Obligated:		\$ 7,409,568.61		\$ 3,407,747.36
2. Sale of Surplus Assets:				
Mixed Scrap/Scrap Drums		\$ -		\$ -
Auction				\$ 4,952.15
Purchase of Used Oil		\$ -		\$ -
TOTAL		\$ -		\$ 4,952.15
3. Petty Cash Activity:				
A. Total Transactions:		0		1
B. Total Dollars Spent:		\$ -		\$ 13,295.00
4. Purchasing Card Activity:				
A. Total Transactions:		1235		1073
B. Total Dollars Spent:		\$ 473,119.88		\$ 381,241.31
C. Rebate Check				



PART II

LISTING OF NEW PURCHASE ORDERS IN EXCESS OF \$100,000

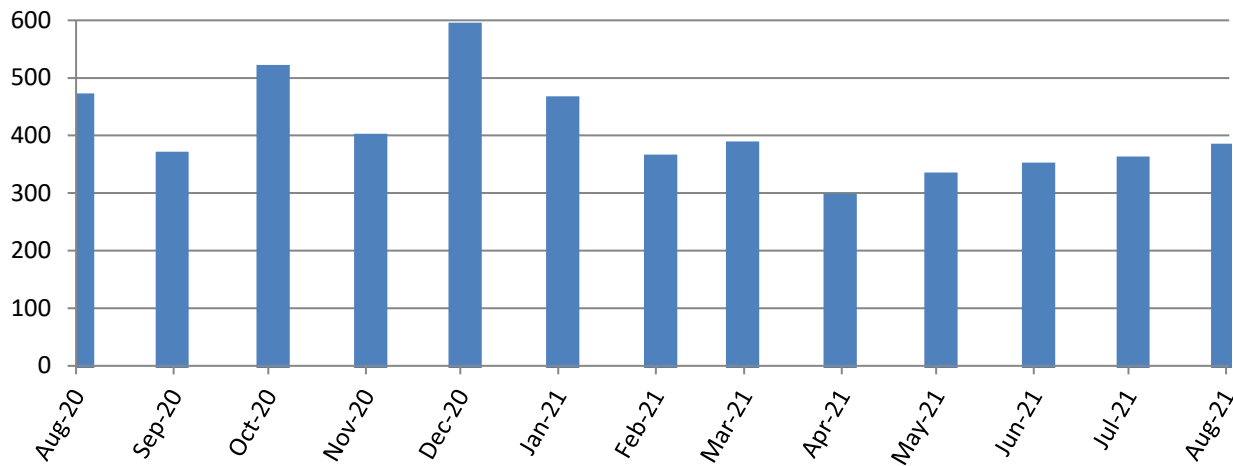
NEW CONTRACTS ISSUED DURING				
Aug. 2021				
IN EXCESS OF \$100,000				
This part lists all new Contracts in numeric sequence showing the Contractor, Services Contracted for, Performance Period and Total Contract Amount.				
PO/CONTRACT NO. - CONTRACT		PURCHASE ORDER DATE		CONTRACT AMOUNT
121DX001/214804 Brandeberry McKenna - State Legislative Advocacy Liaison Services (Brandeberry-McKenna Public Affairs)		8/4/2021		\$ 240,000.00
214699 2021-2026 Red Hat Technical Acct Mgmt & Subscription Support (CDW Government LLC)		8/3/2021		\$ 1,241,464.45
121DU001/215248 Downtown Denver Business Improvement District - Wynkoop Maintenance Contract (Downtown Denver Business Improvement)		8/19/2021		\$ 442,500.00
17FH020/215082 HNTB - WO-016 - Signal System Upgrade White Paper (HNTB Corporation)		8/18/2021		\$ 193,130.00
10DH020/214691 Amendment 12 - 6/1/2021 through 5/21/2022 (IntelliChoice Inc.)		8/3/2021		\$ 172,101.37
17FH009/215230 Krische Construction - WO 019 - 8215 Steele Plumbing & Elec. (Krische Construction, Inc.)		8/18/2021		\$ 104,253.00
214895 2021-2024 Motorola Support Agreement (Motorola Solutions, Inc.)		8/5/2021		\$ 385,916.22
215322 Oracle Renewals (ACS, EBS, and Database) 2021-2022 (Mythics, Inc.)		8/24/2021		\$ 1,108,580.52

NEW CONTRACTS ISSUED DURING				
Aug. 2021				
IN EXCESS OF \$100,000				
This part lists all new Contracts in numeric sequence showing the Contractor, Services Contracted for, Performance Period and Total Contract Amount.				
PO/CONTRACT NO. - CONTRACT		PURCHASE ORDER DATE		CONTRACT AMOUNT
215432 2021-22 Oracle Enterprise Planning and Budgeting Cloud - Renewal (Mythics, Inc.)		8/30/2021		\$ 134,616.00
215028 Carbon Strip with Heating Element Pantograph LRV (Schunk Carbon Technology LLC)		8/12/2021		\$ 111,810.00
215042 Rebuild Kit Brake LRV Den V-VII Friction HPU (Siemens Mobility, Inc.)		8/16/2021		\$ 124,050.00
221DR001/215071 YP16850-R (Siemens Mobility, Inc.)		8/17/2021		\$ 388,000.00
215249 Rebuild Kit Brake LRV Den V-VII Friction HPU (Siemens Mobility, Inc.)		8/19/2021		\$ 124,050.00
121DN006/215398 Xorail WabtecOne Software as a Service Agreement (Xorail Inc.)		8/26/2021		\$ 573,698.00
215371 Vehicle Licenses - ZF Ecolife (Qty 455) (ZF North America)		8/25/2021		\$ 287,536.22

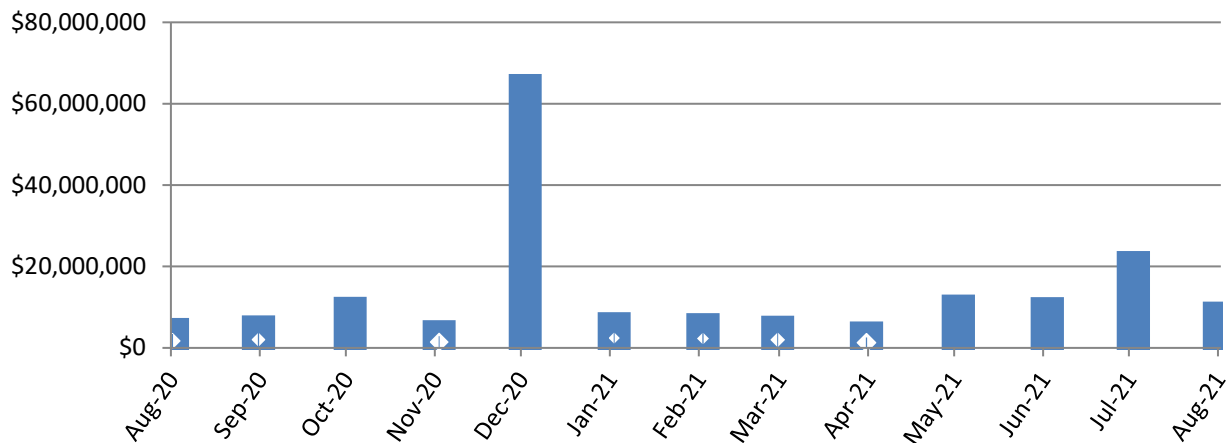


PART III
GRAPHS OF PURCHASING ACTIVITY AUGUST 2021

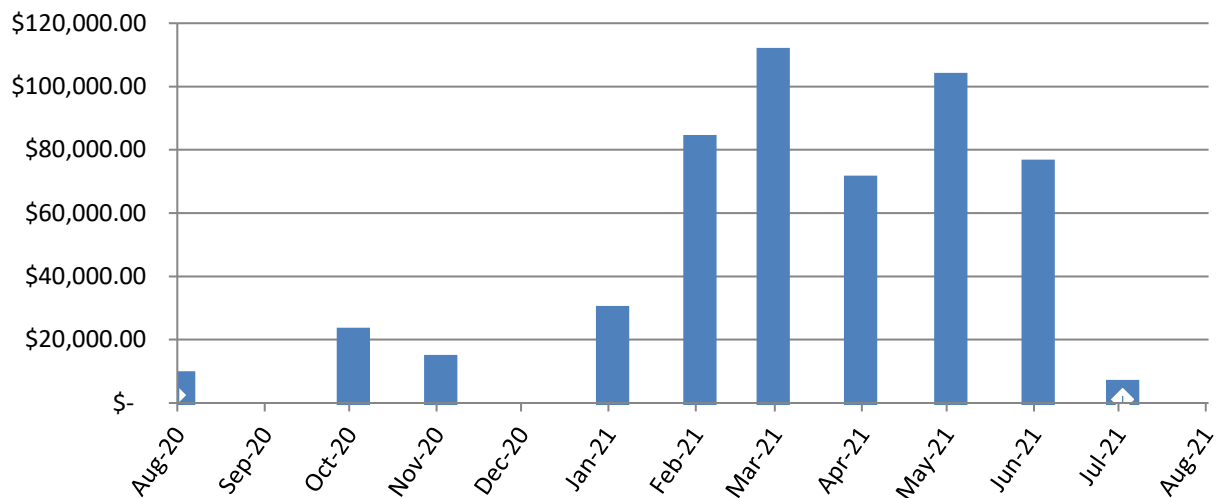
Total Purchase Orders Prepared - August 2021



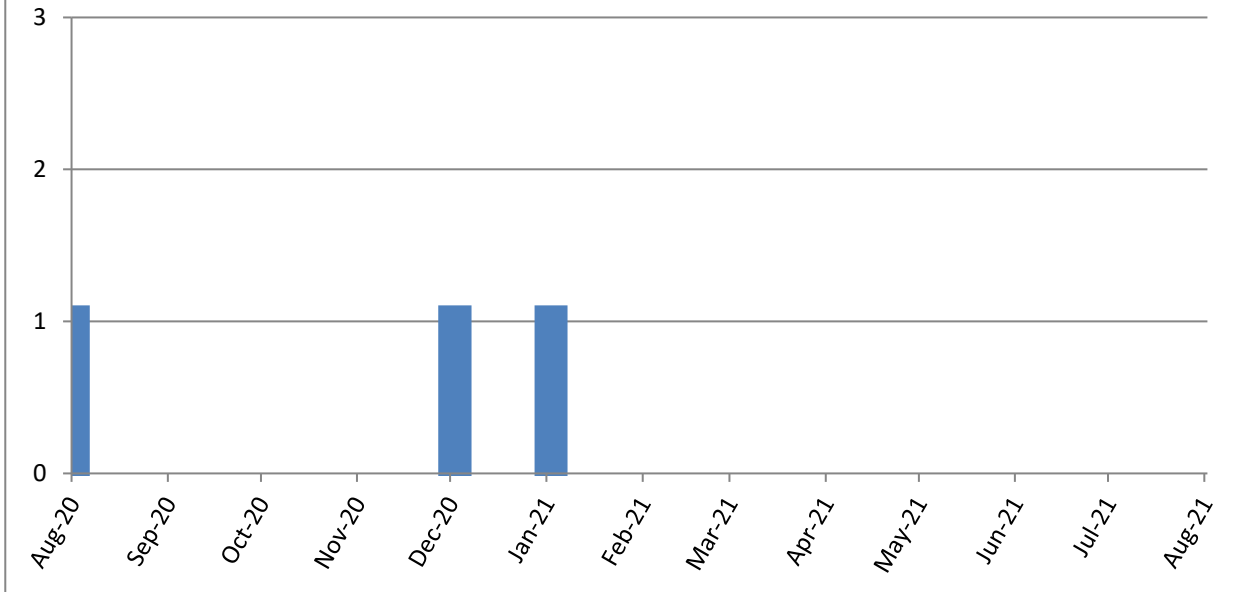
Total Purchase Order Dollars - August 2021



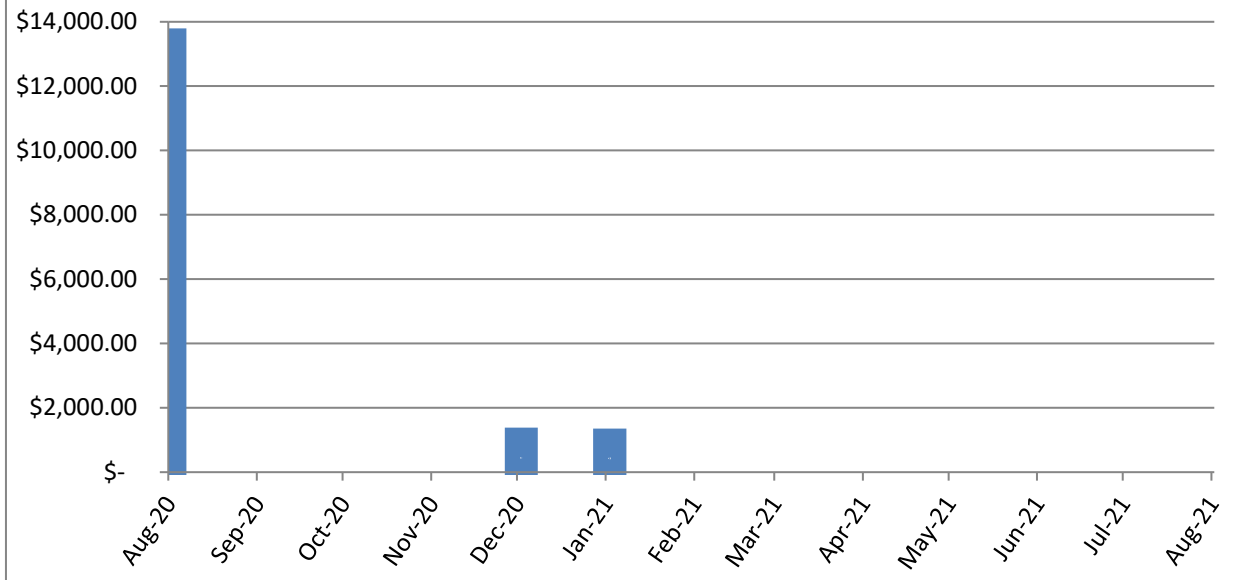
Sales - August 2021



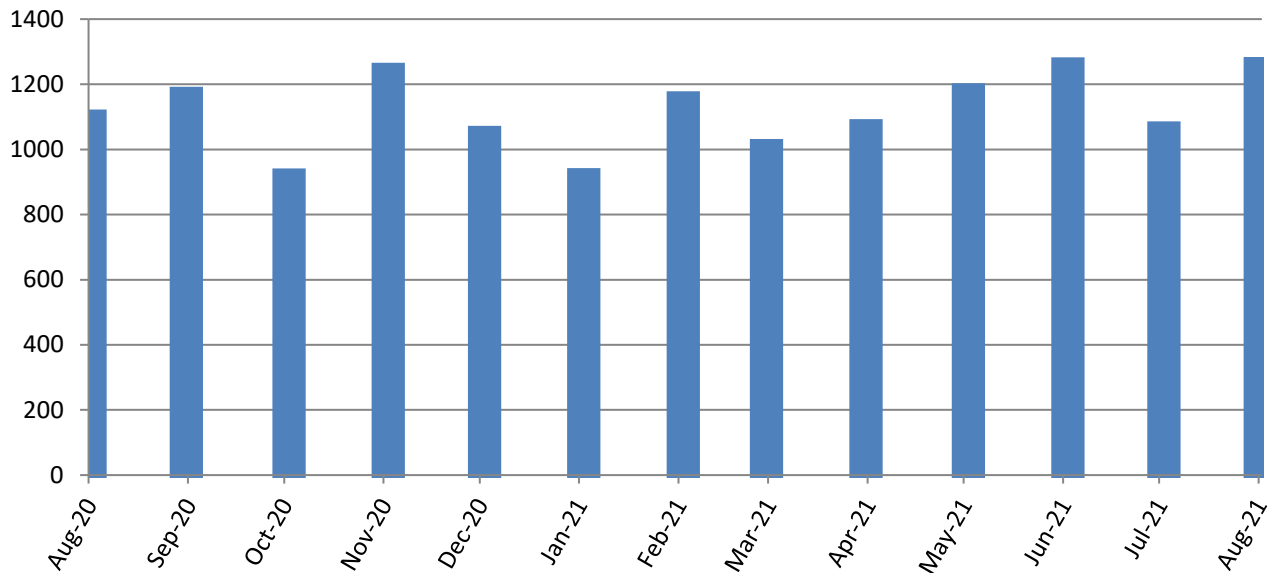
Total Petty Cash Transactions - August 2021



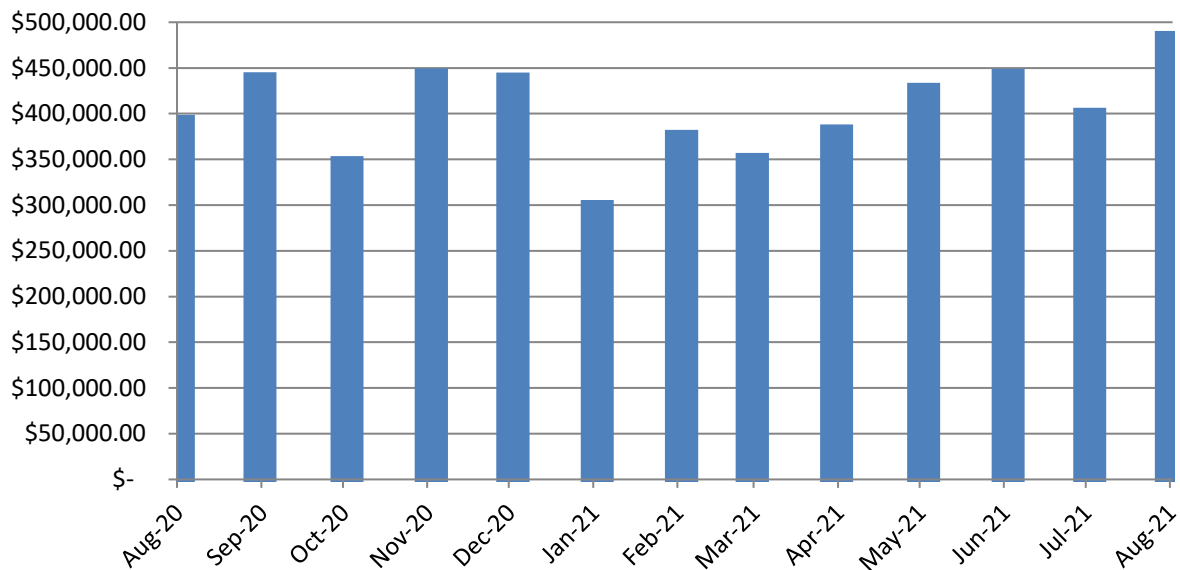
Total Petty Cash Dollars - August 2021



Total Purchasing Card Transactions - August 2021



Total Purchasing Card Dollars - August 2021





PART IV
MONTHLY PURCHASE ORDER ACTIVITY REPORT



RTD:PO - Purchase Order Monthly Activity

PO Creation Date - From Date: 08/01/2021 To Date: 08/31/2021

Run Date: 09/13/2021

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<u>PO Vendor Name</u>	<u>PO Number</u>	<u>PO Date</u>	<u>Description</u>	<u>PO Amount</u>
AAF International	215364	08/25/21	FILTER A/C 6000 6300 RETURN AIR 2 PLY 15.75 x 44.5	\$5,688.00
Total for Vendor:	AAF International			\$5,688.00
AFL Telecommunications LLC	214933	08/09/21	CLAMP MOW PARALLEL 500-350 MCM FLEX SIEMENS	\$260.00
	215319	08/24/21	CLIP MOW WIRE ROPE 1/2 U-BOLT	\$116.00
Total for Vendor:	AFL Telecommunications LLC			\$376.00
AIS Industrial & Construction Supply	214945	08/10/21	Paint Roller Primer Application	\$131.70
	215005	08/12/21	Paint Spray Black Semi-Flat	\$534.72
	215063	08/17/21	SPRAYER TANK 3.5 GAL RED W/ HOSE	\$1,120.00
	215411	08/27/21	Can Trash 30 Gallon Galvanized	\$349.80
Total for Vendor:	AIS Industrial & Construction Supply			\$2,136.22
AMGS Distributing LLC	215007	08/12/21	CHEMICAL LOCTITE ADHESIVE HIGH STRENGTH RED STUD LOCK	\$275.40
Total for Vendor:	AMGS Distributing LLC			\$275.40
Affinity Resources Company, Inc	214899	08/05/21	HARNESS SENSOR MOTOR SPEED AXLE 2&5 SD160 DEN V LRV	\$1,519.14
Total for Vendor:	Affinity Resources Company, Inc			\$1,519.14
Alcam Metal Distributors Inc	214952	08/10/21	Stock Aluminum Expanded Flattened 3/4LB 4 X 8 X 1/8	\$1,320.00
	215393	08/26/21	STOCK STEEL 1 1/2 SQUARE TUBE 1/8 WALL 20 FOOT	\$262.40
Total for Vendor:	Alcam Metal Distributors Inc			\$1,582.40



RTD:PO - Purchase Order Monthly Activity

PO Creation Date - From Date: 08/01/2021 To Date: 08/31/2021

Run Date: 09/13/2021

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<u>PO Vendor Name</u>	<u>PO Number</u>	<u>PO Date</u>	<u>Description</u>	<u>PO Amount</u>
Aldo Consulting	215323	08/24/21	Remove and Replace concrete, Grind tripping hazard at Bus stop 13809 Federal Blvd at Evans North bound to bring the stop back into code compliance.	\$5,900.00
Total for Vendor:	Aldo Consulting			\$5,900.00
Alfred Benesch & Company	214647	08/02/21	16DO030 WO #20 2021 Bridge Inspections - NM CR Bridge	\$99,339.40
	214648	08/02/21	16DO030 WO #21 2021 Bridge Inspections - DUS Bridges	\$19,944.46
	214649	08/02/21	16DO030 WO #22 2021 Bridge Inspections - SW Freight Bridge	\$58,897.46
	214651	08/02/21	16DO030 WO #25 2021 Bridge Inspections - SERE LRT Bridge	\$22,541.14
	214652	08/02/21	16DO030 WO #23 2021 Bridge Inspections - WRL Bridges	\$72,181.45
Total for Vendor:	Alfred Benesch & Company			\$272,903.91
Allied Electronics, Inc.	214897	08/05/21	FAN MUFFIN LRV DE	\$5,697.02
	215002	08/12/21	Circuit Breaker 20 Amp Substation MOW LRV	\$240.70
	215321	08/24/21	ELECTRICAL CONNECTOR LRV	\$667.02
Total for Vendor:	Allied Electronics, Inc.			\$6,604.74
American Seating Company	214947	08/10/21	BOLT 3600 3700 SEAT HRY ST 5/16 - 18 X 3/8 IN	\$190.00
	214969	08/10/21	CUSHION 6300 TRANSVERSE FLIP UP SS	\$222.00
Total for Vendor:	American Seating Company			\$412.00



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<u>PO Vendor Name</u>	<u>PO Number</u>	<u>PO Date</u>	<u>Description</u>	<u>PO Amount</u>
Amerigas	214675	08/02/21	2021 Propane Tank Service	\$4,500.00
Total for Vendor:	Amerigas			\$4,500.00
B.D.R. Pallets, Inc.	215267	08/20/21	PALLET 24 X 24	\$1,056.00
Total for Vendor:	B.D.R. Pallets, Inc.			\$1,056.00
BDI Inc	214721	08/04/21	CHEMICAL LOCTITE SEALANT HYDRAULIC	\$212.73
Total for Vendor:	BDI Inc			\$212.73
BYD Coach & Bus LLC	214689	08/03/21	COVER 1650 BATTERY PACK TOP SEAL STRIP	\$2,479.56
	214970	08/10/21	FILTER 1650 AIR COMPRESSOR EXTERNAL	\$1,309.68
	215309	08/23/21	FILTER 1650 AIR COMPRESSOR EXTERNAL	\$1,309.68
	215338	08/24/21	COVER 1650 ASSY TOP BATTERY PACK	\$16,643.40
Total for Vendor:	BYD Coach & Bus LLC			\$21,742.32
Bach-Simpson A Div of Wabtec Canada	215052	08/17/21	RECORDER EVENT ASSY LRV DEN V	\$14,820.00
Total for Vendor:	Bach-Simpson A Div of Wabtec Canada			\$14,820.00
Batteries Plus LLC	214698	08/03/21	BATTERY MOW BLUE TOP MODEL D34M	\$7,800.00
	214722	08/04/21	BATTERY AAA ALKALINE	\$1,168.40
	215262	08/19/21	8D TOP BATTERIES	\$7,920.00
Total for Vendor:	Batteries Plus LLC			\$16,888.40
Baultar Concepts, Inc.	214690	08/03/21	STEPTREAD LRV DEN V-VIII STEPWELL THRESHHOLD KIT	\$79,824.00
Total for Vendor:	Baultar Concepts, Inc.			\$79,824.00



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<u>PO Vendor Name</u>	<u>PO Number</u>	<u>PO Date</u>	<u>Description</u>	<u>PO Amount</u>
Bearings & Industrial Supply Co Inc	214658	08/02/21	Chemical Loctite Sealant Quick Set 404 .33 Oz / 9.3 G	\$932.50
Total for Vendor:	Bearings & Industrial Supply Co Inc			\$932.50
BlackHawk Industrial	214695	08/03/21	Knife Putty Flex 1-1/2 Blade	\$122.87
Total for Vendor:	BlackHawk Industrial			\$122.87
Boundary Fence & Supply Company	215254	08/19/21	Rio Court Fence Mateials	\$7,426.56
Total for Vendor:	Boundary Fence & Supply Company			\$7,426.56
Brandeberry-McKenna Public Affairs	214804	08/04/21	121DX001 Brandeberry McKenna - State Legislative Advocacy Liaison Services	\$240,000.00
Total for Vendor:	Brandeberry-McKenna Public Affairs			\$240,000.00
Brody Chemical	215361	08/24/21	2847-55 - HEAVY DUTY WHEEL CLEANER 55 GAL DRUM	\$1,265.00
Total for Vendor:	Brody Chemical			\$1,265.00
C.F. Maier Composites, Inc.	214983	08/11/21	CAP 5000 6000-CS-LOWER	\$902.40
Total for Vendor:	C.F. Maier Composites, Inc.			\$902.40



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<u>PO Vendor Name</u>	<u>PO Number</u>	<u>PO Date</u>	<u>Description</u>	<u>PO Amount</u>
CDW Government LLC	214699	08/03/21	2021-2026 Red Hat Technical Acct Mgmt & Subscription Support	\$1,241,464.45
	215035	08/16/21	HARD DRIVE INTERNAL L200 2TB 5400 RPM SATA III6GB/S	\$899.88
	215362	08/24/21	Solarwind annual renewal per the SOW 10/18/21 - 10/18/22	\$11,861.91
Total for Vendor:	CDW Government LLC			\$1,254,226.24
Cambridge Systematics Inc	214653	08/02/21	18FO001C WO #008 - Title VI Program and Equity Analysis Update 2021	\$49,155.13
Total for Vendor:	Cambridge Systematics Inc			\$49,155.13
Central Bag & Burlap Co.	214666	08/02/21	Wrap Bubble Packaging 6FT Tall	\$1,019.40
Total for Vendor:	Central Bag & Burlap Co.			\$1,019.40
Charles D. Jones Company	214949	08/10/21	HOSE A/C YELLOW CHARGING 60 1/4 IN	\$173.76
Total for Vendor:	Charles D. Jones Company			\$173.76
Colorado Custom Rock Corp	215424	08/30/21	19DT001 Colorado Custom Rock - 16th St Mall Paver WO Contract - WO 44	\$36,527.48
	215425	08/30/21	19DT001 Colorado Custom Rock - 16th St Mall Paver WO Contract - WO 45	\$38,383.18
Total for Vendor:	Colorado Custom Rock Corp			\$74,910.66



RTD:PO - Purchase Order Monthly Activity

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<u>PO Vendor Name</u>	<u>PO Number</u>	<u>PO Date</u>	<u>Description</u>	<u>PO Amount</u>
Colorado Fire Services LLC	214974	08/10/21	MSV 73145 - RECHARGE FIRE EXT CYLINDERS P/N 10103-1	\$1,020.00
	214995	08/11/21	BATTERY FIRE SUP 1500 1800 3600 6000 9300 BACKUP	\$3,128.40
	215013	08/12/21	BATTERY 1650 6300 6301-6415 9400 DRIVER PANEL FIRE SUPPRESSION	\$2,029.00
Total for Vendor: Colorado Fire Services LLC				\$6,177.40
Colorado Petroleum	214696	08/03/21	FLUID ANTIFREEZE 100 PERCENT CONCENTRATE 55 GALLON	\$3,300.00
	214739	08/04/21	FLUID ANTIFREEZE 100 PERCENT CONCENTRATE 55 GALLON	\$1,650.00
	214911	08/06/21	FLUID ANTIFREEZE 100 PERCENT CONCENTRATE 55 GALLON	\$1,650.00
Total for Vendor: Colorado Petroleum				\$6,600.00
Component Specialties, Inc.	214673	08/02/21	RELAY LRV DEN V-VI	\$21,764.00
	214676	08/03/21	RELAY LRV DEN VIII C	\$41,548.50
	215394	08/26/21	POWER SUPPLY MOW 40W 24V	\$195.84
	215426	08/30/21	CONTACT PIN LEMO 18-14 GAGE MIRROR LRV	\$539.00
Total for Vendor: Component Specialties, Inc.				\$64,047.34
Conserve-A-Watt Lighting, Inc.	214701	08/03/21	LAMP FLUORESCENT 4 FT T8 EAST METRO FM & LRV	\$300.60
	215012	08/12/21	HEADLIGHT 1990 5000 6000 HALOGEN 12V 50W HIGH BEAM	\$260.64
Total for Vendor: Conserve-A-Watt Lighting, Inc.				\$561.24



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Cummins Inc	214682	08/03/21	MANIFOLD 1990 EXHAUST BACK ISM	\$2,063.34
	214692	08/03/21	CHEMICAL E.R.F. RADIATOR FLUSH	\$999.85
	215006	08/12/21	TUBE 6000 6300 TURBOCHARGER OIL SUPPLY	\$164.04
	215020	08/12/21	MODULE 1990 5260-5265 DPF	\$2,388.71
	215250	08/19/21	SENSOR 1800 6000 9300 ISL NITROGEN OXIDE INLET	\$4,415.04
	215339	08/24/21	SENSOR 1800 6000 9300 ISL NITROGEN OXIDE OUTLET	\$18,290.88
	215359	08/24/21	MANIFOLD 5260-5265 6000 6300 ISL EXHAUST	\$1,113.36
	215376	08/25/21	SEAL KIT 1800 6000 9300 9400 ISL INSTALLATION TURBOCHARGER ACTUATOR	\$1,745.00
Total for Vendor: Cummins Inc				\$31,180.22
Curved Glass Distributors, Inc.	215048	08/17/21	WINDSHIELD 5000 6000 RH W/ SHADEBAND	\$1,950.00
Total for Vendor: Curved Glass Distributors, Inc.				\$1,950.00
Denco Sales Company Inc	214685	08/03/21	Decal Scotchcal White 15IN	\$620.00
	214956	08/10/21	FILM WHITE REFLECTIVE SCOTCHLITE 48 IN X 25 YD	\$7,453.50
	214989	08/11/21	Decal Scotchcal White 15IN	\$1,300.00
Total for Vendor: Denco Sales Company Inc				\$9,373.50
Didier Denver	214999	08/12/21	MOUNT LRV DEN I-VIII PANASONIC DVR ANTI VIB	\$26,355.00
Total for Vendor: Didier Denver				\$26,355.00



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Diesel Forward Inc	215064	08/17/21	SENSOR 1800 6000 9300 ISL NITROGEN OXIDE OUTLET	\$1,808.49
Total for Vendor:	Diesel Forward Inc			\$1,808.49
Downtown Denver Business Improvement	215248	08/19/21	121DU001 Downtown Denver Business Improvement District - Wynkoop Maintenance Contract	\$442,500.00
Total for Vendor:	Downtown Denver Business Improvement			\$442,500.00
E & G Terminal, Inc.	214951	08/10/21	CHEMICAL LOCTITE SEALANT 518 GASKET ELIMINATOR	\$380.70
Total for Vendor:	E & G Terminal, Inc.			\$380.70
EdgeLink, LLC	214926	08/06/21	EdgeLink (120DH003) - Temp Employee Jimmy Vigil - Safety Coordinator - \$70.00/hr - 6-months - R Lobato	\$67,200.00
	215075	08/17/21	120DH003 - Edgelink - Temp Employee Bernadine Gant - Business Support II - \$35/hr - 480 hours - Karl Shoemaker	\$16,800.00
Total for Vendor:	EdgeLink, LLC			\$84,000.00
Environmental Logistics, Inc	215429	08/30/21	19RB055 Environmental Logistics - WO Contract - WO 2 - Central Park Median	\$8,180.60
Total for Vendor:	Environmental Logistics, Inc			\$8,180.60



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Fastenal Company	215069	08/17/21	Hook Destination Sign Door Swivel	\$335.79
Total for Vendor:	Fastenal Company			\$335.79
Fiero Automation	214938	08/09/21	FITTING AIR HANSEN 1/4 NOMINAL 3/8 ID 3/4 OD HOSE D11	\$184.65
Total for Vendor:	Fiero Automation			\$184.65
FinishMaster, Inc.	215065	08/17/21	PAINT LRV INTERIOR GRAY IMRON ELITE S/S	\$651.01
Total for Vendor:	FinishMaster, Inc.			\$651.01
Fraser Tool and Gauge	214706	08/04/21	ADJUSTER 1500 3600 6000 CALIPER MECH SET ELSA 225	\$11,937.60
Total for Vendor:	Fraser Tool and Gauge			\$11,937.60
Gerber Technology LLC	214901	08/05/21	Gerber Annual Warranty	\$9,000.00
Total for Vendor:	Gerber Technology LLC			\$9,000.00



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Gillig LLC	214669	08/02/21	VALVE 1800 9300 ROTARY DUMP	\$1,611.39
	214686	08/03/21	VALVE 6000 6300 RELAY R-12 FRONT	\$1,575.50
	214703	08/04/21	PIN 5000 6000 ROLL BRAKE TREADLE	\$4,518.82
	214707	08/04/21	SLIDE PIN KIT 1500 9300 6000	\$14,005.50
			BUSHING BRAKE CALIPER	
	214710	08/04/21	HOSE 1800 5000 6000 9300 HUMP HIGH	\$4,747.88
			TEMP 4 X 8 IN	
	214713	08/04/21	BEARING 6000 SPHERICAL EXIT DOOR	\$1,249.56
	214737	08/04/21	CABLE 6000 9300 PULL CORD YELLOW	\$630.00
			COATED	
	214892	08/05/21	HOSE 6000 ASSY A/C SUCTION #20	\$728.95
	214904	08/05/21	CARRIER 1500 6000 BRAKE CALIPER	\$398.20
	214918	08/06/21	PIPE 5237-5264 ENGINE OIL FILL	\$981.96
	214922	08/06/21	COIL 6000 FIELD STARTER	\$3,011.51
	214941	08/09/21	HINGE 6000 LEAF W/C LIFT	\$899.88
	214955	08/10/21	ROD 1400 5000 6000 RADIATOR CAC	\$6,568.77
			MOUNTING	
	214967	08/10/21	BRACKET 6000 SKIRT PANEL MTG W/	\$511.20
			DOOR LOCK	
	214990	08/11/21	BAR 5000 LU6 LIFT ASSY TORSION	\$1,382.37
	215008	08/12/21	HANDLE 5000 6000 W/C PULL OUT	\$434.16
	215019	08/12/21	CLUTCH 6000 6300 6400 HUB ASSEMBLY	\$3,914.16
			AC	
	215054	08/17/21	ANGLE 5000 MOUNTING WHEELCHAIR RAMP	\$1,195.47
	215058	08/17/21	CAP 6000 BREATHER HYDRAULIC	\$5,882.83
			RESERVOIR	
	215066	08/17/21	BUMPER 5000 6000 REAR MODULE LH	\$572.58
	215067	08/17/21	SPLINE 6000 OUTER GLASS FEET	\$140.00
	215073	08/17/21	CUP 1650 STABILIZER PASSENGER DOOR	\$265.20
	215240	08/18/21	AIR BAG 6000 FRONT	\$2,208.96
	215287	08/20/21	FITTING AIR 1500 5000 6000 DRIVERS	\$4,309.35



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Gillig LLC	215288	08/20/21	SEAT SLIDE RELEASE ADAPTER 1800 9300 FUEL FILL SNAP TANK & SUPPLY FUEL SYSTEM	\$814.98
	215294	08/20/21	BAR 6000 ASSY EGRESS	\$4,266.62
	215301	08/23/21	LATCH 6000 WINDOW 34IN 46IN 56IN TRANSOM	\$837.94
	215306	08/23/21	ROD ASSY 6000 TORQUE UPPER FRONT	\$930.00
	215311	08/23/21	TIE DOWN 1400 1650 5000 6000 WHEELCHAIR ADA	\$307.06
	215337	08/24/21	LAMP 6000 STOP STRIP STYLE 18 INCH AMBER	\$4,762.24
	215347	08/24/21	CLAMP 1500 1800 3600 5000 6000 9300 9400 CAC BAND T-BOLT 4 INCH	\$1,618.60
	215350	08/24/21	ROD SUSP 5000 6000 TORQUE REAR UPPER	\$5,662.60
	215367	08/25/21	NOZZLE 1500 1800 3600 6000 9300 FIRE SUP W/ BLOWOFF CAP	\$3,277.44
	215412	08/27/21	BRAKE BRACKET 5000 S-CAM / CHAMBER LH	\$3,831.71
	215413	08/27/21	SHOCK ABSORBER 6000 6300 FRONT	\$4,023.30
Total for Vendor:	Gillig LLC			\$92,076.69
Global Equipment Company Inc	214730	08/04/21	MASK DISPOSABLE EAR LOOP BLUE 3 PLY 50 PER BOX	\$3,576.00
Total for Vendor:	Global Equipment Company Inc			\$3,576.00



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Grainger	214724	08/04/21	Bucket Plastic 3-1/2GAL	\$1,964.16
	214944	08/10/21	CHEMICAL SOAP STEAM CLEANING ZEP FORMULA 940 55 GAL DRUM	\$924.25
	215079	08/18/21	CHEMICAL CLEANER KRUD KUTTER 32OZ SPRAY BOTTLE	\$543.60
	215246	08/19/21	CAMERA LENS LRV	\$707.50
	215354	08/24/21	Blade LRV Tire Cutting 119.5x1x.035 3-4 Teeth VP IND Bandsaw	\$538.30
	215405	08/26/21	CHEMICAL CLEANER KRUD KUTTER 32OZ SPRAY BOTTLE	\$217.44
Total for Vendor: Grainger				\$4,895.25
Grimco Inc	215264	08/20/21	FILM WHITE EASY PEEL 54 IN X 50 YD	\$2,936.28
	215303	08/23/21	FILM WHITE SCOTCHCAL 54 IN X 50 YD	\$2,405.96
Total for Vendor: Grimco Inc				\$5,342.24
HNTB Corporation	215082	08/18/21	17FH020 HNTB - WO-016 - Signal System Upgrade White Paper	\$193,130.00
Total for Vendor: HNTB Corporation				\$193,130.00
HPM, Inc	214986	08/11/21	17FH009B - HPM - WO 010 North Metro Small Projects	\$8,590.00
Total for Vendor: HPM, Inc				\$8,590.00
Hanning & Kahl LP	214654	08/02/21	TWC MOW MULTIPLEXER HCS-V-MX H&K	\$2,310.00
Total for Vendor: Hanning & Kahl LP				\$2,310.00



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Heatron Inc	215273	08/20/21	STEPTREAD LRV DEN I-IV HEATED THRESHOLD	\$26,456.50
Total for Vendor:	Heatron Inc			\$26,456.50
Hi-Tec Enterprises	214910	08/06/21	CONTACT OVERHAUL KIT 3T MCB LRV	\$4,700.00
	215000	08/12/21	SHOCK ABSORBER HORIZONTAL POWER TRUCK DEN V LRV	\$5,300.00
	215261	08/19/21	WASHER CALIPER HOLDER LRV	\$150.00
	215271	08/20/21	NOZZLE RIGHT LRV	\$399.00
Total for Vendor:	Hi-Tec Enterprises			\$10,549.00
Hydraquip Inc	214664	08/02/21	FITTING 1500 3600 VENT COMPRESSOR ELBOW 45 DEG	\$286.80
	215078	08/18/21	HOSE ASSY WCH W	\$108.36
Total for Vendor:	Hydraquip Inc			\$395.16
I/O Controls Corporation	214976	08/10/21	HAMS Website yearly maintenance fee for 36 BYD buses	\$6,480.00
Total for Vendor:	I/O Controls Corporation			\$6,480.00
ISC Applied Systems Corp	214646	08/02/21	ISC SCRIPT CHANGE FOR ALL LRV'S	\$1,500.00
Total for Vendor:	ISC Applied Systems Corp			\$1,500.00
Infojini, Inc.	214805	08/04/21	Infojini Inc (120H003) - Temp Employee Kevin Mathews - Safety Coordinator - 6 months - \$70/hr	\$67,200.00
Total for Vendor:	Infojini, Inc.			\$67,200.00



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Ingersoll-Rand Company	214679	08/03/21	Filter Air Ingersoll Rand Compressor Em Fm	\$240.00
Total for Vendor:	Ingersoll-Rand Company			\$240.00
Inland Truck Parts Company	214962	08/10/21	Hose Silicone 7/8 X 25FT Roll	\$771.50
Total for Vendor:	Inland Truck Parts Company			\$771.50
Instrument Sales & Service	214702	08/03/21	GAUGE PRESSURE 30 PSI	\$374.40
Total for Vendor:	Instrument Sales & Service			\$374.40
IntelliChoice Inc	214691	08/03/21	Amendment 12 10DH020 6/1/2021 through 5/21/2022	\$172,101.37
Total for Vendor:	IntelliChoice Inc			\$172,101.37
International Products Corp	215272	08/20/21	LUBRICANT GEL P-80 THIX WINDSHIELD 220 ML BOTTLE	\$256.50
Total for Vendor:	International Products Corp			\$256.50
Investigations Law Group LLC	214920	08/06/21	Workplace Investigation Services per RFQ 21LW002 Period of Performance through September 2021 No options.	\$30,000.00
Total for Vendor:	Investigations Law Group LLC			\$30,000.00
J.T. Ryerson & Son Inc.	215313	08/23/21	ALUMINUM SHEET .0125 X 36IN X 96IN	\$4,867.50
Total for Vendor:	J.T. Ryerson & Son Inc.			\$4,867.50



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Janek Corporation	214963	08/10/21	Bumper 5000 6000 Rear Module RH	\$550.00
Total for Vendor:	Janek Corporation			\$550.00
Kimball Electronics Inc	214674	08/02/21	SHUNT GROUND ASSEMBLY ROOF MOUNTED EQUIP SD160 LRV	\$91.32
	215421	08/30/21	CONDUIT HIGH FLEX	\$1,692.48
Total for Vendor:	Kimball Electronics Inc			\$1,783.80
Kirk's Automotive, Inc.	214725	08/04/21	GASKET 1500 1990 3600 3700 5260- 5265 DPF CLAMP	\$193.20
Total for Vendor:	Kirk's Automotive, Inc.			\$193.20
Krische Construction Inc	215230	08/18/21	17FH009 Krische Construction - WO 019 - 8215 Steele Plumbing & Elec	\$104,253.00
Total for Vendor:	Krische Construction Inc			\$104,253.00
Kubat Equipment & Service Co. Inc	214940	08/09/21	NOZZLE LINCOLN METER CONTROL	\$884.25
	215372	08/25/21	FITTING ALEMITE UNIVERSAL SWIVEL GREASE GUN SHOP GREASE LINES	\$1,410.00
Total for Vendor:	Kubat Equipment & Service Co. Inc			\$2,294.25
L & N Supply Company	214694	08/03/21	BOTTLE 24 OZ. WITH TRIGGER SPRAYER	\$480.00
	214980	08/11/21	Bucket Mop with Casters 26QT	\$188.94
	215368	08/25/21	SCRUBBER WINDOW / CEILING ETTORE GOLDEN GLOVE	\$342.48
Total for Vendor:	L & N Supply Company			\$1,011.42



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L.B. Foster Rail	214655	08/02/21	HPF CASE 8 1/2" LRV	\$172.45
Technologies Corp	214900	08/05/21	HPF CASE 8 1/2" LRV	\$826.44
Total for Vendor:	L.B. Foster Rail Technologies Corp			\$998.89
LED Smart Inc	214937	08/09/21	BULB LRV DEN I-VII INTERIOR LED DOME LIGHTS	\$13,266.00
Total for Vendor:	LED Smart Inc			\$13,266.00
Lawson Products Inc	214720	08/04/21	WHEEL CUTOFF STEEL 3 X 1/32 X 3/8- ARBOR SLASHER	\$805.30
	215252	08/19/21	WHEEL CUTOFF ALUMINUM 4 X 1/32 X 3/8 UNLOADER	\$443.40
	215416	08/27/21	Cut off wheels - this PO replaces PO 213915	\$367.60
Total for Vendor:	Lawson Products Inc			\$1,616.30
MAC Products	215298	08/23/21	PIPE CONNECTOR MOW W/ TONGUE G2 2IN K&M	\$390.10
Total for Vendor:	MAC Products			\$390.10



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MHC Kenworth - Denver	214667	08/02/21	COVER 5260-5265 6300 9400 GRID HEATER INTAKE MANIFOLD	\$8,204.61
	214726	08/04/21	COOLER 6000 9300 9400 KIT EGR	\$12,689.56
	214727	08/04/21	NUT 1500 3600 3700 5000 6000 ISL ISM ISX TURBO MOUNT STUD	\$13,598.00
	214960	08/10/21	HEADLIGHT 6000 LED 3 CONTACT LUG 12V HIGH/LOW	\$689.76
	214972	08/10/21	FILTER FUEL 6341-6415 ISL PRIMARY	\$10,498.16
	215025	08/12/21	SPACER 9300 ISB ISL ISM EXHAUST MANIFOLD	\$21,807.65
	215251	08/19/21	SENSOR 1800 6000 9300 ISL NITROGEN OXIDE INLET	\$10,591.80
	215282	08/20/21	GASKET 1500 1800 3600 6000 9300 ISL ISX AIR COMPRESSOR TO ACCESSORY DRIVE SUPPORT	\$629.40
	215357	08/24/21	PUMP FUEL 1800 6000 6300 9300 9400 ISL COMPLETE ASSY	\$5,884.18
Total for Vendor: MHC Kenworth - Denver				\$84,593.12
MSC Industrial Supply Co. Inc.	214665	08/02/21	GREASE BARIUM PARKER 2 OZ TUBE BRAKE TREADLE MECHANISM	\$1,091.68
	214957	08/10/21	Box Tire Chain Kit	\$1,253.04
	215383	08/25/21	PAINT SPRAY LIGHT GRAY MACHINE	\$818.04
	215431	08/30/21	BIT WHEEL LATHE IN	\$3,752.00
Total for Vendor: MSC Industrial Supply Co. Inc.				\$6,914.76
Majorcell International LTD	215352	08/24/21	LEVER 1500 1990 3600 6000 CALIPER	\$2,870.00
Total for Vendor: Majorcell International LTD				\$2,870.00



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Mallory Safety & Supply LLC	214723	08/04/21	GLASSES SAFETY W/ READERS +1.5 CLEAR POLY	\$170.16
	214728	08/04/21	GLOVES NITRILE POWDER FREE 5 MIL DISPOSABLE EXTRA LARGE	\$13,224.00
	214729	08/04/21	GLOVES NITRILE POWDER FREE 5 MIL DISPOSABLE LARGE	\$16,530.00
Total for Vendor: Mallory Safety & Supply LLC				\$29,924.16
Marini Diesel Inc	214973	08/10/21	SENSOR 1500 TEMPERATURE DPF	\$1,718.75
	214987	08/11/21	PAN 1800 5260-5265 6000 9300 ENGINE OIL ISL	\$1,376.24
	215016	08/12/21	VALVE 1800 5261-5265 6000 9300 ISL PRESSURE RELIEF INJECTOR PLUMBING	\$1,241.46
	215027	08/12/21	VALVE 3706 AUTO CHAIN PRESSURE PROTECTION	\$61.14
	215231	08/18/21	GASKET 1800 6000 9300 9400 ISL TURBOCHARGER	\$207.84
	215290	08/20/21	CAP OIL 1990 5000 ISM FILLER ASSY	\$573.36
	215360	08/24/21	REPAIR KIT 1400 1500 1650 5261-5265 6000 CONDENSOR SEPERATOR 24V	\$13,436.32
	215370	08/25/21	GASKET 1800 5260-5265 6000 9300 ISL EXHAUST MANIFOLD	\$1,561.24
	215373	08/25/21	CLAMP 5000 6000 6300 9300 V BAND 3.5IN ID	\$831.36
Total for Vendor: Marini Diesel Inc				\$21,007.71
Maxwell Industries R & D Inc	215237	08/18/21	MSV 72664, 72666, 72667 REPAIR SHOCKS	\$8,638.00
Total for Vendor: Maxwell Industries R & D Inc				\$8,638.00



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McMaster-Carr Supply Company	214657	08/02/21	VELCRO 1IN DUAL LOCK	\$918.00
	215395	08/26/21	STRING PULL 1/8" DIA ONLY SUNSHADE LRV	\$144.00
Total for Vendor: McMaster-Carr Supply Company				\$1,062.00
Mohawk Mfg. & Supply Co.	214693	08/03/21	ARM 1800 9300 WIPER ASSY 34.0	\$922.23
	214953	08/10/21	VALVE 6000 BRAKE APPLICATION E-8P	\$834.96
	214971	08/10/21	BRAKE CAMSHAFT 1400 5000 RH DRIVE	\$101.54
	215009	08/12/21	LAMP 6000 ASSY WHITE EXTERIOR	\$797.00
	215024	08/12/21	VALVE AIR 1500 1990 PRESSURE PROTECTION	\$616.52
	215061	08/17/21	PEDAL 5000 6000 BRAKE W/ BASE	\$388.80
	215232	08/18/21	SPEAKER 1400 1650 5000 EXTERIOR NOISE GENERATOR	\$577.50
	215270	08/20/21	BRAKE VALVE 5000 MODULATOR	\$177.00
	215304	08/23/21	VALVE AIR 5000 6000 AUTO TANK DRAIN	\$383.36
	215349	08/24/21	COIL 5260-5265 6000 SOLENOID A/C COMPRESSOR	\$951.15
	215355	08/24/21	BRAKE ROTOR 1800 9300 REAR 17 INCH	\$1,543.20
	215414	08/27/21	VALVE SUSP 5000 6000 HEIGHT CONTROL DRIVE	\$400.86
Total for Vendor: Mohawk Mfg. & Supply Co.				\$7,694.12
Motion Industries, Inc.	214902	08/05/21	HOUSING JOURNAL PWR TRUCK LRV	\$4,341.97
	215014	08/12/21	SEAL 1500 1990 6000 BRAKE CALIPER ADJUSTER STEM	\$399.00
	215299	08/23/21	NIPPLE BRAKE 3/8" PARKER HYD FITTING LRV	\$287.60
Total for Vendor: Motion Industries, Inc.				\$5,028.57



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Motion and Flow Control Products Inc	215406	08/26/21	FITTING HYDRAULIC PORT # 4 PARKER LRV	\$373.33
	215418	08/30/21	HOSE BRAKE SERVICE FLEX #2 POWER TRUCK DEN V LRV	\$486.78
Total for Vendor:	Motion and Flow Control Products Inc			\$860.11
Motorola Solutions Inc	214895	08/05/21	2021-2024 Motorola Support Agreement	\$385,916.22
Total for Vendor:	Motorola Solutions Inc			\$385,916.22
Mouser Electronics, Inc.	214958	08/10/21	TOOL MOLEX PIN REMOVER	\$300.98
	215308	08/23/21	SWITCH 5000 6000 SPEAKER SELECTOR 6 POL 3 POS ON/ON/ON	\$676.60
Total for Vendor:	Mouser Electronics, Inc.			\$977.58
Muncie Transit Supply	214894	08/05/21	AIR BAG 6000 FRONT	\$2,103.12
	214965	08/10/21	SENSOR 1800 9300 REAR ABS RH CURBSIDE BLACK CONNECTOR	\$469.14
	215022	08/12/21	ARM 6000 WIPER	\$2,709.00
	215241	08/18/21	ADAPTER STRAIGHT 1800 9301-9380 DEF TANK FILL	\$4,719.54
	215281	08/20/21	FILTER 1800 6000 9300 9400 TRANSMISSION	\$3,834.54
	215356	08/24/21	GASKET 1800 6000 9300 ANTI-SPILL DEF FILL ADAPTER	\$1,704.60
Total for Vendor:	Muncie Transit Supply			\$15,539.94



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<u>PO Vendor Name</u>	<u>PO Number</u>	<u>PO Date</u>	<u>Description</u>	<u>PO Amount</u>
Mythics Inc	215322	08/24/21	Oracle Renewals (ACS, EBS and Database) 2021-2022	\$1,108,580.52
	215432	08/30/21	2021-22 Oracle Enterprise Planning and Budgeting Cloud - Renewal	\$134,616.00
Total for Vendor:	Mythics Inc			\$1,243,196.52
NAPA Auto Parts	214950	08/10/21	CHEMICAL COATING ANTI-SEIZE W/BRUSH TOP	\$299.88
	215004	08/12/21	COVER PLASTIC DRIVERS SEAT	\$599.90
	215302	08/23/21	HYDROMETER BATTERY	\$239.80
	215346	08/24/21	TOOL WHEEL STUD CLEANER M22 X 60L	\$176.32
Total for Vendor:	NAPA Auto Parts			\$1,315.90
NASG Holdings LLC	214919	08/06/21	GLASS 6 MIN PASSENGER 1/4" 44% GREY TINT LAMINATED SD160 DEN VI LRV	\$6,800.00
Total for Vendor:	NASG Holdings LLC			\$6,800.00
National Coatings & Supplies Inc	214921	08/06/21	PRIMER HIGH SOLIDS EPOXY - GRAY PPG	\$1,663.20
	214932	08/09/21	PAINT THINNER LACQUER 55GAL	\$639.20
	214939	08/09/21	Paint Thinner Lacquer 5GAL Dupont	\$286.75
	214996	08/11/21	Paint Activator Primer Filler Imron Dupont	\$764.34
	215011	08/12/21	ACTIVATOR LOW TEMP DUPONT	\$156.92
	215053	08/17/21	PAINT ACTIVATOR DUPONT METALOK CVP	\$1,200.82
	215381	08/25/21	PAINT ACTIVATOR FOR PRIMER 2K URETHANE	\$188.64
Total for Vendor:	National Coatings & Supplies Inc			\$4,899.87



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<u>PO Vendor Name</u>	<u>PO Number</u>	<u>PO Date</u>	<u>Description</u>	<u>PO Amount</u>
National Electric Gate Company, Inc	215387	08/25/21	LIGHT MOW GATE ARM TIP	\$515.00
Total for Vendor:	National Electric Gate Company, Inc			\$515.00
National Oak Distributors Inc	214684	08/03/21	PAINT SPRAY ZERO RUST AEROSOL BLACK LRV	\$630.00
	215010	08/12/21	Sandpaper Disc 6IN 180GRIT Stikit Psa Gold	\$323.12
	215074	08/17/21	DISC SANDING ROLOC 3IN 36 GRIT PURPLE	\$516.00
	215283	08/20/21	DISC ROLOC BRISTLE 50X TAPERED 5/8 X 3	\$288.90
	215366	08/25/21	CARTRIDGE FOR BINKS RESPIRATOR AIR CHEMICAL	\$387.20
Total for Vendor:	National Oak Distributors Inc			\$2,145.22
Natural Bridge Station Inc.	214677	08/03/21	DRUM FIBRE 4FT FLORESCENT LAMP DISPOSAL HOLDS 85 4FT	\$170.88
Total for Vendor:	Natural Bridge Station Inc.			\$170.88
Neopart Transit LLC	214893	08/05/21	CARRIER 1500 6000 BRAKE CALIPER	\$369.28
	214959	08/10/21	ROLLER ASSY 6000 LIFT-U RAMP	\$667.32
	214961	08/10/21	SENSOR 1500 1800 1990 5000 6000 9300 ISB ISM ISX ISL PRESSURE	\$3,567.00
	215068	08/17/21	CAGE 5000 6000 ASSY PINION CARRIER	\$405.00
	215239	08/18/21	BRAKE CALIPER 1800 9300 STREETSIDE LH FRONT	\$2,840.00
Total for Vendor:	Neopart Transit LLC			\$7,848.60



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<u>PO Vendor Name</u>	<u>PO Number</u>	<u>PO Date</u>	<u>Description</u>	<u>PO Amount</u>
New Pig Corporation	215274	08/20/21	ABSORBANT MAT WHITE 16.5 X 20 OL ONLY	\$1,152.00
Total for Vendor:	New Pig Corporation			\$1,152.00
Newark Corporation	214898	08/05/21	Tool Pin Remover LRV Hts/Tyco	\$703.50
	215397	08/26/21	PANEL LRV DEN I-IV VOD DATA SYSTEM 6 INCH	\$9,424.00
Total for Vendor:	Newark Corporation			\$10,127.50
PFUNDER Fabrication LLC	215037	08/16/21	PULLEY IDLER PLATEN WHEEL 2 X 2 ALUMINUM	\$4,254.40
Total for Vendor:	PFUNDER Fabrication LLC			\$4,254.40
Powertech Converter Corp	214672	08/02/21	BOARD CIRCUIT LRV	\$1,839.06
Total for Vendor:	Powertech Converter Corp			\$1,839.06
Prevost Car (US) Inc.	214668	08/02/21	SEAL ENG 1990 5000 ISM CRANKSHAFT KIT	\$120.62
Total for Vendor:	Prevost Car (US) Inc.			\$120.62
Professional Plastics, Inc.	215236	08/18/21	BLOCK SLIDING ARTIC LRV	\$376.74
	215363	08/25/21	GRAFFITI GUARD 9300 LOWER ACRYLIC	\$348.90
Total for Vendor:	Professional Plastics, Inc.			\$725.64



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<u>PO Vendor Name</u>	<u>PO Number</u>	<u>PO Date</u>	<u>Description</u>	<u>PO Amount</u>
Pynergy Petroleum Company LLC	214891	08/05/21	Lubricant Grease Conoco Red Multiplex 120LB KEG	\$742.96
	214966	08/10/21	OIL 5W30 FULL SYNTHETIC 55 GALLON DRUM	\$930.00
	215047	08/17/21	LUBRICANT SYNTHETIC OIL GEAR 80W90 TEXAS STAR	\$667.15
	215057	08/17/21	LUBRICANT SYNTHETIC OIL GEAR 80W90 TEXAS STAR	\$667.15
	215419	08/30/21	CHEMICAL CLEANER SOLVENT WINDSHIELD WIPER WASHER READY-MIX	\$297.00
Total for Vendor:		Pynergy Petroleum Company LLC		\$3,304.26
QP Services LLC	215396	08/26/21	Littleton DT Station Underground Drain Cleaning	\$13,715.00
Total for Vendor:		QP Services LLC		\$13,715.00
R.F.S., Inc.	215253	08/19/21	Saw Hole 1-1/2	\$130.10
Total for Vendor:		R.F.S., Inc.		\$130.10
R.S. Hughes Company, Inc.	214660	08/02/21	Earplug Disposable	\$416.00
	214984	08/11/21	ACTIVATOR RUBBER PLASTIC SCOTCH- WELD	\$965.95
	215029	08/13/21	GRAFFITI GUARD LRV DEN VIII SIX MIN 50.19 X 39.31	\$4,789.00
	215076	08/18/21	FILM LRV DEN I-VII ANTI-GRAFFITI 3M 6 MIN WINDOW	\$4,327.00
	215409	08/27/21	BELT SANDING 36 GRIT 3/8 X 13IN	\$539.00
Total for Vendor:		R.S. Hughes Company, Inc.		\$11,036.95



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Racine Railroad Products Inc	215030	08/13/21	One each part number 910170 Gas Profile Grinder	\$7,200.00
Total for Vendor:	Racine Railroad Products Inc			\$7,200.00
Rhinehart Oil Co. LLC	215244	08/19/21	Lubricant Grease Conoco Red Multiplex NO2 400LBS	\$1,082.75
Total for Vendor:	Rhinehart Oil Co. LLC			\$1,082.75
Ricon Corporation	214704	08/04/21	RAIL 3600 SEAT GUIDE CARRIAGE	\$991.29
Total for Vendor:	Ricon Corporation			\$991.29
Rubin Brown LLP	215305	08/23/21	Consultant for Internal Audit Improvements - 8/20/21 - 11/18/2021	\$50,000.00
Total for Vendor:	Rubin Brown LLP			\$50,000.00
Saf-T-glove, Inc.	214659	08/02/21	GLASSES SAFETY ERGONOMIC FRAME	\$360.00
Total for Vendor:	Saf-T-glove, Inc.			\$360.00
Safety Vision LLC	214656	08/02/21	RECORDER LRV DEN I-VII DIGITAL VIDEO 4112	\$3,990.00
Total for Vendor:	Safety Vision LLC			\$3,990.00
Sanchem Inc	214982	08/11/21	CHEMICAL COATING PROTECTIVE NO-OX-ID	\$264.00
Total for Vendor:	Sanchem Inc			\$264.00



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Schunk Carbon Technology LLC	214671	08/02/21	CONTACT GROUND BRUSH DEN V LRV	\$3,520.90
	215028	08/12/21	CARBON STRIP WITH HEATING ELEMENT PANTOGRAPH LRV	\$111,810.00
	215032	08/13/21	SWITCH LRV DEN VII PANTOGRAPH LIMIT SWITCH MAGNETIC	\$426.08
Total for Vendor:	Schunk Carbon Technology LLC			\$115,756.98
Selective Transit Parts	214948	08/10/21	PLATE 9300 ZF TRANSMISSION LOCK UP PISTON	\$2,046.00
	215242	08/18/21	BREATHER 6000 TRANSMISSION ZF	\$517.50
	215300	08/23/21	NOZZLE 6000 0.65 GPH THERMO 230 SPHEROS THERMO 230	\$1,199.50
	215386	08/25/21	OIL DAM 6000 ZF TRANSMISSION	\$2,602.00
Total for Vendor:	Selective Transit Parts			\$6,365.00
Seon Design (USA) Corp.	215280	08/20/21	CAMERA SEON WEDGE 720P 1080P 3MP 3.6MM EXTERNAL	\$2,350.00
Total for Vendor:	Seon Design (USA) Corp.			\$2,350.00
Servicewear Apparel Inc	215001	08/12/21	Add Funds to PO#171245 - Serviceware Apparel Agreement	\$9,000.00
Total for Vendor:	Servicewear Apparel Inc			\$9,000.00
Sid Harvey Industries, Inc.	215415	08/27/21	FITTING A/C ADAPTER 3/4 FPT X 1/4 MALE FLARE W/ GASKET	\$203.75
Total for Vendor:	Sid Harvey Industries, Inc.			\$203.75



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Siemens Mobility Inc	214683	08/03/21	INDICATOR LIGHT DOOR CLOSING LED AMBER DEN V LRV	\$290.00
	214935	08/09/21	HOSE BRAKE # 4 1/2" X 360MM CENTER TRUCK DEN V LRV	\$154.80
	215042	08/16/21	REBUILD KIT BRAKE LRV DEN V-VII FRICTION HPU	\$124,050.00
	215062	08/17/21	TANK SURGE LRV DEN VIII FRICTION BRAKE	\$3,763.80
	215071	08/17/21	YP16850-R Contract 221DR001	\$388,000.00
	215249	08/19/21	REBUILD KIT BRAKE LRV DEN V-VII FRICTION HPU	\$124,050.00
	215297	08/23/21	HARNES SPEED SENSOR CENTER TRUCK AXEL 4 DEN V LRV	\$974.00
Total for Vendor:	Siemens Mobility Inc			\$641,282.60
Southwest Seal & Supply, Inc.	214687	08/03/21	Seal Chesterton Hoist 10-5/8IN Ram Kit	\$3,349.00
Total for Vendor:	Southwest Seal & Supply, Inc.			\$3,349.00
Super-Tech Filter	214915	08/06/21	Filter HVAC 24 X 24 X 1 PREPLEAT Flander Precision Air	\$295.92
Total for Vendor:	Super-Tech Filter			\$295.92
Surveillance-Video.com	215377	08/25/21	SWITCH LIGHT RAIL ACCESS GATES MOW LRV	\$2,520.00
Total for Vendor:	Surveillance-Video.com			\$2,520.00



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Team Petroleum, LLC	214964	08/10/21	OIL 5W20 FULL SYNTHETIC 55 GALLON DRUM	\$1,639.66
Total for Vendor:	Team Petroleum, LLC			\$1,639.66
Tec Tran a Division of Wabtec	215060	08/17/21	CLAMP CALIPER BOOT LOW PROFILE DEN V LRV	\$2,400.00
Total for Vendor:	Tec Tran a Division of Wabtec			\$2,400.00
Tessco Inc	215379	08/25/21	ANTENNA MOBILE MARK FIXED ROUTE MIMO	\$248.04
Total for Vendor:	Tessco Inc			\$248.04



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The AfterMarket Parts Company	214670	08/02/21	ALARM 1800 9300 ELECTRICAL BACK UP ALARMS	\$11,856.46
	214714	08/04/21	BRAKE CALIPER 1800 9300 CURBSIDE RH REAR	\$12,882.90
	214890	08/05/21	WINDSHIELD 1500 1990 3600 3700 RH CURBSIDE	\$1,085.74
	214924	08/06/21	EXCHANGER 1800 5000 6000 9300 HEAT SPHEROS THERMO 230 300 350	\$13,051.65
	214925	08/06/21	VALVE A/C 1500 1990 3600 3700 SOLENOID A/C	\$4,680.69
	214954	08/10/21	SEAL 1800 9300 SHAFT REAR AXLE BRAKE	\$2,697.70
	215015	08/12/21	NOZZLE 1500 3600 3700 5237-5265 HEATER .85 GPH SPHEROS THERMO 300	\$12,071.25
	215018	08/12/21	PANEL 1500 3600 3700 REAR VERTICAL UPPER EXTERIOR CAP	\$12,646.40
	215049	08/17/21	WINDSHIELD 5000 6000 LH W/TINT	\$1,387.50
	215056	08/17/21	SASH 1500 1990 3600 FRAMELESS STANDARD	\$1,188.00
	215070	08/17/21	PANEL 9300 9400 BLOWER CONTROL FUSE BOX	\$991.53
	215081	08/18/21	DRIVESHAFT 1800 9300	\$1,964.36
	215235	08/18/21	BRAKE CALIPER 1800 9300 STREETSIDE LH FRONT	\$888.00
	215245	08/19/21	CABLE 9300 9400 POWER FUSE BOX TO ALTENATOR PS2P1	\$622.50
	215286	08/20/21	SEAL 1800 JAMB ENTR FWD	\$7,187.52
	215310	08/23/21	FRAME 1800 9300 BELT GUARD	\$622.55
	215314	08/23/21	ARM 1500 STEERING REAR LH	\$1,050.92
	215340	08/24/21	NUT 1500 SLOTTED ARM TIE ROD AND ARM STEERING	\$159.75



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The AfterMarket Parts Company	215348	08/24/21	MODULE 1500 1800 3600 3700 5000 6000 9300 THERMO 230 300 350	\$4,484.87
	215351	08/24/21	PLATE SUSP 1500 1990 3600 3700 PIN LOCKING MOUNT/TIE ROD	\$11,281.00
	215365	08/25/21	CLAMP 1500 1800 9300 EXH CLAMP 4 INCH V-BAND TURBO OUTLET ISX	\$2,742.96
	215410	08/27/21	BEARING DIFF 1500 3600 KIT W/ SPIDERS	\$2,921.70
	215422	08/30/21	BOLT 1800 9300 9400 CENTER AXLE BRAKE	\$1,587.48
	215423	08/30/21	HOSE 1500 BOOST PUMP TO HEATER	\$571.88
	215430	08/30/21	DOOR 1500 3600 3700 SERVICE REAR RH W/ LIGHT HOUSING	\$2,892.00
Total for Vendor: The AfterMarket Parts Company				\$113,517.31
The Home Depot Pro	214928	08/09/21	Handle Squeegee Tapered 1-1/8 X 5FT	\$179.40
	214997	08/11/21	Brush Scratch Stainless Steel	\$1,594.80
	215059	08/17/21	Chemical Cleaner Dust Mop Spray	\$192.96
Total for Vendor: The Home Depot Pro				\$1,967.16
The Sherwin-Williams Company	214715	08/04/21	ADHESIVE 10 SMC / FIBERGLASS REPAIR 3M	\$2,562.88
	214981	08/11/21	PAD ROLOC DISC 3M 3 INCH BACKUP	\$492.00
Total for Vendor: The Sherwin-Williams Company				\$3,054.88



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Thermo King of Dallas LLC	214968	08/10/21	SEAL 5000 6000 ASM OIL/ A/C COMPRESSOR	\$2,626.53
	215233	08/18/21	CONTROLLER HVAC CONTROL BOX SD160 LRV	\$26,692.84
	215269	08/20/21	HOSE A/C YELLOW CHARGING 60 1/4 IN	\$225.00
	215289	08/20/21	COMPRESSOR A/C 1400 5260-5265 6000 - 6415 ASSY SCREW	\$43,088.55
Total for Vendor:		Thermo King of Dallas LLC		\$72,632.92
Titan Laboratories	215307	08/23/21	BOTTLE OIL SAMPLE TITAN W/PROBE	\$12,648.00
Total for Vendor:		Titan Laboratories		\$12,648.00
TradeBase	214994	08/11/21	Lockout Tagout Kits	\$10,943.42
Total for Vendor:		TradeBase		\$10,943.42
TransTech Of South Carolina Inc	214896	08/05/21	CLAMP DUPLEX MOW FOR POTENTIAL JUMPERS DELTA STAR	\$1,047.50
Total for Vendor:		TransTech Of South Carolina Inc		\$1,047.50
Transit Resources, Inc.	215055	08/17/21	BAR 5000 LU6 LIFT ASSY TORSION	\$199.51
Total for Vendor:		Transit Resources, Inc.		\$199.51
Transwest ATTP	215234	08/18/21	Rail 1500 1990 Skirt Outside Lower Frame LH	\$324.48
Total for Vendor:		Transwest ATTP		\$324.48



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UKM Transit Products Inc	214700	08/03/21	SPRING TORSION RH ADA RAMP S160 DEN V LRV	\$5,328.00
	215320	08/24/21	STRUT LRV DEN V-VII DAMPER CUSHION ADA RAMP	\$4,680.00
	215388	08/25/21	SPRING COVER ADA RAMP LRV	\$820.00
Total for Vendor:	UKM Transit Products Inc			\$10,828.00
US Standard Sign Company	214719	08/04/21	Sign Blank 24 X 24 Sign Shop	\$1,613.25
Total for Vendor:	US Standard Sign Company			\$1,613.25
United Refrigeration, Inc.	215389	08/26/21	CAPACITOR MOW PRCD8010 80-10 370V	\$237.40
Total for Vendor:	United Refrigeration, Inc.			\$237.40
Valvoline Inc	214917	08/06/21	LUBRICANT OIL 10W30 VALVOLINE PREMIUM BLUE SYNTHETIC BLEND 55 GAL DRUM	\$1,028.50
Total for Vendor:	Valvoline Inc			\$1,028.50
Vehicle Maintenance Program, Inc.	215021	08/12/21	CLEANER ENGINE BRITE GUNK EB1CA 16 OZ CAN	\$3,528.00
Total for Vendor:	Vehicle Maintenance Program, Inc.			\$3,528.00
Veritech Inc	215353	08/24/21	SENSOR 1800 6000 9300 9400 COOLANT LEVEL	\$6,750.00
Total for Vendor:	Veritech Inc			\$6,750.00



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Vision Chemical Systems Inc	214738	08/04/21	CHEMICAL DEXICHLOR GERMICIDE SH12 10PCT BLEACH HM	\$320.00
	214909	08/06/21	CHEMICAL DEXICHLOR GERMICIDE SH12 10PCT BLEACH HM	\$1,280.00
Total for Vendor:	Vision Chemical Systems Inc			\$1,600.00
Voith US Inc	215041	08/16/21	CONTACT PIN AMP 16 GAGE COUPLER LRV	\$5,328.08
	215420	08/30/21	ROLLER LRV DEN I - VII SUPPORT COUPLER MECHANICAL HEAD	\$8,888.64
Total for Vendor:	Voith US Inc			\$14,216.72
WSP USA Inc	215295	08/20/21	Platte Maintenance Facility Passive Methane System Operation Sampling and Monitoring	\$12,573.00
Total for Vendor:	WSP USA Inc			\$12,573.00
Waxie Sanitary Supply	214716	08/04/21	Mop O-Cedar Sponge with Handle	\$277.20
	215017	08/12/21	TOWEL UTILITY BUS 9 X 10.5	\$5,918.40
Total for Vendor:	Waxie Sanitary Supply			\$6,195.60
West Direct Oil LLC	215238	08/18/21	BRAKE FLUID 5 GALLON (HYD FLUID) LRV	\$6,150.00
Total for Vendor:	West Direct Oil LLC			\$6,150.00
Western Paper Distributors Inc	215077	08/18/21	TOWEL UTILITY BUS 9 X 10.5	\$1,788.48
Total for Vendor:	Western Paper Distributors Inc			\$1,788.48



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Western-Cullen-Hayes Inc.	215378	08/25/21	MOTOR BRUSH MOW GATE MECHANISM 3590 WCH	\$262.50
Total for Vendor:	Western-Cullen-Hayes Inc.			\$262.50
Wurth USA Inc.	215382	08/25/21	PAINT SEALER RUST GUARD	\$683.77
Total for Vendor:	Wurth USA Inc.			\$683.77
Xorail Inc	215398	08/26/21	121DN006 Xorail WabtecOne Software as a Service Agreement	\$573,698.00
Total for Vendor:	Xorail Inc			\$573,698.00
ZF North America	215358	08/24/21	DRUM 1800 9300 TRANSMISSION B CLUTCH	\$665.40
	215371	08/25/21	Vehicle Licenses - ZF Ecolife (Qty 455)	\$287,536.22
Total for Vendor:	ZF North America			\$288,201.62
Zep Sales & Service	215399	08/26/21	CHEMICAL LRV DEN I-VIII FLOOR SEALANT WAX 5 GALLON PAIL	\$987.40
Total for Vendor:	Zep Sales & Service			\$987.40
Total Amount for Report:				\$7,409,568.61
Total Number of POs:				358

Contracts Pending Award/Contracts Awarded/Current Solicitations in Process/Upcoming Solicitations as of October 15, 2021

CONTRACTS PENDING AWARD

<i>Issue Date</i>	<i>Solicitation</i>	<i>Title</i>	<i>Pre-Meetings</i>	<i>DBE/SBE</i>	<i>Due Date</i>	<i>Bidders/Proposers</i>	<i>Status</i>
7/14/21	Request for Proposal (RFP) 121FH004	Public Transportation Services Group 31 Fixed-Route Services	7/27/21 10 a.m.	DBE 5%	8/27/21 3 p.m.	1 Proposal - First Transit, Inc.	Proposal is being evaluated. Evaluation expected to be complete by October 31, 2021
7/8/21	Request for Proposal (RFP) 121FH018	Bus Audio/Video Live Connection	7/27/21 1 p.m.	N/A	9/2/21 3 p.m.	10 Proposals - Best Products and Solutions - Modern Railway Systems - Moss - Preferred Technologies - Rail Transit Consultants Inc. - RL Controls - Safe Fleet - Securitas - Stone Security - Universal Communication Systems	Proposals are being evaluated. Evaluations expected to be complete by October 31, 2021
8/3/21	Request for Proposal (RFP) 121DH020	Paratransit Scheduling and Management System	N/A	N/A	9/21/21 3 p.m.	3 Proposals - Ecolane - HBSS Connect Corp. - Spare Labs	Proposals are being evaluated. Evaluations expected to be complete by November 30, 2021

CONTRACTS AWARDED

<i>Issue Date</i>	<i>Solicitation</i>	<i>Title</i>	<i>Pre-Meetings</i>	<i>DBE/SBE</i>	<i>Due Date</i>	<i>Bidders/Proposers</i>	<i>Status</i>
11/10/20	Request for Proposal (RFP) 120DH005	System Advertising Program	N/A	N/A	2/18/21 2 p.m.	3 Responsive proposals - Intersection - Lamar Advertising - Vector Media 1 Non-responsive proposal received - Banner Signs	Award was approved by the Board of Directors on June 22, 2021. Award recommended to Lamar Advertising pending General Manager fully executing Contract
5/7/21	Request for Proposal (RFP) 121FK002	Seventeen 40 Foot Battery Electric Transit Buses	N/A	N/A	9/1/21 2 p.m.	5 Proposals - BYD - Gillig - New Flyer - Nova Bus - Proterra	Award recommended to New Flyer pending Board of Directors approval
8/12/21	Request for Proposal (RFP) 121FO004	Architectural and Engineering (A&E) Consulting Services	8/19/21 2 p.m.	DBE 20%	9/16/21 2 p.m.	5 Proposals - AECOM - HDR - Huitt-Zollars, Inc. - SHE - Studio Compleativa, Inc.	Award recommended to HDR and SEH pending Board of Directors approval

UNSOLICITED PROPOSAL PENDING

All Unsolicited Proposals are being reviewed and processed in accordance with established procedures.

NONE



SOLICITATIONS CURRENTLY OUT FOR BID/PROPOSAL/QUOTE

<i>Issue Date</i>	<i>Solicitation</i>	<i>Title</i>	<i>Pre-Meetings</i>	<i>DBE/SBE</i>	<i>Due Date</i>
9/10/21	Request for Proposal (RFP) 121DH025	Systemwide Fare Study and Equity Analysis	9/22/21 9 a.m.	SBE 15%	10/18/21 2 p.m.
9/16/21	Request for Proposal (RFP) 121DO003	General Printing Services	N/A	N/A	10/28/21 2 p.m.
9/21/21	Invitation for Bid (IFB) 321FH006	On Demand Bike Lockers – A/R Line Peoria, Iliff and Central Park Stations	N/A	N/A	10/20/21 2 p.m.
9/24/21	Request for Proposal (RFP) 121FN007	Northwest Rail Line Peak Service Study	10/6/21 1 p.m.	DBE 22%	11/4/21 2 p.m.
10/12/21	Invitation for Bid (IFB) 221DK003	Closed-Circuit Television (CCTV) Cameras, Access Control Parts and Accessories	N/A	N/A	11/5/21 2 p.m.
10/13/21	Request for Quotations (RFQ) 121RB055	Parking Structure Repairs – US36/Sheridan and Nine-Mile	N/A	SBE 15%	11/2/21 2 p.m.
10/15/21	Request for Proposal (RFP) 121DM004	Leased Bus Tires	N/A	N/A	11/18/21 2 p.m.

UPCOMING SOLICITATIONS

- 8/11/21 – LRT Station Painting Services – estimated advertisement October 2021
- 8/11/21 – Multicultural Outreach and Engagement Services – estimated advertisement October 2021
- 8/18/21 – Request for Qualifications for Development of Mixed-Income For-Sale Housing on Real Property located at 2907-2915 Welton Street, Denver, CO – estimated advertisement October 2021
- 9/10/21 – Maintenance Services at RTD Bus Shelters (Aurora and Federal Blvd) – estimated advertisement October 2021