



DRAFT - For Comment

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Greater Denver Transit
DEN Transit Upgrade
Smarter Peña Blvd Alternative - Nov 2023

Denver Airport Is Growing...



As of 2022, DEN is the world's 3rd busiest airport!

Passenger numbers at DEN have more than recovered from the COVID-19 pandemic.

2022

69.3m Annual Passengers of which **40.7m** are "Origin & Destination" which is **56k** per direction per day.

2032 Forecast

100m Annual Passengers of which **62m** are "Origin & Destination" which is **85k** per direction per day.

2045 Forecast

120m Annual Passengers of which **75m** are "Origin & Destination" which is **103k** per direction per day.

DEN's Workforce Is Also Growing...

Additional Services



STAR ALLIANCE

STAR ALLIANCE

STAR ALLIANCE

2022

37k people employed
of which
20k are at work
on a given day.

2032 Forecast

54k people employed
of which
30k are at work
on a given day.

2045 Forecast

65k people employed
of which
36k are at work
on a given day.

Daily Travel Demand to DEN



2022

56k passengers and
20k workers is
76k people per
direction per day.

2032 Forecast

85k passengers and
30k workers is
115k people per
direction per day.

2045 Forecast

103k passengers and
36k workers is
139k people per
direction per day.

The Airport Needs A Plan For This...



The Airport is developing the **Peña Boulevard Transportation and Mobility Master Plan**.

The plan aims to “**promote a shift to more sustainable modes**”, “**enhance safety**”, “**reduce crashes**”, and “**address equity and barriers to opportunity**”.

flydenver.com/peña_plan



But... there's a problem!

An aerial photograph of a multi-lane highway stretching into the distance. A sound barrier runs along the right side of the road. The surrounding landscape is flat and open, with some hills in the far distance under a blue sky with light clouds. The highway has several cars driving on it.

The Airport is currently advancing a scheme to expand Peña Blvd - before the “Peña Plan” is finished.

A deal has even been worked out with the FAA to use airport revenues to fund 73% of the project!

Additional capacity for motor vehicles is the de-facto target.

“Core Alternatives” add toll / HOV lanes or frontage roads.

Transit remains insufficiently considered!

The “Core Alternatives”



Only highway expansion alternatives are being considered!

"Multimodal improvements will be incorporated into whatever that final alternative is..."

Lisa Nguyen
Denver Airport Planner
Sep 2023

DO NOTHING¹

Would not make changes to current cross-section but could include pavement upgrades and safety improvements.



ADD MANAGED LANES (NON-TOLLING OR TOLLING)

Managed lanes are a set of lanes where operational strategies are proactively implemented and managed in response to changing conditions.

Managed lanes could include:

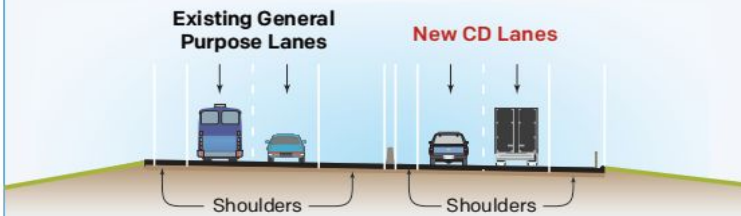
- High occupancy lanes (carpool, vanpool, etc.)
- Bus only lanes
- Peak period shoulder running
- Tolloed lanes (dynamic or fixed pricing)



ADD FACILITY TO ACCOMMODATE LOCAL TRAFFIC

ADD COLLECTOR/DISTRIBUTOR ROAD

A collector/distributor would separate freeway through traffic from other vehicles that are exiting or entering the freeway.



ADD FRONTAGE ROAD

A frontage road is a subsidiary road running parallel to a highway and giving access to neighborhoods and businesses.



Money Has Already Been Spent...

Many worthy projects passed over by DRCOG because of this!

The Peña Mobility Study and associated Environmental Impact Statement (EIS) will commit \$277m to highway spending.

According to FAA, 27% (\$75m) will need to come from matching funds, likely Denver CIP and DRCOG.

Already \$5m in Denver's DRCOG share and \$13m from DEN are being spent on design and EIS.



Budgetary Estimate Summary Sheet

PROJECT NAME:	PENA BLVD. I-70 to E-470
LOCATION:	8500 Peña Blvd. Denver, Colorado 80249-6340
PMIS No.:	17-0031
ESTIMATE BY:	Chris Kriegel
DATE PREPARED:	August 19, 2021

			PHASE 2, I-70 TO 64TH	PHASE 4, 64TH TO E-470	TOTAL
Construction Budget			\$101,123,236	\$72,517,693	\$173,640,929
Construction			\$99,140,427	\$71,095,777	\$170,236,205
Permits/Mitigation		2.00%	\$1,982,809	\$1,421,916	\$3,404,724
Professional Services			\$20,910,539	\$15,026,531	\$35,937,070
Design and Environmental Services (TIP Grant Ask)		10.0%	\$10,066,818	\$7,237,266	\$17,304,084
Travel Demand Management (TIP Grant Ask)			\$692,694	\$507,624	\$1,200,318
TOTAL TIP Grant Ask					\$18,504,402
Project Management		3.3%	\$3,692,131	\$2,648,665	\$6,340,796
Inspections		4.0%	\$4,475,310	\$3,210,503	\$7,685,813
Sustainability		2.0%	\$1,983,586	\$1,422,473	\$3,406,059
DEN Costs			\$39,369,248	\$28,241,983	\$67,611,231
ROCIP		2.0%	\$1,982,809	\$1,421,916	\$3,404,724
Art		1.0%	\$1,371,383	\$983,542	\$2,354,925
Contingency		30.0%	\$36,015,057	\$25,836,525	\$61,851,582
ESTIMATE TOTAL:			\$161,403,023	\$115,786,207	\$277,189,230



The Case Against Highway Widening

Go on.. just one more lane...



Research has thoroughly debunked highway expansion as a traffic solution.

Highway expansion creates induced traffic demand and does not prevent congestion.

Transit upgrades and expansion could more effectively address long-term growth.

Safety Concerns

Source: Denver Airport
Photo: 49 vehicle pile up
on Peña Blvd, Feb 2019



Between 2016 and 2022 on Peña Blvd, there were:

1056 crashes
(nearly 3 per week).

4 fatal crashes.

Affected section of Peña Blvd was last rebuilt in 2014.

Generally meets modern highway design standards.

Crashes and fatalities will only increase with an expanded highway.

Social Injustice of Highway Expansion



Highway expansion has disproportionately disconnected and disenfranchised BIPOC communities.

Members of low-income and minority communities are more likely to rely on transit.

Increased emissions and noise from an expanded Peña Blvd will directly harm local communities.

Effects on Air Quality



Colorado has set targets to reduce overall greenhouse gas emissions by 26% below 2005 levels by 2025, 50% by 2030 and 90% by 2050.

Even with electric vehicles, air quality in surrounding communities is still affected by road noise, dust and tire particles.

Highway expansion works against meeting these GHG emission targets.



**A transit “core
alternative”?**

Current A Line Capacity

Current ridership:
10k / per direction per day.



91

Seats
Per Car

x

4

Car
Trains

x

72

Daily
Departures

=

26,208

Seats Per
Direction
Per Day

Current Airport Bus Capacity



49

Seats
Per Bus

X

75

Daily
Departures

=

3,675

Seats Per
Direction
Per Day

A Line Double-Deck Trains



Double-deck trains believed to be suitable for RTD commuter rail infrastructure.

Would require purchase of 16-20 new double-deck commuter rail cars.

120

Seats
Per Car

x

4

Car
Trains

x

72

Daily
Departures

=

34,560

Seats Per
Direction
Per Day

A Line Platform Extensions



Platform lengths doubled at 6 intermediate A Line stations.

No work required at Denver Airport or Union Station.

Would require purchase of 16-18 additional commuter rail cars.

91

Seats
Per Car

X

8

Car
Trains

X

72

Daily
Departures

=

52,416

Seats Per
Direction
Per Day

A Line Double Tracking - North Project



3.6 mile double-tracking from 61st / Peña Station to Peña Blvd Bridge.

Allows
6 trains per hour
(10min frequency).

\$100-150m cost.

91

Seats
Per Car

X

4

Car
Trains

X

106

Daily
Departures

=

38,584

Seats Per
Direction
Per Day



A Line - All 3 Upgrades

Airport 

Double-deck Trains

Platform Extensions

Double-tracking
(North Project)

120

Seats
Per Car

X

8

Car
Trains

X

106

Daily
Departures

=

101,760

Seats Per
Direction
Per Day

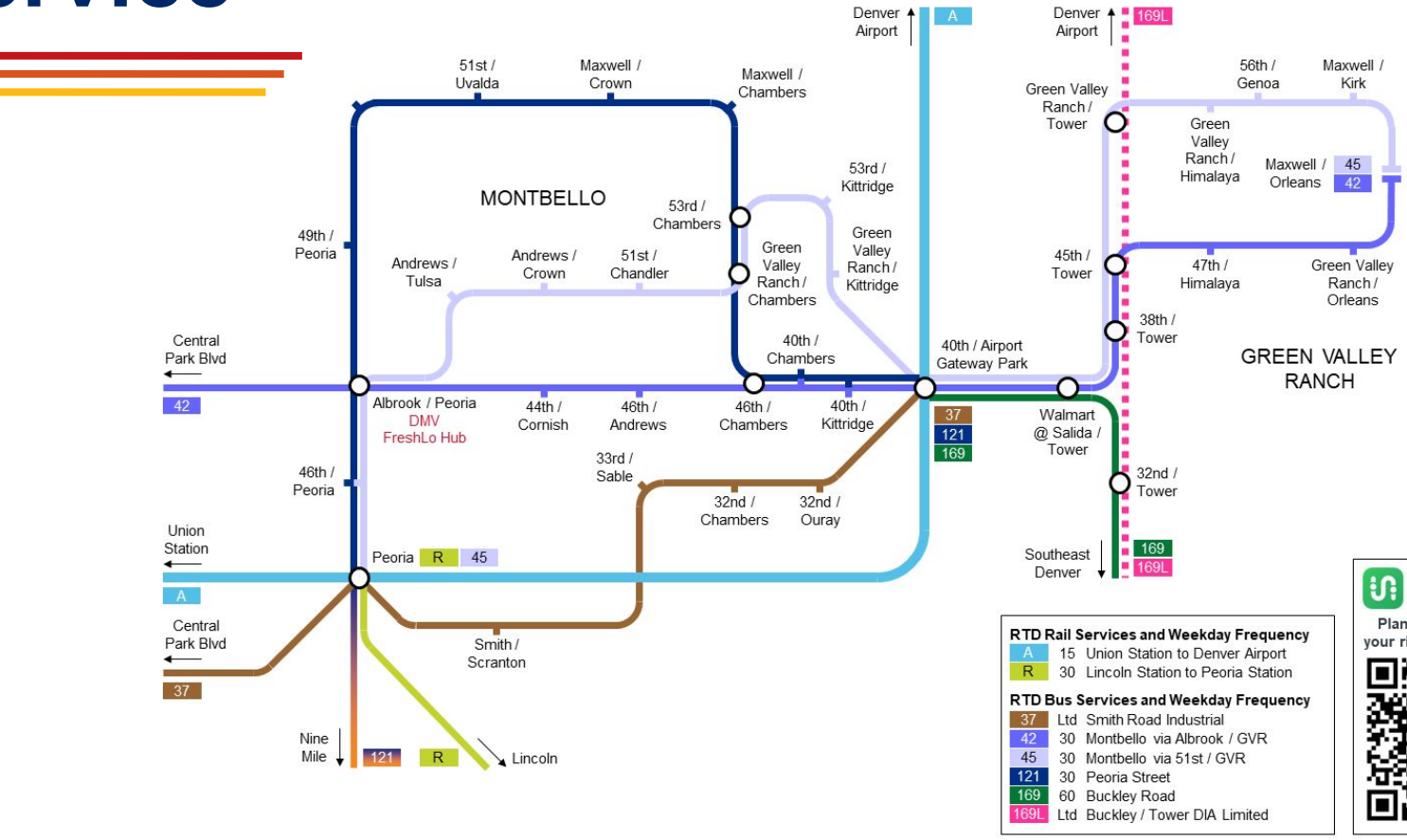
Expanded Bus Service



Increases on existing RTD **AB**, **AT** and **104L** routes.

All day service to Brighton / Greeley.

New service to SE Aurora / E-470 express.



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Note: This map is unofficial & is not endorsed by RTD. For clarity, not all stops or lines shown.

transit
Plan your trip. Track your ride. Pay your fare.

May 2023

Community-lead redesign of Montbello / GVR bus networks.

Airport buses must compliment rail, not compete with it.

Bus Capacity Upgrade



6 high-frequency routes
15m service from 6am - 12am
30m overnight

49

Seats
Per Bus

X

84

Daily
Departures

X

6

Frequent
Routes

=

24,696

Seats Per
Direction
Per Day

Transit Can Do The Job

2032 Forecast

115,000

People Per Direction
Per Day

Because it is the most efficient way to move large number of people to a single location, upgraded transit is well placed to handle Denver Airport's projected growth.

101,760

A Line Seats
Per Direction
Per Day

+

24,696

Bus Seats
Per Direction
Per Day

=

126,456

Transit Seats
Per Direction
Per Day



Airport Funding for Transit?



FAA Order 5190-6B (the Airport Compliance Manual) **Section 15.9 (i)** says:
[an airport] may use airport revenue to pay for the airport's share of a ground access project in two general cases:

- (1) if the project qualifies as an integral part of an **airport capital project**, and
- (2) if the **project is owned or operated by the sponsor and is directly and substantially related to the air transportation of passengers or property.**”

(1) “An example of an **airport capital project** would be the **construction of an airport transit station... to provide direct transit access...**”

(2) **The A Line** right-of-way from Denver Airport to 40th & Airport stations **is built on airport property and leased by RTD.**

What about 2045 and beyond?



More Sustainable Land Use

An aerial night-time photograph of Denver International Airport. The airport's runways, taxiways, and terminal buildings are visible, illuminated by ground lights. Overlaid on the image are several glowing, semi-transparent lines in blue, orange, and white, representing proposed transit routes. The lines form a network connecting various parts of the airport and surrounding areas. The background shows the dark landscape of the airport grounds under a night sky.

We have the opportunity to **revisit ground transportation at Denver Airport.**

Better-located car infrastructure will compound the benefits of the expanded A Line.

Both rental car and local parking facilities would benefit from a direct A Line connection.



Long-term parking at 40th & Airport

Existing plans contemplated substantial **parking capacity expansion at 40th & Airport.**

Focusing parking at 40th & Airport reduces car traffic on Peña Blvd and offers a cheaper alternative for local travelers.

A Line frequency expansion would cement the 40th & Airport station a **preferred location for long-term parking.**



 A Line Double-track
 A Line Single-track



New 72nd & Himalaya Station

-- Automated People Mover

A redevelopment of “rental car row” along 78th Ave is planned to include a Consolidated Rent-a-car (CONRAC) facility, employee / economy parking and possibly hotels.

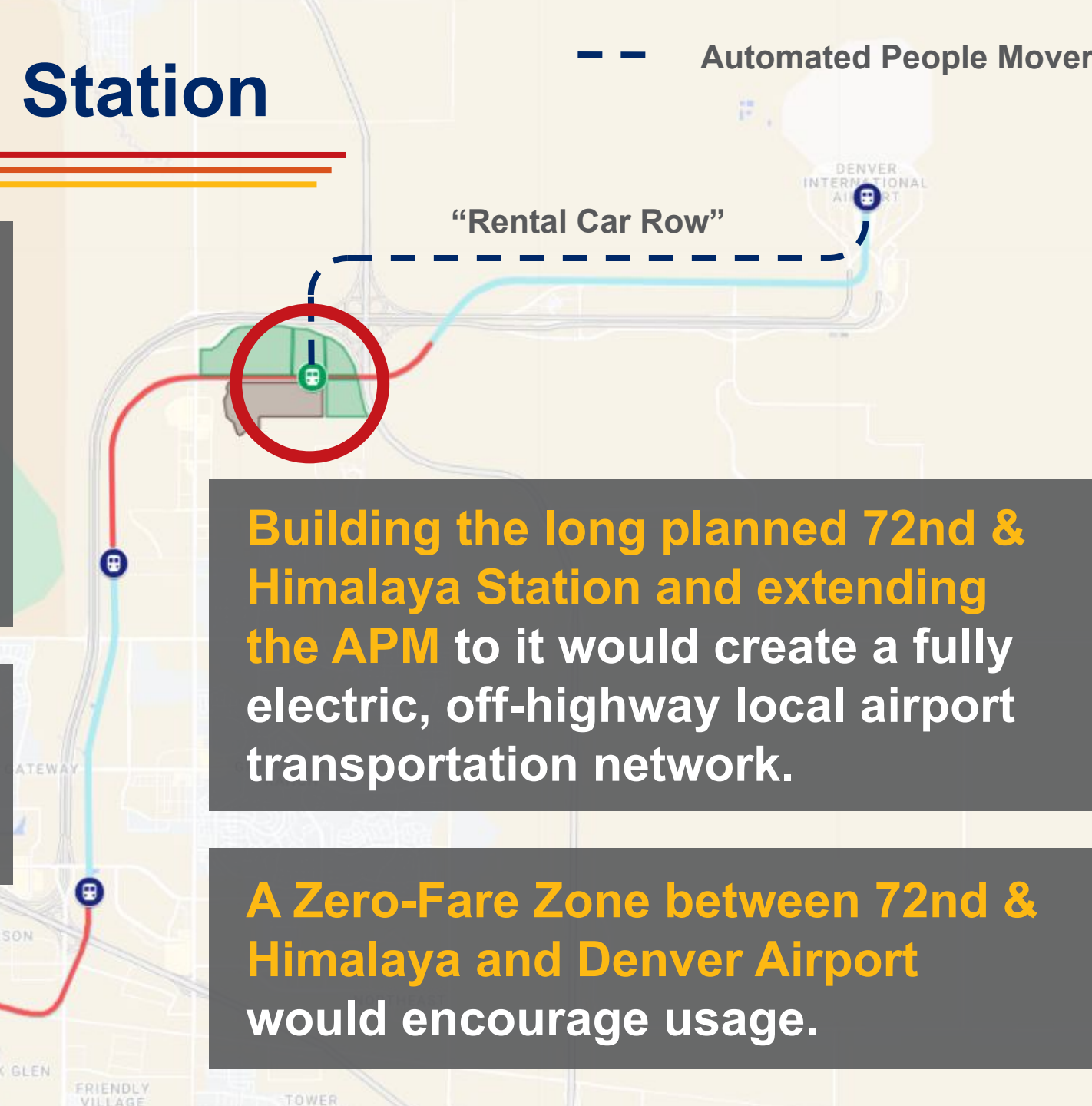
An automated people mover (APM) is planned to serve the new developments.

Building the long planned 72nd & Himalaya Station and extending the APM to it would create a fully electric, off-highway local airport transportation network.

A Zero-Fare Zone between 72nd & Himalaya and Denver Airport would encourage usage.



— A Line Double-track
— A Line Single-track



Complete A Line Double-Tracking

Because airport revenues can only fund projects on airport property, **A Line double-tracking is split into two projects.**

South Project
1.7 miles
\$150-200m cost.

North Project
3.6 miles
\$100-150m cost.

Costs are similar to Peña Blvd widening, but the benefits of enhanced transit access will be far more long-lasting, sustainable, and equitable.



 A Line Double-track
 A Line Single-track

A Line Double Tracking - South Project



1.7 mile double-tracking from Chambers Road to 40th & Airport Station.

With North Project completed, allows 8 trains per hour (7.5min frequency).

\$150-200m cost.

* Assumes previous A Line capacity expansion projects are completed.

120

Seats
Per Car

X

8

Car
Trains

X

142

Daily
Departures

=

136,320

Seats Per
Direction
Per Day. *

Denver Airport Station Expansion

APM station could be built on top of or to the side of rail station.

Original plan was to reserve this space for an Automated People Mover (APM).

Space would now be better used to build tracks 3 and 4, to provide extra A Line capacity, flexibility and resiliency.



Union Station Expansion

A photograph of Denver Union Station, a historic stone building with a prominent sign that reads "UNION STATION TRAVEL & TRAIN". The building is surrounded by modern glass skyscrapers. In the foreground, there are train tracks and a modern, curved glass and steel structure, likely part of the station's expansion. The sky is clear and blue.

No major capacity expenditures are required at Denver Union Station to accommodate the 2032 forecast.

To accommodate 7.5-minute A Line frequencies, **N Line trains would move to Track 3.**

Longer term options for Union Station expansion will need to be studied with Front Range Passenger Rail, commuter rail expansion and other rail projects likely to require improved station capacity, flexibility and resiliency.

**Do we even need to
expand Peña Blvd?**



Transit Mode Share At Airports



4%

Denver Metro
Transit
Mode Share

10%

Denver Airport
Transit
Mode Share

20%

Target mode share for multiple large
airports in the U.S. e.g. ORD, DFW,
JFK, SFO, SEA.

40%

London Heathrow Airport
Pre-Covid 19 Transit Mode Share

20%

GDT 2032 DEN
Airport Target

30%

GDT 2045 DEN
Airport Target

Current Peña Blvd Capacity



KEEP LEFT	Terminal WEST and Hotel			
United	AeroMexico	British Airways	Edelweiss	Norwegian
	Air Canada	Cayman	Icelandair	Sun Country
	Allegiant	Copa	JetBlue	Volaris
	American	Denver Air	Lufthansa	WestJet

2,000

Vehicles /
Hour / Lane

X

20

Useful
Hours / Day

X

2

Travel
Lanes

=

80,000

Vehicles Per
Direction
Per Day

2022 Traffic On Peña Blvd



76k people per direction per day.
90% drive, 10% transit
68k people per direction per day.

128.7k vehicles using Pena Blvd per day.
64.4k vehicles per direction per day.
Under 80k Capacity!

73% vehicle trips for airport purposes. This is **47k** vehicles transporting **68k** people per direction per day.

Approx. 1.5 people per vehicle.



Forecast Traffic On Peña Blvd

All figures are per direction per day.



	2022	2032	2045
Transit Mode Share	10%	20%	30%
Airport People Trips	68,400	92,000	97,300
Airport Vehicle Trips	46,972	61,333	64,867
Local Vehicle Trips	17,373	18,000	18,000
Total Vehicle Trips	64,345	79,333	82,867

What's Your Choice?

All figures are people per direction per day.



+24,000

Double-deck
Trains

+50,000

Platform
Extensions

+32,000

North Double
Tracking

+35,000

South Double
Tracking

+21,000

Bus Capacity
Upgrade

+162,000

Total Transit
Upgrades

or

+60,000

One Extra Lane
on Peña Blvd

1. Assumes all rail upgrades are carried out.
2. Assumes average of 1.5 occupants per vehicle.

What They Say...

An aerial photograph of Denver International Airport, showing the terminal building, parking lots, and runways. The image is used as a background for the text.

**“Transit would be
our first option.”**

**Phil Washington
Denver Airport CEO
Aug 2023**

**“Reducing the number
of SOVs on Peña
Boulevard is a goal of
this Study.”**

**Peña Plan
Stakeholder Presentation
Sep 2023**



Photo Credit: Denver International Airport

What GDT Says...



The **Peña Boulevard Transportation and Mobility Master Plan** must fully study and incorporate **transit expansion as a “core alternative”**.

The airport needs to adopt **bold, incremental targets to increase transit mode share to 20% and 30%**.

Airport revenues may be used to fund transit upgrades to the airport.

Expanded A Line and bus services should accommodate future 2045 demand.

Urbanist Message to Denver Airport



We are proud of Denver Airport and want to support its robust growth!

We want this growth to be environmentally **sustainable** and both **fiscally AND socially responsible.**

Join us! We meet every month on the third Thursday.



GREATER
DENVER
TRANSIT

4030

Union
Station

RTD

RTD

Thank You!

www.greaterdenvertransit.com