# Quality of Life

## State of the System

OCTOBER 2020

# ACKNOWLEDGEMENTS

*Thank you to all the contributors for this year's Quality of Life (QoL) Study. Every year this project is a collaborative effort. However, this year was a larger effort due to the addition of the QoL Sustainability Report, the COVID-19 metrics, and the redesign of the QoL webpage.*

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- Colorado Department of Transportation (CDOT)
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### WHY IS THIS IMPORTANT?

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**REPORT APPENDIX**

# QUALITY OF LIFE PROGRAM

The Quality of Life (QoL) Study is RTD's data-driven evaluation of progress toward meeting the FasTracks Program goals.

| GOAL 1 | GOAL 2 | GOAL 3 | GOAL 4 |
|---|---|---|---|
| Balance Transit Needs with Regional Growth | Increase Transit Mode Share | Improve Transportation Options and Choices | Improve Environmental Sustainability and Public Health |

Visit the Quality of Life Website for more information http://www.rtd-denver.com/QofL.shtml

**RTD**

# COVID-19 METRICS

The **Quality of Life Study** typically tracks annual data in order to compare metrics over time.

However, in 2020, the **COVID-19 pandemic has had a major impact** on how people travel and how RTD operates transit service in the Denver Metro Region.

Therefore, daily, weekly, and monthly data has been incorporated into the report in order to show recent **changes in trends due to the pandemic**.

# GOAL ONE

Balance Transit Needs with Regional Growth

Rapid transit network has grown by **100 miles** since 2012

**179,000 homes** built in Metro Denver since 2009

# WHY IS THIS IMPORTANT?

**1.83 million jobs** in Metro Denver in 2019

freeMallRide

RTD

**3,277,500 people** lived in Metro Denver in 2018

# REGIONAL POPULATION

**Metro Denver Region Population**

| Year | Population (approx.) |
|------|---------------------|



Population Growth (2010-2018)
14% Metro Denver
13% Colorado
7% US Metro Areas
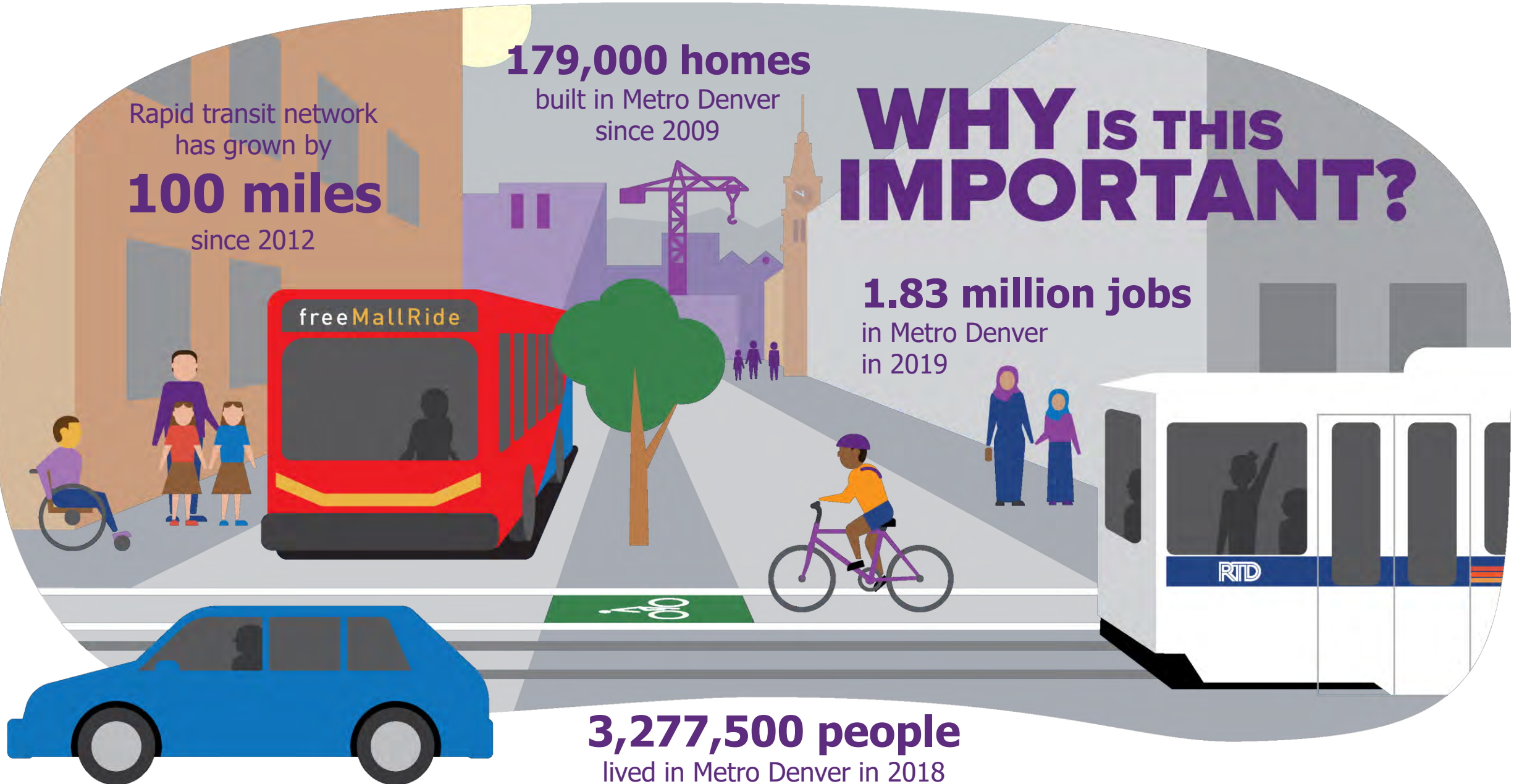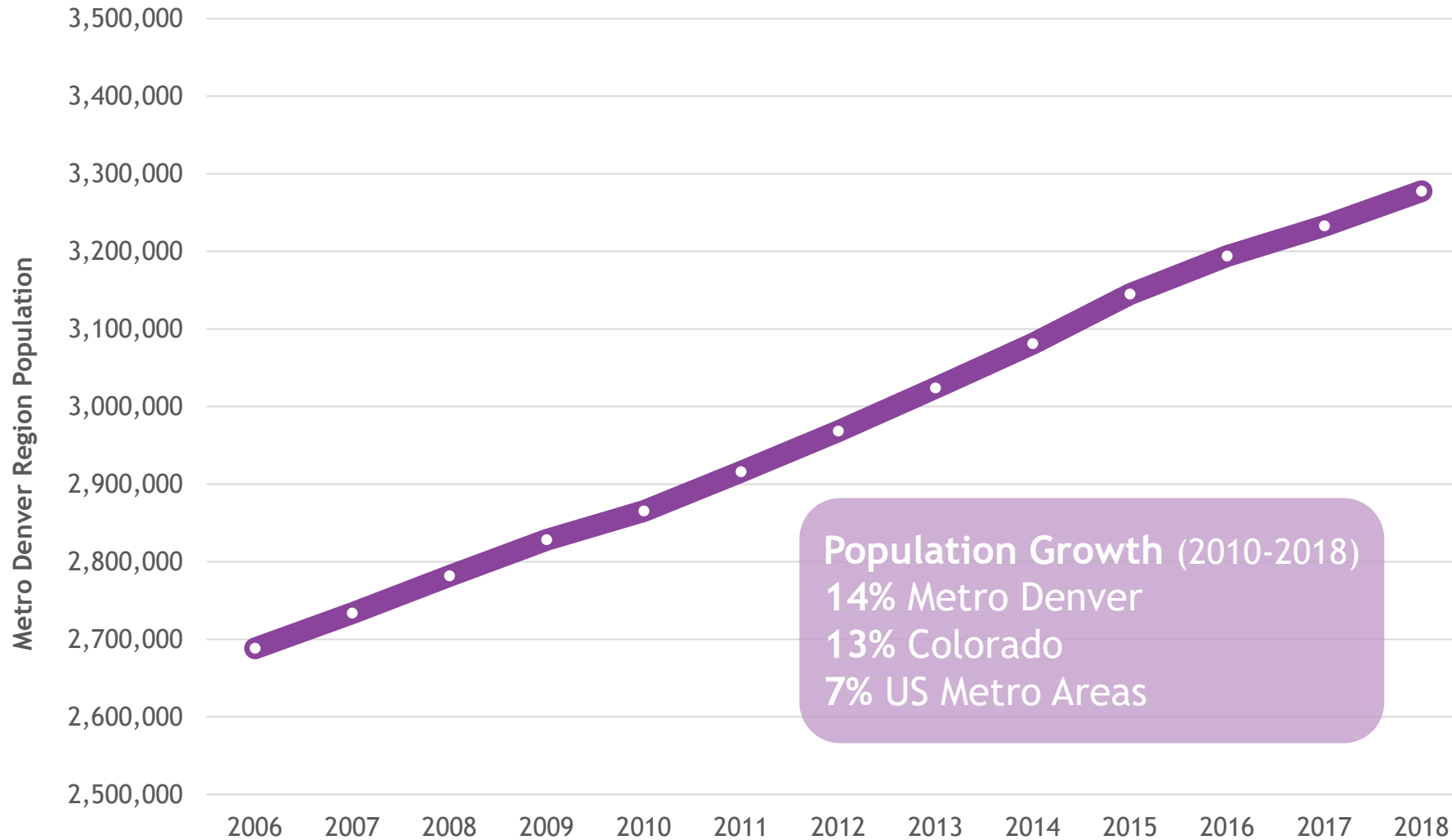
Since 2010, Metro Denver grew by 412,000 people, an average of 140 people daily. There was a **14% increase in population** between 2010 and 2018.

# REGIONAL EMPLOYMENT

Since the Great Recession, the number of jobs has increased by 27%.

Between 2010 and 2019, the Metro Denver Region grew by over 388,000 jobs. In 2019, **unemployment was 2.6% compared to 3.7% nationwide.**

**Number of Employed People**

2,000,000
1,900,000
1,800,000
1,700,000
1,600,000
1,500,000
1,400,000
1,300,000
1,200,000

Great Recession

2006  2007  2008  2009  2010  2011  2012  2013  2014  2015  2016  2017  2018  2019

# COVID STATE UNEMPLOYMENT

In May 2020, over 150,000 people in Metro Denver submitted a continued unemployment claim.

COVID-19

Great Recession

Dot Com Bubble

Colorado Unemployment Rate

10%
9%
8%
7%
6%
5%
4%
3%
2%
1%
0%

1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020

The unemployment rate in Colorado has been much higher during COVID than in previous recessions. During COVID, the **peak unemployment rate was 10% in mid-May**. Since the peak, claims have declined by about 16% (as of July 2020).

# HOUSING STARTS

**New Housing Units**

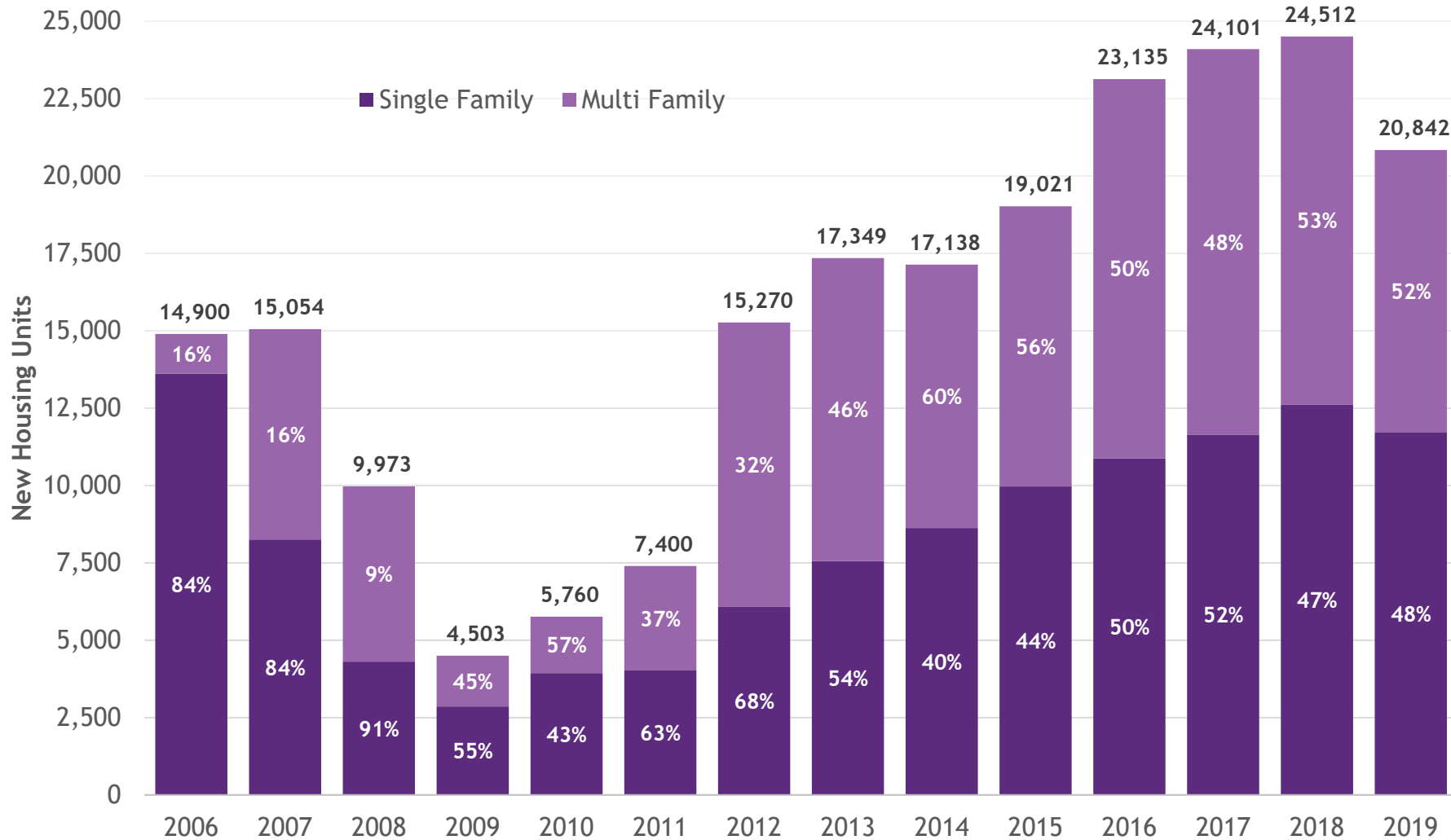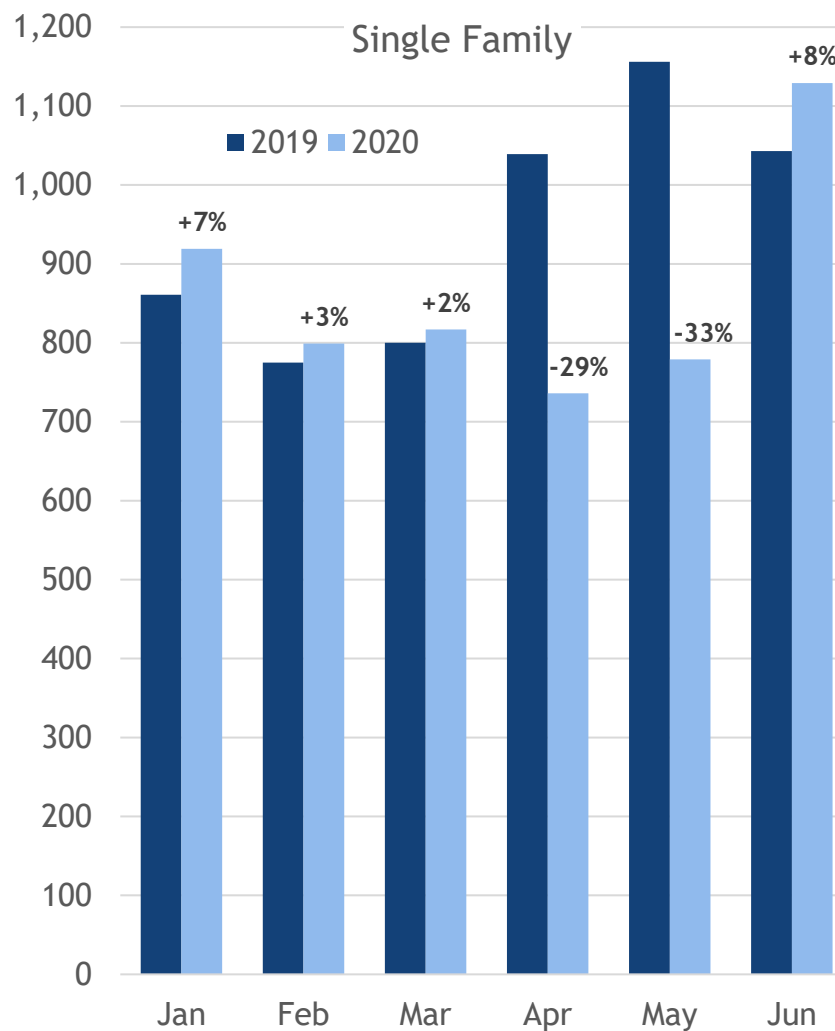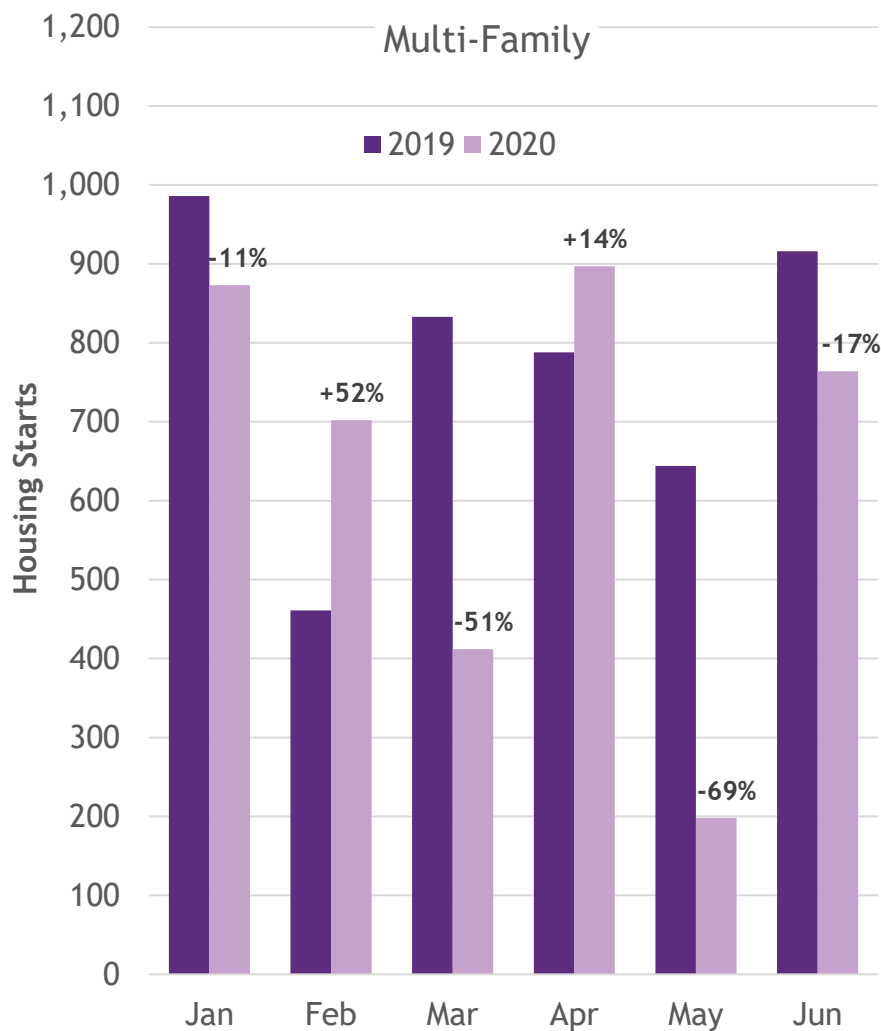| Year | Total | Single Family | Multi Family |
|------|-------|---------------|--------------|
| 2006 | 14,900 | 84% | 16% |
| 2007 | 15,054 | 84% | 16% |
| 2008 | 9,973 | 91% | 9% |
| 2009 | 4,503 | 55% | 45% |
| 2010 | 5,760 | 43% | 57% |
| 2011 | 7,400 | 63% | 37% |
| 2012 | 15,270 | 68% | 32% |
| 2013 | 17,349 | 54% | 46% |
| 2014 | 17,138 | 40% | 60% |
| 2015 | 19,021 | 44% | 56% |
| 2016 | 23,135 | 50% | 50% |
| 2017 | 24,101 | 52% | 48% |
| 2018 | 24,512 | 47% | 53% |
| 2019 | 20,842 | 48% | 52% |

In Metro Denver, housing starts grew by almost 180,000 units between 2009 and 2019. However, from 2018 to 2019, there was a **15% decrease in the annual number of homes built.** On the other hand, 2019 had the most transit-oriented development units ever delivered.

Source: US Census Bureau

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# COVID HOUSING STARTS

**Multi-Family**

■ 2019  ■ 2020

- Jan: -11%
- Feb: +52%
- Mar: -51%
- Apr: +14%
- May: -69%
- Jun: -17%

Housing Starts (y-axis: 0 to 1,200)

**Single Family**

■ 2019  ■ 2020

- Jan: +7%
- Feb: +3%
- Mar: +2%
- Apr: -29%
- May: -33%
- Jun: +8%

(y-axis: 0 to 1,200)

During COVID, **single family housing starts declined in April and May, then recovered in June**. However, multi-family housing starts have shown less of a clear trend, with declines in March and May and increases in April and June.

# HOW ARE WE DOING?

**Bus service** accounts for the majority of service hours (71% in 2019)
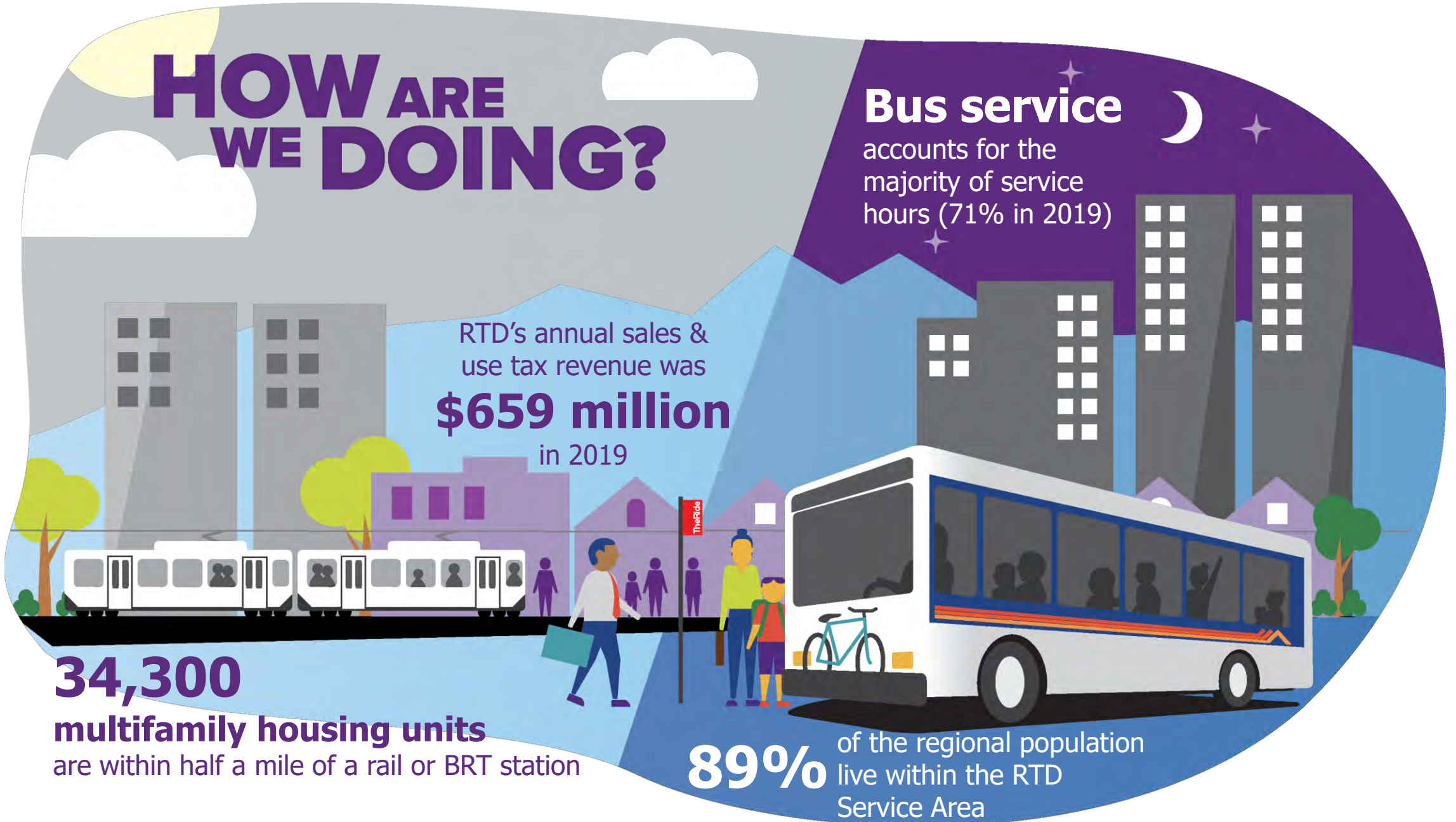
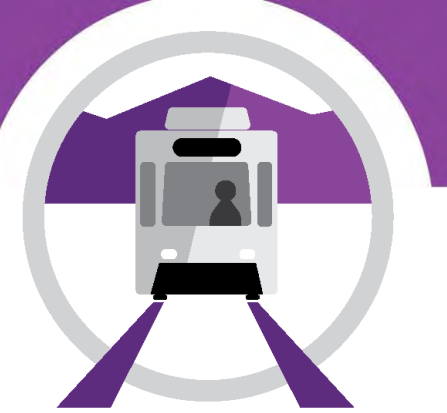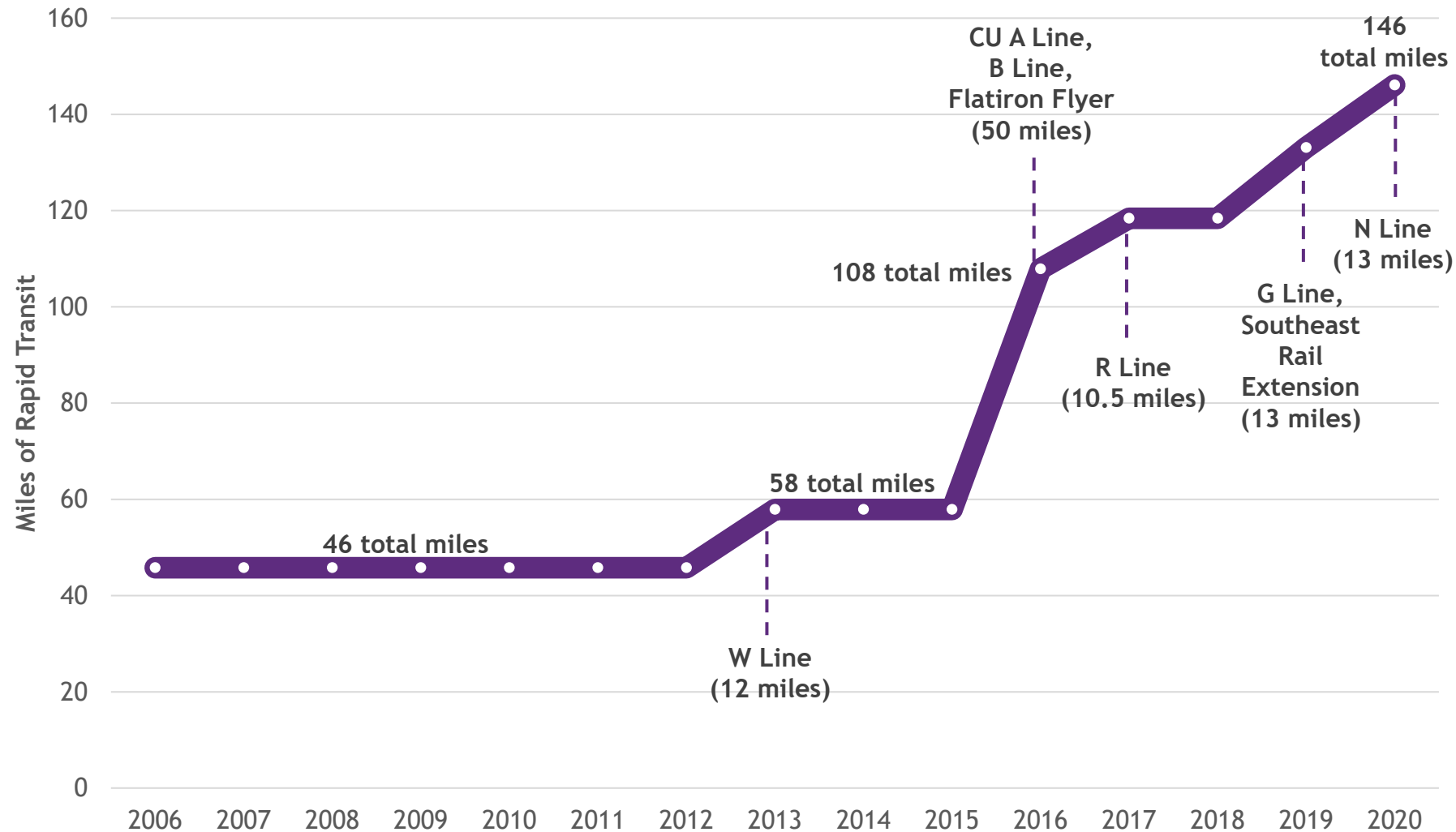RTD's annual sales & use tax revenue was **$659 million** in 2019

**34,300** multifamily housing units are within half a mile of a rail or BRT station

TheRide

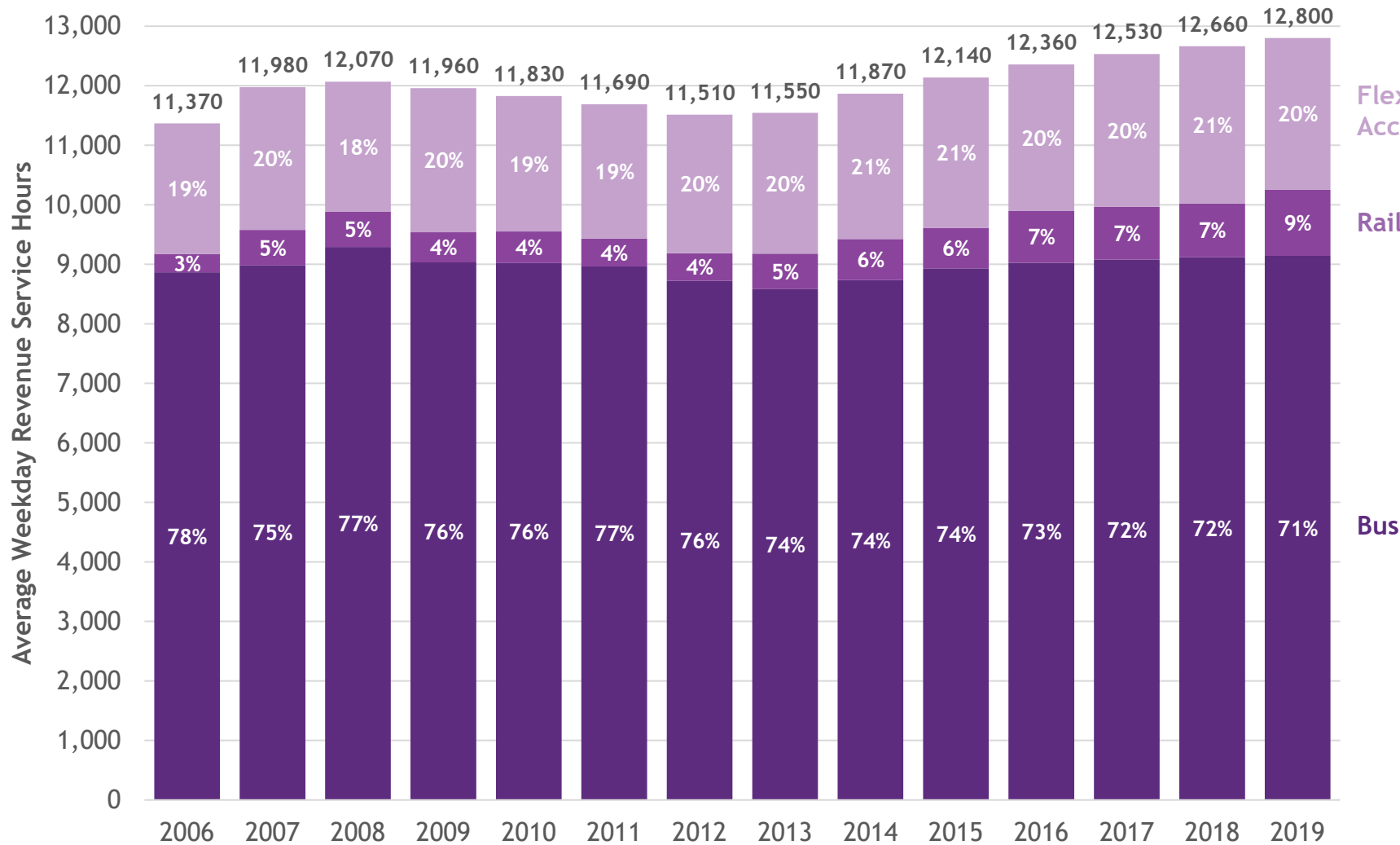**89%** of the regional population live within the RTD Service Area

# MILES OF RAPID TRANSIT



The rapid transit network (rail & bus rapid transit) has **grown by 100 miles since 2012**. In 2020, 13 miles were added to the network with the opening of the N Line.

# TRANSIT SERVICE



**Average Weekday Revenue Service Hours**

| Year | Bus | Rail | FlexRide & Access-a-Ride | Total |
|------|-----|------|--------------------------|-------|
| 2006 | 78% | 3% | 19% | 11,370 |
| 2007 | 75% | 5% | 20% | 11,980 |
| 2008 | 77% | 5% | 18% | 12,070 |
| 2009 | 76% | 4% | 20% | 11,960 |
| 2010 | 76% | 4% | 19% | 11,830 |
| 2011 | 77% | 4% | 19% | 11,690 |
| 2012 | 76% | 4% | 20% | 11,510 |
| 2013 | 74% | 5% | 20% | 11,550 |
| 2014 | 74% | 6% | 21% | 11,870 |
| 2015 | 74% | 6% | 21% | 12,140 |
| 2016 | 73% | 7% | 20% | 12,360 |
| 2017 | 72% | 7% | 20% | 12,530 |
| 2018 | 72% | 7% | 21% | 12,660 |
| 2019 | 71% | 9% | 20% | 12,800 |

Average weekday revenue service hours increased by 13% between 2006 and 2019. From 2018 to 2019, there was a **23% increase in rail service hours** mainly due to the opening of the G line and the Southeast Rail Extension.
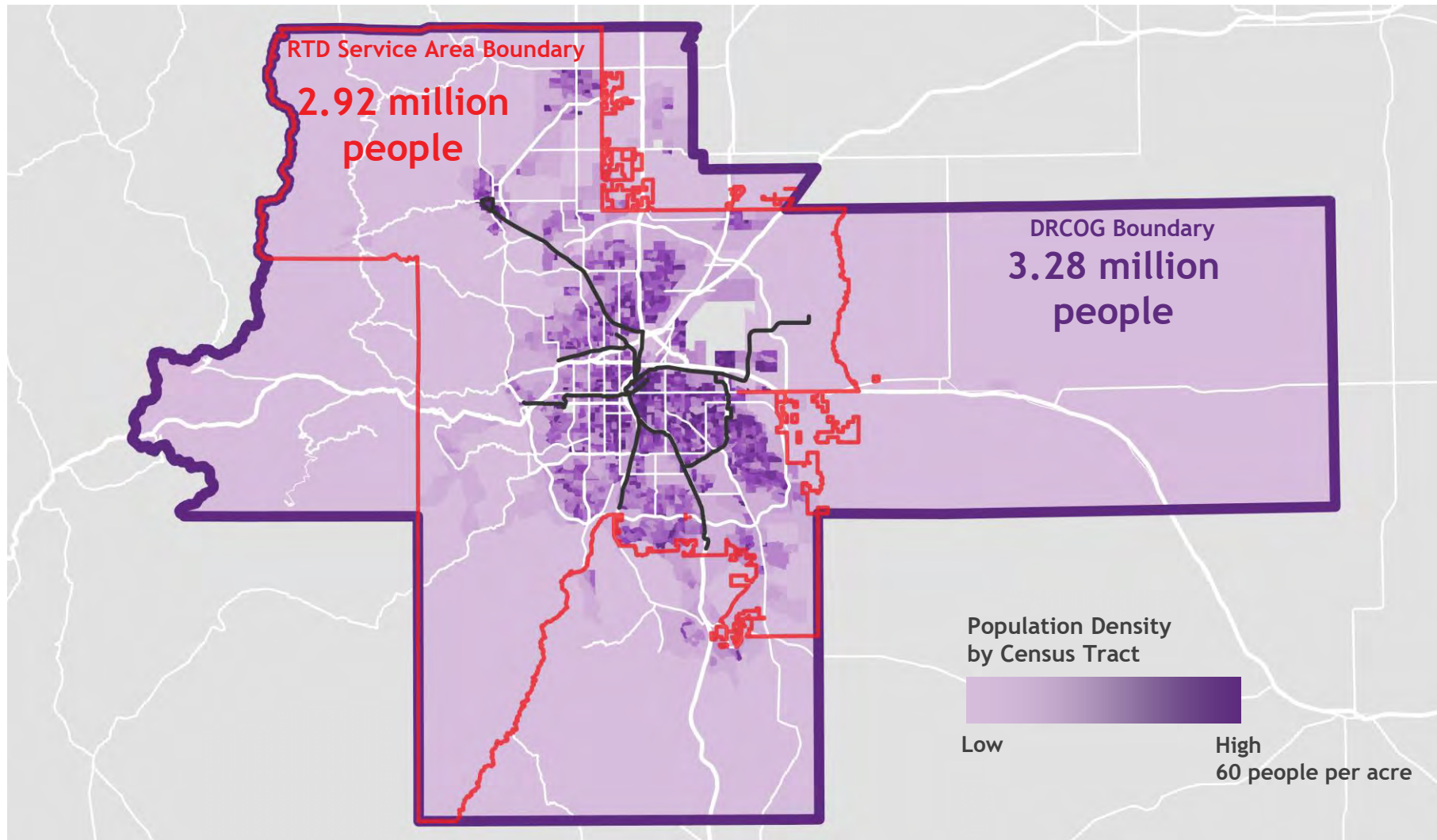
# COVID TRANSIT SERVICE
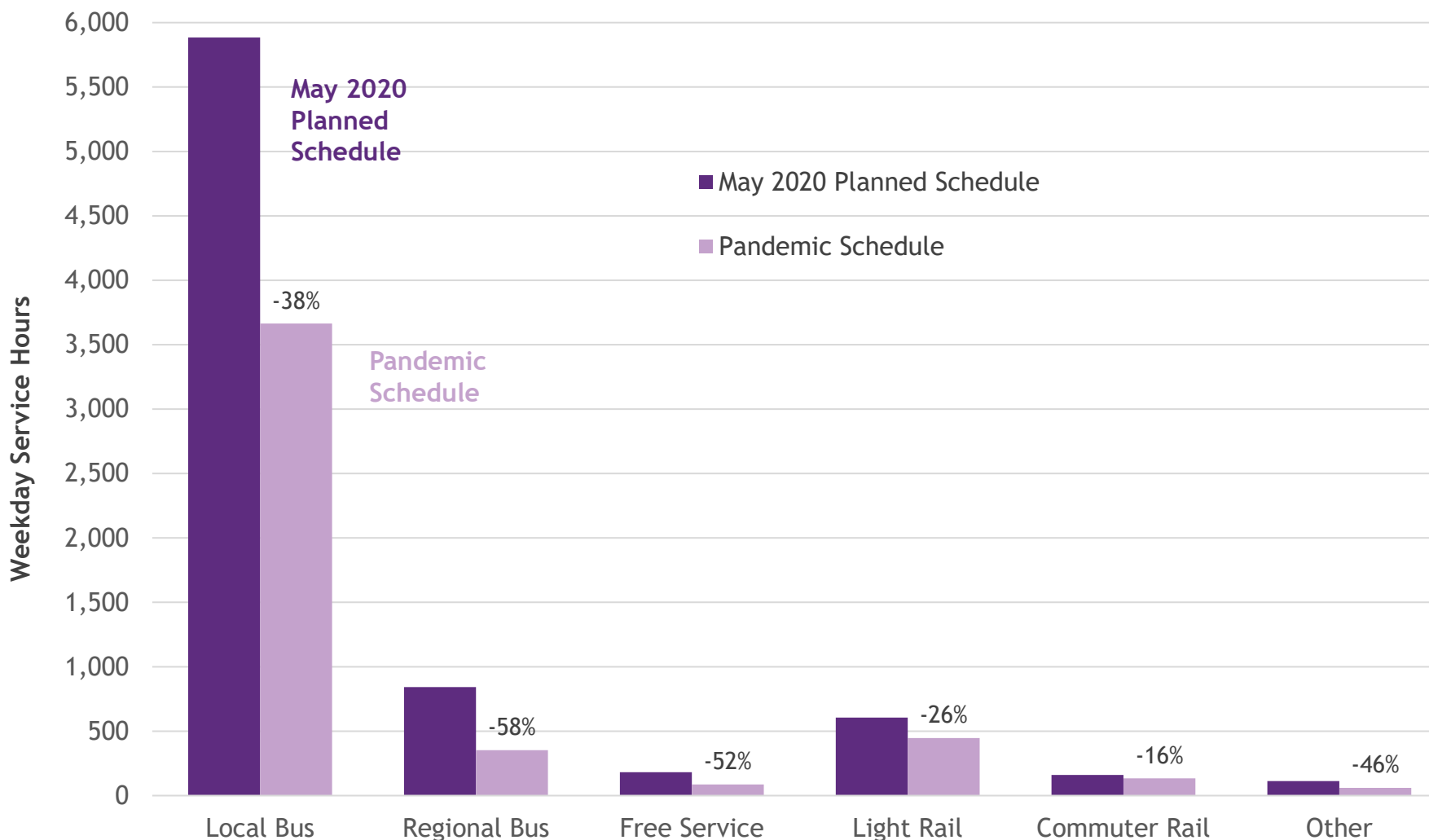
On April 19, 2020, RTD reduced service hours across all service types in response to a significant decline in ridership due to Stay-at-Home orders. **Overall service hours were reduced by about 40%.**

# SERVICE AREA

RTD Service Area Boundary
**2.92 million people**

DRCOG Boundary
**3.28 million people**

Population Density by Census Tract

Low

High
60 people per acre

The RTD Service Area includes all of the region's major population centers. Approximately **89% of the regional population** lives within the RTD Service Area.

# OPERATING COST

**Average Operating Cost per Boarding**

In 2019, the average cost per boarding for all bus services was $6.07
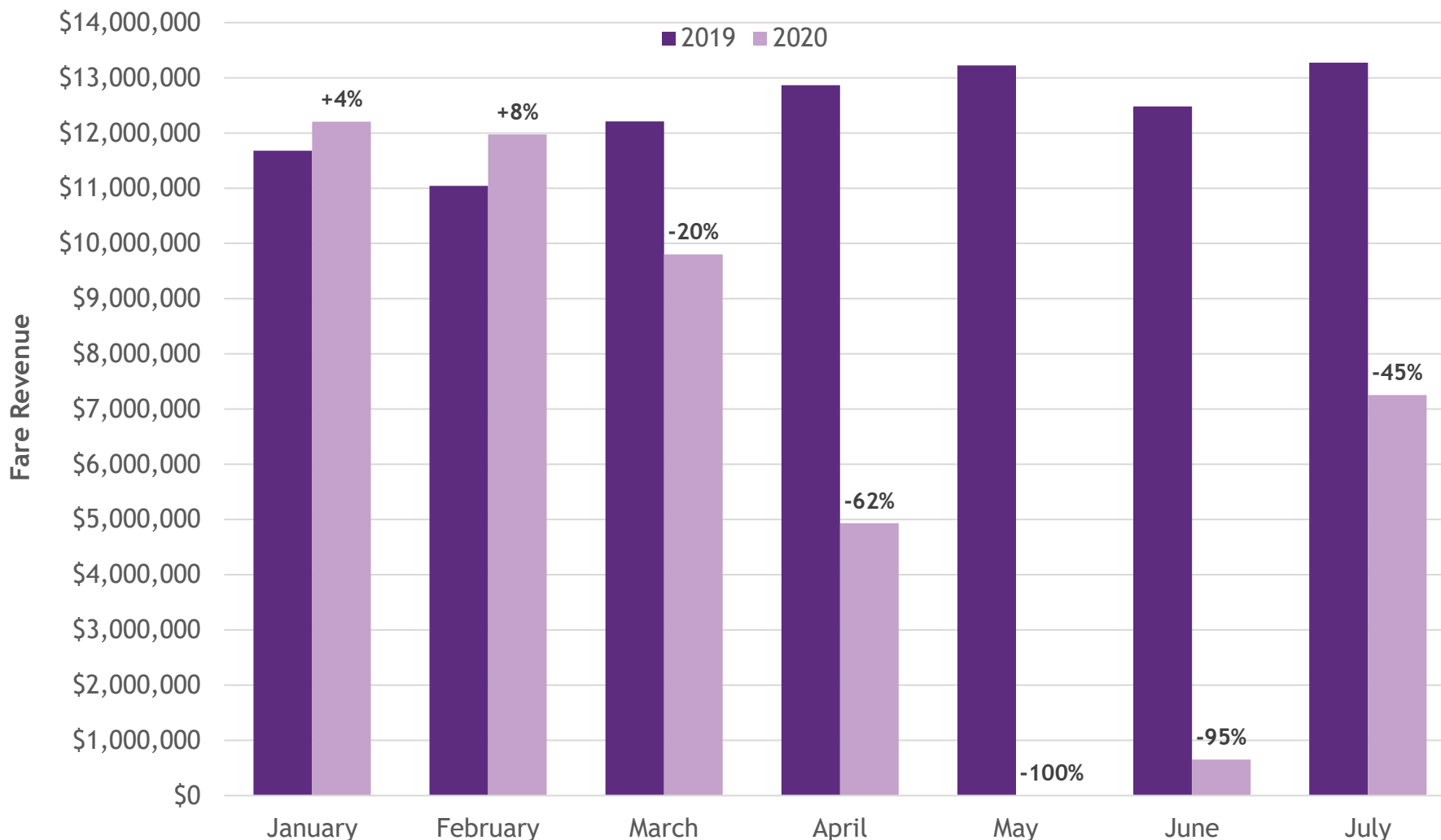
| Service | Cost |
|---|---|
| Local Bus | $6.20 — 82% |
| Suburban Bus | $8.84 — 87% |
| Regional Bus | $10.20 — 71% |
| Flatiron Flyer | $6.94 — 71% |
| Free MetroRide | $3.05 — 100% |
| Free MallRide | $1.25 — 100% |
| Rail | $12.60 — 83% |
| FlexRide | $23.76 — 95% |
| Access-a-Ride | $53.12 — 91% |

Fare Revenue
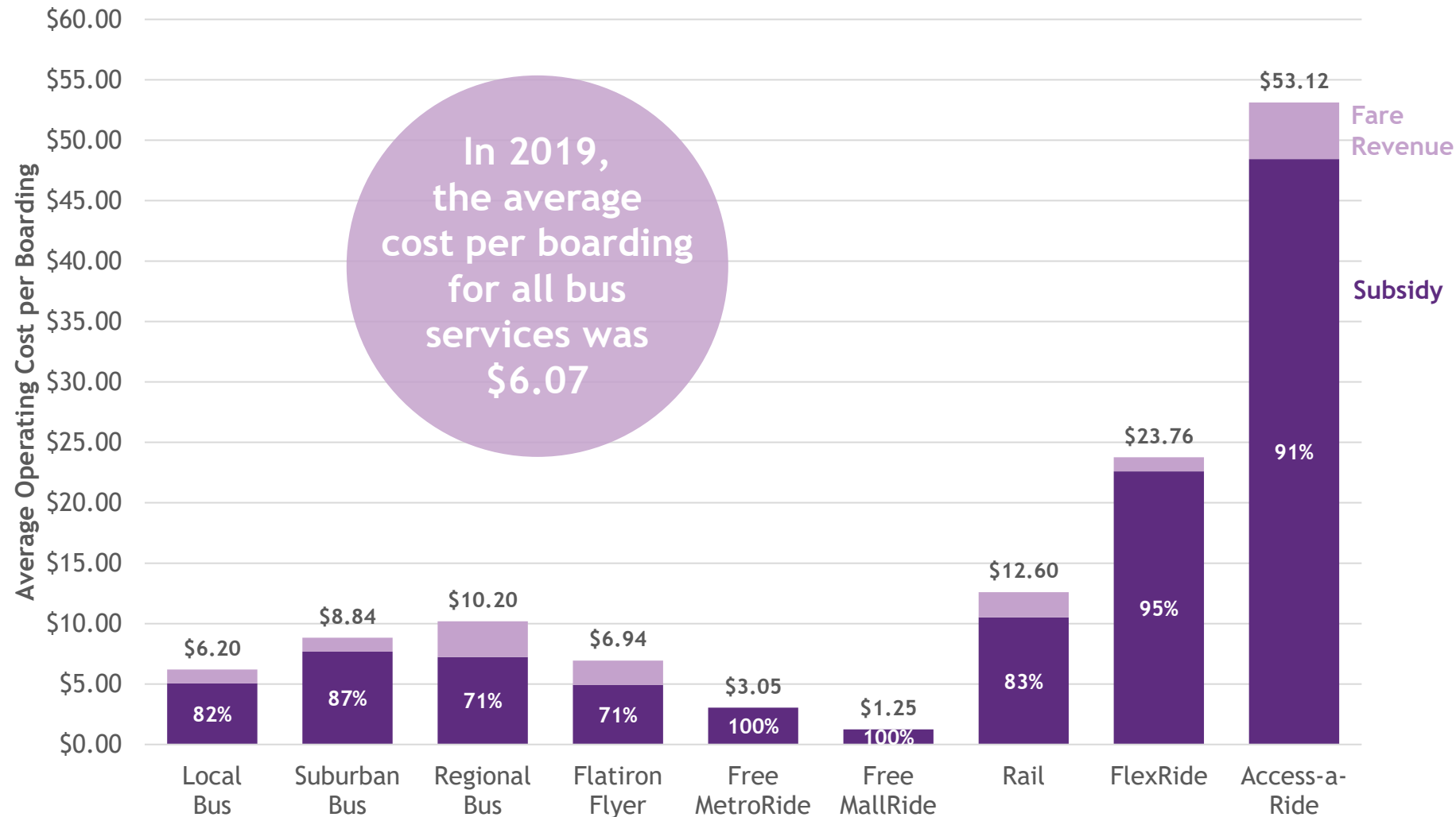
Subsidy

In 2019, the average operating cost per boarding was $8.23 for bus and rail service. If on-demand services are included, the **overall cost per boarding was $8.66**. The services with the lowest percent subsidy per boarding were Regional Bus and the Flatiron Flyer.
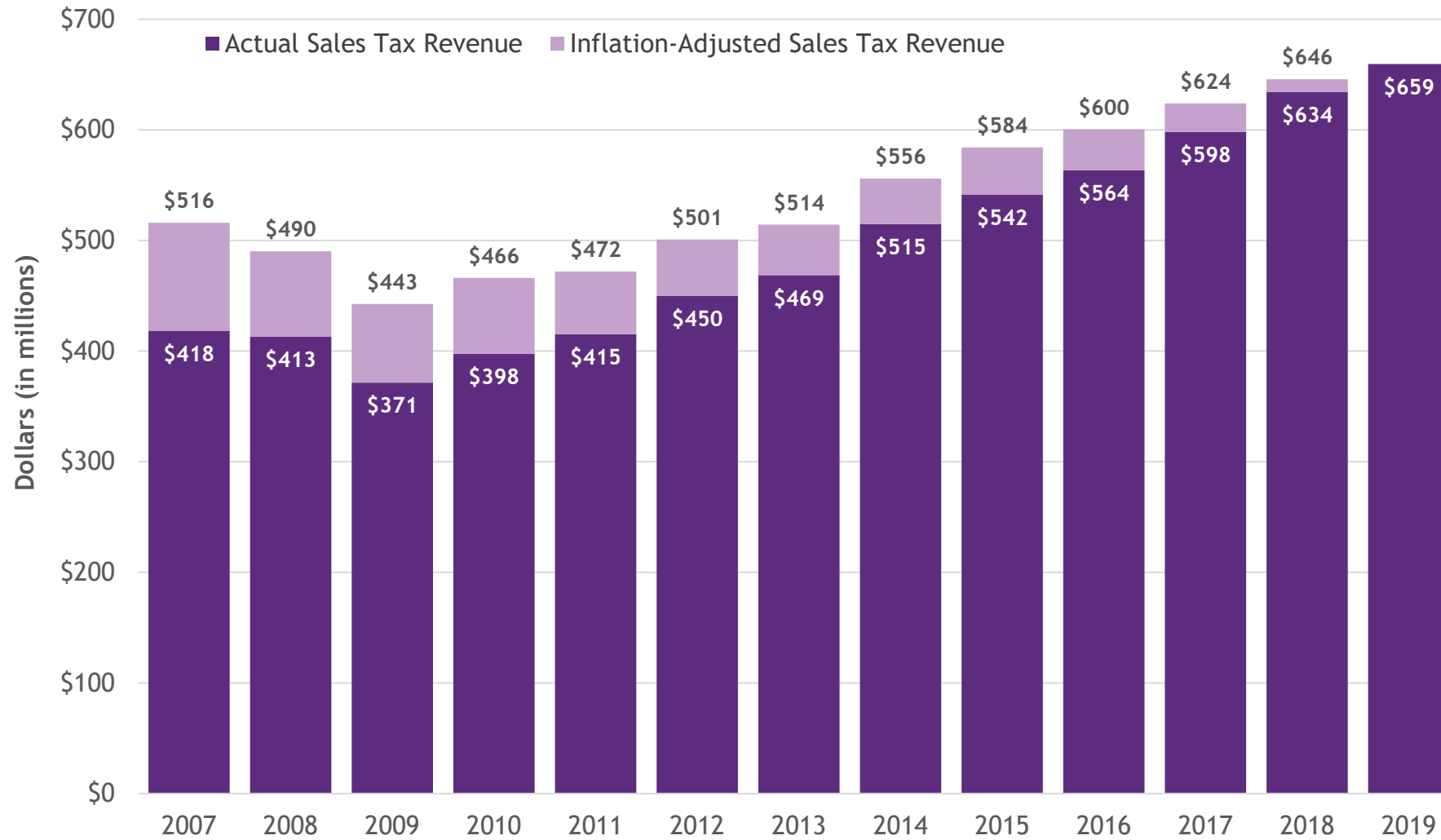
# SALES TAX REVENUE



Legend:
- Actual Sales Tax Revenue
- Inflation-Adjusted Sales Tax Revenue

Dollars (in millions)

| Year | Actual Sales Tax Revenue | Inflation-Adjusted Sales Tax Revenue |
|------|--------------------------|--------------------------------------|
| 2007 | $418 | $516 |
| 2008 | $413 | $490 |
| 2009 | $371 | $443 |
| 2010 | $398 | $466 |
| 2011 | $415 | $472 |
| 2012 | $450 | $501 |
| 2013 | $469 | $514 |
| 2014 | $515 | $556 |
| 2015 | $542 | $584 |
| 2016 | $564 | $600 |
| 2017 | $598 | $624 |
| 2018 | $634 | $646 |
| 2019 | $659 | $659 |

In 2019, RTD's annual sales & use tax revenue was $659 million. Between 2009 and 2019, annual revenue grew 49% ($216 million, adjusted for inflation). **Sales & use tax is RTD's primary revenue source.**
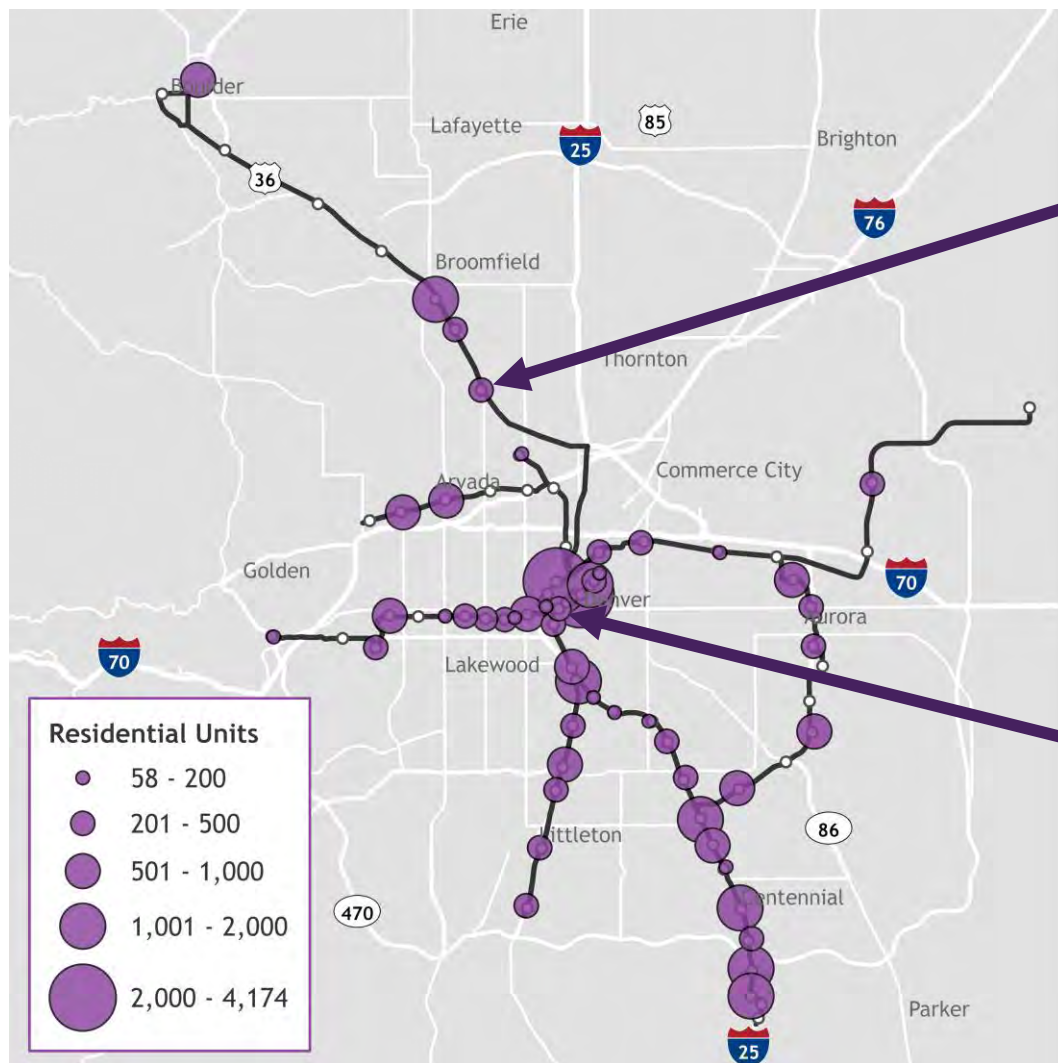
# COVID SALES TAX REVENUE
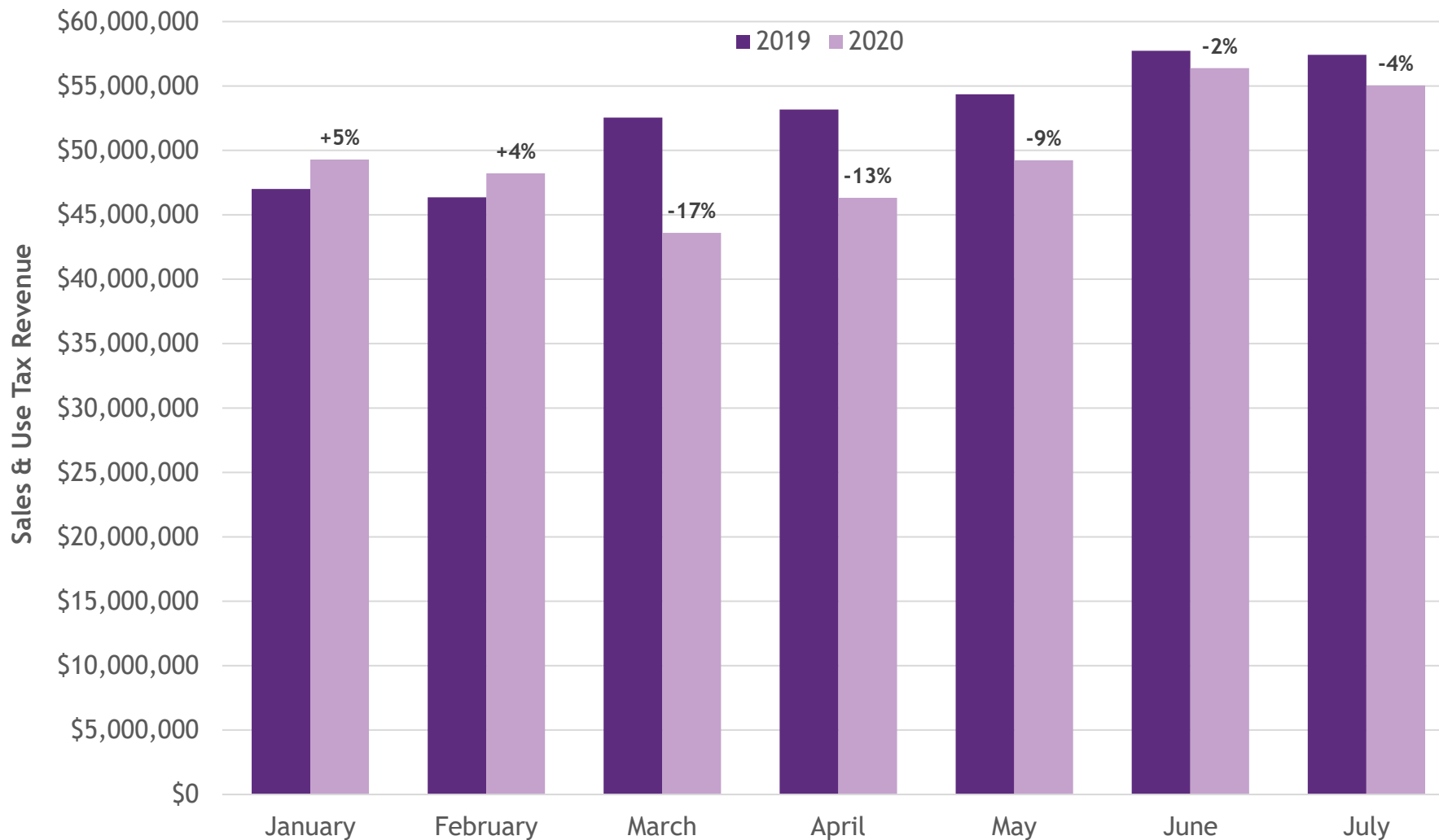


Due to Stay-at-Home orders and store closures caused by COVID, sales tax revenue has declined. From March to July 2020, there was **$24.6 million less sales tax revenue** collected compared to 2019. Sales tax provided 61% of RTD's revenue in 2019.
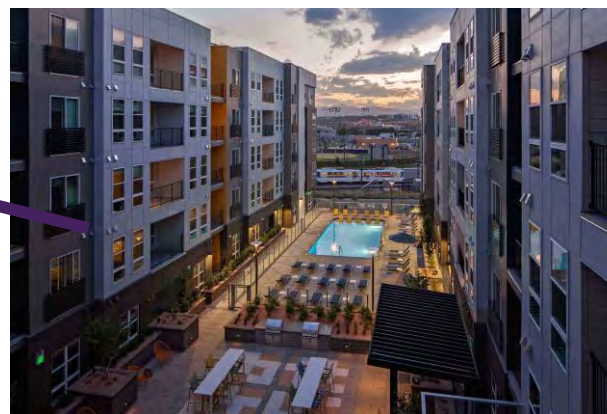
# TRANSIT-ORIENTED DEVELOPMENT



**US 36 & Sheridan Station**
373 residential units built in 2019, the first TOD at this station



**Colfax at Auraria Station**
253 student housing units built in 2019

**Residential Units**
- 58 - 200
- 201 - 500
- 501 - 1,000
- 1,001 - 2,000
- 2,000 - 4,174

From 2000 to 2019, about **34,300 multi-family residential units and 7 million square feet of office space have been built** within a half-mile of rail and bus rapid transit (BRT) stations. 2019 had the most TOD retail deliveries since 2009 and the most TOD residential units ever delivered.

# GOAL TWO

## Increase Transit Mode Share

# WHY IS THIS IMPORTANT?

Daily Vehicles Miles Traveled has increased by

**18%** since 2006

Congestion caused
**77 million hours of travel delay**
in 2018 (40 hours per registered vehicle)

Residents of Metro Denver owned
**2.43 million vehicles**
in 2018, a 5.6% increase in vehicles per capita since 2006

Metro Denver vehicles traveled
**84.3 million miles**
on average each day in 2018

# VEHICLE MILES TRAVELED

**Daily Vehicle Miles Traveled**

In 2019, 1.3 million daily miles were not driven due to transit.
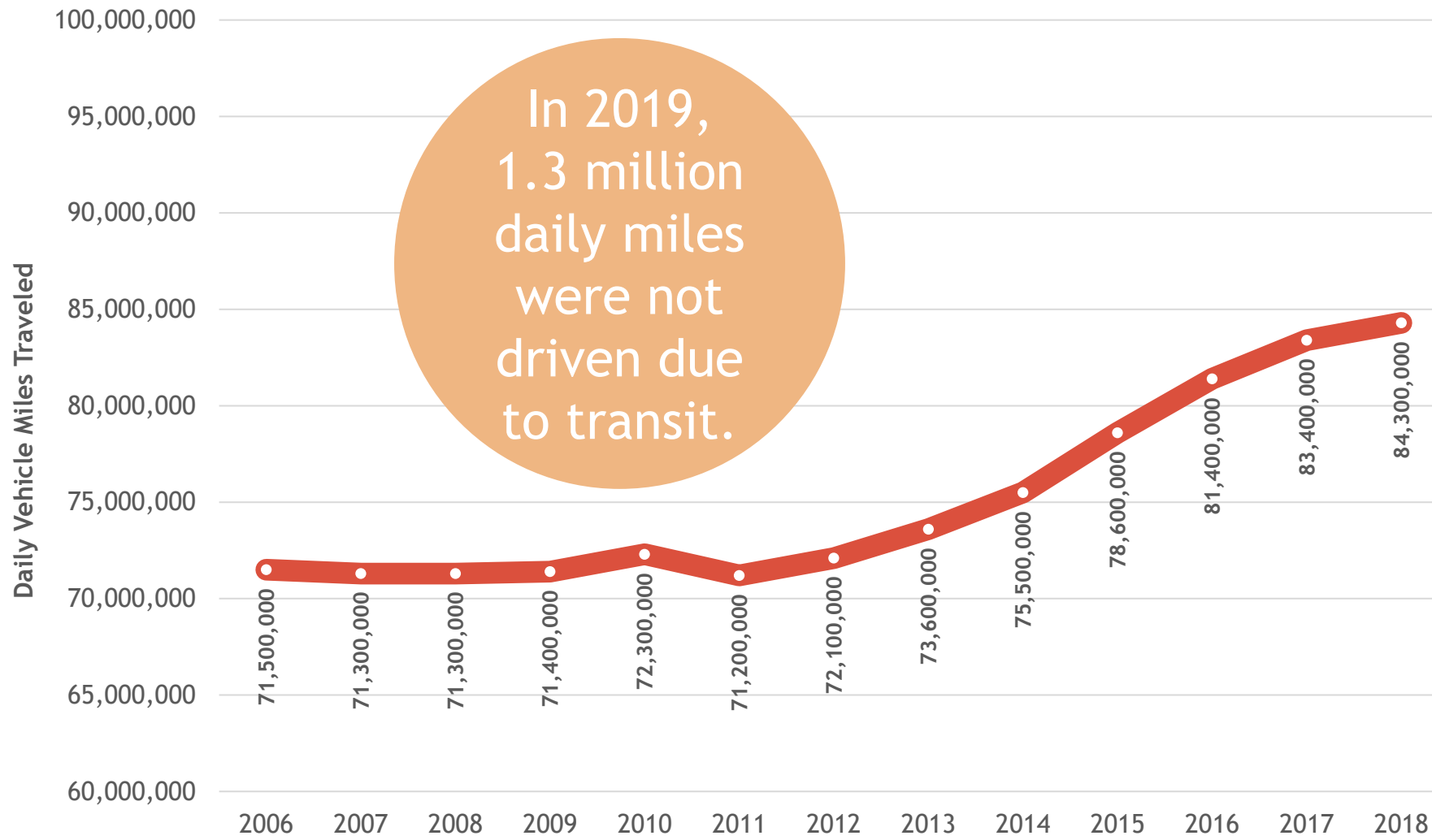
In the Metro Denver Region, there were 84.3 million daily vehicle miles traveled (VMT) in 2018. **Daily VMT increased by 18%** between 2006 and 2018.

| Year | Daily VMT |
|------|-----------|
| 2006 | 71,500,000 |
| 2007 | 71,300,000 |
| 2008 | 71,300,000 |
| 2009 | 71,400,000 |
| 2010 | 72,300,000 |
| 2011 | 71,200,000 |
| 2012 | 72,100,000 |
| 2013 | 73,600,000 |
| 2014 | 75,500,000 |
| 2015 | 78,600,000 |
| 2016 | 81,400,000 |
| 2017 | 83,400,000 |
| 2018 | 84,300,000 |

RTD

# VEHICLE MILES TRAVELED PER CAPITA

**Vehicle Miles Traveled per Capita**

- 2006: 26.6
- 2007: 26.1
- 2008: 25.6
- 2009: 25.2
- 2010: 25.2
- 2011: 24.4
- 2012: 24.3
- 2013: 24.3
- 2014: 24.5
- 2015: 25.0
- 2016: 25.5
- 2017: 25.8
- 2018: 25.7
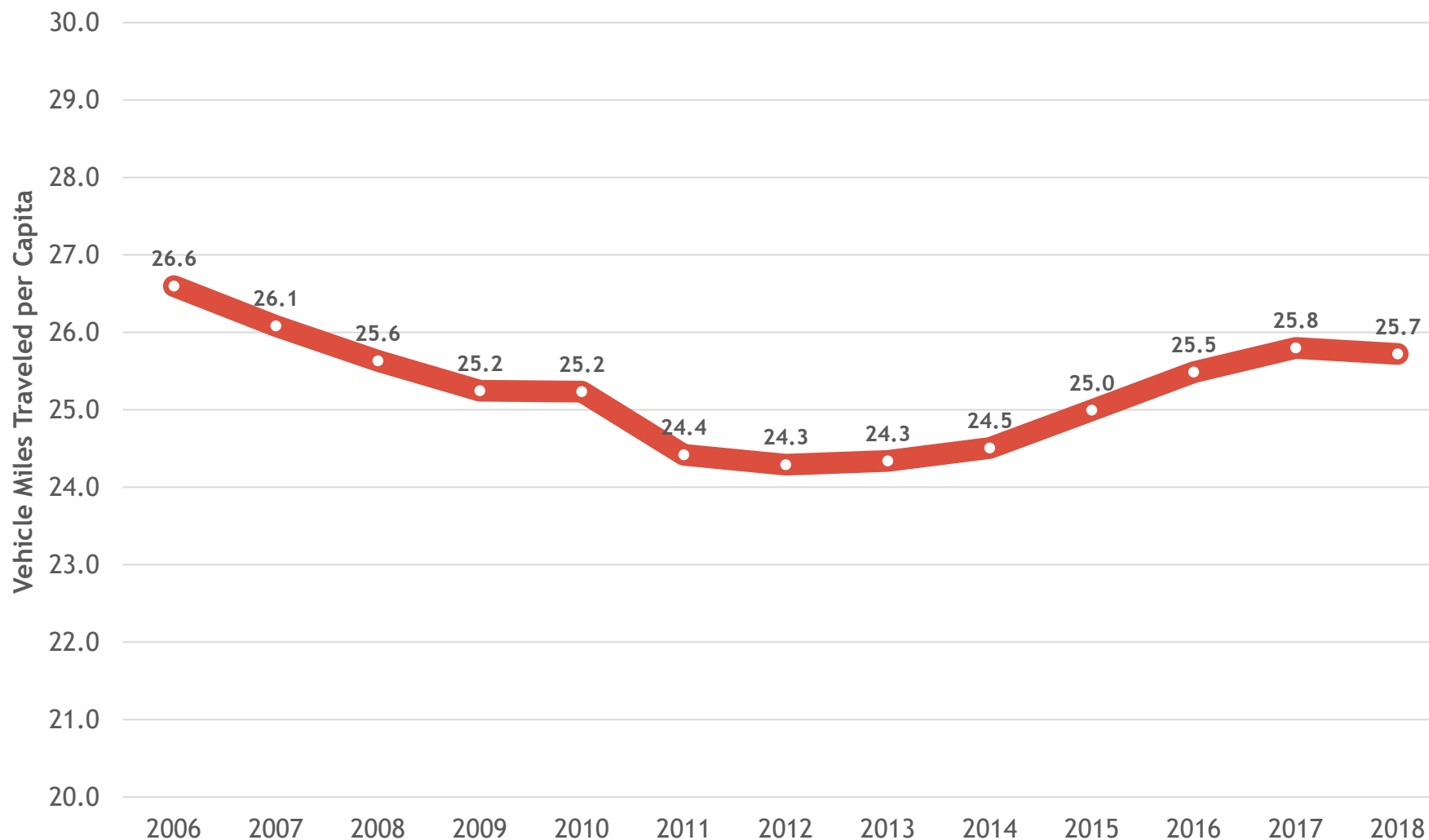
**Daily VMT per capita has increased** from 24.3 in 2012 to 25.7 in 2018. However, there was a slight decrease from 2017 to 2018.

# COVID VEHICLE MILES TRAVELED



Daily Vehicle Miles Traveled

| | January | February | March | April | May | June | July |
|---|---|---|---|---|---|---|---|
| 2020 vs 2019 | -3% | +6% | -23% | -48% | -34% | -21% | -11% |

Legend: 2019, 2020
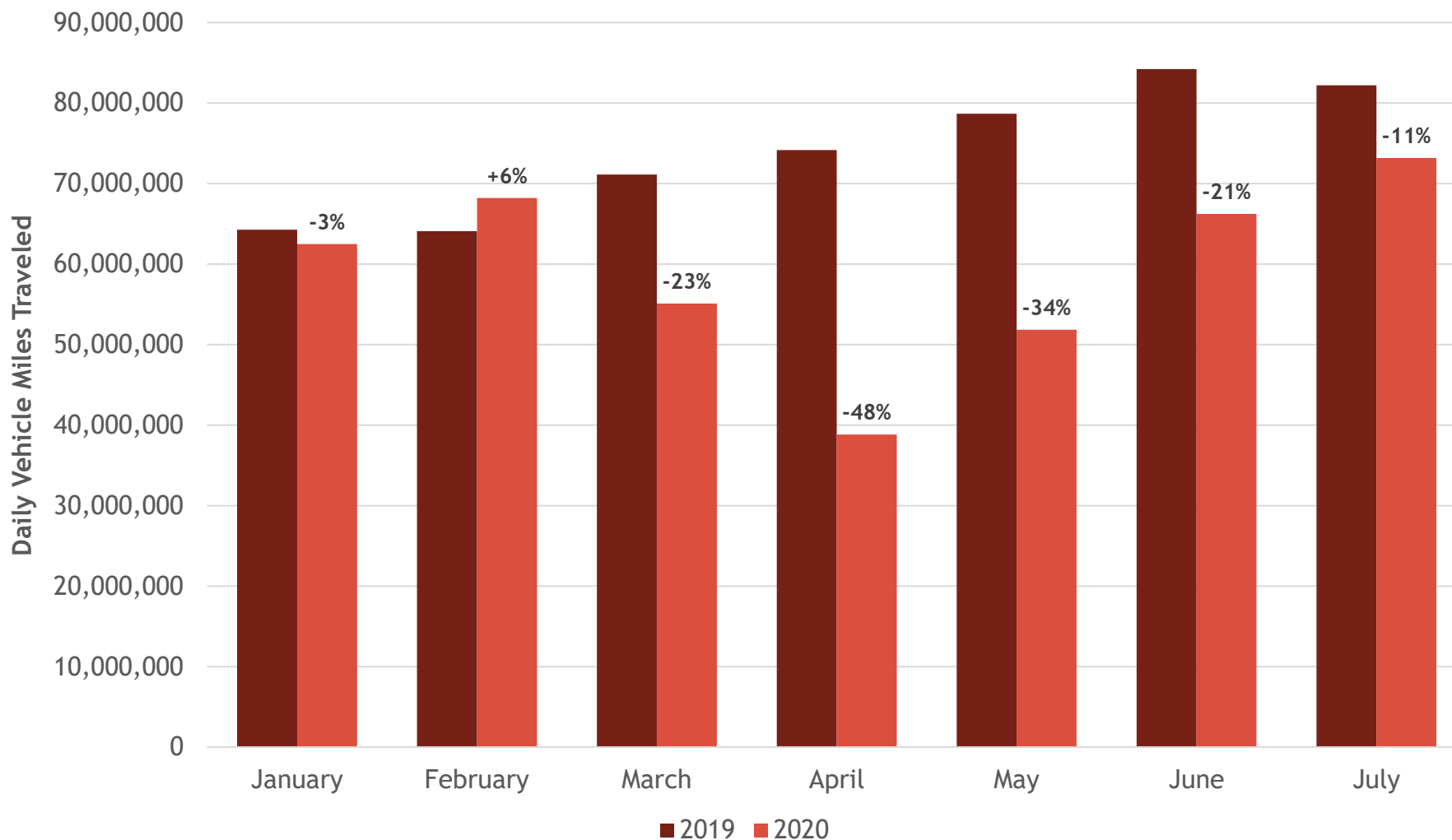
Due to Stay-at-Home orders, VMT began declining in March 2020. In the RTD service area, VMT reached its lowest point in April (48% lower than 2019). As of July, **VMT has started to increase to pre-COVID levels.**

# EXTENT OF CONGESTION



**Severely Congested Corridors** (red line)
**Rapid Transit Lines** (black line)

Rapid transit runs parallel to 5 severely congested corridors.

In 2019, there was over 77 million vehicle hours of delay.

In 2018, 21% of lane miles on major roadways in the Metro Denver region (1,489 miles) were **congested for 3 or more hours on an average weekday**. A typical vehicle spent 16% of its travel time in delayed conditions.
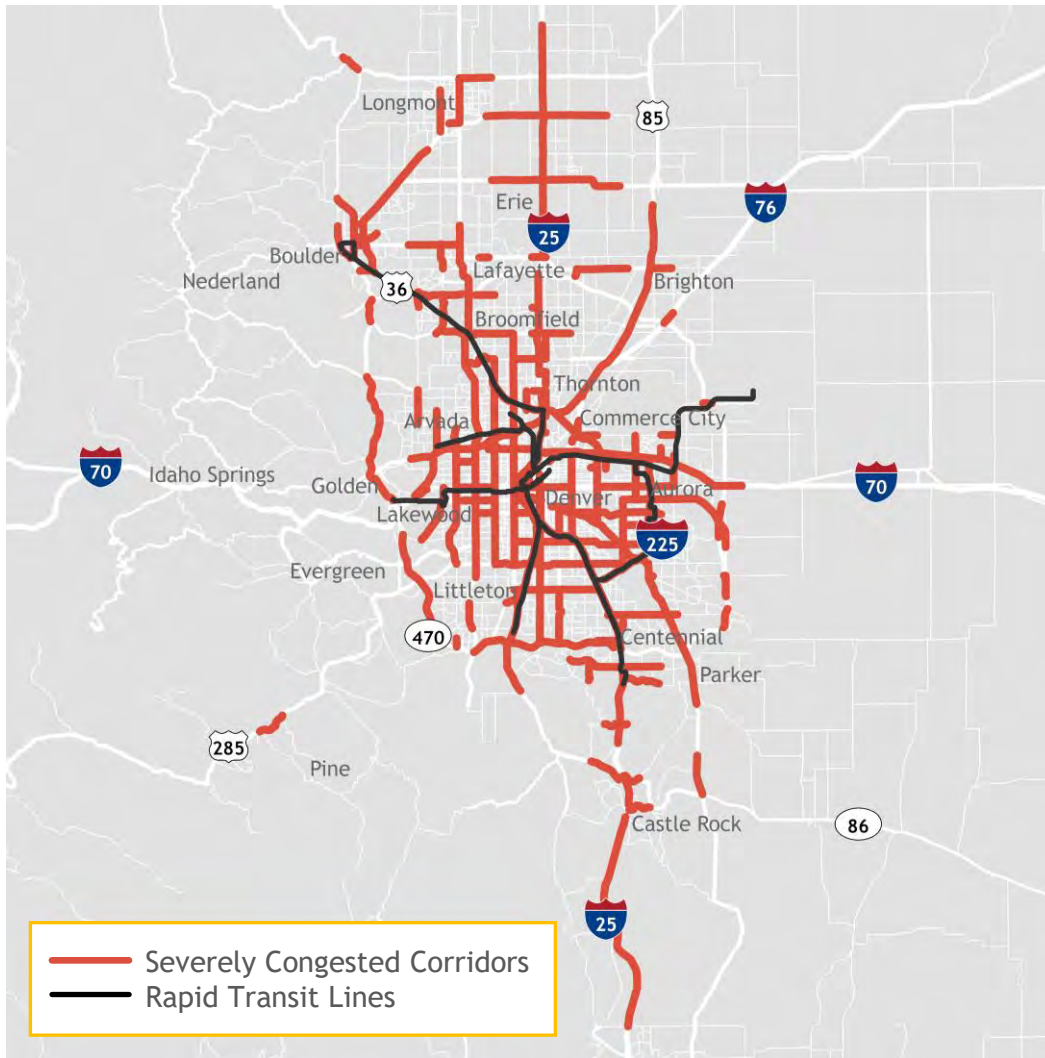
# COVID TRAFFIC CONGESTION

Since mid-March 2020, there has been **much less traffic congestion compared to 2019**. Even in early September, congestion was about 60% lower than the same week in 2019.

Source: TomTom Traffic Index

# VEHICLE OWNERSHIP

Only 5% of households in Metro Denver do not own a vehicle.

**Vehicles per Capita**

Colorado: 0.74, 0.73, 0.73, 0.72, 0.73, 0.72, 0.72, 0.72, 0.73, 0.74, 0.75, 0.76, 0.76
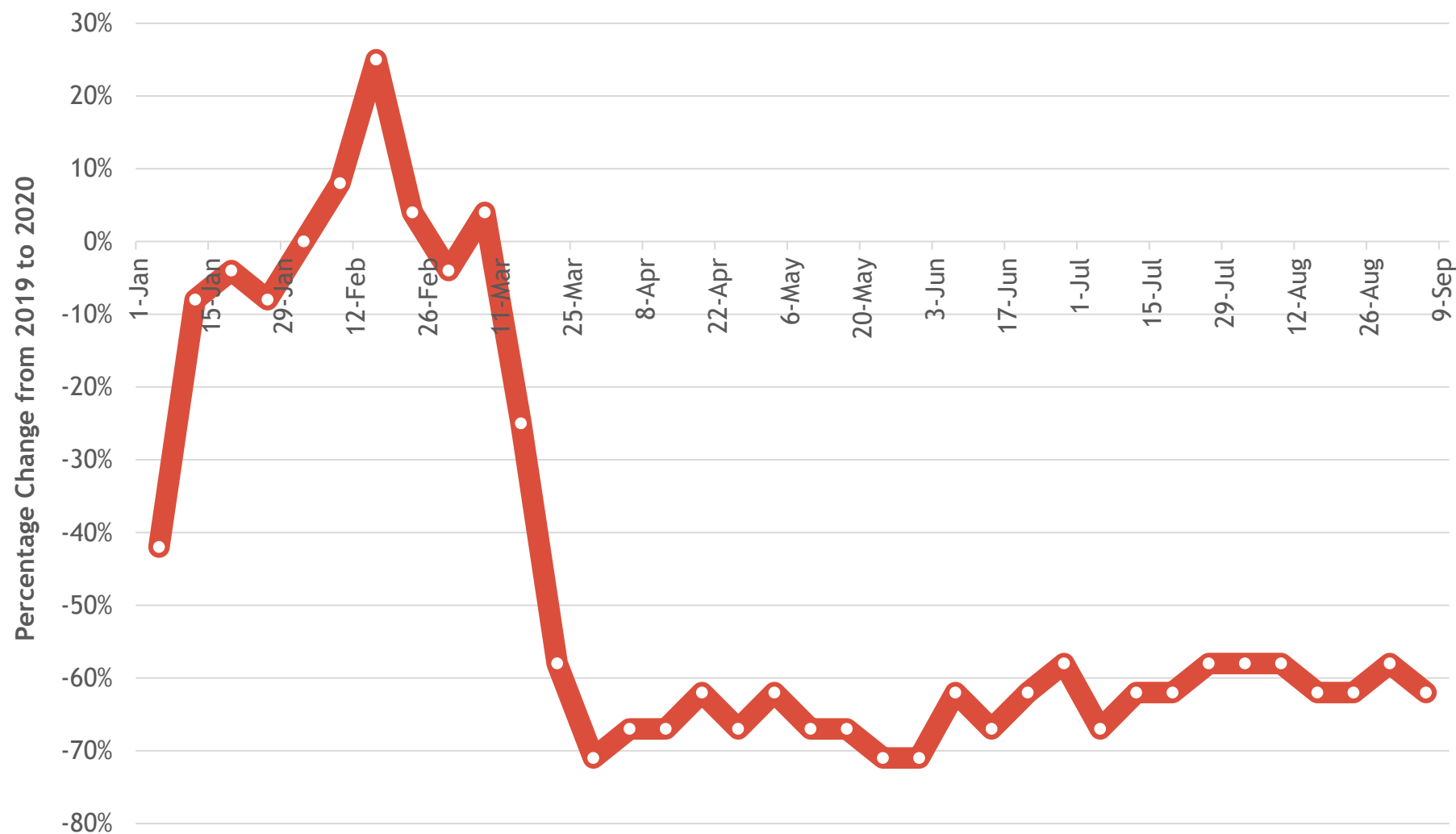
Metro Denver: 0.72, 0.71, 0.71, 0.70, 0.72, 0.71, 0.71, 0.71, 0.72, 0.73, 0.74, 0.75, 0.75

United States: 0.66, 0.66, 0.66, 0.65, 0.65, 0.64, 0.64, 0.65, 0.65, 0.65, 0.66, 0.67, 0.68

Years: 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018
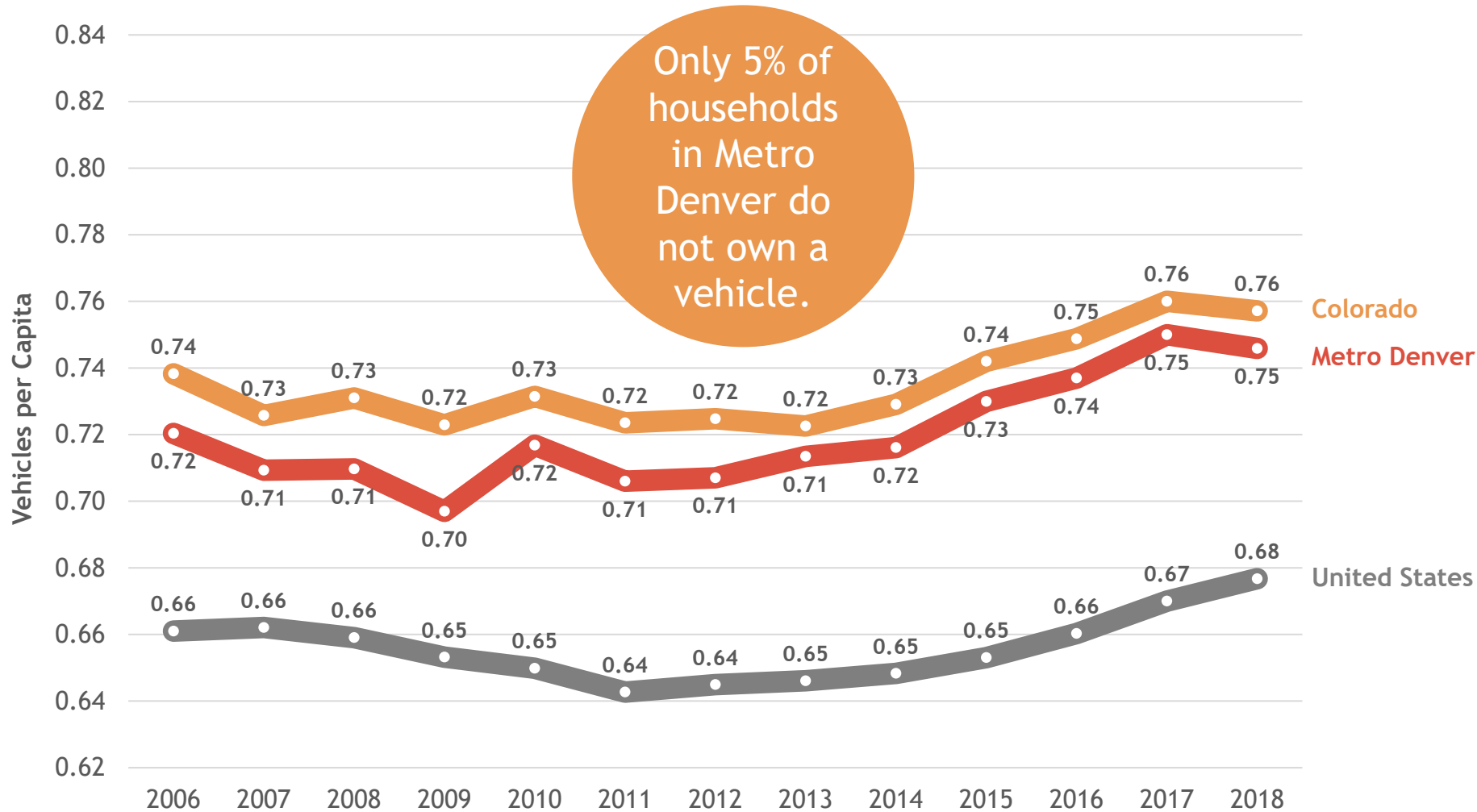
In 2018, there were 2.4 million vehicles in Metro Denver. Since 2011, the **number of vehicles has increased by almost 19%** while population has increased by 12%. However, there was a slight decline in vehicle ownership from 2017 to 2018.

# COVID VEHICLE PURCHASES



**New vehicle purchases in Colorado declined 18%** (22,286 vehicles) during the first half of 2020 compared to a year earlier. For total sales from January to June, Trucks/SUVs/Vans fell 13%, while passenger cars were down by 36%.
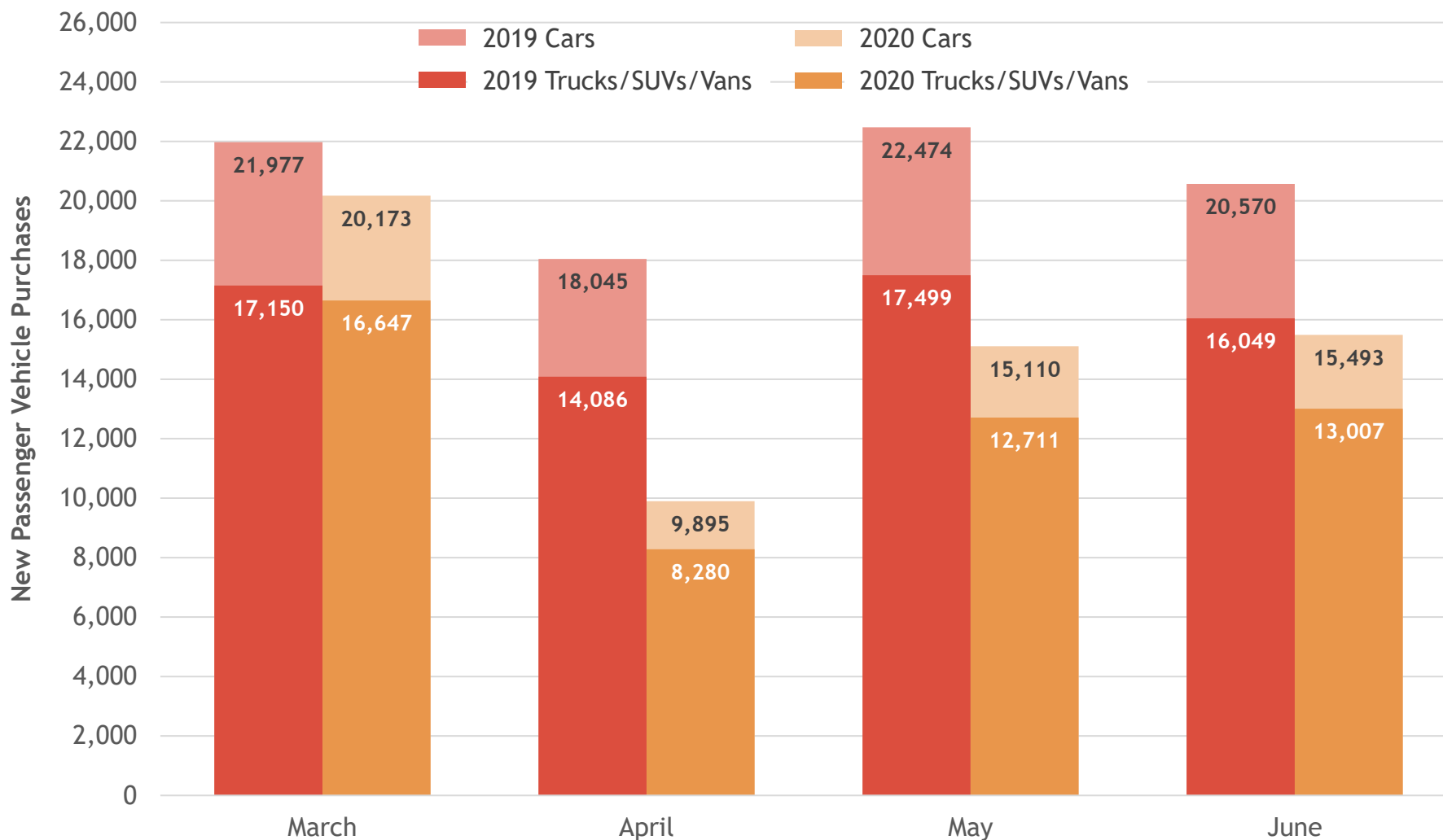
Chart legend:
- 2019 Cars
- 2019 Trucks/SUVs/Vans
- 2020 Cars
- 2020 Trucks/SUVs/Vans

Y-axis: New Passenger Vehicle Purchases (0 to 26,000)

**March**
- 2019 Cars: 21,977
- 2019 Trucks/SUVs/Vans: 17,150
- 2020 Cars: 20,173
- 2020 Trucks/SUVs/Vans: 16,647

**April**
- 2019 Cars: 18,045
- 2019 Trucks/SUVs/Vans: 14,086
- 2020 Cars: 9,895
- 2020 Trucks/SUVs/Vans: 8,280

**May**
- 2019 Cars: 22,474
- 2019 Trucks/SUVs/Vans: 17,499
- 2020 Cars: 15,110
- 2020 Trucks/SUVs/Vans: 12,711

**June**
- 2019 Cars: 20,570
- 2019 Trucks/SUVs/Vans: 16,049
- 2020 Cars: 15,493
- 2020 Trucks/SUVs/Vans: 13,007

**74%**
of regional commuters
in the Metro Denver region
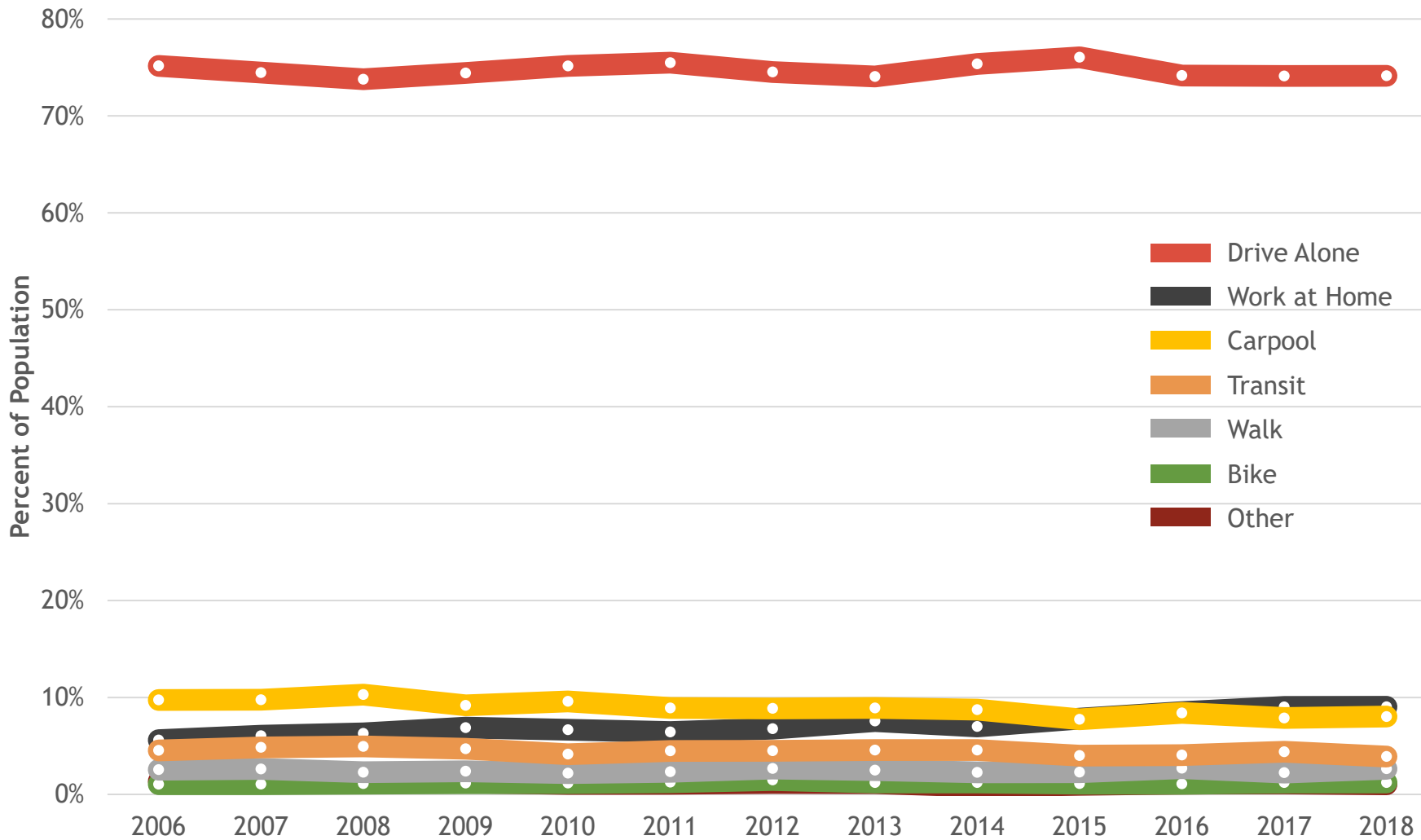**drive to work alone**

# HOW ARE WE DOING?

**1 out of 5 people**
Commuting along the SE and SW
corridors take transit in the morning

Since 2011, boardings at
**Union Station** increased by
**64%**

In 2019 there were
**105.2 million boardings**
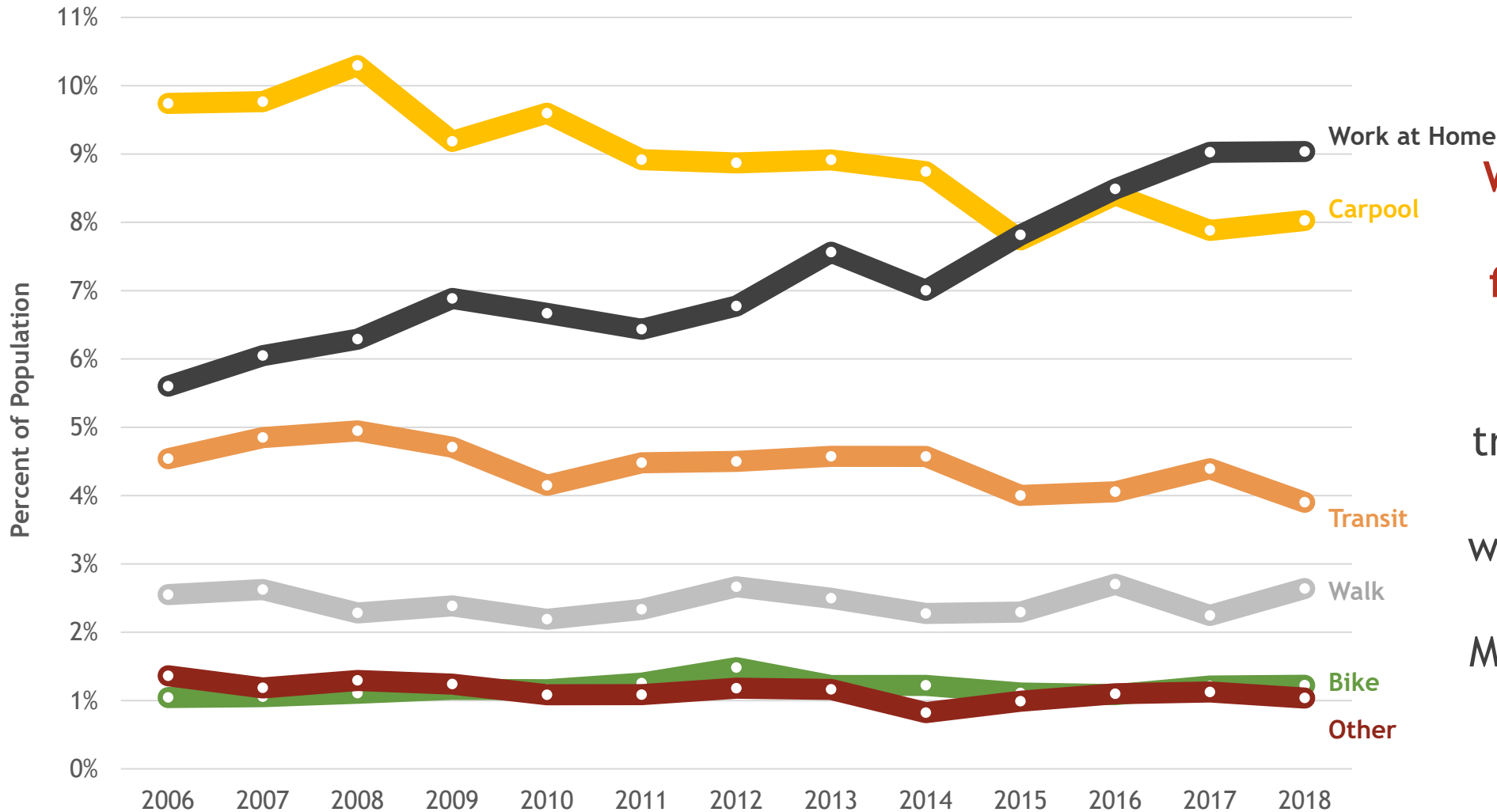a 21% increase since 2006

RTD
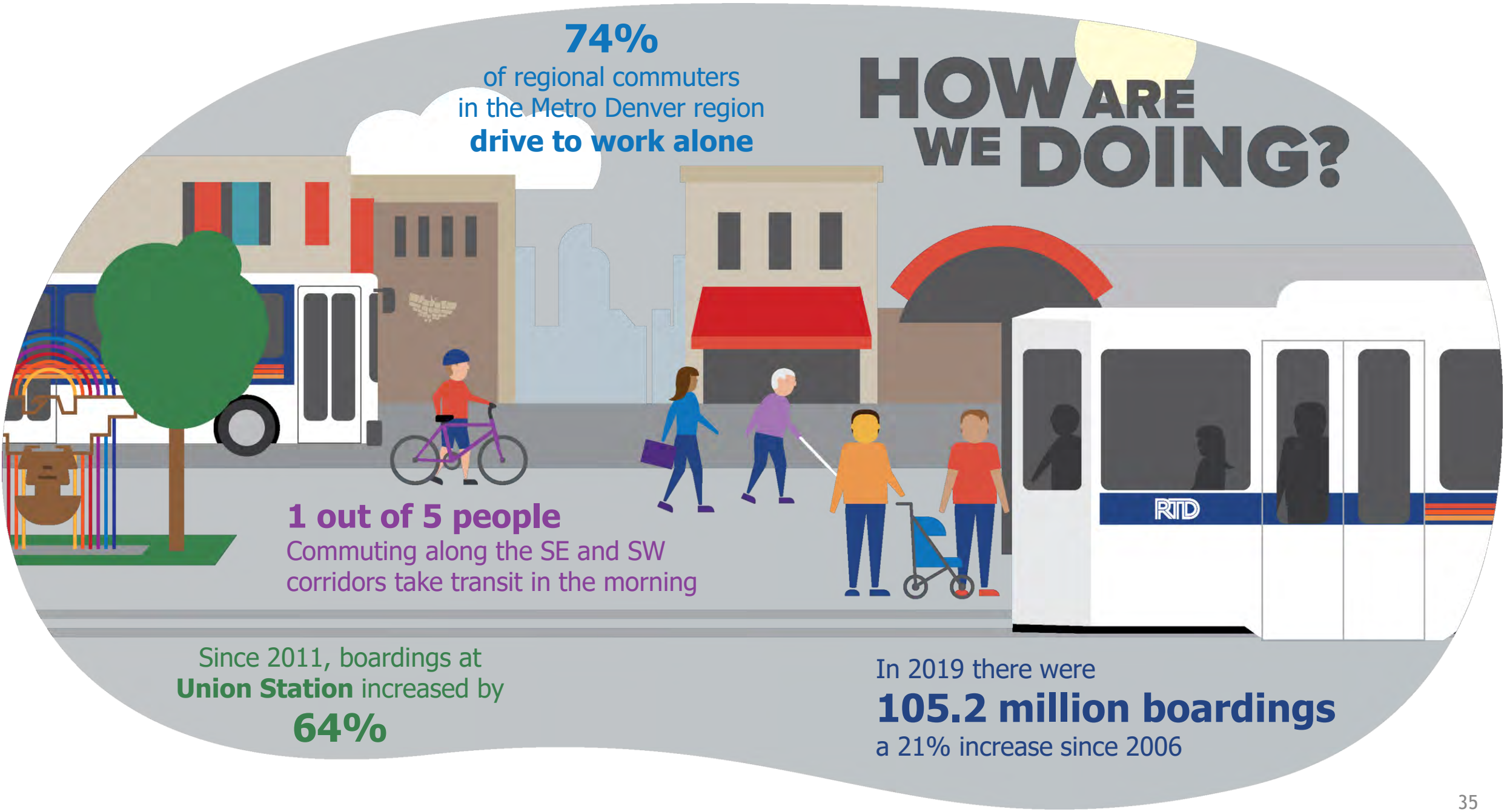
# COMMUTE MODE SHARE

**Most people in the Metro Denver Region drive to work alone.** Since 2006, driving alone has accounted for about 75% of commute trips.

Legend:
- Drive Alone
- Work at Home
- Carpool
- Transit
- Walk
- Bike
- Other

Y-axis: Percent of Population (0% to 80%)
X-axis: 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018

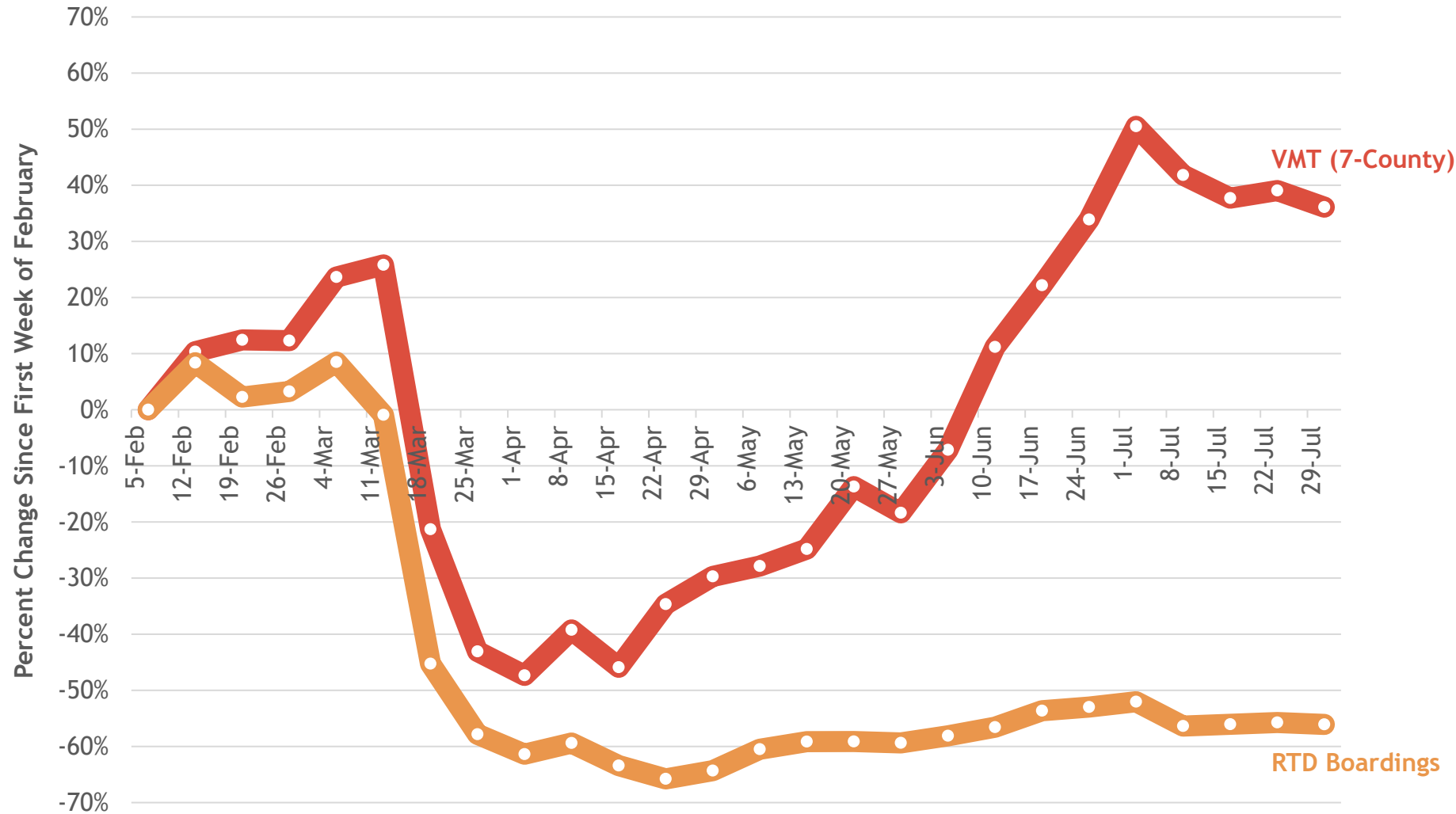# COMMUTE MODE SHARE (NO DRIVE ALONE)



**Work from home has increased the most from 2006 (5.6%) to 2018 (9.0%).**
From 2017 to 2018, transit decreased from 4.4% to 3.9%, while walking increased from 2.2% to 2.6%.
Most other modes have remained steady.

# COVID HOME & WORK TRIPS

Percent Change Since January 2020

% Change Time at Home

% Change Work Trips
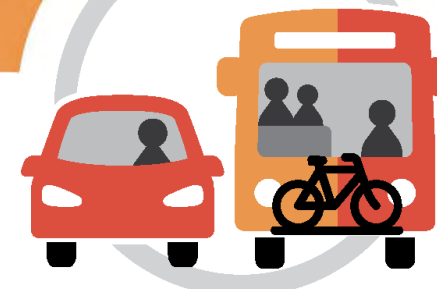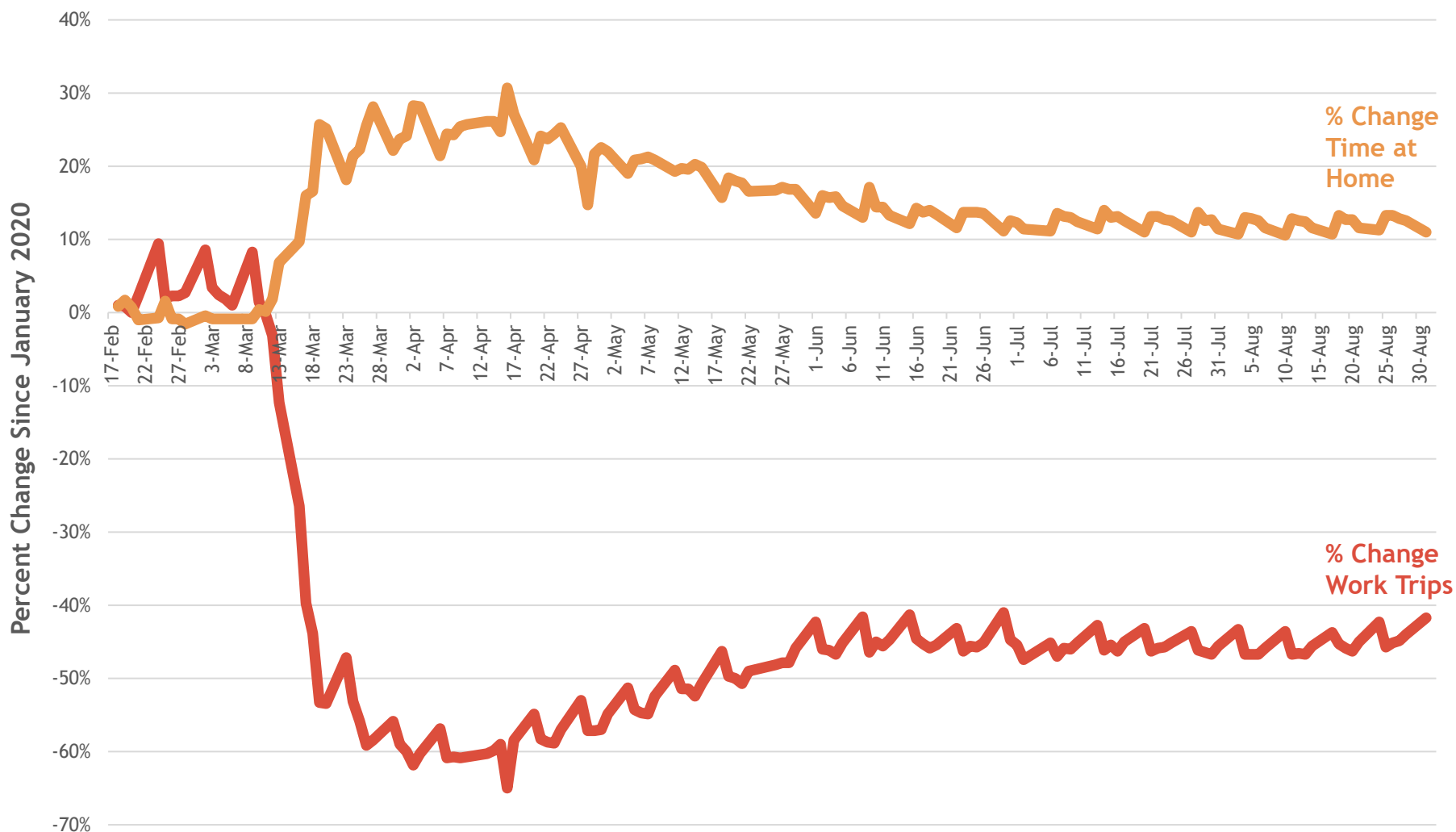
Since Stay-at-Home orders were enacted in mid-March, **work trips have dramatically declined**, while time spent at home has increased in the Denver Metro Region. This is likely due to more people working from home as well as people being furloughed or laid off.

# CORRIDOR COMMUTE MODE SHARE

US 36 Corridor
EB 16% Transit

Northwest Corridor
EB 19% Transit

Gold Corridor
EB 7% Transit

East Corridor
WB 17% Transit

West Corridor
EB 8% Transit

I-225 Corridor
SB 1% Transit

Southwest Corridor
NB 22% Transit

Southeast Corridor
NB 21% Transit

## 2019 AM Peak Period & Peak Direction Auto & Transit Corridor Mode Share

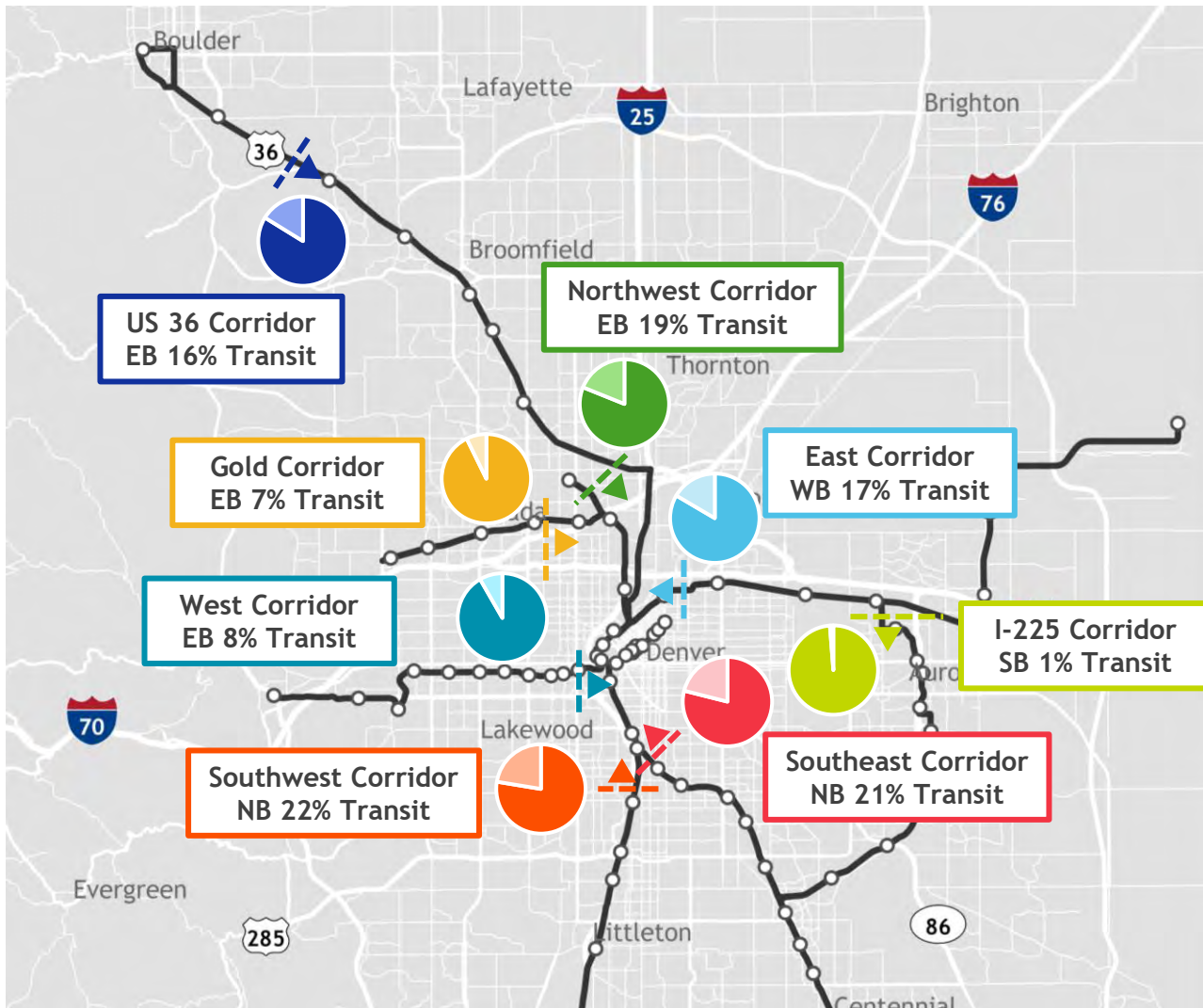| Corridor | Transit Route/Roadway | Commuters | Mode Share |
|---|---|---|---|
| Southwest (NB) | C, D Lines | 3,290 | 22% |
| | Santa Fe Drive Vehicle Traffic | 11,390 | 78% |
| Southeast (NB) | E, F, H Lines, P | 6,270 | 21% |
| | I-25 Vehicle Traffic | 23,510 | 79% |
| Northwest (EB) | B Line, Flatiron Flyer | 3,150 | 19% |
| | US 36 Vehicle Traffic | 13,530 | 81% |
| East (WB) | A Line | 2,250 | 17% |
| | I-70 Vehicle Traffic | 11,370 | 83% |
| US 36 (EB) | Flatiron Flyer | 1,090 | 16% |
| | US 36 Vehicle Traffic | 5,650 | 84% |
| West (EB) | W Line, 9/16/16L/EV/CV/116X/87L | 2,460 | 8% |
| | US 6, W Colfax Ave Vehicle Traffic | 27,140 | 92% |
| I-225 (SB) | R Line, AT | 280 | 1% |
| | I-225 Vehicle Traffic | 17,100 | 99% |
| Gold (EB) | G Line | 1,190 | 7% |
| | I-70 Vehicle Traffic | 15,270 | 93% |

Source: RTD, Colorado Department of Transportation (CDOT), October 2019 Traffic Counts
Note: The AM peak period is defined as 6:00 AM to 8:59 AM on weekdays.

40

# CORRIDOR COMMUTE MODE SHARE



**2019 AM Peak Period & Peak Direction Auto & Transit Corridor Mode Share**

Map labels:
- N Sheridan Blvd NB 13% Transit
- N Federal Blvd NB 9% Transit
- E Colfax Ave WB 40% Transit
- N Colorado Blvd SB 9% Transit
- S Havana St SB 12% Transit
- S Federal Blvd NB 17% Transit
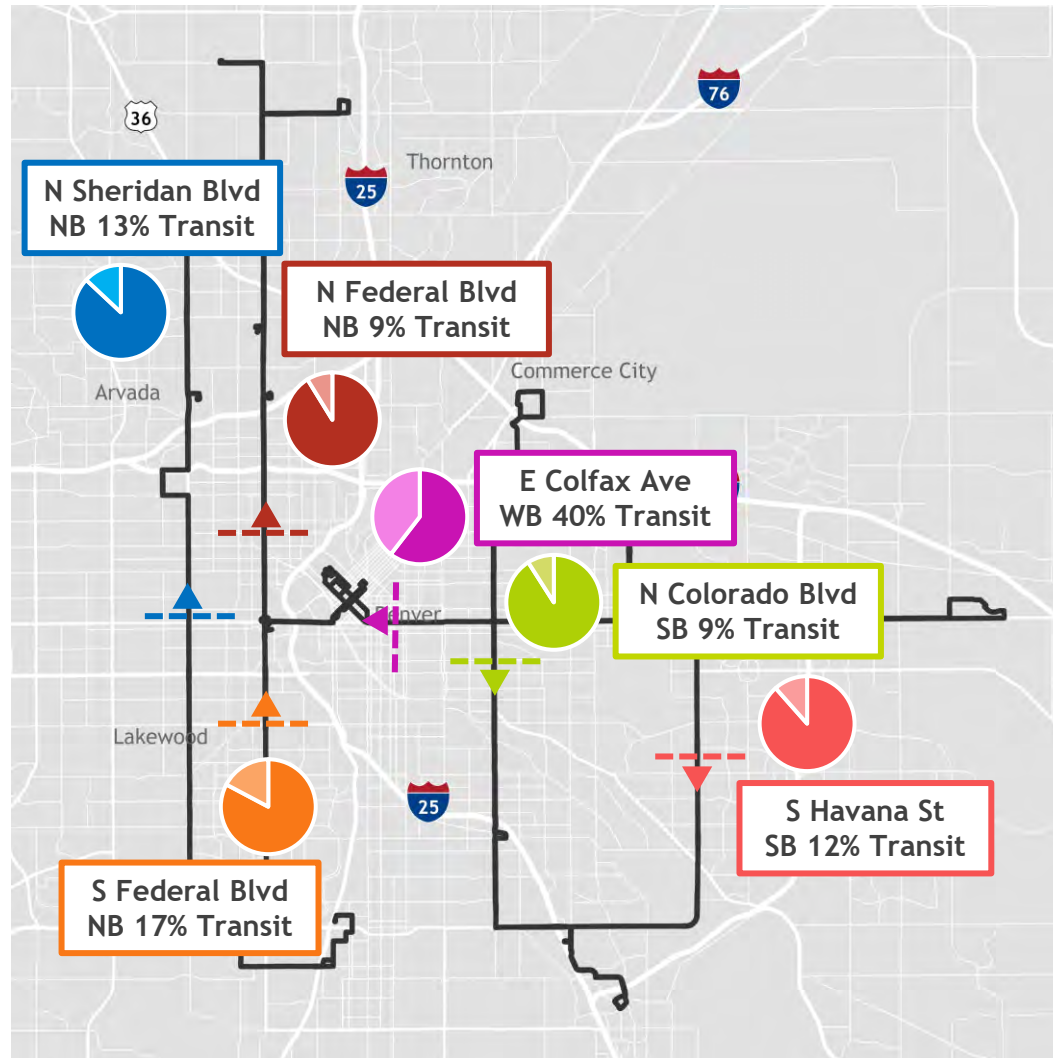
| Corridor | Transit Route/Roadway | Commuters | Mode Share |
|---|---|---|---|
| E Colfax Ave (WB) | Routes 15/15L | 1,120 | 40% |
| | E Colfax Ave Vehicle Traffic | 1,714 | 60% |
| S Federal Blvd (NB) | Routes 30/30L/31 | 342 | 17% |
| | S Federal Blvd Vehicle Traffic | 1,638 | 83% |
| N Sheridan Blvd (NB) | Route 51 | 197 | 13% |
| | N Sheridan Blvd Vehicle Traffic | 1,314 | 87% |
| S Havana St (SB) | Route 105 | 183 | 12% |
| | A Havana St Vehicle Traffic | 1,404 | 88% |
| N Colorado Blvd (SB) | Route 40 | 176 | 9% |
| | N Colorado Blvd Vehicle Traffic | 1,770 | 91% |
| N Federal Blvd (NB) | Route 31 | 104 | 9% |
| | N Federal Blvd Vehicle Traffic | 1,080 | 91% |

# ANNUAL TRANSIT BOARDINGS



Annual Boardings (in millions)

| Year | Boardings |
|------|-----------|
| 2006 | 86.6 |
| 2007 | 94.2 |
| 2008 | 101.2 |
| 2009 | 98.2 |
| 2010 | 97.4 |
| 2011 | 97.8 |
| 2012 | 98.5 |
| 2013 | 101.4 |
| 2014 | 104.3 |
| 2015 | 102.3 |
| 2016 | 103.3 |
| 2017 | 106.1 |
| 2018 | 104.7 |
| 2019 | 105.2 |
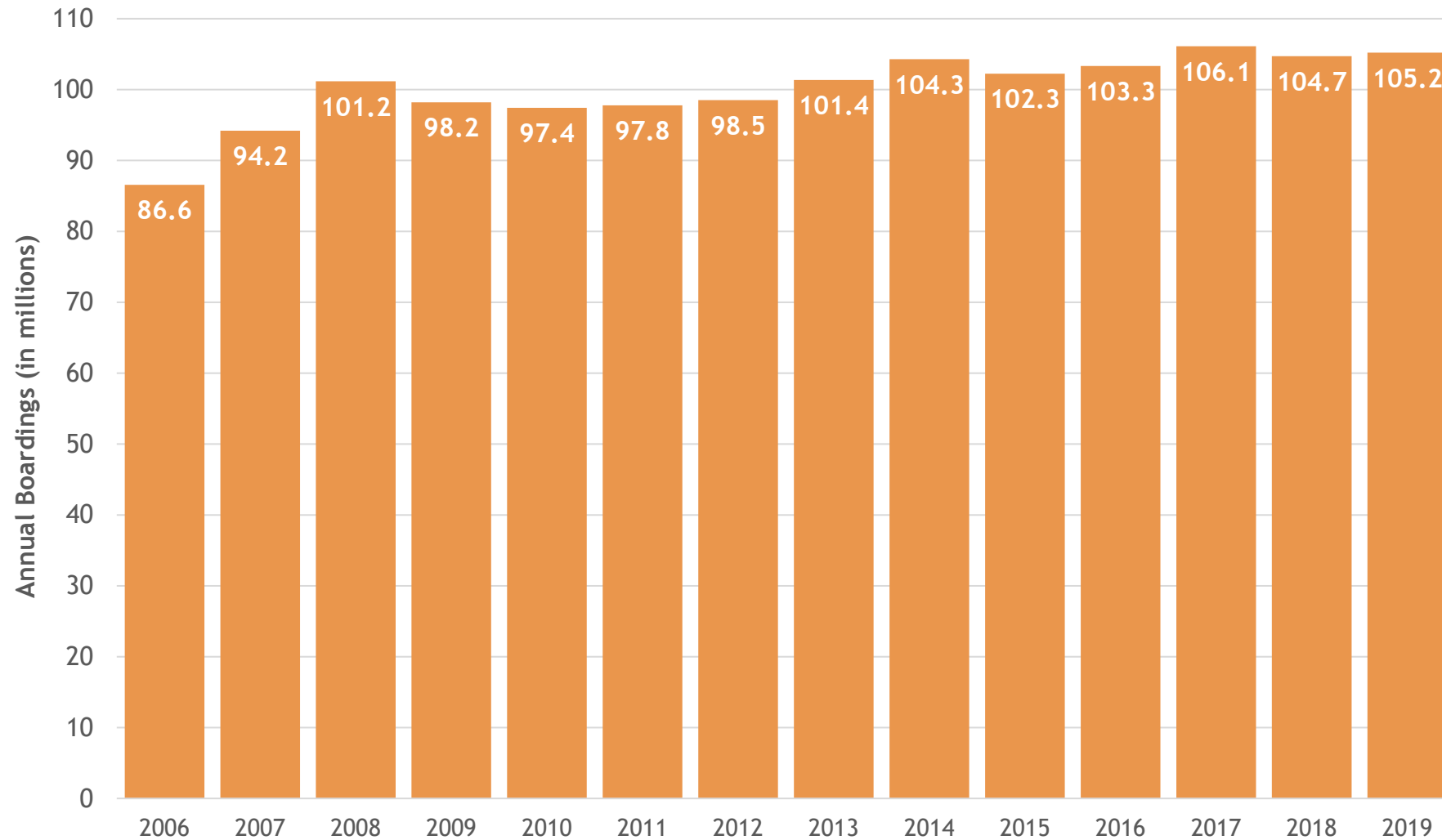
Annual transit boardings increased by 21.5% between 2006 and 2019. **From 2018 to 2019, boardings increased by about 500,000.**

# ANNUAL TRANSIT BOARDINGS PER CAPITA



Bar chart titled "Annual Boardings per Capita" by year:

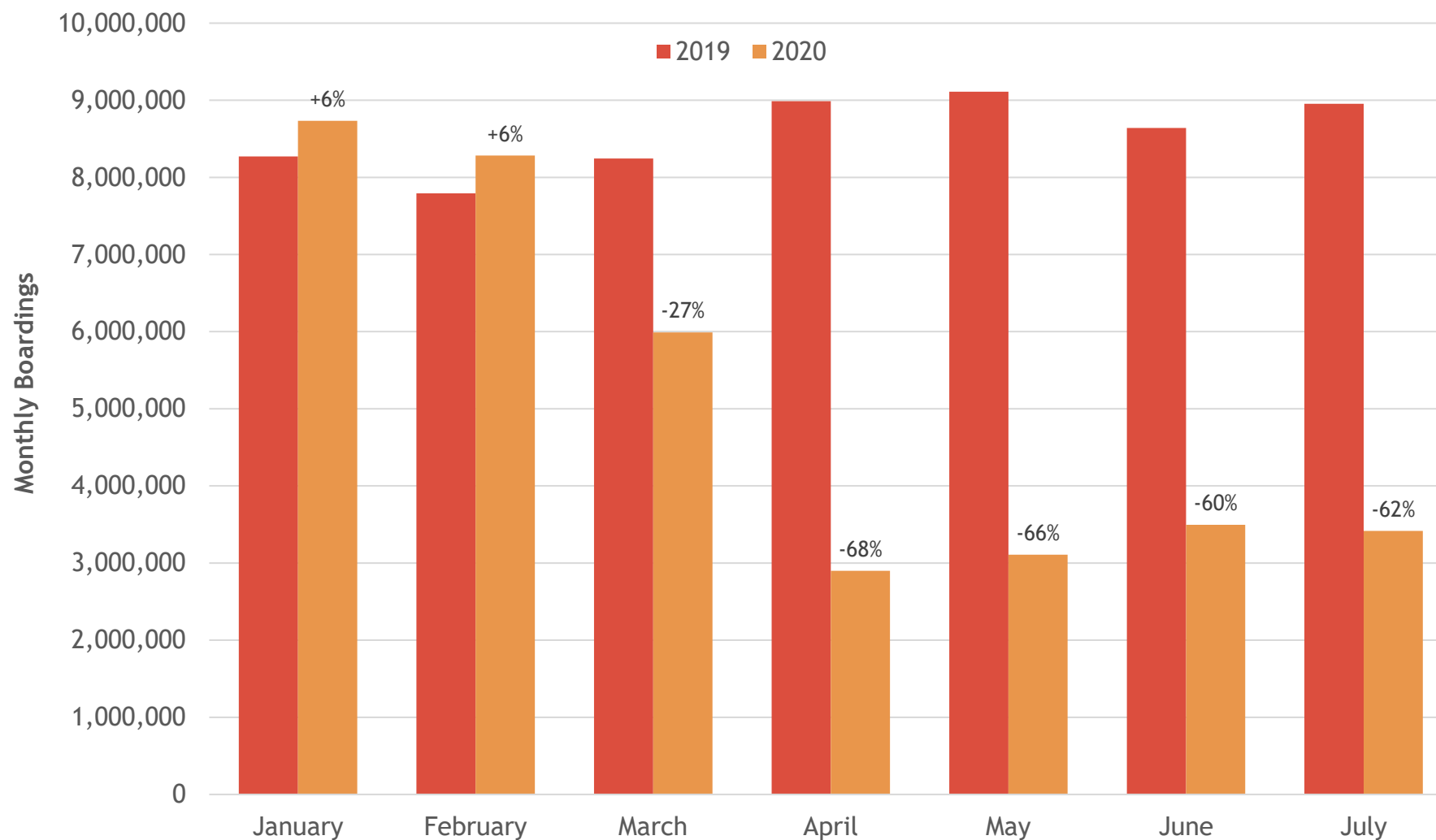| Year | Annual Boardings per Capita |
|------|------|
| 2006 | 33.1 |
| 2007 | 36.0 |
| 2008 | 38.6 |
| 2009 | 37.5 |
| 2010 | 37.2 |
| 2011 | 37.3 |
| 2012 | 37.6 |
| 2013 | 36.9 |
| 2014 | 36.3 |
| 2015 | 35.6 |
| 2016 | 35.4 |
| 2017 | 36.3 |
| 2018 | 35.9 |
| 2019 | 36.0 |
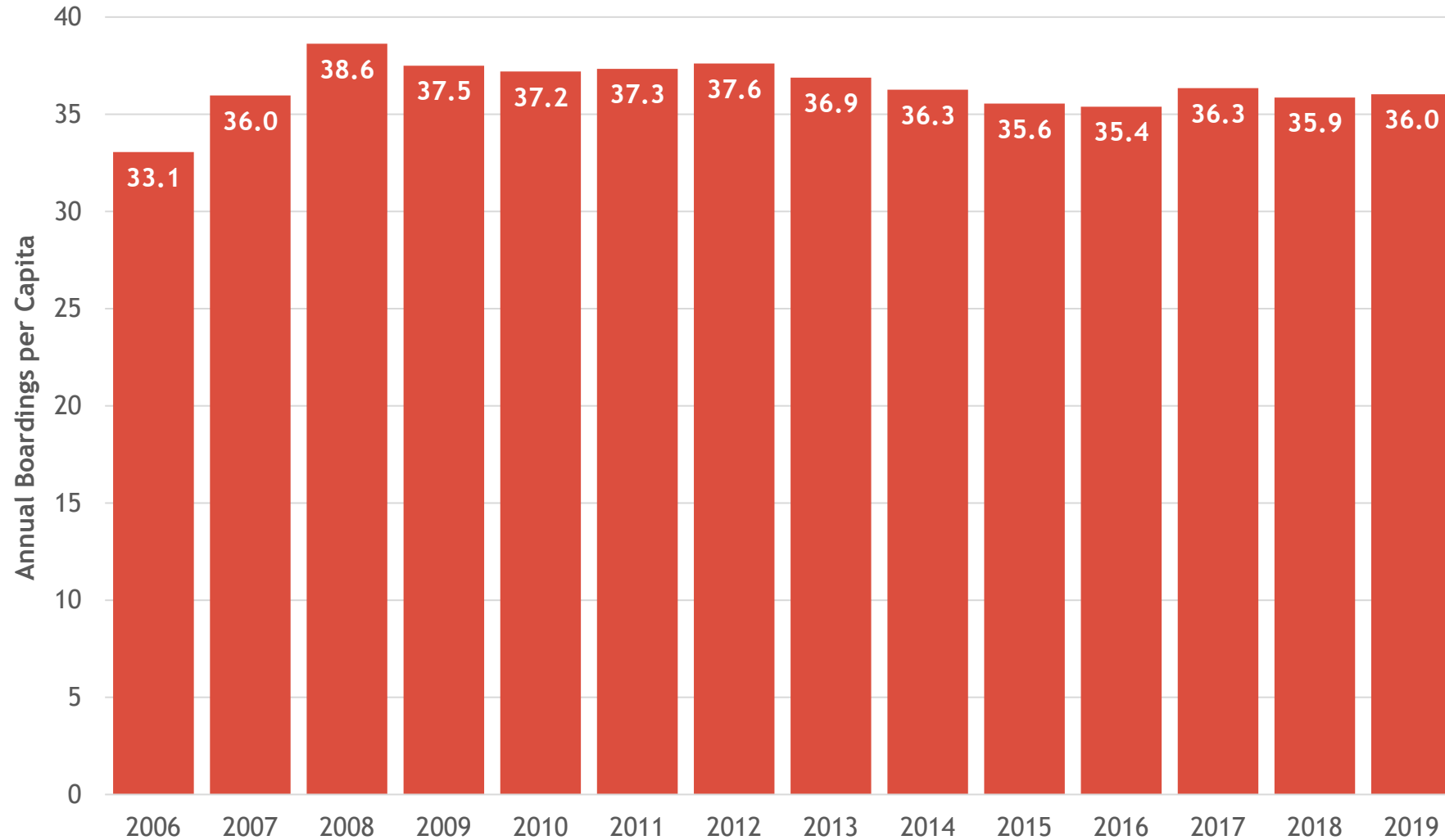
Annual transit boardings per capita decreased by 6.7% (2 boardings per person) between 2008 and 2019. However, **boardings per capita increased slightly** (0.5%) from 2018 to 2019.

# COVID MONTHLY TRANSIT BOARDINGS



**2019** **2020**

Monthly Boardings

| Month | 2020 change |
|-------|-------------|
| January | +6% |
| February | +6% |
| March | -27% |
| April | -68% |
| May | -66% |
| June | -60% |
| July | -62% |

RTD ridership reached its **lowest point in April 2020 with 2.9 million monthly boardings.** This was a 68% decrease compared to April 2019. As of July, boardings were still well below typical levels.
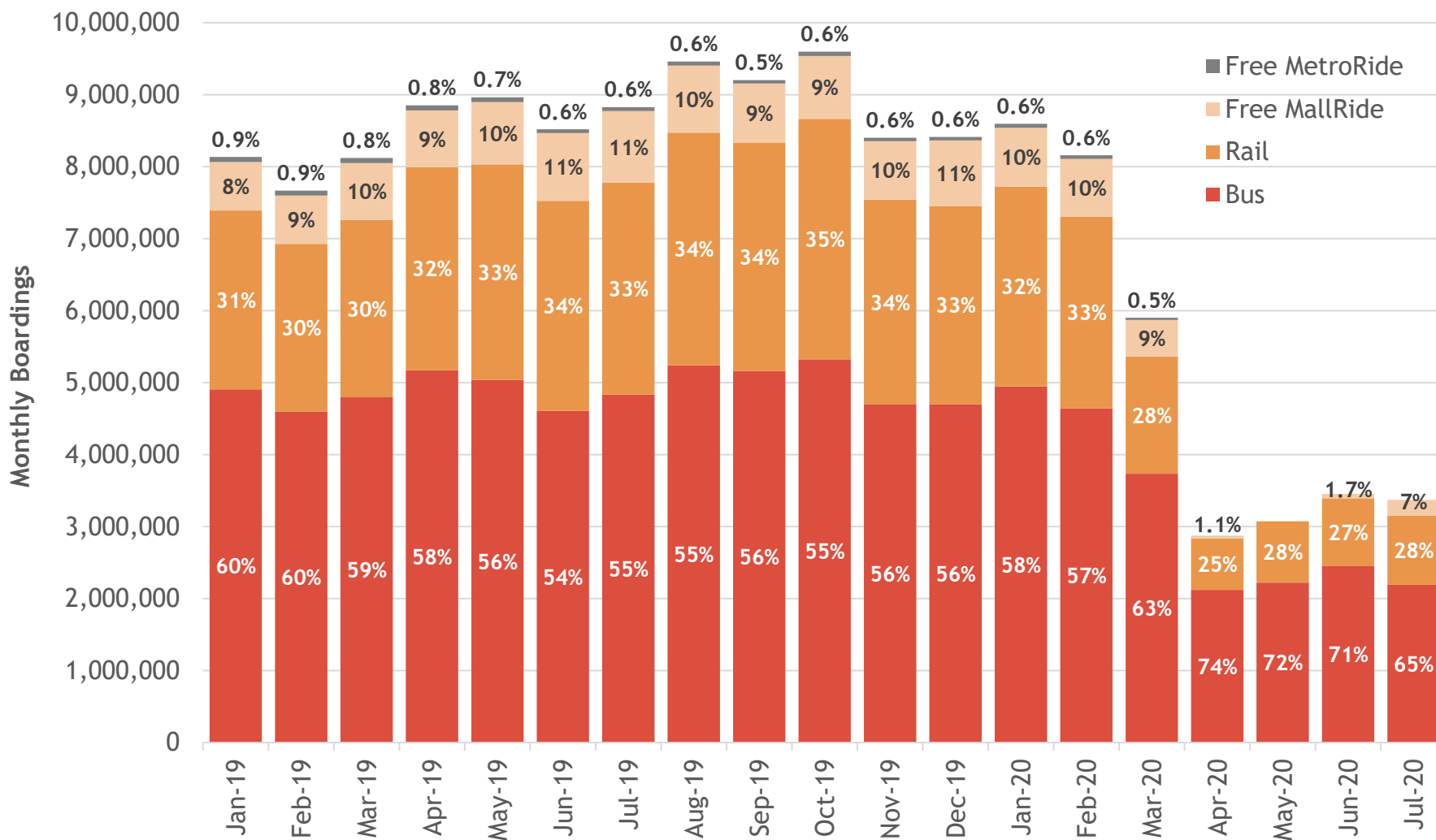
# TRANSIT BOARDINGS BY SERVICE TYPE



**The Ride**
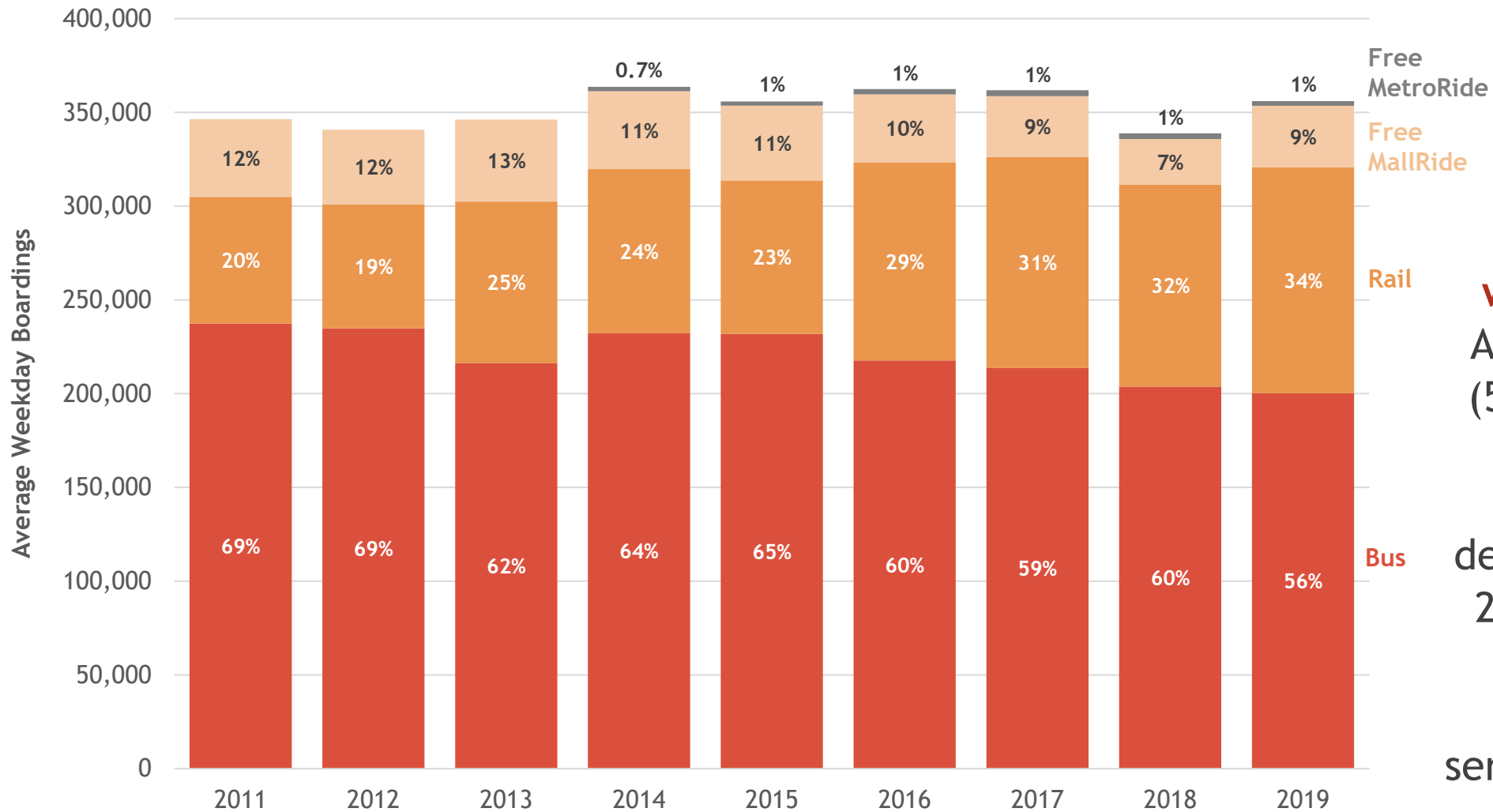
In 2019, RTD had **356,000 average weekday boardings**. Although the majority (56%) of boardings are on bus services, bus boardings have decreased from 2011 to 2019. This is partially due to passengers switching from bus service to new rail lines.

Average Weekday Boardings

| Year | Bus | Rail | Free MallRide | Free MetroRide |
|------|-----|------|---------------|----------------|
| 2011 | 69% | 20% | 12% | |
| 2012 | 69% | 19% | 12% | |
| 2013 | 62% | 25% | 13% | |
| 2014 | 64% | 24% | 11% | 0.7% |
| 2015 | 65% | 23% | 11% | 1% |
| 2016 | 60% | 29% | 10% | 1% |
| 2017 | 59% | 31% | 9% | 1% |
| 2018 | 60% | 32% | 7% | 1% |
| 2019 | 56% | 34% | 9% | 1% |

# COVID BOARDINGS BY SERVICE TYPE

**Legend:**
- Free MetroRide
- Free MallRide
- Rail
- Bus

| Month | Free MetroRide | Free MallRide | Rail | Bus |
|---|---|---|---|---|
| Jan-19 | 0.9% | 8% | 31% | 60% |
| Feb-19 | 0.9% | 9% | 30% | 60% |
| Mar-19 | 0.8% | 10% | 30% | 59% |
| Apr-19 | 0.8% | 9% | 32% | 58% |
| May-19 | 0.7% | 10% | 33% | 56% |
| Jun-19 | 0.6% | 11% | 34% | 54% |
| Jul-19 | 0.6% | 11% | 33% | 55% |
| Aug-19 | 0.6% | 10% | 34% | 55% |
| Sep-19 | 0.5% | 9% | 34% | 56% |
| Oct-19 | 0.6% | 9% | 35% | 55% |
| Nov-19 | 0.6% | 10% | 34% | 56% |
| Dec-19 | 0.6% | 11% | 33% | 56% |
| Jan-20 | 0.6% | 10% | 32% | 58% |
| Feb-20 | 0.6% | 10% | 33% | 57% |
| Mar-20 | 0.5% | 9% | 28% | 63% |
| Apr-20 | 1.1% | — | 25% | 74% |
| May-20 | — | — | 28% | 72% |
| Jun-20 | 1.7% | — | 27% | 71% |
| Jul-20 | 7% | — | 28% | 65% |

*Y-axis: Monthly Boardings (0 to 10,000,000)*

RTD ridership started declining in March when Stay-at-Home orders were issued. The **Free MallRide and Free MetroRide services were suspended on April 19th**. The MallRide service resumed on June 21st, while the MetroRide service was still suspended as of July.
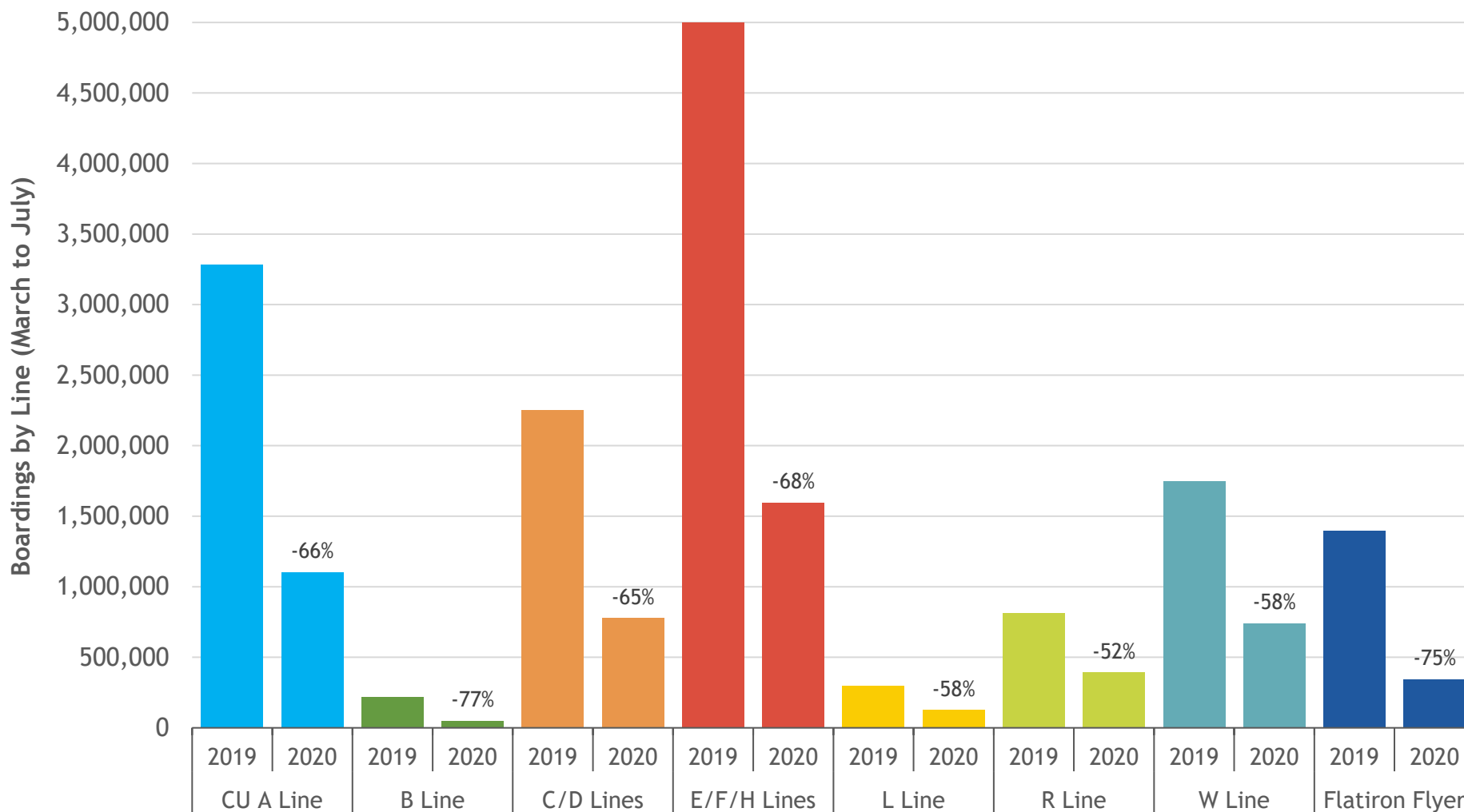
# TRANSIT BOARDINGS BY LINE



Average Weekday Boardings

- E/F/H Lines
- A Line
- C/D Lines
- W Line
- Flatiron Flyer
- R Line
- L Line
- B Line
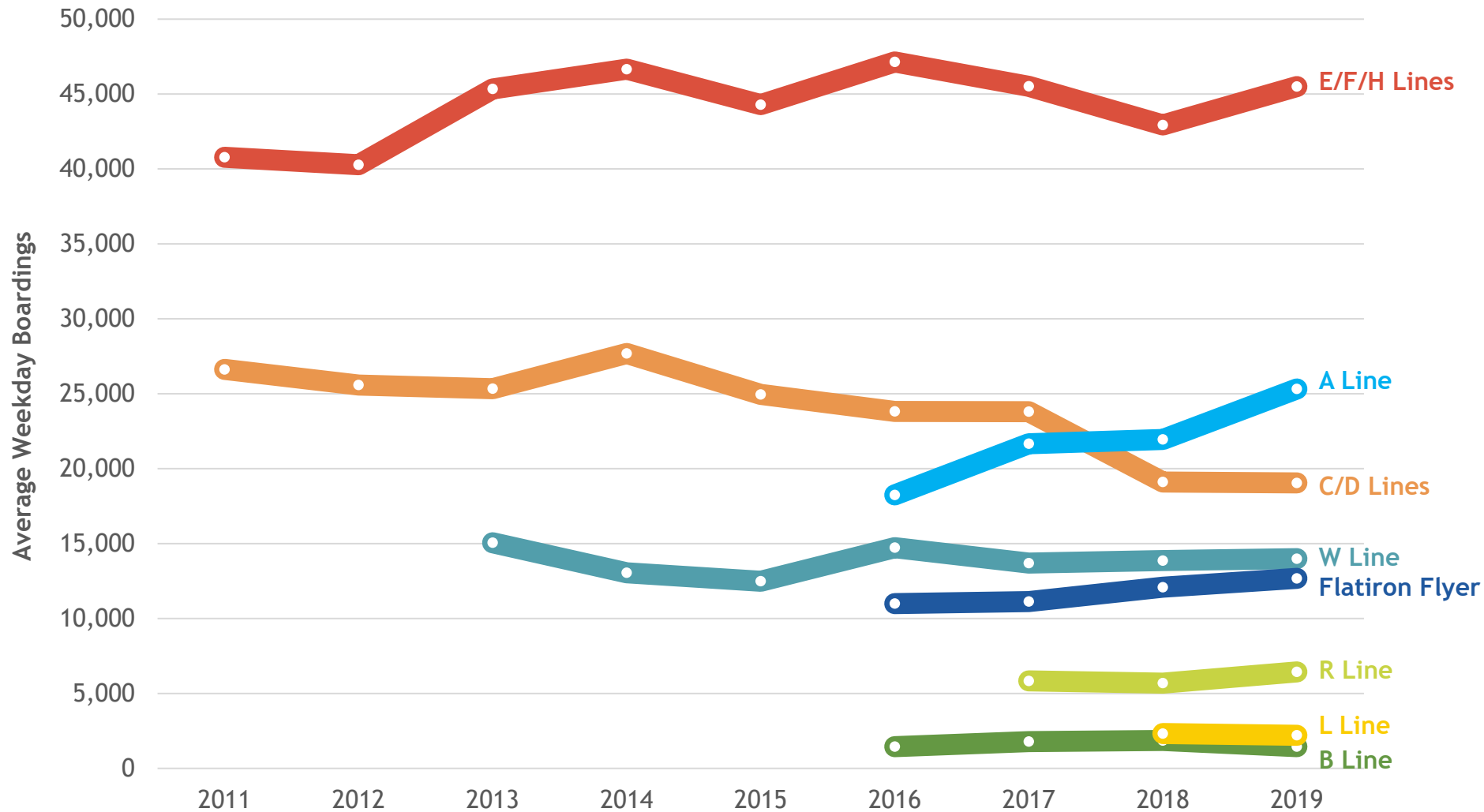
Between 2016 and 2019, boardings on the C/D Lines decreased by 20%. The University of Colorado A Line experienced a **39% increase in boardings since it opened** in 2016.

# COVID TRANSIT BOARDINGS BY LINE

Boardings by Line (March to July)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2019 / 2020 | 2019 / 2020 | 2019 / 2020 | 2019 / 2020 | 2019 / 2020 | 2019 / 2020 | 2019 / 2020 | 2019 / 2020 |
| CU A Line | B Line | C/D Lines | E/F/H Lines | L Line | R Line | W Line | Flatiron Flyer |

-66% (CU A Line)
-77% (B Line)
-65% (C/D Lines)
-68% (E/F/H Lines)
-58% (L Line)
-52% (R Line)
-58% (W Line)
-75% (Flatiron Flyer)

During COVID (March to July) **rapid transit boardings were 65% lower** on average compared to the same period in 2019. Since April 19th, the D Line, F Line, and several Flatiron Flyer routes are no longer operating throughout the day.

**6%** increase in boardings at Flatiron Flyer stations since opening in 2016

**50%** increase in boardings at the Pepsi Center / Elitch Gardens Station since 2018

**2019 Average Weekday Boardings at Stations**



Average Weekday Boardings
- ≤1,000
- 1,001 - 2,500
- 2,501 - 4,500
- 4,501 - 9,000
- 9,001 - 32,000
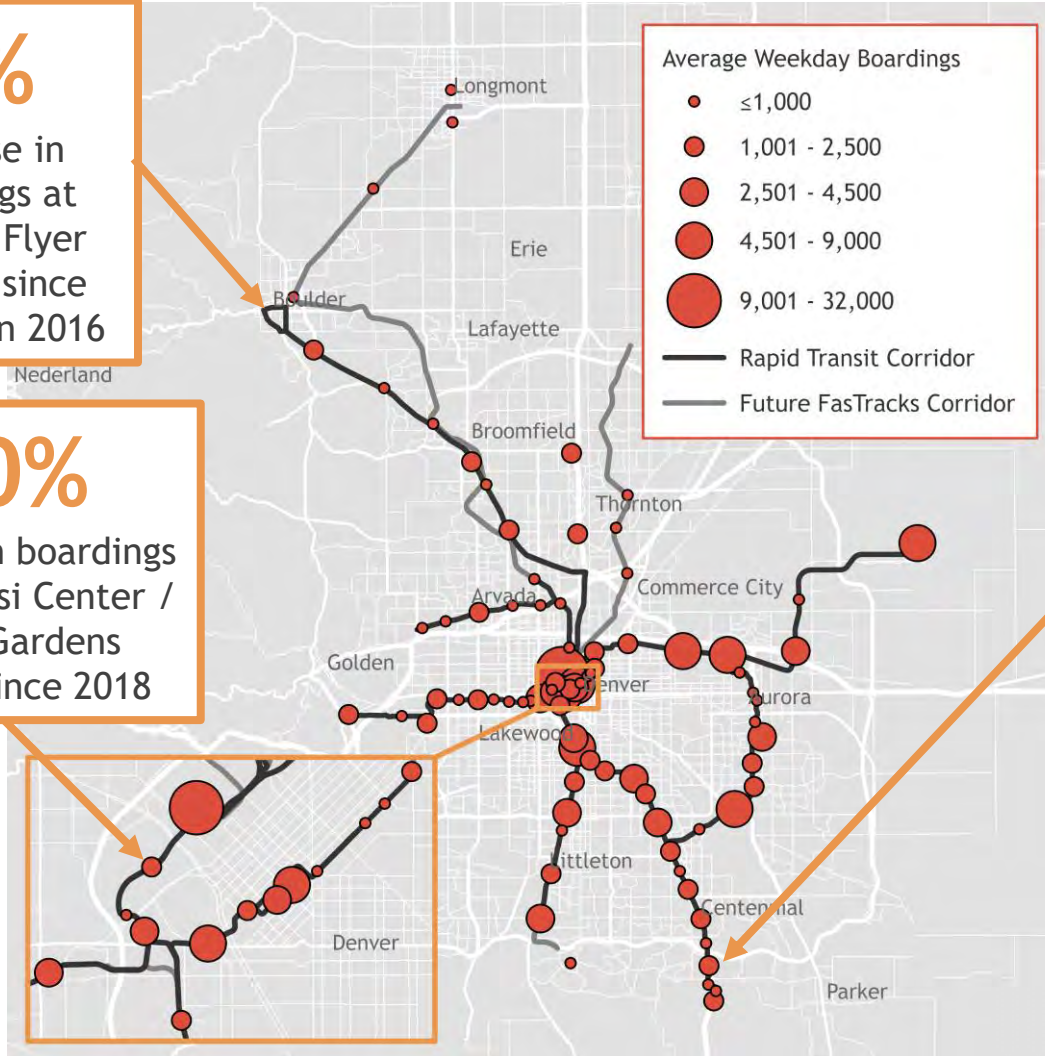
— Rapid Transit Corridor
— Future FasTracks Corridor

While Lincoln Station boardings decreased in 2019, there was a net increase of almost **1,000** boardings since 2018 with the opening of the Southeast Rail Extension

From 2018 to 2019 average weekday boardings at stations increased slightly overall. **Union Station had almost 32,000 boardings in 2019**, more than double the boardings at both Union and Market Street Stations in 2011.

# GOAL THREE

## Improve Transportation Options and Choices

# WHY IS THIS IMPORTANT?

Time Spent in Congestion per day in 2018:

**229,000** vehicle hours

The High Frequency Transit service area has **Doubled** in size since 2006
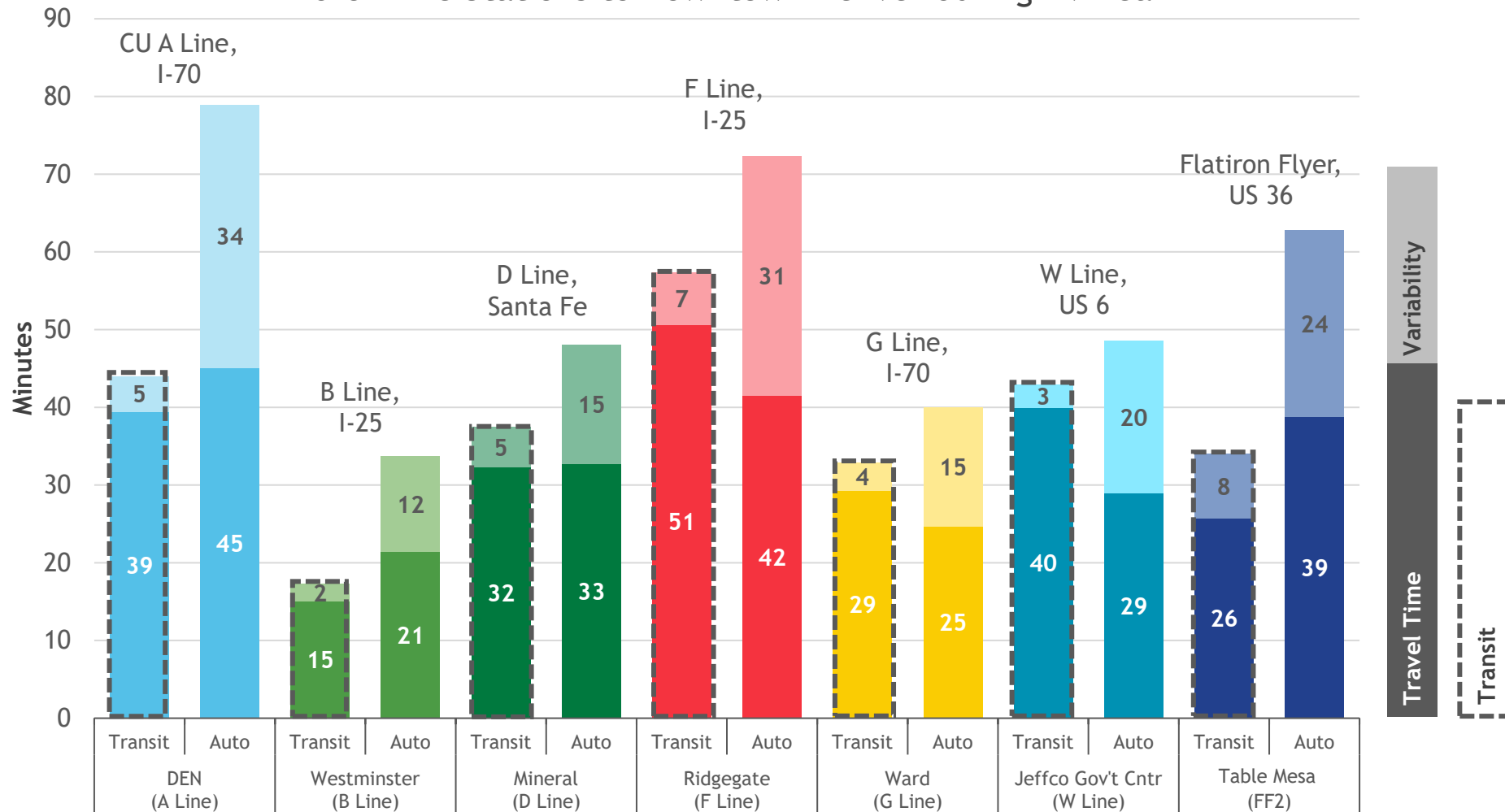
flatironflyer

EXPRESS ONLY

In 2018, the majority of users drove **less than ten miles** to access a Park-n-Ride

Annual Cost of Congestion in 2018: **$1.6 Billion**

# TRAVEL TIME & VARIABILITY

## 2019 Transit vs Auto Travel Time Comparison from End-of-Line Stations to Downtown Denver during AM Peak



In 2019, **transit travel times were similar or faster than auto travel times in 4 of the rapid transit corridors.** Transit travel times were less variable than driving along I-25 and I-70.
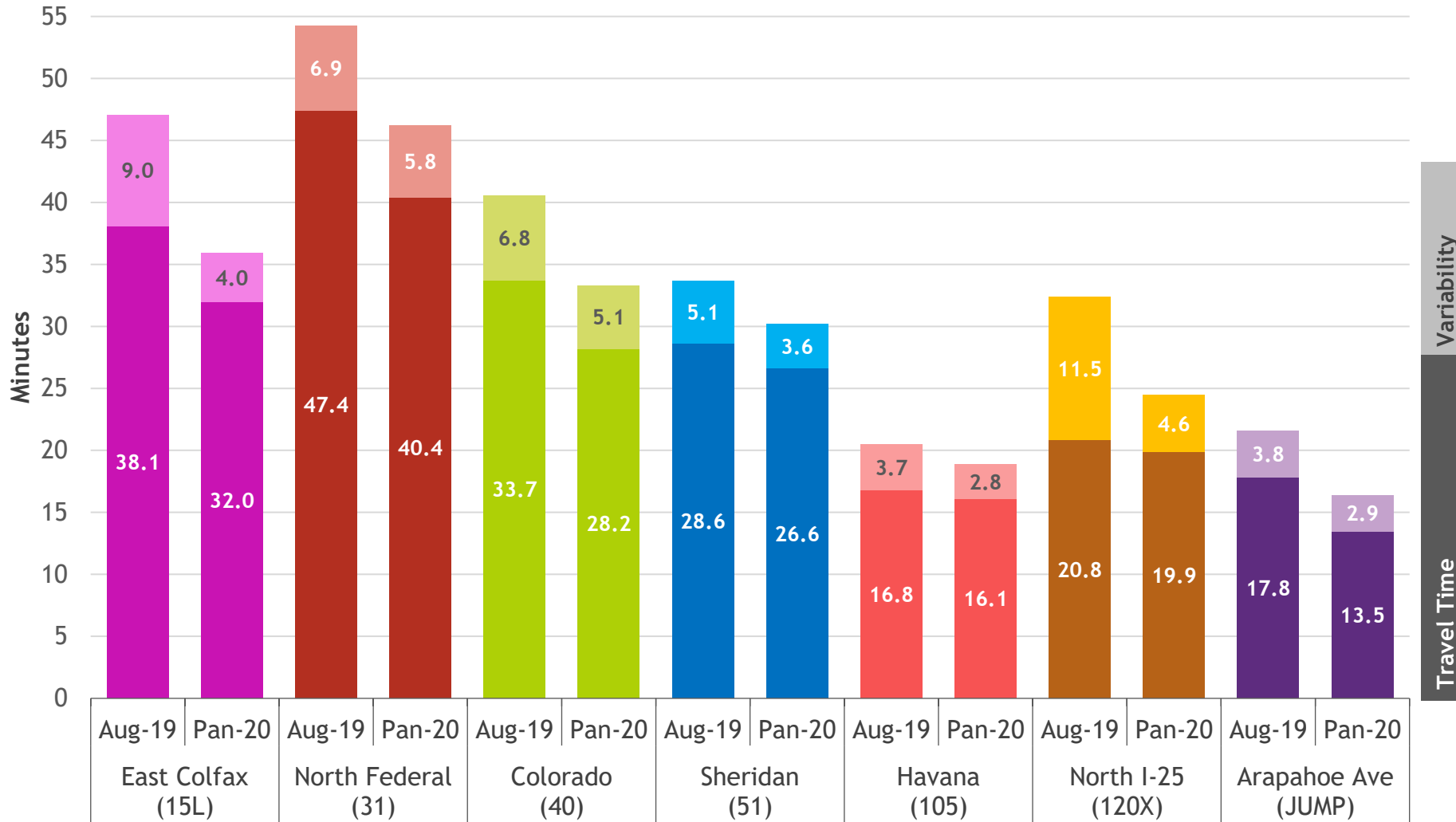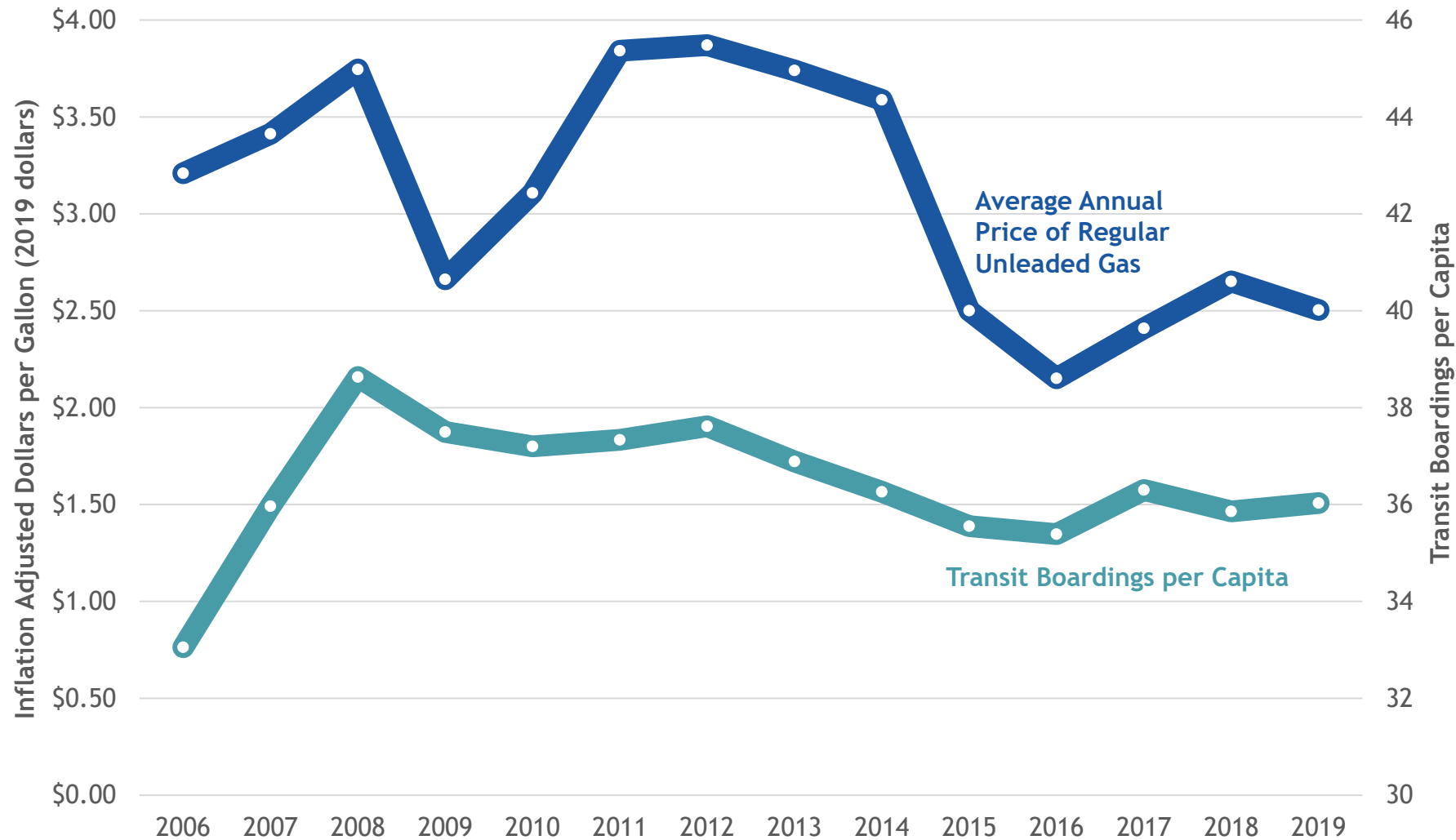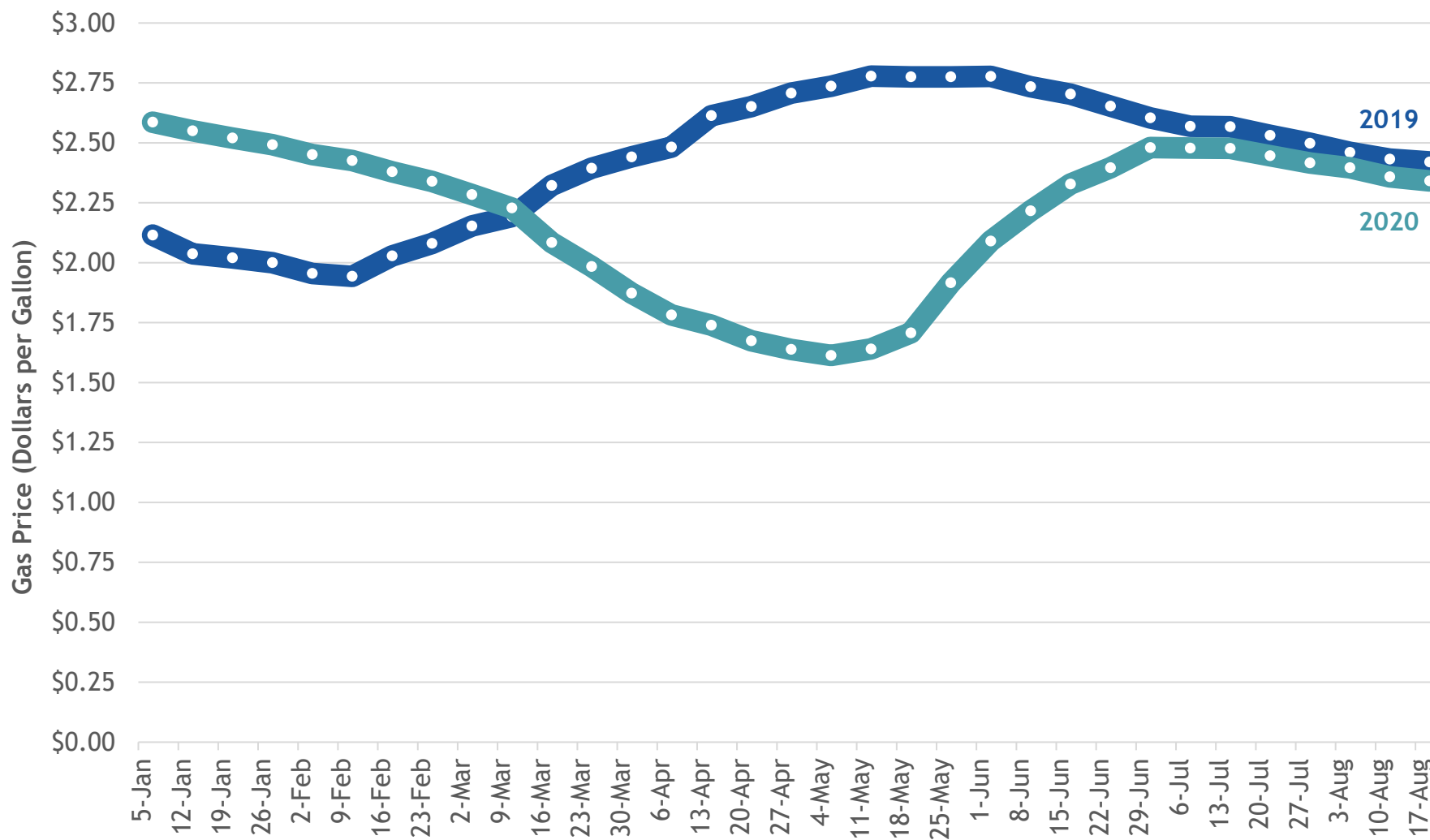
# FUEL COST



In the Metro Denver Region, the average cost of fuel peaked at $3.87 per gallon in 2012. After reaching a low of $2.15 in 2016, it increased to $2.65 per gallon in 2018. **In 2019, there was a slight decrease (-5.6%).**

# COVID FUEL COST

COVID Stay-at-Home orders led to a decline in gas prices by discouraging travel. In the Metro Denver region, **gas prices reached their lowest point ($1.60/gal) in early May**. As of mid-August, prices are returning to 2019 levels.

# COST OF CONGESTION

*Annual Travel Delay in 2018*
## 107 million hours

*Annual Cost in 2018*
## $1.6 billion

*Annual Cost Per Capita in 2018*
## $487

In 2018, the **annual cost of traffic congestion was $1.6 billion** in the Denver Metro Region. The total cost of congestion decreased by $45 million, ($17 per person) compared to 2017.

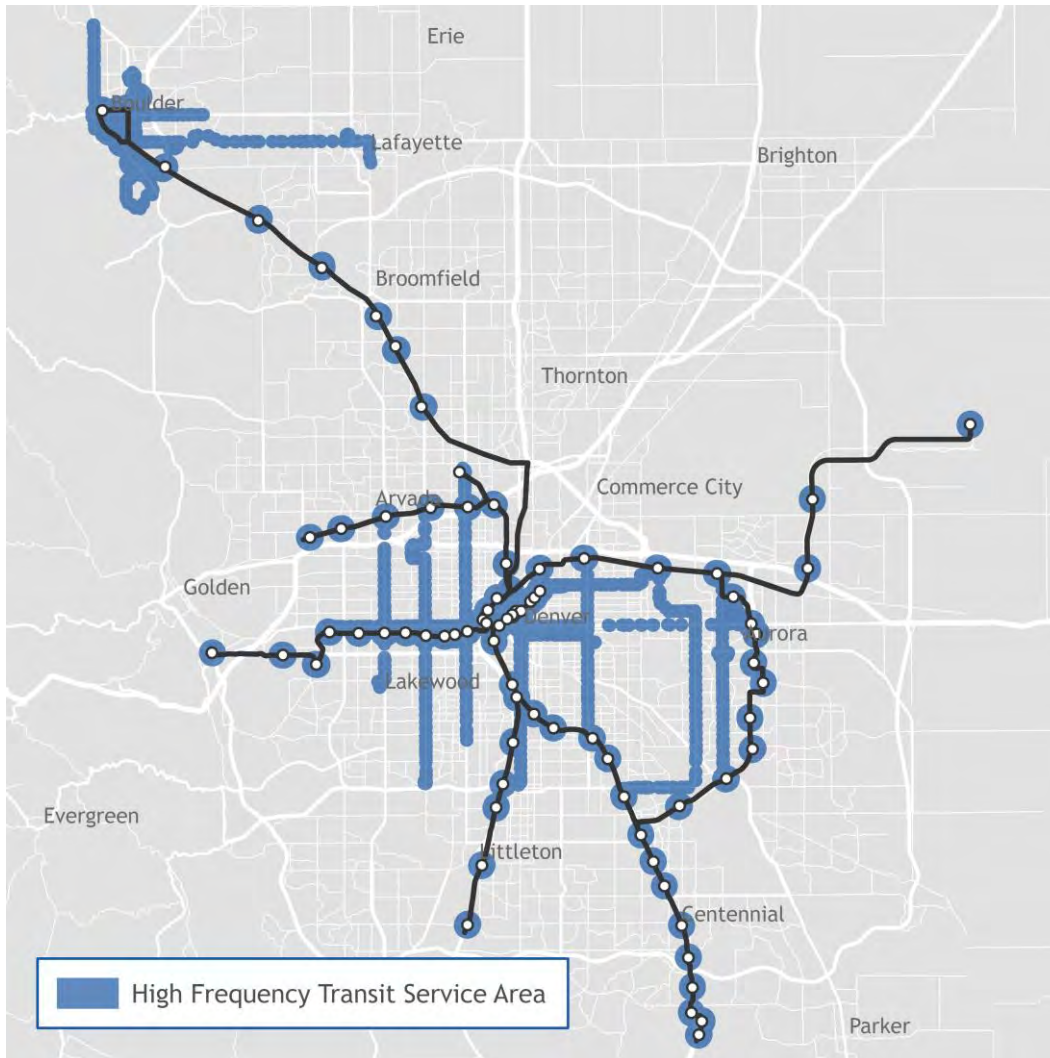RTD's transit service was on-time **89%** of the time in 2019

**HOW ARE WE DOING?**

Access-a-Ride productivity (boardings per hour) **increased by almost 4%** from 2018 to 2019

**RTD**

**FlexRide**

**43 boardings per hour** on bus and rail service in 2019

In 2019, **23 FlexRide service areas** covered **211 square miles**
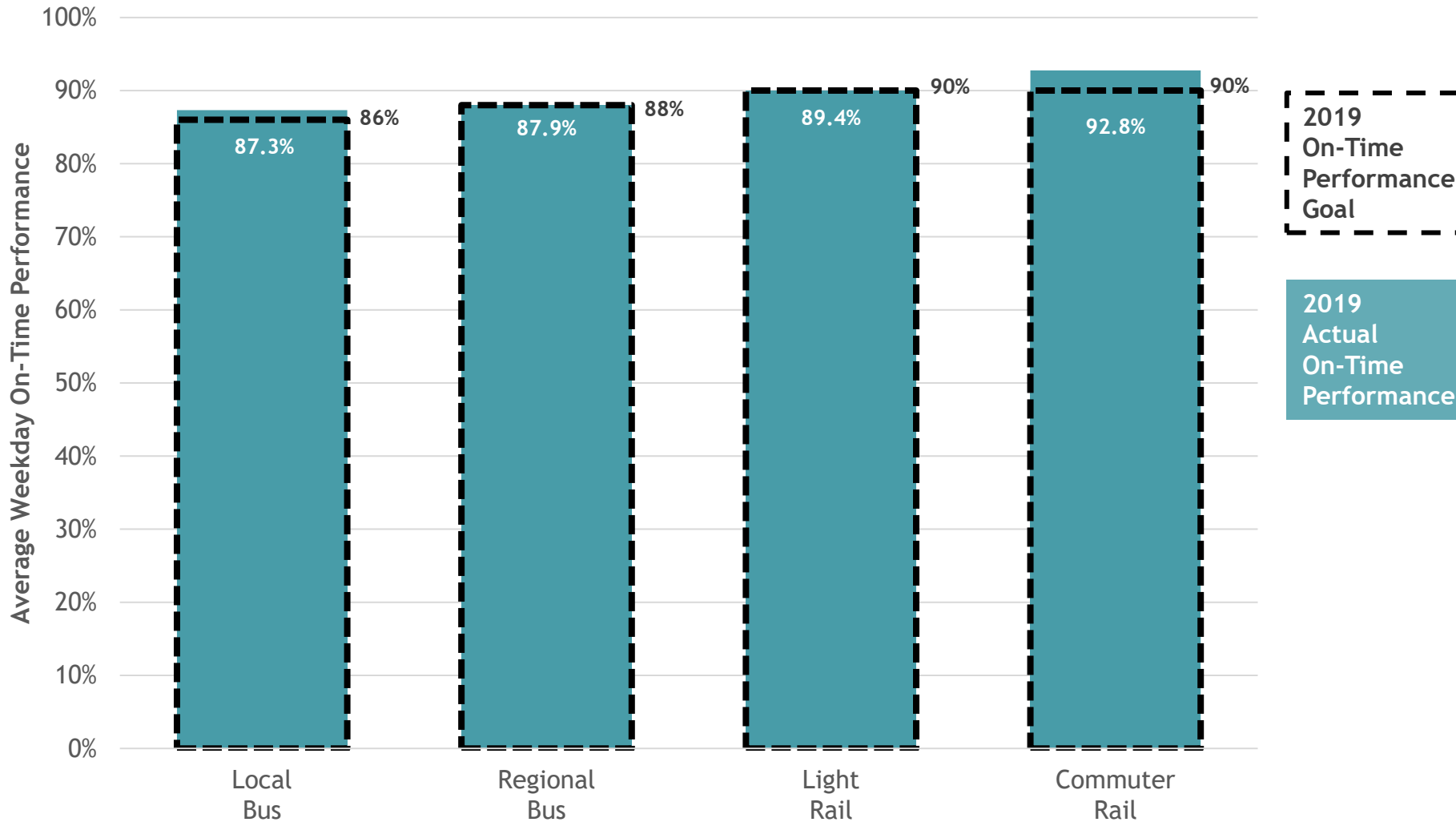
# HIGH FREQUENCY TRANSIT

**High Frequency Transit Service Area**

**17%**
(508,008 people)
of regional
population lives
within the
HFT area

**40%**
(653,453 jobs)
of regional
employment is
within the
HFT area

**The High Frequency Transit (HFT) service area has doubled in size since 2006** (from 50 to almost 100 square miles). In 2019, the HFT service area grew 17 square miles with the addition of the G Line and Southeast Rail Extension.

# BOARDINGS PER SERVICE HOUR

Average Boardings per Service Hour

| Category | Value |
|---|---|
| Access-a-Ride | 1.4 |
| FlexRide | 3.5 |
| Local Bus | 30.0 |
| Suburban Bus | 19.5 |
| Regional Bus | 29.7 |
| Flatiron Flyer | 36.0 |
| Free MetroRide | 63.9 |
| Free MallRide | 181.8 |
| Rail | 126.5 |

In 2019, there were an average of **43 boardings per hour on bus and rail** fixed route service. The Free MallRide had the highest utilization with an average of 182 boardings per hour.
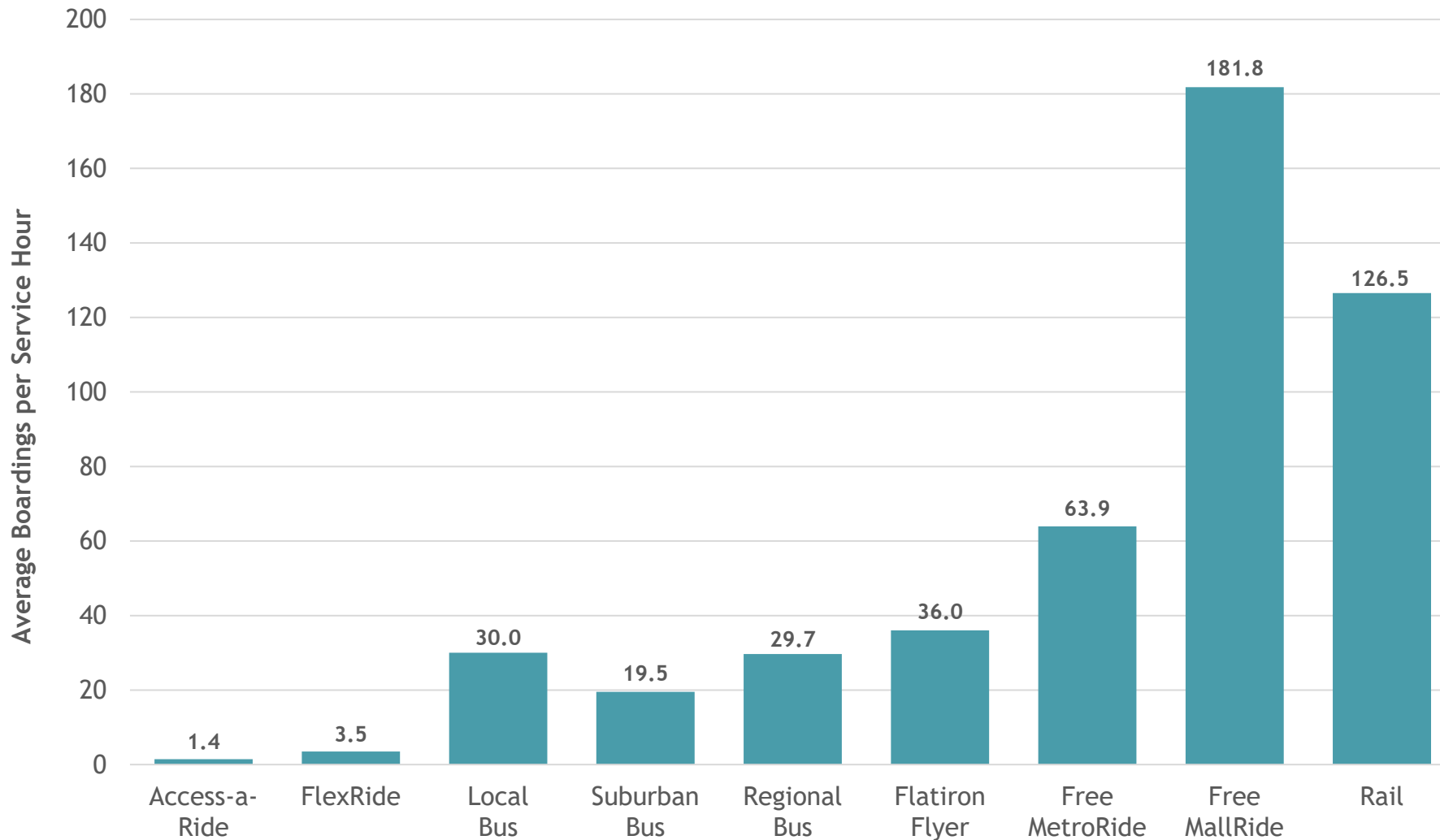
# PARK-N-RIDE USE
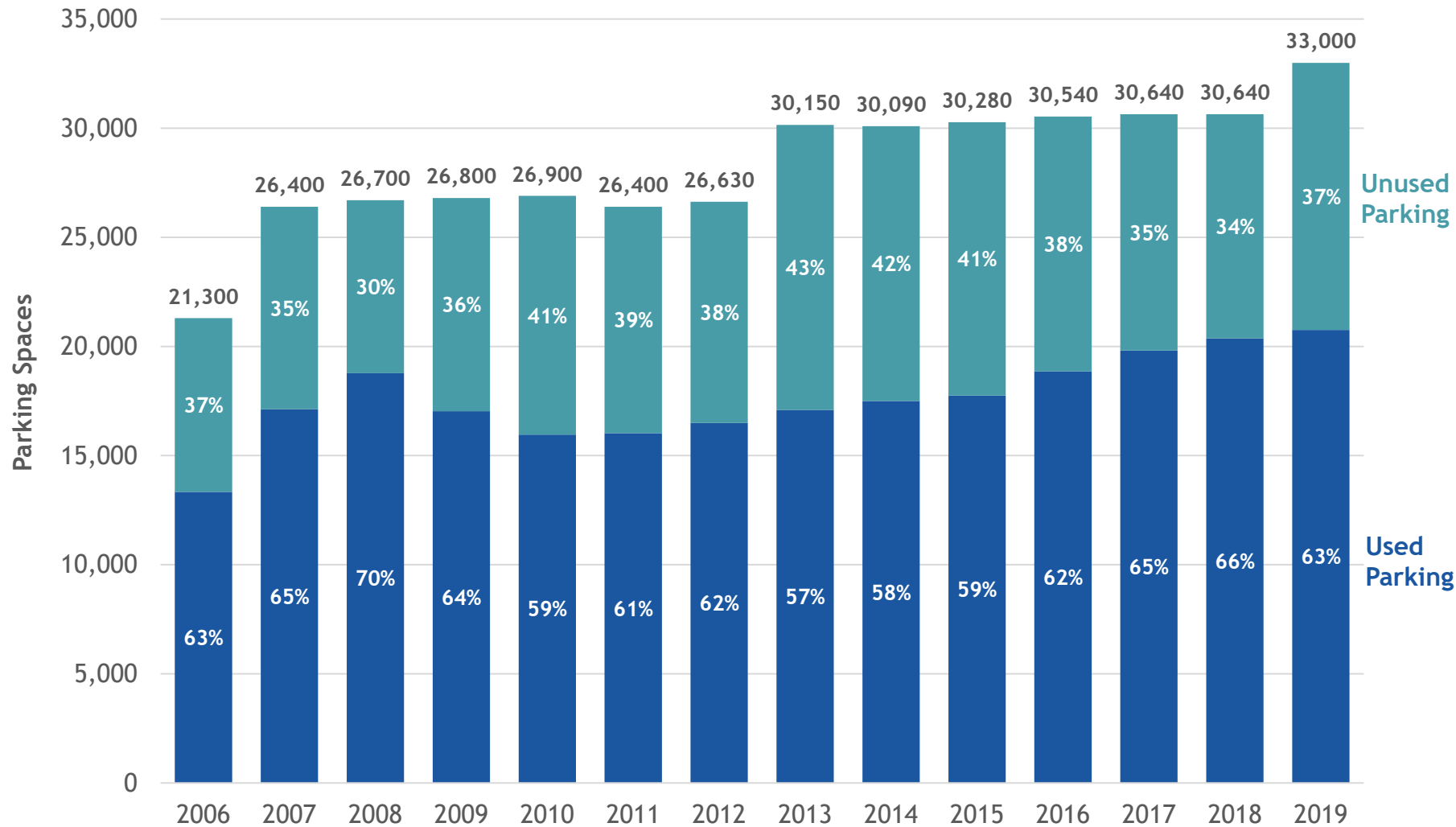


In 2019, 63% of the 33,000 parking spaces were used on an average weekday. **RTD has added over 11,000 parking spaces** since 2006. When the G Line opened in April 2019, 2,300 new parking spaces were available at Park-n-Rides in this corridor.

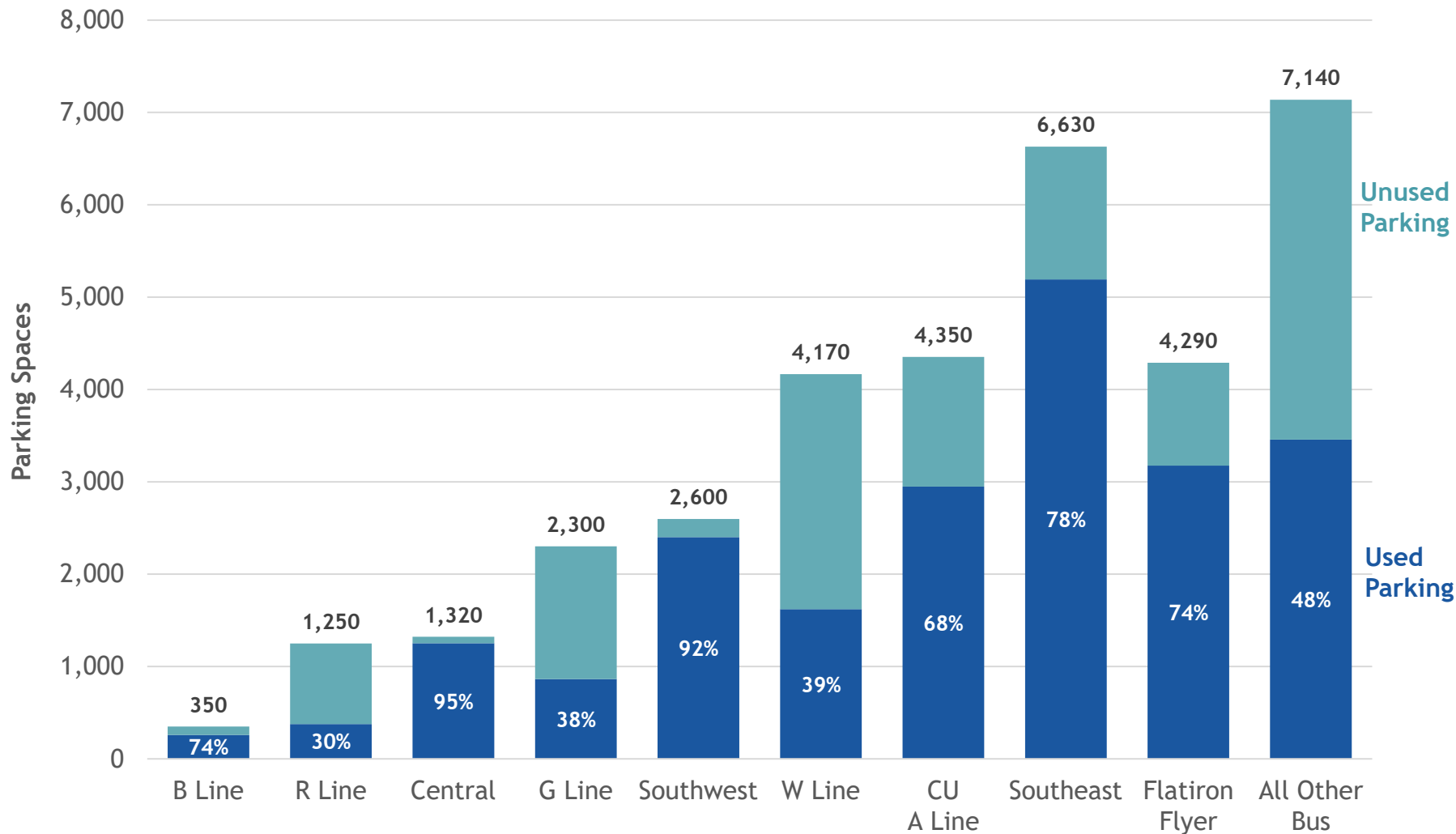# PARK-N-RIDE USE BY CORRIDOR



Chart: Parking Spaces by corridor showing Used Parking (dark blue) and Unused Parking (teal)

| Corridor | Total | Used % |
|---|---|---|
| B Line | 350 | 74% |
| R Line | 1,250 | 30% |
| Central | 1,320 | 95% |
| G Line | 2,300 | 38% |
| Southwest | 2,600 | 92% |
| W Line | 4,170 | 39% |
| CU A Line | 4,350 | 68% |
| Southeast | 6,630 | 78% |
| Flatiron Flyer | 4,290 | 74% |
| All Other Bus | 7,140 | 48% |

In 2019, **Park-n-Rides along the central and southwest corridors were close to full capacity** on an average weekday. Key locations with high use:
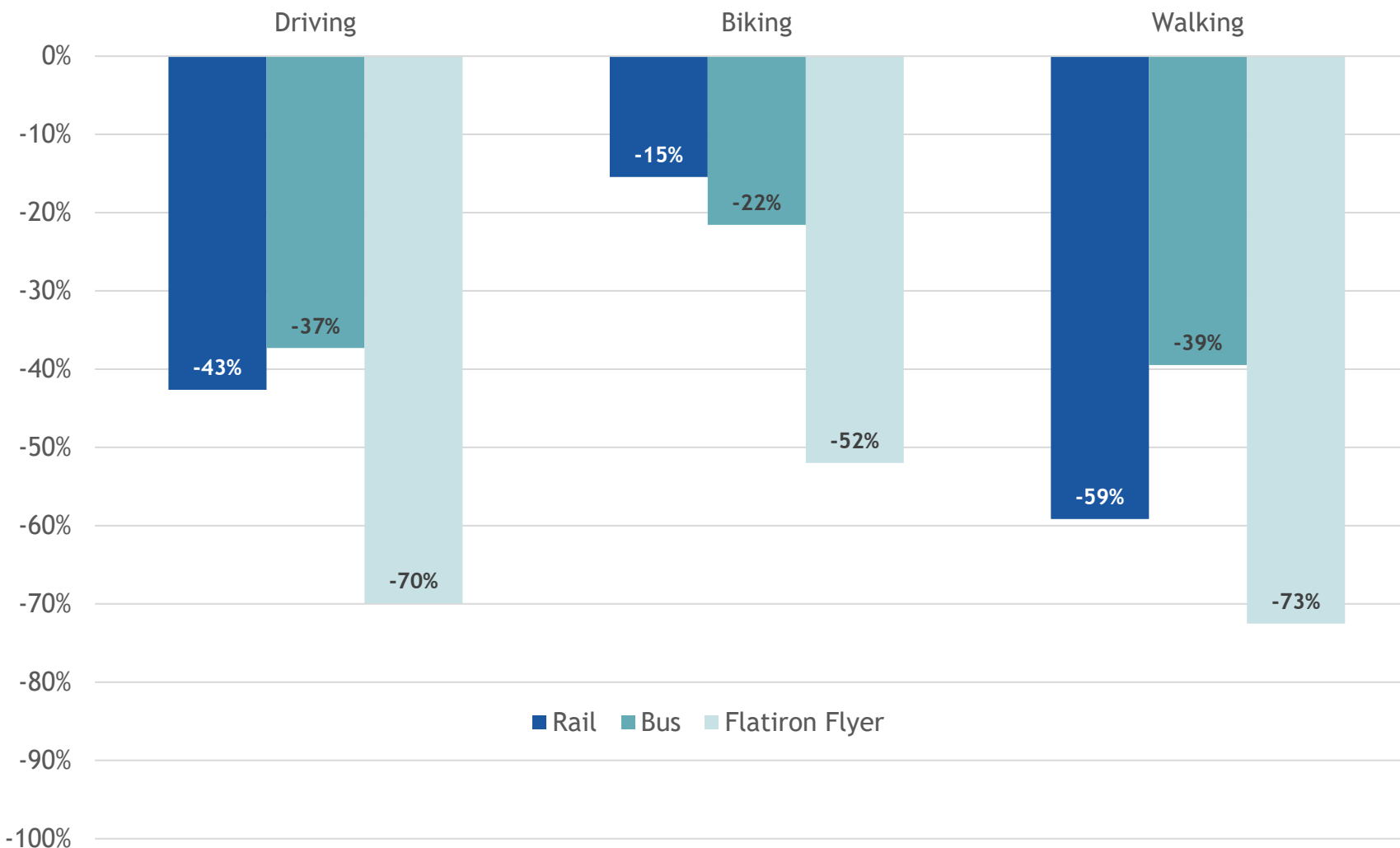
- I-25 & Broadway (97%)
- Littleton/Mineral (92%)
- Wagon Road (90%)
- Wheat Ridge & Ward (88%)
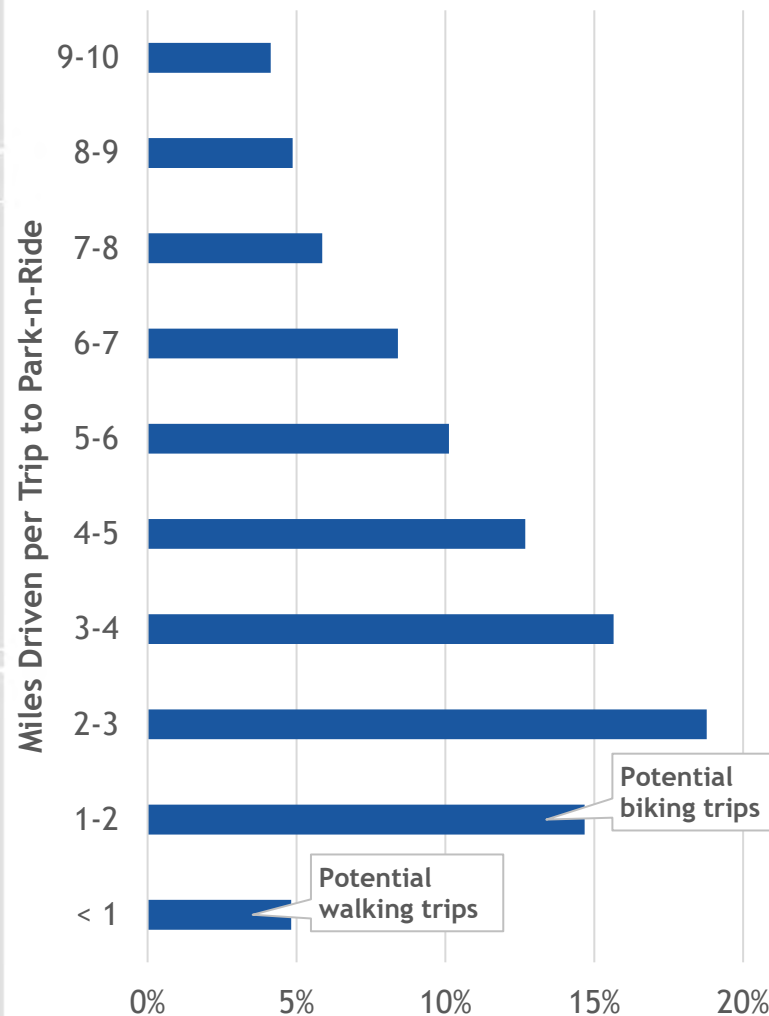
# COVID PARK-N-RIDE USE



**Percent Change from July 2019 to July 2020**

Driving:
- Rail: -43%
- Bus: -37%
- Flatiron Flyer: -70%

Biking:
- Rail: -15%
- Bus: -22%
- Flatiron Flyer: -52%

Walking:
- Rail: -59%
- Bus: -39%
- Flatiron Flyer: -73%

Legend: Rail, Bus, Flatiron Flyer

In July 2020, the **number of vehicles, cyclists, and pedestrians accessing RTD Park-n-Rides was much lower** than July 2019. Flatiron Flyer Park-n-Ride usage was lower than other services, likely due to the suspension of the FF2, FF4, and FF6 services.

Source: Streetlight Data

# TRAVEL TO PARK-N-RIDES



**User Origins**
- Sparse
- Dense
- • Park-n-Rides

Chart: Miles Driven per Trip to Park-n-Ride (x-axis 0% to 20%)
- 9-10
- 8-9
- 7-8
- 6-7
- 5-6
- 4-5
- 3-4
- 2-3 (Potential biking trips)
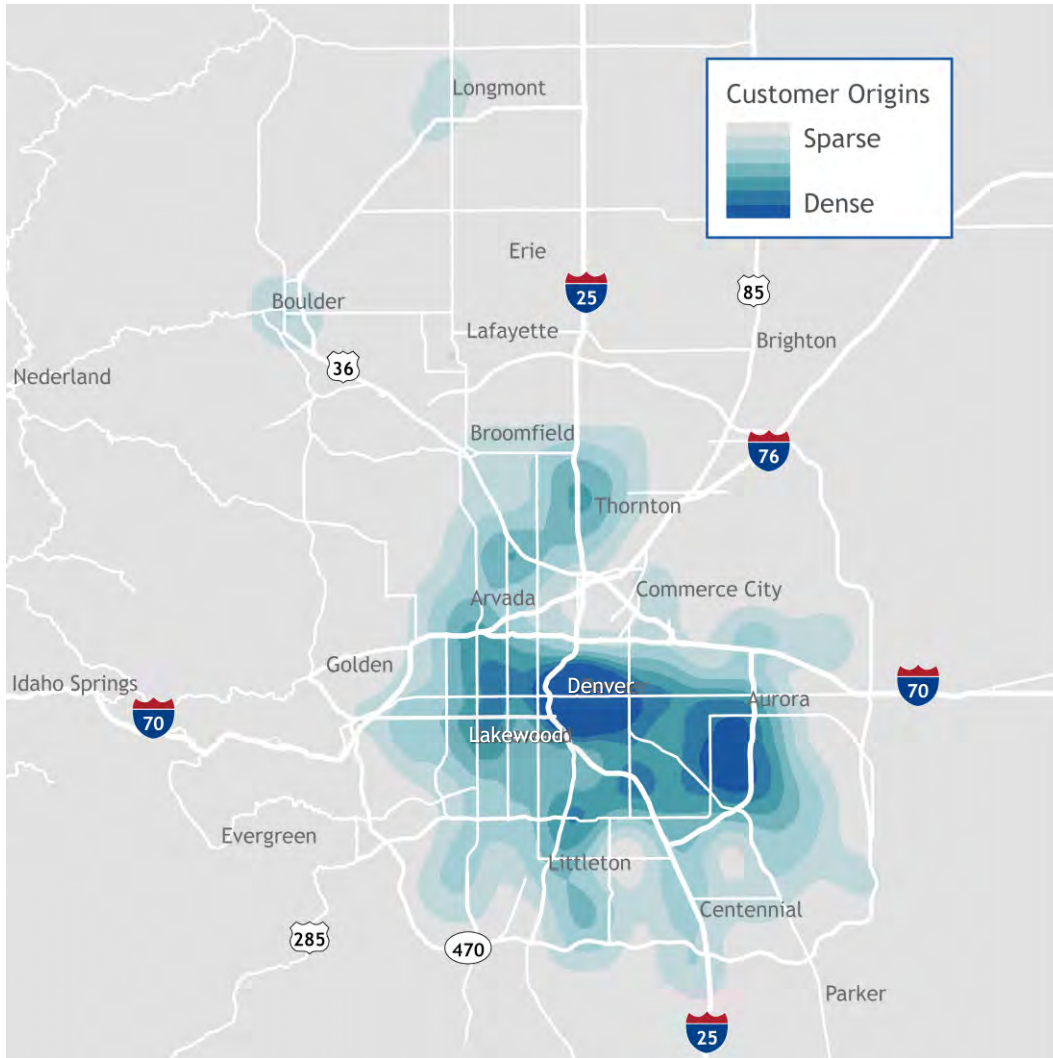- 1-2
- < 1 (Potential walking trips)
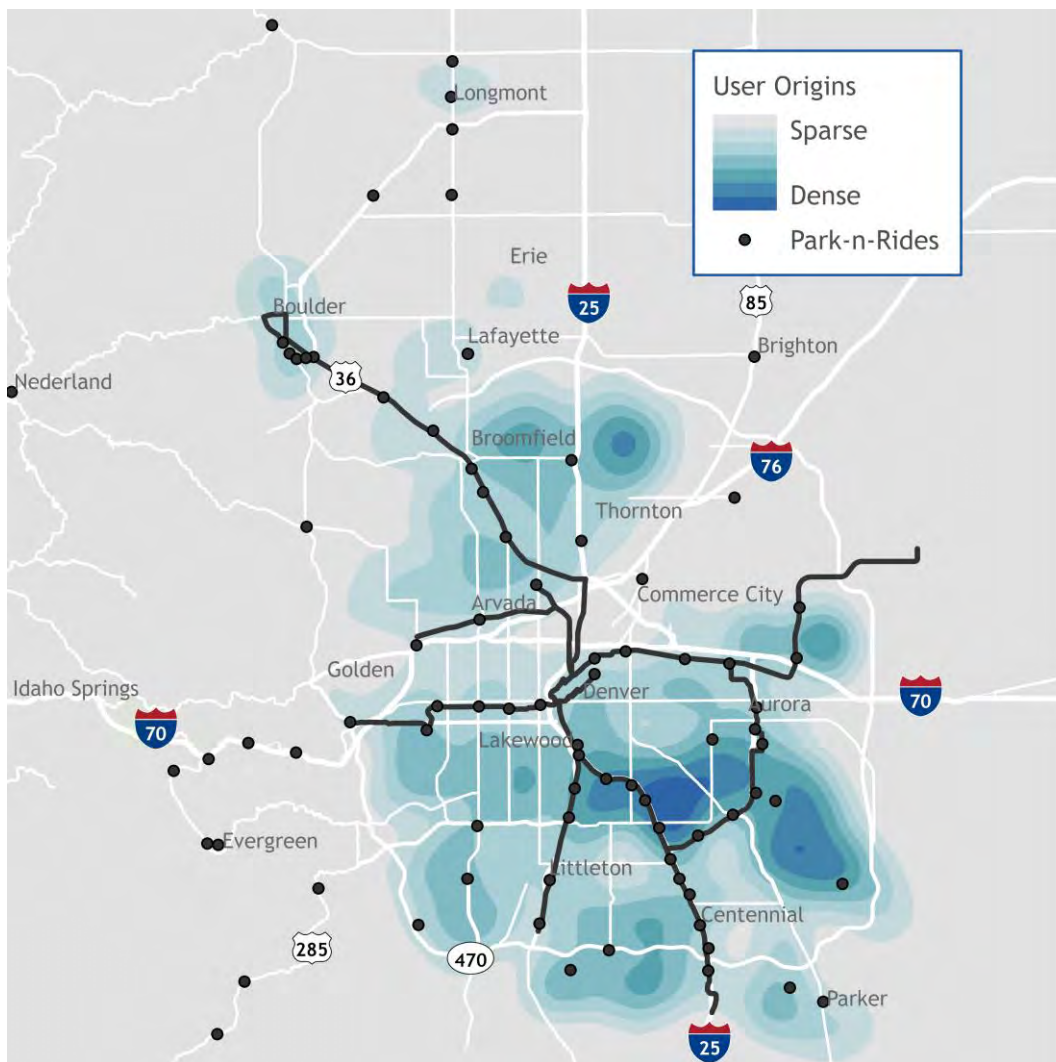
In 2018, the majority of users drove less than ten miles to access a Park-n-Ride. Of trips less than ten miles, the **average distance driven was 4.2 miles**. About 20% of the trips were less than 2 miles and could potentially have been walked or biked.

# ACCESS-A-RIDE SERVICE



Customer Origins
Sparse
Dense

**725,960**
Total boardings

**589,330**
Total revenue
service hours

**1.23**
Average boardings
per service hour

**$54.55**
Average subsidy
per boarding

From 2018 to 2019,
Access-a-Ride
boardings fell by 3.2%.
However, during the
same period,
**productivity
(boardings per hour)
increased by 3.9%.**
The highest number of
Access-a-Ride
boardings were in
downtown Denver.

# COVID ACCESS-A-RIDE SERVICE
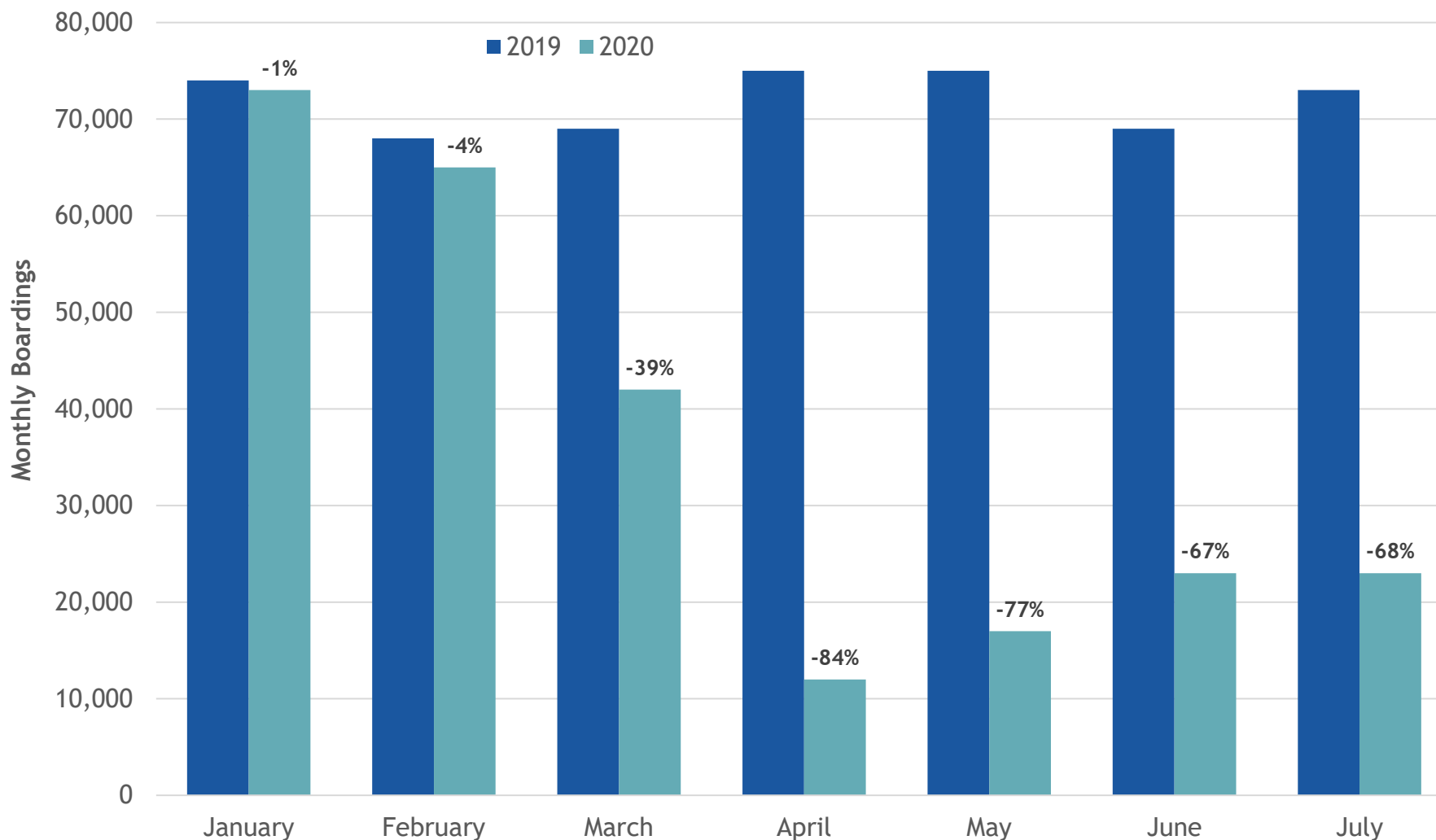


Access-a-Ride ridership reached its lowest point in April 2020 with 12,000 monthly boardings. This was an **84% decrease compared to April 2019**. As of July, boardings have been slow to recover.

# FLEXRIDE SERVICE



**Longmont**
Largest service area
(48 square miles)

**Golden**
Most boardings in
2019 (80,600)

**Wagon Road**
New in 2019

**South Jeffco**
Highest operating cost
($1.2M) in 2019

**North Inverness**
Highest average
boardings per hour
(6.3) in 2019

In 2019, 23 FlexRide
service areas covered
211 square miles
and had a total of
454,200 boardings, or
**3.5 boardings per
service hour.**
The average subsidy
per boarding was
$22.60.
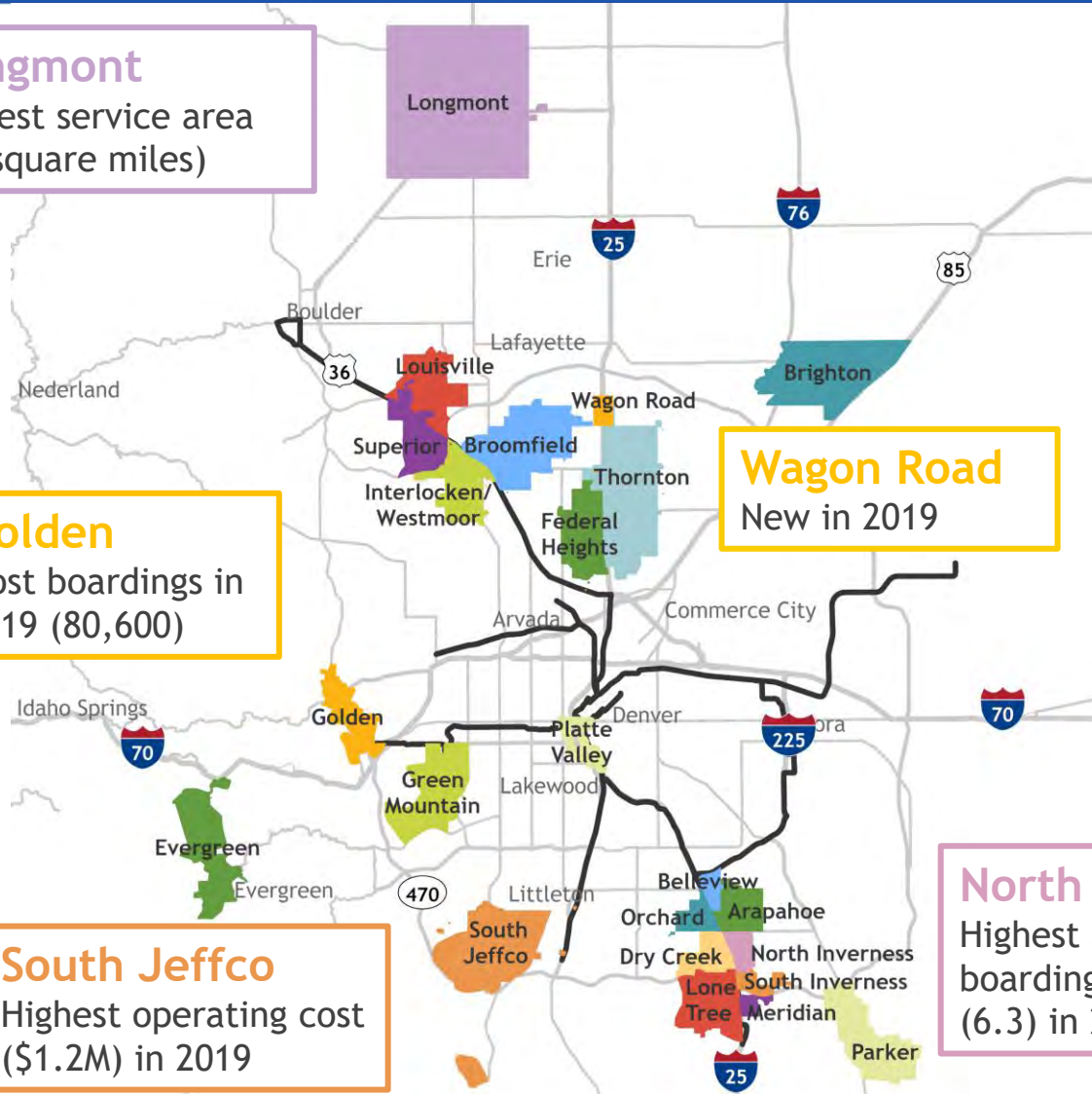
# COVID FLEXRIDE SERVICE
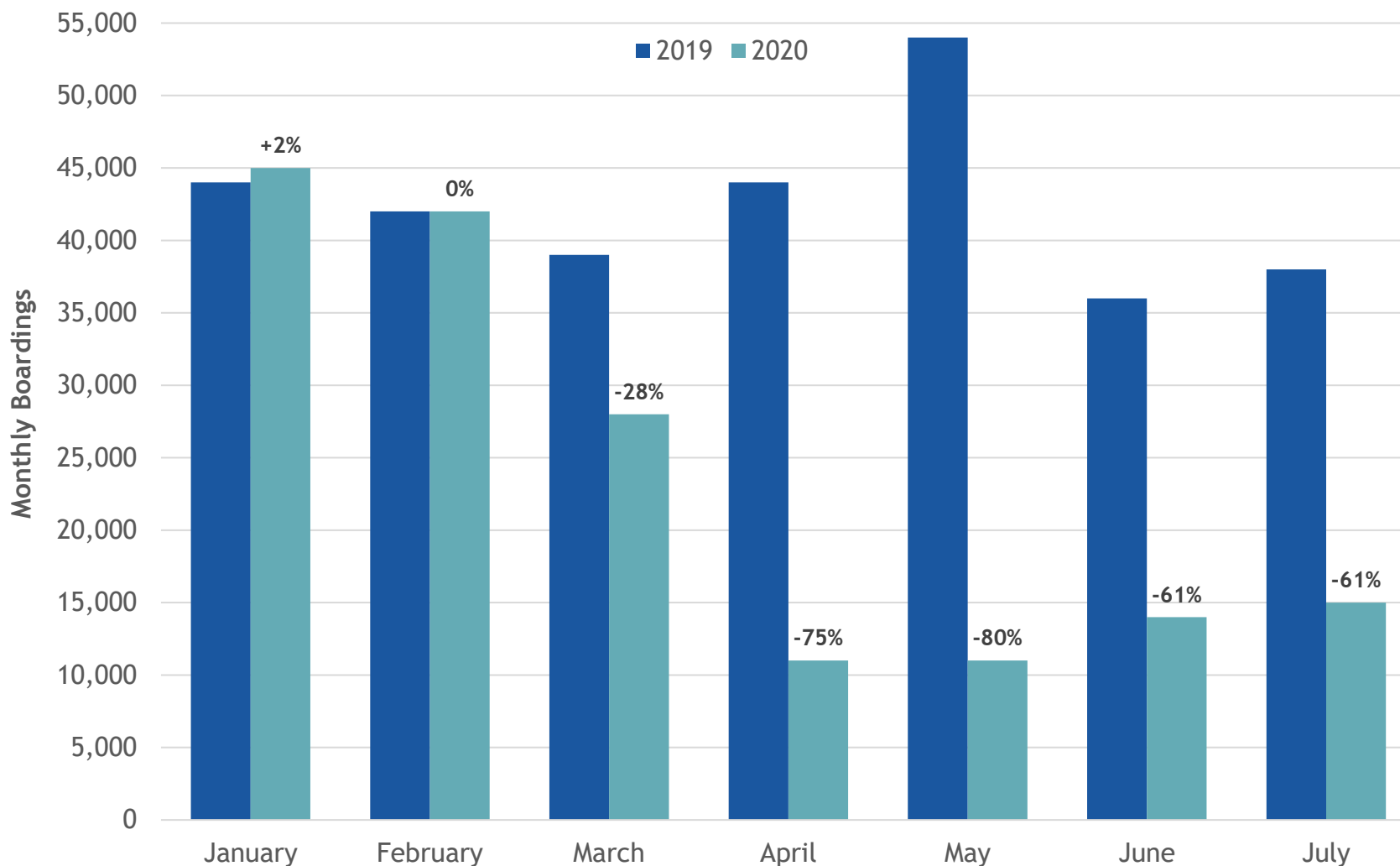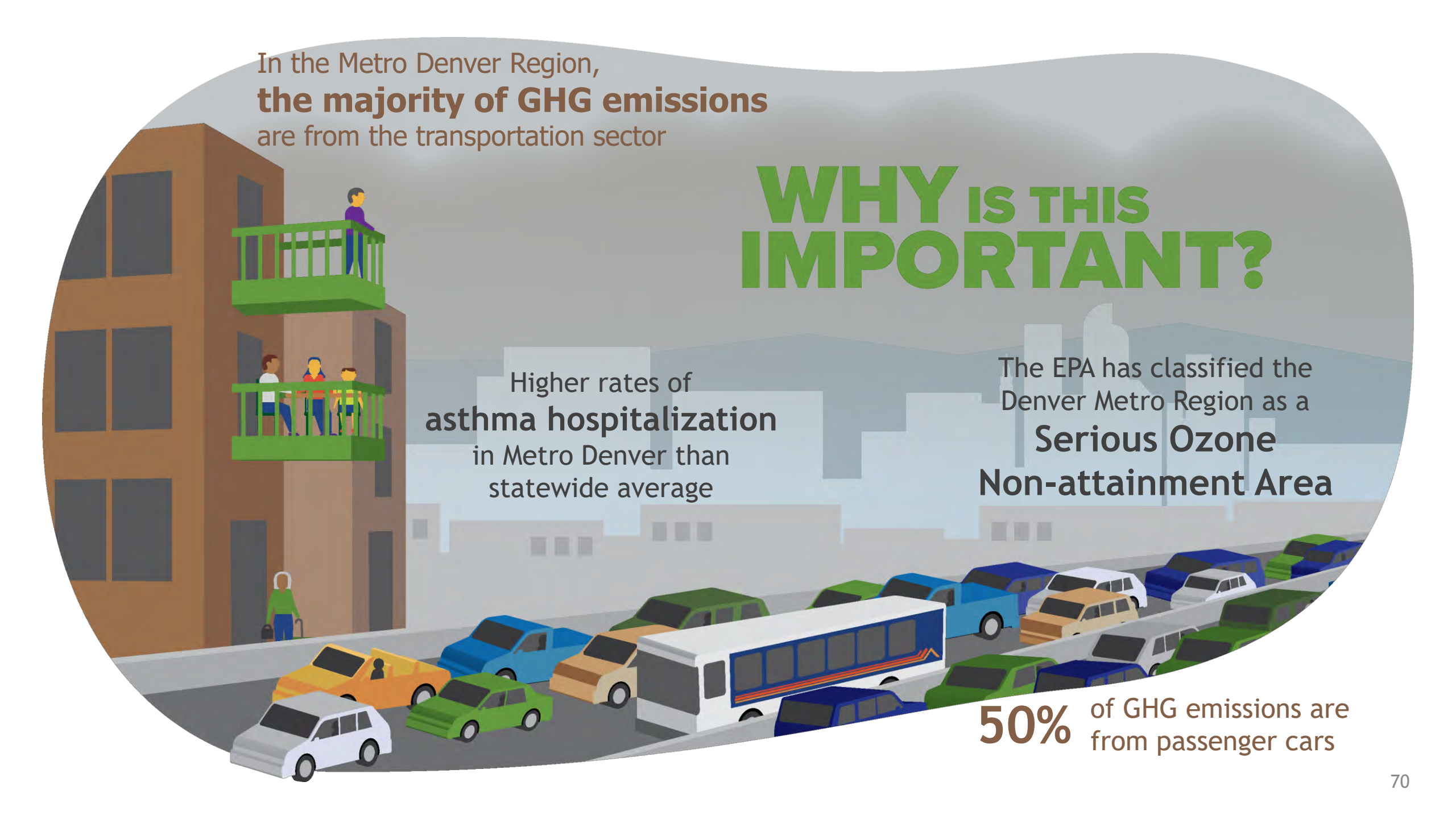


Boardings on FlexRide & Special Services reached their lowest point (11,000 boardings) in May 2020. This was an **80% decrease compared to May 2019**. As of July, boardings have been slow to recover.

# GOAL FOUR

## Improve Environmental Sustainability and Public Health

In the Metro Denver Region,
**the majority of GHG emissions**
are from the transportation sector

WHY IS THIS IMPORTANT?

Higher rates of
**asthma hospitalization**
in Metro Denver than
statewide average

The EPA has classified the
Denver Metro Region as a
**Serious Ozone
Non-attainment Area**

**50%** of GHG emissions are
from passenger cars

# REGIONAL AIR QUALITY



**1980:** 152 days of poor air quality

**2019:** 17 days of poor air quality
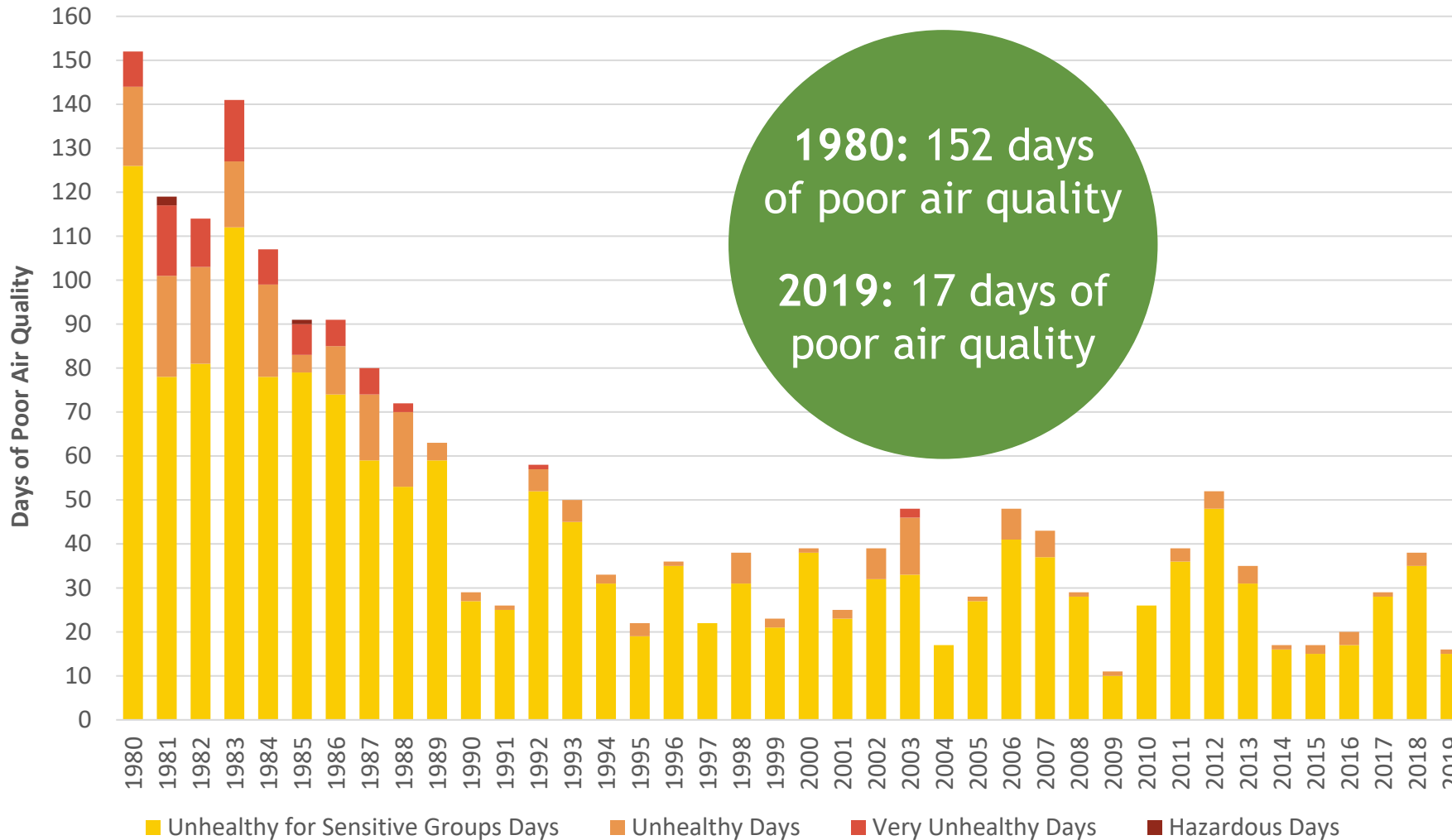
Air quality in the Denver Metro Region has significantly improved over the last 40 years with the **number of poor air quality days decreasing by almost 90% from 1980 to 2019**. However, the region is not currently meeting EPA Ozone standards.

Legend: ■ Unhealthy for Sensitive Groups Days  ■ Unhealthy Days  ■ Very Unhealthy Days  ■ Hazardous Days

Y-axis: Days of Poor Air Quality

# OZONE NON-ATTAINMENT

Emissions by Source (VOC and NOx):

- **Passenger SUV/Truck** — VOC: 10%, NOx: 23%
- **Passenger Car** — VOC: 6%, NOx: 9%
- **Refueling Spillage** — VOC: 1.5%, NOx: 0%
- **Long-Haul Truck** — VOC: 0.4%, NOx: 8%
- **Short-Haul Truck** — VOC: 0.3%, NOx: 5%
- **Light Commercial Truck** — VOC: 0.9%, NOx: 2.1%
- **Transit Bus** — VOC: 0.04%, NOx: 1.0%
- **Other Transportation Sources** — VOC: 1.0%, NOx: 1.6%
- **Non-Transportation Sources** — VOC: 79%, NOx: 51%

Chart x-axis: 0% to 100% in 10% increments

Legend: ■ VOC Emissions  ■ NOx Emissions

In 2017, the transportation sector was responsible for **49% of NOx and 21% of VOC** emissions in the Denver Metro Region

Ozone is a harmful air pollutant because of its effects on people and the environment. Ozone is formed when nitrogen oxides (NOx) and volatile organic compounds (VOC) react in the presence of sunlight. **The EPA has classified the Denver Metro Region as a serious ozone non-attainment area.**

Source: EPA 2017 National Emissions Inventory (7-County)
Note: The EPA National Emissions Inventory is updated every three years. The most recent data available is from 2017.

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# TRANSPORTATION SECTOR EMISSIONS



**Non-Transportation Sources** 36%

**Large Passenger Cars (SUVs, Vans, Trucks)** 32%

**Small Passenger Cars** 18%

**Long Haul Truck** 6%

**Short Haul Truck** 4%

**Light Commercial Truck** 3%

**Transit Buses** 0.4%

**Other Transportation Sources** 1%

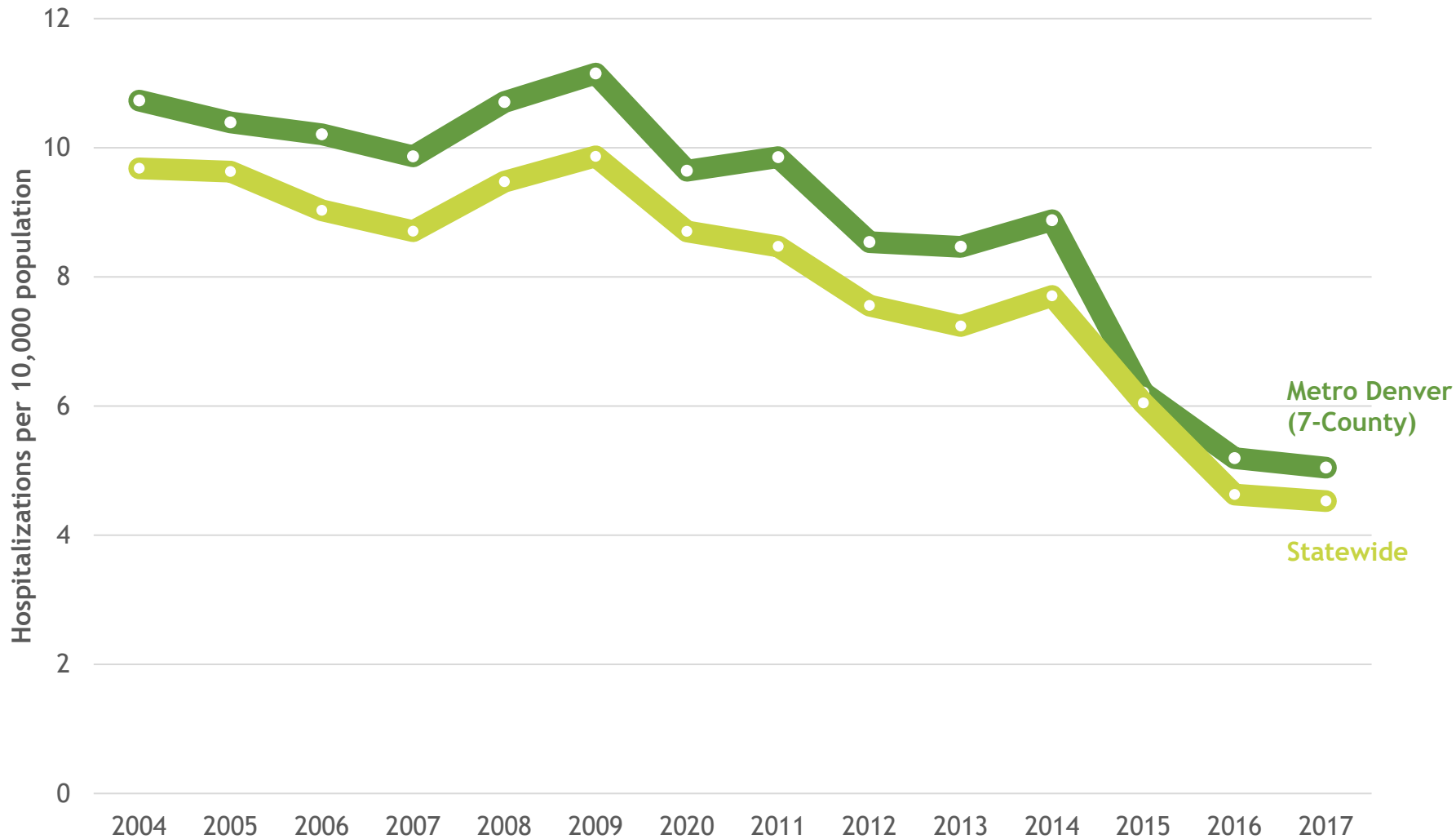In the Metro Denver Region, the **majority of GHG Emissions (64%) are from the transportation sector**. Emissions from transit buses account for 0.4% of GHG emissions, while passenger cars account for 50% of GHG emissions.

# ASTHMA HOSPITALIZATION RATES



Since 2004, asthma hospitalization rates have declined, but the **Metro Denver Region still has higher rates of asthma hospitalization** than the statewide average.

# HOW ARE WE DOING?

**240,000 tons** of carbon emissions were displaced due to transit

UNION STATION

**3,300** affordable housing units within a half-mile of a rail or BRT station

freeMallRide

RTD

**Electric transit** accounted for **43% of boardings** on bus & rail services on an average weekday
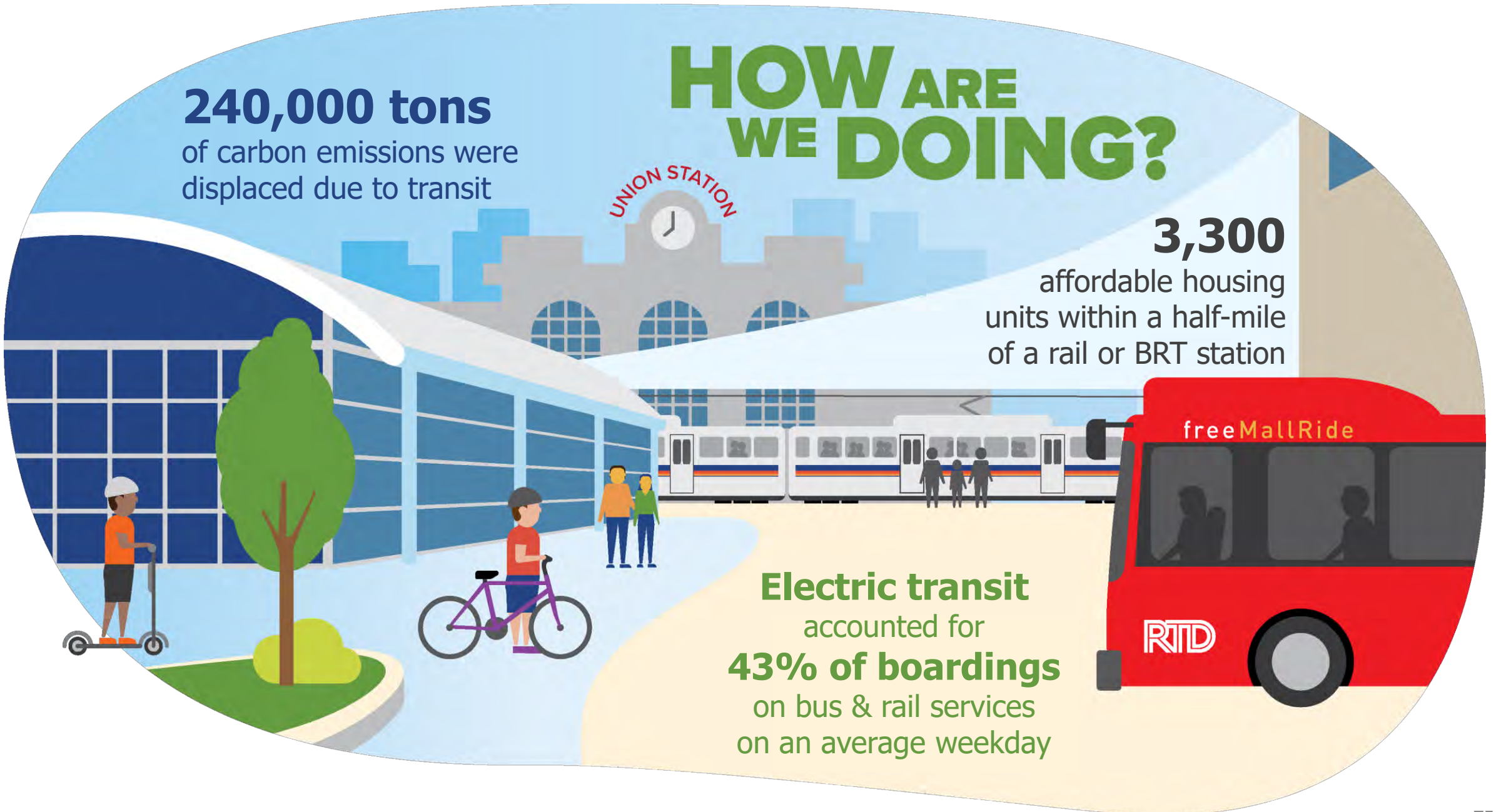
# RTD ANNUAL EMISSIONS

Xcel Energy plans to offer 100% carbon-free electricity by 2050 and to reduce carbon emissions 80% by 2030

Electric Buses 0.4%

Facilities (electricity) 8%

Commuter Rail (electricity) 11%

Diesel Buses 50%

Light Rail (electricity) 21%

Support Fleet (gasoline & diesel) 1.3%

Demand Response Vehicles (gasoline) 8%
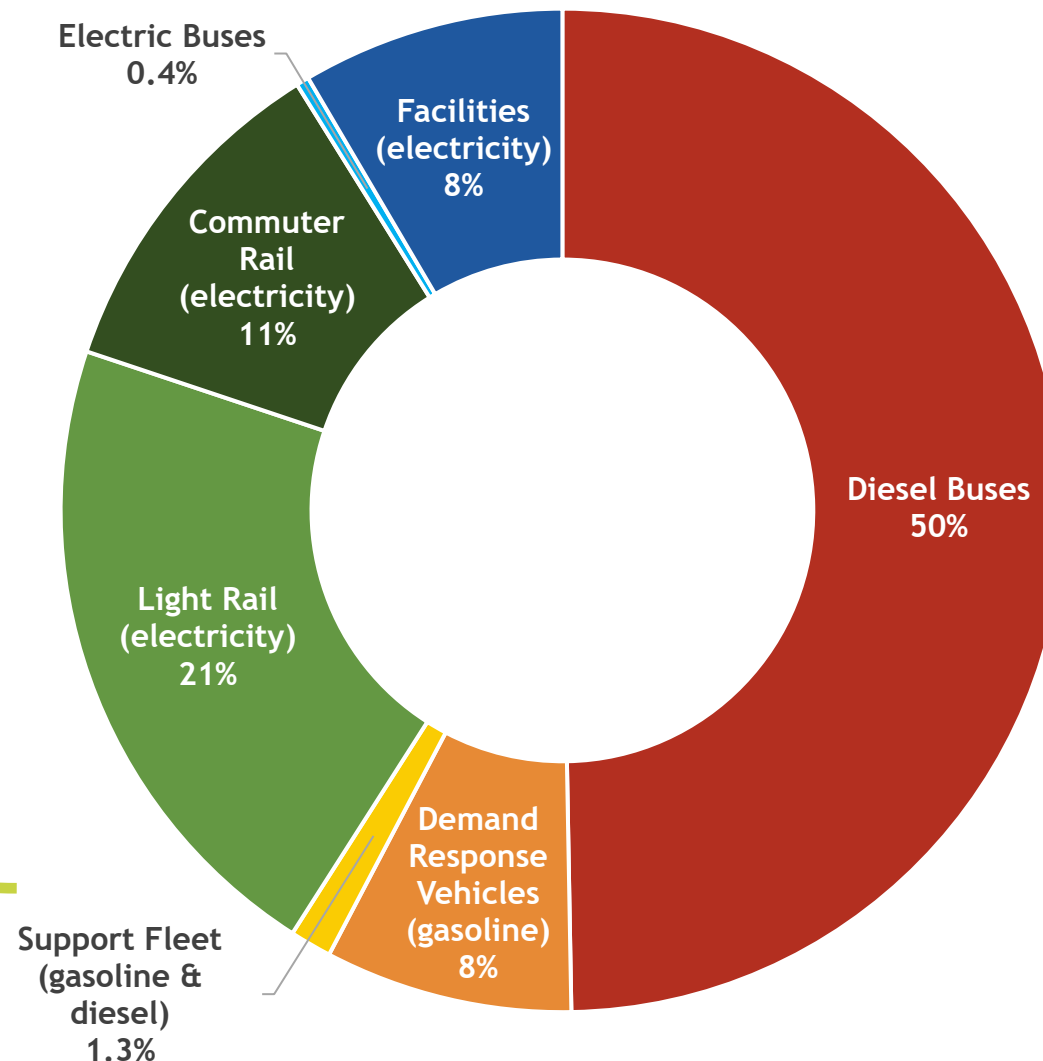
In 2019, **RTD vehicles and facilities produced about 185,000 tons of $CO_2$ emissions**. Most of RTD's $CO_2$ emissions (59%) are directly emitted from diesel and gasoline vehicle tailpipes, while the rest (41%) are indirect emissions from electricity generation.

# EMISSIONS DISPLACED DUE TO TRANSIT

**Tons of Carbon Dioxide**

Chart showing tons of CO2 displaced from 2010 to 2019, with values rising from about 220,000 in 2010 to a peak near 250,000 in 2013, dipping around 2015, and remaining near 240,000 through 2019.

Y-axis: 0; 25,000; 50,000; 75,000; 100,000; 125,000; 150,000; 175,000; 200,000; 225,000; 250,000; 275,000

X-axis: 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019

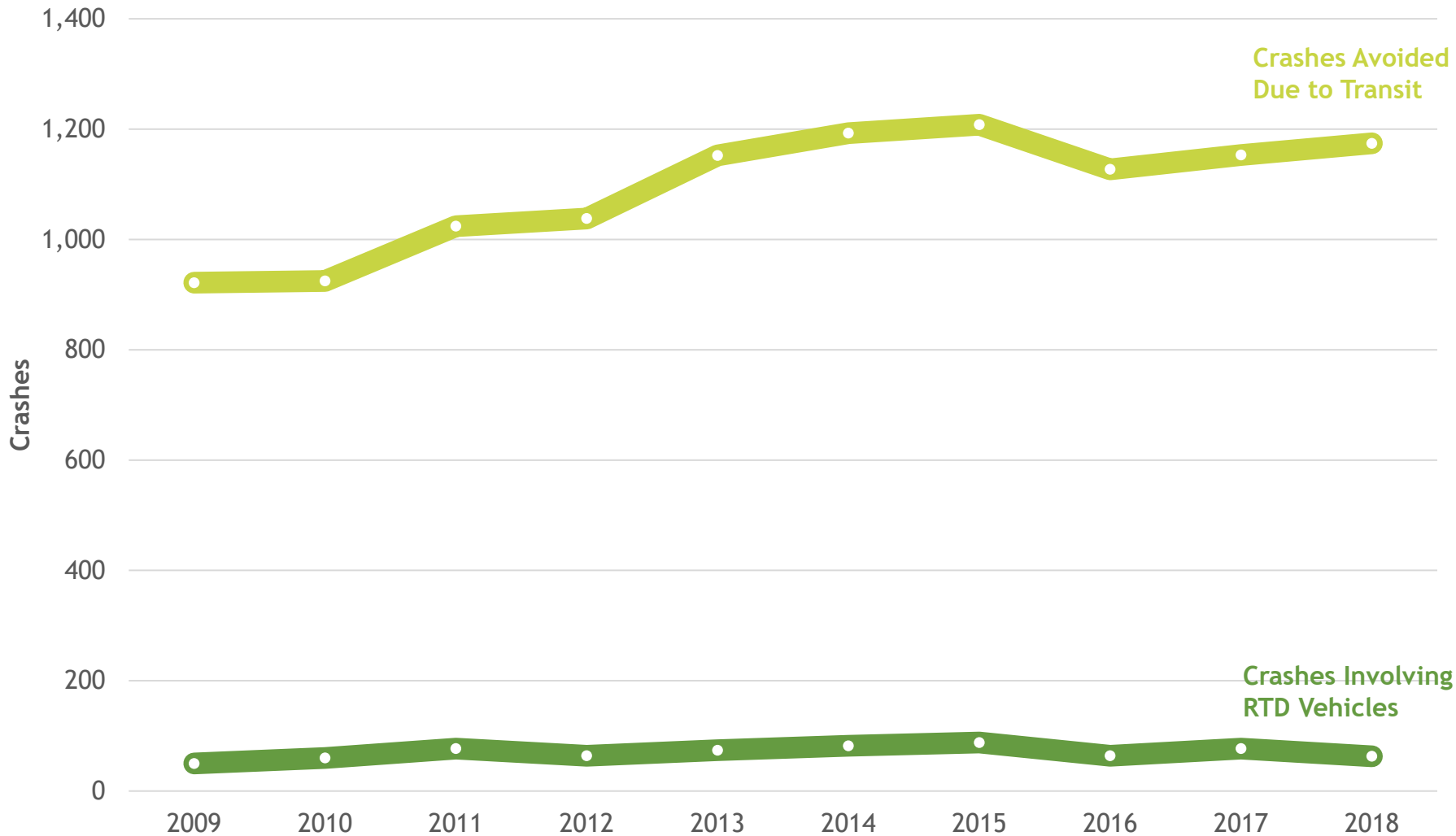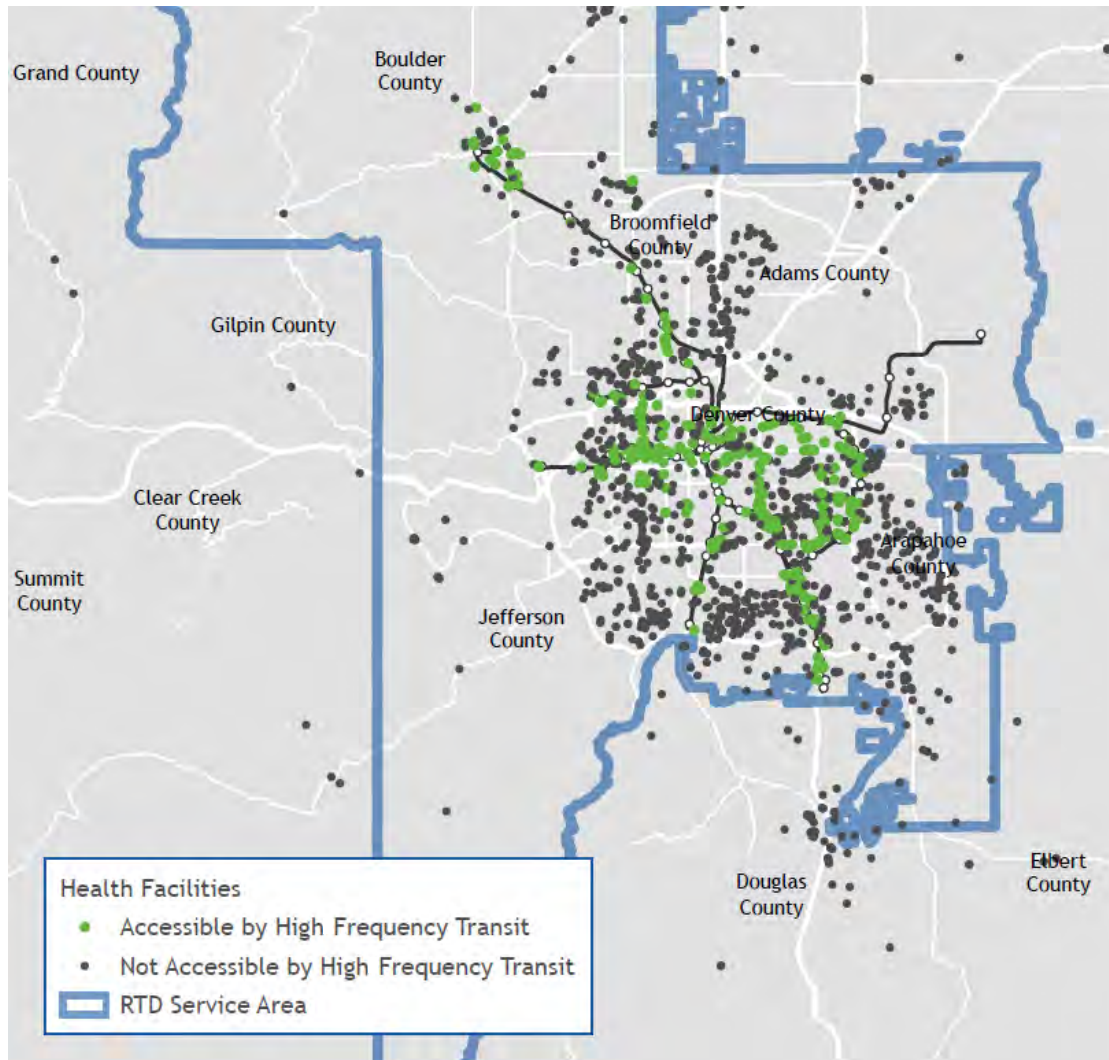Over the last ten years, 2.38 million tons of CO2 have been displaced by transit

RTD helps reduce CO2 emissions in the Denver Metro Region by providing transit service. If every transit user drove alone to their destination instead of using transit, this would result in an additional **240,000 tons of CO2 emissions per year (equivalent to 27 million gallons of gas)**.

# CRASHES AVOIDED DUE TO TRANSIT

Crashes Avoided
Due to Transit

Crashes Involving
RTD Vehicles

Crashes (y-axis): 0, 200, 400, 600, 800, 1,000, 1,200, 1,400

Years (x-axis): 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018

Almost 75,000 crashes occurred in the Denver Metro Region in 2018, 0.08% of which involved RTD vehicles. **RTD helped avoid almost 1,200 crashes in 2018** (3 crashes per day) by offering an alternative to driving.

# ACCESS TO HEALTH FACILITIES

**Health Facilities**
- Accessible by High Frequency Transit
- Not Accessible by High Frequency Transit
- RTD Service Area

**29%** of health services (578 facilities) within the RTD Service Area are accessible by High Frequency Transit
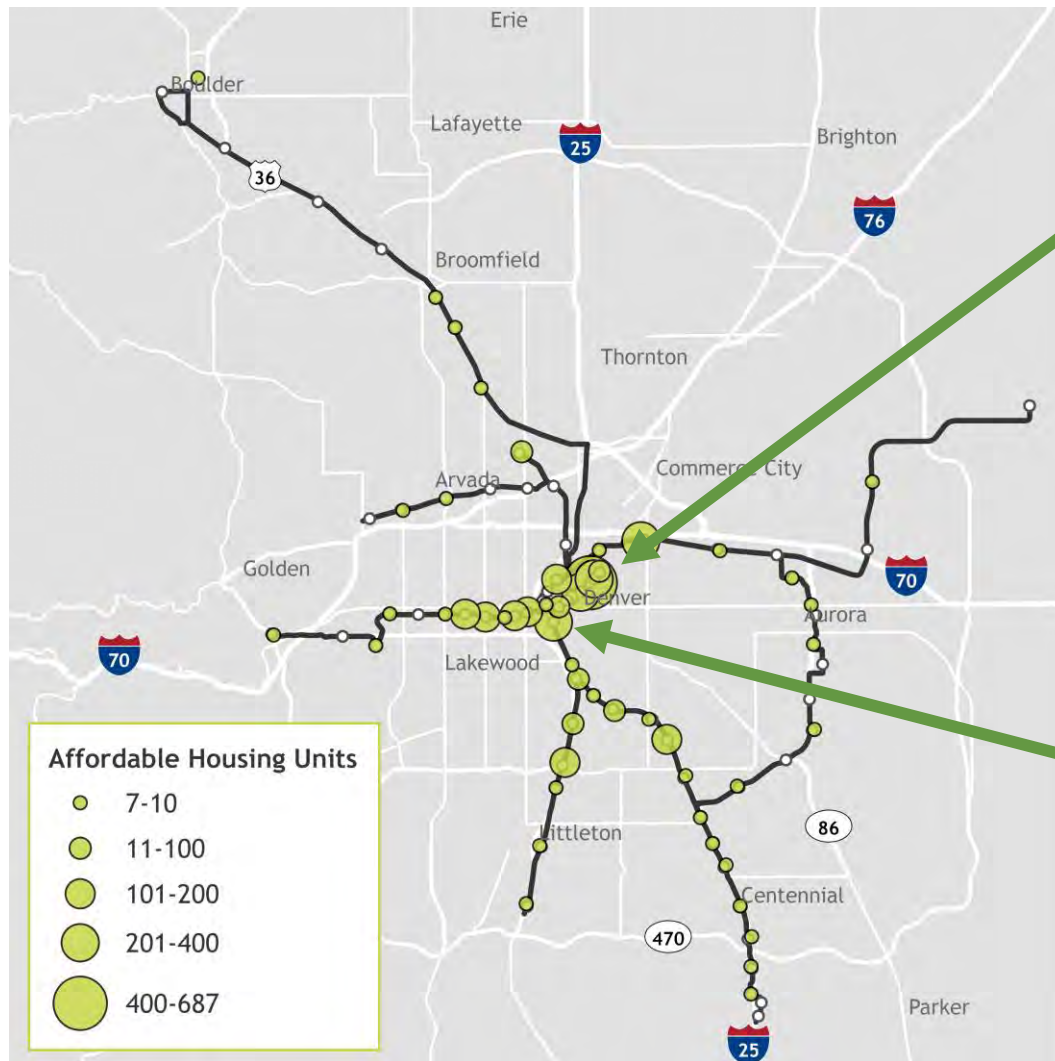
**16** hospitals (32%) within the RTD Service Area are accessible by High Frequency Transit

**RTD provides high frequency transit (HFT) service to about one third of all health facilities** in the District, including 16 hospitals, 34 nursing homes, and 87 assisted living facilities.

# AFFORDABLE TRANSIT-ORIENTED DEVELOPMENT



**25th & Welton Station**
Highest number of affordable units (687) 41% of all residential units



**10th & Osage Station**
Highest share of affordable units (75%)

**Affordable Housing Units**
- 7-10
- 11-100
- 101-200
- 201-400
- 400-687

There are about **3,300 affordable housing units within a half-mile of a rail or BRT station.** This represents nearly 10% of all transit-oriented development (TOD) residential units.
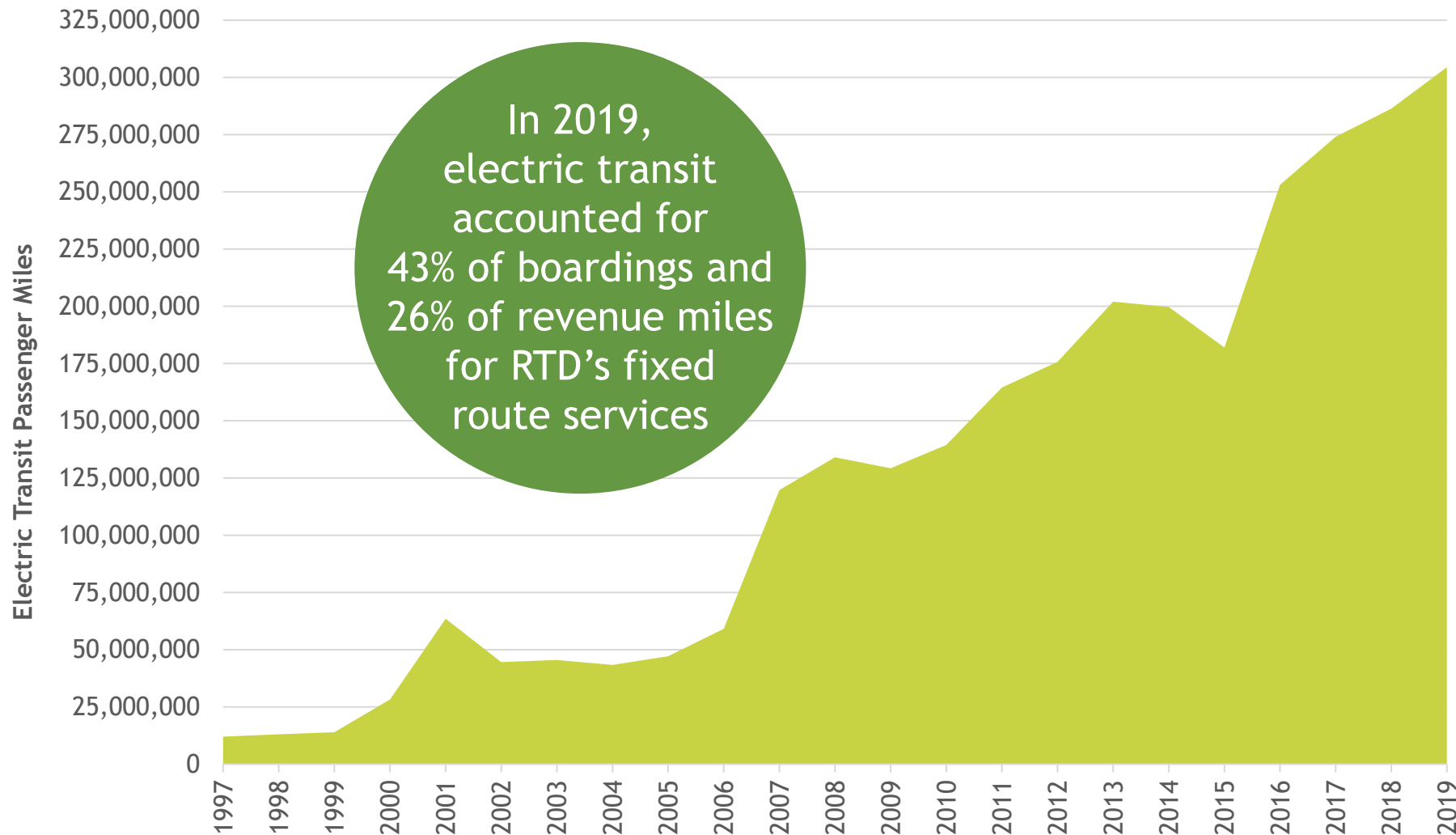
# ZERO TAILPIPE EMISSION TRANSIT

**In 2019, electric transit accounted for 43% of boardings and 26% of revenue miles for RTD's fixed route services**

Electric Transit Passenger Miles (y-axis, ranging from 0 to 325,000,000)

X-axis: 1997 through 2019

RTD operates transit service that is powered by electricity (rail and electric MallRide buses) and therefore have no tailpipe emissions. As the rail network has been expanded through FasTracks, **electric transit has grown to represent a larger share of RTD service.**

Source: National Transit Database (NTD)

# REPORT APPENDIX
## Regional Geography Metrics Methodology

# REGIONAL GEOGRAPHY

The Metro Denver region is defined four ways depending on the data source:

- **RTD Service Area**
- **7-County Region** is made up of Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, and Jefferson Counties
- **DRCOG Region** is defined by the Denver Regional Council of Governments (DRCOG)
- **Denver & Boulder MSA** is the combination of the Denver-Aurora-Lakewood and Boulder Metropolitan Statistical Areas (MSA)



RTD Service Area · 7-County Region · DRCOG Region · Denver & Boulder MSA
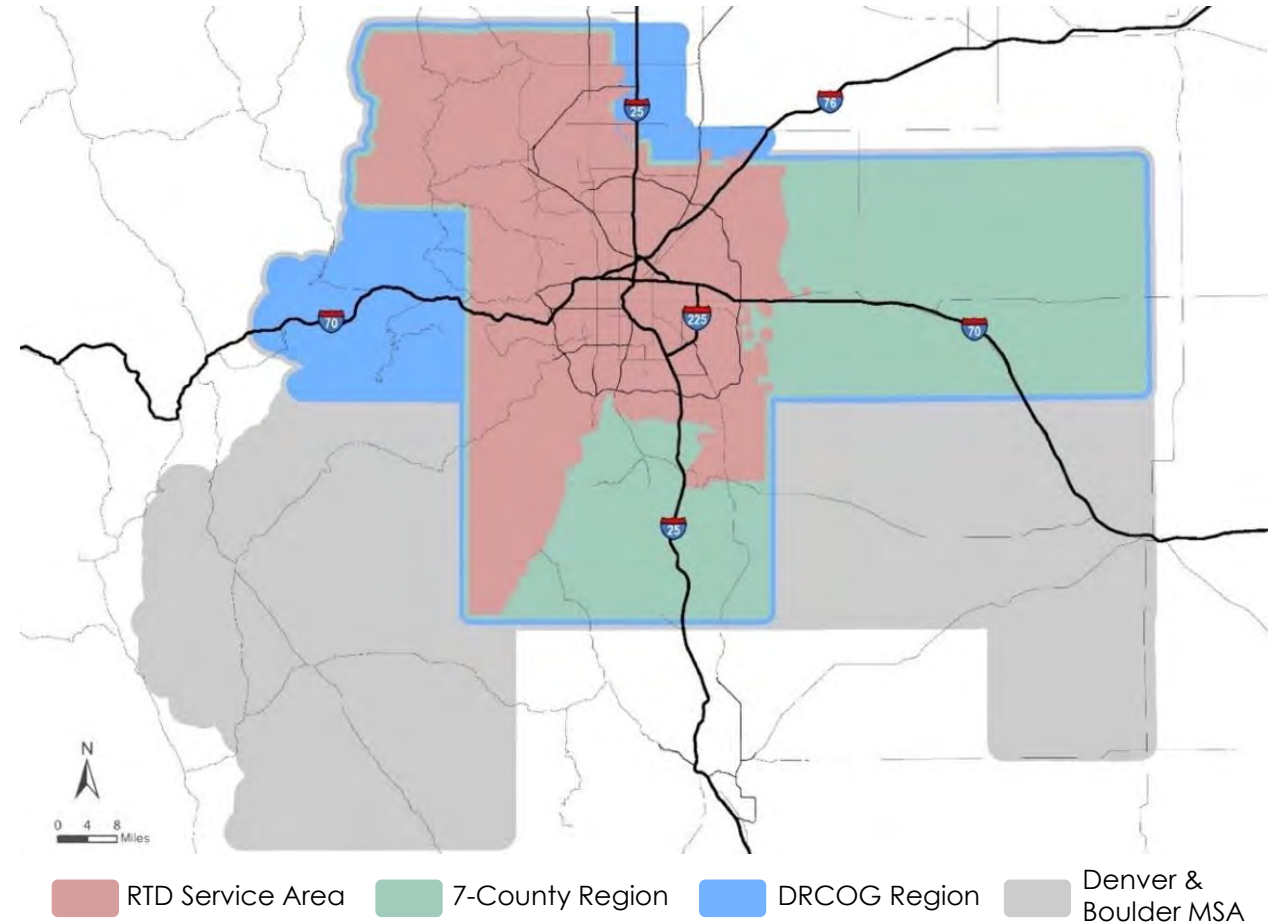
# METRICS METHODOLOGY

## Goal One: Balance Transit Needs with Regional Growth

### Regional Population

- **Definition:** Number of people living in the Metro Denver region (DRCOG).

- **Source:** Metro Denver Region: DRCOG Population | US Census Bureau

### Regional Employment

- **Definition:** Number of people employed and unemployed in the Metro Denver region (MSA).

- **Source:** Colorado LMI Gateway, Denver and Boulder MSA | US Department of Labor, Bureau of Labor Statistics

# METRICS METHODOLOGY

## Goal One: Balance Transit Needs with Regional Growth

### COVID State Unemployment

- **Definition:** Unemployment rate in Colorado and the number of continued unemployment claims in the Metro Denver region (7-County).

- **Source:** Colorado LMI Gateway | US Department of Labor

### Housing Starts

- **Definition:** Annual number of new single and multi-family housing starts in the Metro Denver region (MSA).

- **Source:** US Census Bureau | Permits by Metropolitan Area | Denver and Boulder MSA

# METRICS METHODOLOGY

## Goal One: Balance Transit Needs with Regional Growth

### COVID Housing Starts

- **Definition:** Monthly number of new single and multi-family housing starts in the Metro Denver region (MSA).

- **Source:** US Census Bureau | Permits by Metropolitan Area | Denver and Boulder MSA

### Miles of Rapid Transit

- **Definition:** The total miles of exclusive and controlled-access transit facilities in the RTD Service Area.

- **Source:** RTD FasTracks website

# METRICS METHODOLOGY

## Goal One: Balance Transit Needs with Regional Growth

### Transit Service

- **Definition:** Total hours operated by in-service transit vehicles on an average weekday. Hours include the sum of total vehicle service hours and train service hours. All data can be found on NTD's website except for 2019 data, which was collected from RTD's most recent report to NTD.

- **Source:** National Transit Database (NTD)

### COVID Transit Service

- **Definition:** Total hours operated by in-service transit vehicles by service type and schedule (May 2020, Pandemic) for an average weekday.

- **Source:** RTD Transit Information Exchange System (TIES)

# METRICS METHODOLOGY

## Goal One: Balance Transit Needs with Regional Growth

### Service Area

- **Definition:** Total square miles and population within the RTD Service Area and the DRCOG boundary.

- **Source:** RTD Service Area Boundary GIS Shapefile | NTD Service Area Population | DRCOG Population | DRCOG Boundary GIS Shapefile

### Operating Cost

- **Definition:** Average operating cost per boarding by service type. Operating cost includes all operating, maintenance, and administrative costs for providing current service, plus depreciation on all RTD assets. Subsidy per boarding is the difference between total operating cost and fare revenue per boarding.

- **Source:** RTD Service Performance Report

# METRICS METHODOLOGY

## Goal One: Balance Transit Needs with Regional Growth

### COVID Fare Revenue

- **Definition:** Monthly revenue from passenger fares.

- **Source:** RTD Monthly Financial Status Report

### Sales Tax Revenue

- **Definition:** Annual sales & use tax revenue generated within the RTD Service Area adjusted for inflation to allow for meaningful comparison and growth trends between years.

- **Source:** RTD Annual Financial Report | Sales & Use Tax Revenues

# METRICS METHODOLOGY

## Goal One: Balance Transit Needs with Regional Growth

### COVID Sales Tax Revenue

- **Definition:** Monthly sales tax revenue generated within the RTD Service Area.

- **Source:** RTD Monthly Financial Status Report

### Transit-Oriented Development

- **Definition:** Total multifamily residential units within a half-mile of a rail or BRT station.

- **Source:** RTD TOD Status Report

## Goal Two: Increase Transit Mode Share

### Vehicle Miles Traveled

- **Definition:** Number of vehicle miles traveled on all roads in the Metro Denver region (DRCOG). DRCOG consolidates data from Federal Highway Administration annual reports, automated traffic recorders, CDOT's Highway Performance Monitoring System and local agency and toll highway traffic counts.

  Number of miles not driven due to transit (additional vehicle miles that would be driven on the road system each weekday without the presence of transit) is calculated by dividing the average weekday transit passenger miles by the average vehicle occupancy for the Metro Denver region.

- **Source:** DRCOG Annual Report on Roadway Traffic Congestion in the Denver Region

# METRICS METHODOLOGY

## Goal Two: Increase Transit Mode Share

### Vehicle Miles Traveled Per Capita

- **Definition:** Annual number of vehicle miles traveled per person on all roads in the Metro Denver region (DRCOG).

- **Source:** DRCOG Annual Report on Roadway Traffic Congestion in the Denver Region

### COVID Vehicle Miles Traveled

- **Definition:** Monthly number of vehicle miles traveled on all roads in the Metro Denver region (RTD Boundary).

- **Source:** StreetLight Data

## Goal Two: Increase Transit Mode Share

### Extent of Congestion

- **Definition:** The percent of the 2,400-mile Regional Roadway System (major streets, highways, freeways, tollways) roadway lane miles in the DRCOG boundary that are congested for 3 or more hours on an average weekday.

- **Source:** DRCOG Annual Report on Roadway Traffic Congestion in the Denver Region

### COVID Traffic Congestion

- **Definition:** The annual change in congestion for the Denver Metro region (boundary defined by TomTom). The level of congestion is calculated by analyzing free-flow travel times of all vehicles on the entire road network. The data comes from more than 600 million drivers who use TomTom in navigation devices, in-dash systems, and smartphones.

- **Source:** TomTom Traffic Index

# METRICS METHODOLOGY

## Goal Two: Increase Transit Mode Share

### Vehicle Ownership
- **Definition:** The average number of vehicles per capita in the Metro Denver region (MSA).
- **Source:** US Census Bureau

### COVID Vehicle Purchases
- **Definition:** Monthly new passenger vehicle purchases (cars, light-duty trucks, SUVs, vans) in Colorado.
- **Source:** Colorado Auto Outlook Report

# METRICS METHODOLOGY

## Goal Two: Increase Transit Mode Share

### Commute Mode Share

- **Definition:** The percent of commute trips by transportation mode in the Metro Denver region (MSA).

- **Source:** US Census Bureau

### COVID Driving vs Transit Trends

- **Definition:** Percent change in weekly vehicle miles traveled in the Denver Metro region (7-County) compared to weekly RTD boardings.

- **Source:** StreetLight Data | RTD Internal Ridership Data

# METRICS METHODOLOGY

## Goal Two: Increase Transit Mode Share

### COVID Home & Work Trips

- **Definition:** The "Home" category shows change in time (hours) spent at home on weekdays, while the "Work" category measures the change in trips to work on weekdays.

- **Source:** Google COVID-19 Community Mobility Reports (7-County)

### Corridor Commute Mode Share

- **Definition:** Average peak period and peak direction traffic volumes converted to persons (using the Metro Denver average vehicle occupancy) on the freeways and major arterial routes paralleling select rail and bus corridors and average peak period and peak direction transit boardings during the August Runboard (August to December). The AM peak period is defined as 6:00 AM to 8:59 AM on weekdays.

- **Source:** RTD RideCheck Plus Data | CDOT | October 2019 Traffic Counts

# METRICS METHODOLOGY

## Goal Two: Increase Transit Mode Share

### Annual Transit Boardings

- **Definition:** Number of total system-wide annual boardings. RTD's methodology for estimating boardings changed between 2016 and 2017. All data can be found on NTD's website except for 2019 data, which was collected from RTD's most recent report to NTD.

- **Source:** National Transit Database (NTD)

### Annual Transit Boardings Per Capita

- **Definition:** Number of annual boardings divided by the transit service area population. All data can be found on NTD's website except for 2019 data, which was collected from RTD's most recent report to NTD.

- **Source:** National Transit Database (NTD)

## Goal Two: Increase Transit Mode Share

### COVID Monthly Transit Boardings

- **Definition:** Monthly transit passenger boardings.

- **Source:** RTD Monthly Financial Status Report

### Transit Boardings by Service Type

- **Definition:** Number of passenger boardings for fixed-route transit service (excludes demand response services) on an average weekday.

- **Source:** RTD RideCheck Plus Data

# METRICS METHODOLOGY

## Goal Two: Increase Transit Mode Share

### COVID Boardings by Service Type

- **Definition:** Number of monthly passenger boardings for fixed-route transit service (excludes demand response services).

- **Source:** RTD Monthly Financial Status Report

### Transit Boardings by Line

- **Definition:** Number of passenger boardings by line (rail and BRT) on an average weekday.

- **Source:** RTD RideCheck Plus Data

# METRICS METHODOLOGY

## Goal Two: Increase Transit Mode Share

### COVID Transit Boardings by Line

- **Definition:** Number of passenger boardings by line (rail and BRT) from March to July for 2019 and 2020.

- **Source:** RTD Monthly Financial Status Report

### Transit Boardings at Stations

- **Definition:** Number of bus and rail boardings on an average weekday at stations in existing and future rapid transit corridors.

- **Source:** RTD RideCheck Plus Data

## Goal Three: Improve Transportation Options and Choices

### Travel Time & Variability

- **Definition:** **Driving** - The average auto travel time during October on roadways parallel to rapid transit corridors to Downtown Denver during the weekday morning peak period and the additional time a traveler would need to budget to be certain of arriving on-time when traveling by automobile. **Transit** - The average transit travel time during the August Runboard (August to December) on rapid transit corridors to Downtown Denver during the weekday morning peak period and the additional time a traveler would need to budget to be certain of arriving on-time when traveling by transit. The morning peak period is defined as 6:00 AM to 8:59 AM on weekdays.

- **Source:** RTD Transit Information Exchange System (TIES) | INRIX | Google Maps

## Goal Three: Improve Transportation Options and Choices

### COVID Travel Time & Variability

- **Definition:** The average transit travel time during the August 2019 Runboard and the Pandemic Runboard for major bus corridors during the weekday morning peak period and the additional time a traveler would need to budget to be certain of arriving on-time when traveling by transit. The morning peak period is defined as 6:00 AM to 8:59 AM on weekdays.

- **Source:** RTD Transit Information Exchange System (TIES)

### Fuel Cost

- **Definition:** Average annual price of regular unleaded gasoline in the Denver region. See Transit Boardings per Capita definition.

- **Source:** US Energy Information Administration | National Transit Database (NTD)

## Goal Three: Improve Transportation Options and Choices

### COVID Fuel Cost

- **Definition:** Average weekly price of regular unleaded gasoline (cost per gallon) in the Denver region.

- **Source:** US Energy Information Administration

### Cost of Congestion

- **Definition:** The amount of travel delay per registered vehicle caused by congestion and the cost of the added delay due to congestion.

- **Source:** DRCOG Annual Report on Roadway Traffic Congestion in the Denver Region

# METRICS METHODOLOGY

## Goal Three: Improve Transportation Options and Choices

### High Frequency Transit

- **Definition:** The percent of people and jobs in the Metro Denver region (RTD Service Area) captured within the high-frequency transit service area. The high-frequency transit area includes rail stations (within ½-mile) and bus stops (within ¼-mile) that are served by a transit route providing four or more trips per hour from 6 a.m. to 6:30 p.m.

- **Source:** RTD | US Census Bureau | Quarterly Census of Employment and Wages

### On-Time Performance

- **Definition:** The average weekday on-time performance by service type.

- **Source:** RTD Quarterly Performance Report | RTD Performance Measures

## Goal Three: Improve Transportation Options and Choices

### Boardings Per Service Hour

- **Definition:** The average number boardings per hour by service type.

- **Source:** RTD Service Performance Report

### Park-n-Ride Use

- **Definition:** The number of Park-n-Ride spaces provided within the region and by corridor. The percentage of those occupied on an average weekday.

- **Source:** RTD Park-n-Ride Utilization Report

# METRICS METHODOLOGY

## Goal Three: Improve Transportation Options and Choices

### COVID Park-n-Ride Use

- **Definition:** Percent change in the number of vehicles, cyclists, and pedestrians accessing rail, bus, and Flatiron Flyer Park-n-Rides.

- **Source:** StreetLight Data

### Travel to Park-n-Rides

- **Definition:** Origins of Park-n-Ride users based on license plate registration.

- **Source:** RTD License Plate Survey

# METRICS METHODOLOGY

## Goal Three: Improve Transportation Options and Choices

### Access-a-Ride Service

- **Definition:** Annual number of hours, boardings, cost, and trip origins of Access-a-Ride service.

- **Source:** RTD Service Performance Report | RTD database for Access-a-Ride boardings

### COVID Access-a-Ride Service

- **Definition:** Monthly Access-a-Ride Boardings

- **Source:** RTD Monthly Financial Status Report

# METRICS METHODOLOGY

## Goal Three: Improve Transportation Options and Choices

### FlexRide Service

- **Definition:** Annual number of service hours, boardings, cost, and locations of FlexRide service areas.

- **Source:** RTD Service Performance Report

### COVID FlexRide Service

- **Definition:** Monthly FlexRide & Special Service boardings.

- **Source:** RTD Monthly Financial Status Report

# METRICS METHODOLOGY

## Goal Four: Improve Environmental Sustainability and Public Health

### Regional Air Quality

- **Definition:** Number of days designated as unhealthy by the EPA.

- **Source:** EPA Air Quality Data

### Ozone Non-Attainment

- **Definition:** Percentage of emissions for nitrogen oxides and volatile organic compounds in the Denver Metro region (7-County) that are attributable to the transportation sector.

- **Source:** EPA National Emissions Inventory (2017)

# METRICS METHODOLOGY

## Goal Four: Improve Environmental Sustainability and Public Health

### Transportation Section Emissions

- **Definition:** Percentage of greenhouse gas emissions in the Denver Metro region (7-County) that are attributable to different segments of the transportation sector.

- **Source:** EPA National Emissions Inventory (2017)

### Asthma Hospitalization Rates

- **Definition:** The annual rate of hospitalization per 10,000 residents in the Denver Metro region (7-County) compared to the statewide rate. Geographic location is determined using the geocoded billing address of discharged individuals.

- **Source:** CDPHE

# METRICS METHODOLOGY

## Goal Four: Improve Environmental Sustainability and Public Health

### RTD Annual Emissions

- **Definition:** RTD annual carbon dioxide ($CO_2$) emissions by type. In the Denver Metro Region, 99.97% of greenhouse gas emissions (GHG) are from $CO_2$.

- **Source:** National Transit Database (NTD) | RTD Internal Data| EPA | Xcel Energy

### Emissions Displaced Due to Transit

- **Definition:** The total amount of carbon dioxide emissions displaced due to transit travel theoretically replacing private passenger vehicle travel (i.e. if every transit user drove alone to their destination instead of using transit).

- **Source:** National Transit Database (NTD)| FHWA | EPA

# METRICS METHODOLOGY

## Goal Four: Improve Environmental Sustainability and Public Health

### Crashes Avoided Due to Transit

- **Definition:** The estimated total number of vehicle collisions that did not occur due to trips taken by transit instead of private vehicles.

- **Source:** DRCOG Regional Data Catalog – Crashes | National Transit Database (NTD)

### Access to Health Facilities

- **Definition:** The total number of health facilities (hospitals, clinics, nursing homes, rehab centers, etc.) within the High Frequency Transit (HFT) Service Area, as a percentage of all health facilities in the RTD Service Area. The HFT Service Area includes rail stations (within ½ mile) and bus stops (within ¼ mile) served by a transit route providing four or more trips per hour from 6 a.m. to 6:30 p.m.

- **Source:** RTD | US Census Bureau| Quarterly Census of Employment and Wages | CDPHE Health Facilities

## Goal Four: Improve Environmental Sustainability and Public Health

### Affordable Transit-Oriented Development

- **Definition:** Affordable (income restricted) housing units within a half-mile of a rail or bus rapid transit (BRT) station.

- **Source:** RTD TOD Database

### Zero Tailpipe Emission Transit

- **Definition:** The annual number of passenger miles for transit service that is powered by electricity (rail and electric buses).

- **Source:** National Transit Database (NTD)