

Attachments to the Final EIR

Attachment 1	Letter from SDCRAA to the FAA (November 27, 2019)
Attachment 2	Final Water Supply Assessment
Attachment 3	Airfield/Airspace Simulation Analysis
Attachment 4	Attachment to Comment Letter R-AS004 (California Coastal Commission comment letter on 2018 Draft EIR)
Attachment 5	Attachment to Comment Letter R-PC021 (Shute, Mihaly & Weinberger LLP on behalf of the Cleveland National Forest Foundation comment letter on 2018 Draft EIR and other exhibits)

Attachment 1

Letter from SDCRAA to the FAA

November 27, 2019



November 27, 2019

Dave Cushing, Manager
Los Angeles Airports District Office
Federal Aviation Administration
Western-Pacific Region
777 S. Aviation Blvd., Suite 150
El Segundo, CA 90245

Dear Dave:

Thank you very much for your continued consideration and assistance regarding the San Diego County Regional Airport Authority's ("Authority") request to fund improvements that directly serve San Diego International Airport ("SAN" or the "Airport"). In August of this year, the Authority sent the FAA a detailed letter requesting approval to fund discrete improvements to roadways and intersections serving SAN. The identified streets/intersections serve as the only entrance and exit to SAN. A copy of that letter is attached as Exhibit A. Specifically, that letter requests approval to fund approximately \$7,500,000 of improvements necessary to serve airport passengers. These improvements are directly and substantially related to the air transportation of passengers and property.

As you know, there is no direct freeway access to the Airport and there is limited access to the Airport from City streets. The unprecedented passenger growth experienced at SAN in this decade has impacted the identified street segments causing congestion and delay and difficulty accessing the Airport. As mentioned in its August letter, the Authority is not requesting approval to contribute to improvements to all of the roadway and intersections impacted by the increased passenger growth at SAN. Instead, the Authority worked with the City of San Diego to identify the improvements that are consistent with the City's current plans – only these improvements are the subject of the Authority's request to FAA. As a result of this collaboration, the number of streets and intersections identified for improvement was drastically reduced.

Equally important to the analysis is the fact that the City and others are making significant contributions to the transportation network around SAN at no cost to the Authority that will improve efficiency and capacity of the roadway network that serves the Airport. The following provides a description of some of the ongoing and upcoming improvements to the network:

1. Traffic Signal Improvements at Pacific Highway & W. Palm Street

Project Lead: City of San Diego

Scope: Modifications to signaling at intersection on SAN's northside (which serves as an alternative access point for FBO, Rental Car Center, and integrated cargo facilities).

Estimated Completion: June 2020

Estimated Cost: \$280,000

2. Pacific Highway Water Line Replacement & Street Resurfacing

Project Lead: City of San Diego

Scope: As part of water line replacement, 0.95 miles of arterial roadway bordering SAN will be resurfaced.

Estimated Completion: August 2019

Estimated Cost: \$4 million

3. Downtown Complete Streets Implementation

Project Lead: City of San Diego/SANDAG

Scope: Includes street resurfacing, traffic striping, traffic signal modifications, ADA improvements, and bicycle facilities installation on multiple surface streets around SAN, including Grape, Hawthorne, and Pacific Highway.

Estimated Completion: July 2022

Estimated Cost: \$4.6 million

4. Curb Ramp Improvement Project

Project Lead: City of San Diego

Scope: Includes asphalt resurfacing, repair/restoration, traffic loop detector replacements, and other improvements for curb ramps and crosswalks on multiple surface streets surrounding SAN, including Laurel.

Estimated Completion: TBD (Design completion in 2021)

Estimated Cost: \$4.1 million

5. Middletown-Old Town Grade Crossing/Quiet Zone Improvements

Project Lead: City of San Diego/SANDAG

Scope: Installation of supplemental safety measures (SSMs) to fully block vehicular traffic from entering five at-grade rail crossings parallel to SAN's northern property line.

Estimated Completion: TBD

Estimated Cost: \$4.5 million

For your convenience, Exhibit B, attached hereto, briefly describes the improvements that SAN seeks to fund. These improvements¹ are set forth in detail in SAN's August 27th letter to the FAA (see Exhibit A). These improvements are necessary to better serve the traveling public and are directly and substantially related to the air transportation of passengers or property. In addition

¹ Additional detail has been added related to one roadway improvement (Palm St: Pacific Hwy to Kettner) and three intersections (Pacific Hwy at Sassafras St/Admiral Boland Way, Kettner Blvd at Sassafras St, and Grape St at Kettner Blvd) resulting in an increase of approximately \$210,000.

these roadways/intersections will be used by Airport passengers, employees, and visitors to SAN and are the primary and, often the only, access to the Airport.

Thank you again for your time and attention to this matter. Please let me know if I can provide any additional information. The Authority again respectfully requests FAA approval to fund the identified improvements.

Sincerely,



Kimberly J. Becker
President/CEO

cc: Mark McClardy, US Dept. of Transportation, FAA



August 27, 2019

Dave Cushing, Manager
Los Angeles Airports District Office
Federal Aviation Administration
Western-Pacific Region
777 S. Aviation Blvd., Suite 150
El Segundo, CA 90245

Re: Request for Authorization to Fund Roadway and Intersection Improvements

Dear Dave:

Thank you for taking the time over the past year to meet with the San Diego County Regional Airport Authority (Airport Authority) staff to discuss necessary improvements to intersections and roadways that directly serve San Diego International Airport (Airport or SDIA). As discussed in detail below, the Airport Authority seeks to provide for the costs for these discrete roadway and intersection improvements and respectfully requests authorization from the FAA to fund these necessary improvements.

As you know, the Airport has seen unprecedented growth since 2011 which has resulted in increased traffic congestion around the Airport. This traffic congestion makes it difficult for Airport passengers and cargo to access the Airport in a safe and efficient manner. We also discussed the Airport Development Plan (ADP). The ADP is the current planning effort to optimize and meet the current and future passenger demand at the Airport. In July of last year, the Airport Authority issued a draft Environmental Impact Report (DEIR) for the ADP and received numerous comments in response. Many of the comments raised the issue of the use of the 2013 aviation forecasts, which were based on data from 2012, as well as roadway impacts.

The Airport Authority recognizes that, while the ADP does not induce growth, improvements to roadway segments that directly serve airport passengers and airport employees will allow more safe and efficient travel to the Airport. In fact, the impacts to the roadway segments and intersections around SDIA will occur whether or not the ADP improvements are implemented. In response to these comments, the Authority updated the aviation forecasts for the Airport, taking into account a number of factors that have contributed to the growth occurring faster than originally projected in the 2013 aviation forecasts. Such factors include strong economic growth that occurred in the San Diego region between 2011 and 2017, a decrease in domestic airfares, the use of larger capacity aircraft (in terms of number of seats), higher load factors (in terms of percentage of occupied seats), and substantial increases in both origin-destination and connecting passengers at the Airport. The FAA approved the 2019 aviation forecasts on June 19, 2019.

The Airport Authority has spent the past year meeting with the City of San Diego, San Diego Association of Governments (SANDAG), Port of San Diego, Caltrans, MTS and others who are interested in how the

Dave Cushing, Manager
August 27, 2019
Page 2 of 3

public accesses the Airport – both by car and transit – and sharing with them the 2019 aviation forecasts. As part of that discussion, the Airport Authority has identified a refined set of roadway segments and intersections serving the Airport that will be impacted by the continued passenger growth at SDIA -- growth which will occur whether or not Terminal 1 will be replaced.

SDIA is an origin and destination airport with approximately 97% of arriving passengers having San Diego as their ultimate destination. In addition, SDIA has only one runway and is the busiest single runway airport in the country. SDIA is also unique in that there is no direct freeway access to the Airport. Finally, the individuals using SDIA are located in all areas of the County of San Diego – some more than 50 miles away (see Exhibit A). For all of these reasons, the Airport Authority, as the operator of the Airport, has a vested interest in and commitment to getting people to the Airport in a safe and efficient manner. To this end, the Airport Authority must work with local agencies to determine how best to serve the traveling public. As stated above, the Airport Authority has worked with the City of San Diego over the past year to identify off-airport roadway and intersection improvements (including associated pedestrian and bicycle infrastructure) that will improve and facilitate the movement of passengers, cargo and baggage and are consistent with the City's community plans. It should be noted that the number of roadway segments and intersections for which the Airport Authority seeks authorization to pay has been greatly reduced as a result of collaboration with the City of San Diego.¹ The refined set of identified improvements only extend to the nearest public facility and are the only direct access routes to the Airport. The direct access routes are not owned or controlled by the Airport Authority.

Projected passenger growth at SDIA, as demonstrated in the 2019 aviation forecasts approved by the FAA, will result in increased traffic to and from the Airport. As stated above, there is no direct freeway access to the Airport and access to the Airport via vehicle traffic is limited. Exhibit B, attached to this letter, depicts street access to the Airport. Exhibit B identifies the intersection locations, mitigation measures and percentage of airport passengers using each identified intersection. The Airport Authority seeks authorization from the FAA to provide for the costs for the roadway and intersection improvements listed in Exhibit C, which would allow more efficient and safe access to the airport for the traveling public. These improvements are needed due to the anticipated passenger growth reflected in the 2019 aviation forecasts. Each traffic section identified will experience increased traffic as a direct result of the increased passenger growth at SDIA. The proposed improvements are needed to address reasonable and foreseeable impacts and will improve access to the Airport for passengers, cargo and baggage. The specific segments identified serve the Airport directly and do not extend beyond the nearest major arterial.

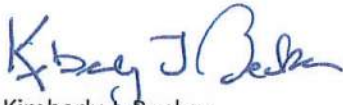
Specifically, the Airport Authority seeks to provide for the costs for improvements to the discrete roadway and intersection improvements listed on Exhibit C. By this letter, the Airport Authority respectfully requests authorization from the FAA to fund these improvements.

¹ The DEIR identified 43 roadway segments and 21 intersections compared to the recirculated draft Environmental Impact Report, which will include 4 roadway segments and 7 intersections.

Dave Cushing, Manager
August 27, 2019
Page 3 of 3

Please let us know if you have any questions or need further clarification regarding the improvements required.

Sincerely,

A handwritten signature in blue ink, appearing to read "Kimberly J. Becker". The signature is fluid and cursive, with the first name "Kimberly" and last name "Becker" clearly distinguishable.

Kimberly J. Becker
President/CEO
San Diego County Regional Airport Authority

EXHIBIT A

SAN Adjacent Areas



EXHIBIT A



SAN Passengers by ZIP Code (2017 - Quarter 3)

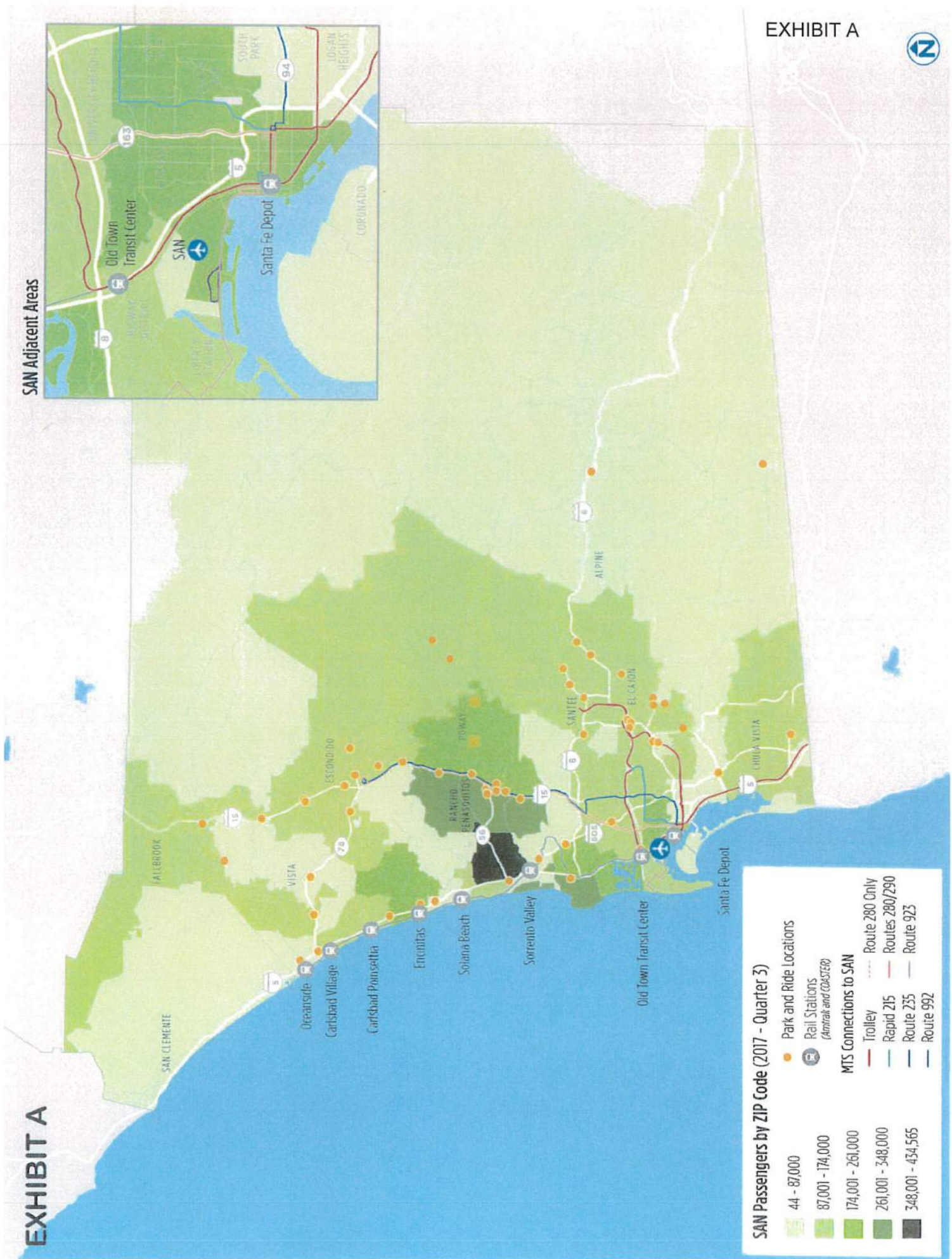
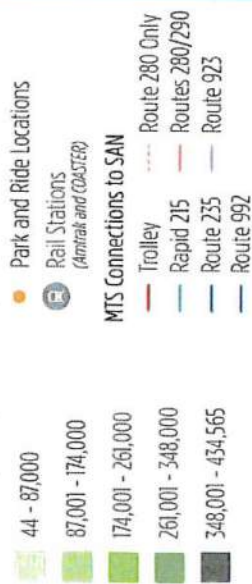
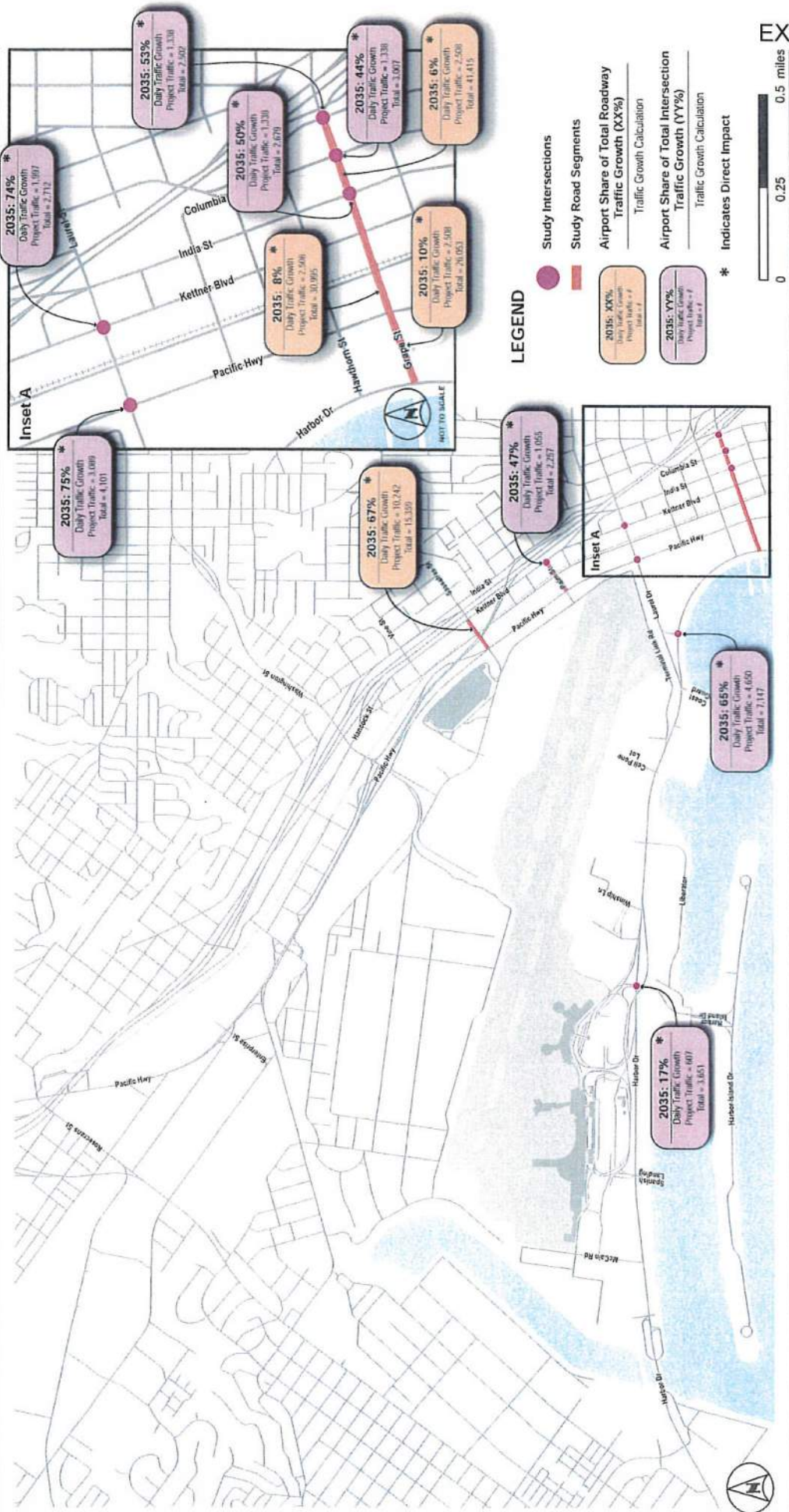


EXHIBIT B

SDCRAA ADPE EIR



Kimley»Horn

2035 Alternative 4 Intersection and Roadway Facilities Requiring Mitigation

EXHIBIT C

DRAFT - Alternative 4 Roadway Segment Mitigation

		Mitigation	Mitigation Cost	LOS	LOS MITIGATED	Volume Project	Volume Growth	Airport Share of Growth	Remarks
2024									
Sassafras St: Pacific Hwy - Kettner Blvd	MM-TR-RS-1a	3 Lane Collector (w/o TWLT lane) to 4 Lane Collector	\$ 227,100	F	D	4,820	5,381	90%	
2030									
Grape St: Harbor Dr - Pacific Hwy	MM-TR-RS-1b	3 Lane Collector (one-way) to 4 Lane Collector (one-way)	\$ 1,143,900	F	E	569	9,961	6%	
Grape St: Pacific Hwy - India St	MM-TR-RS-1c	3 Lane Collector (one-way) to 4 Lane Collector (one-way)	-	F	F	569	16,208	4%	Cost for improvements included for entire Grape corridor
Grape St: India St - State St	MM-TR-RS-1d	3 Lane Collector (one-way) to 4 Lane Collector (one-way)	-	F	F	569	24,163	2%	

Total Roadway Mitigation Cost \$ 1,371,000

DRAFT - Alternative 4 Intersection Mitigation

		Mitigation	Mitigation Cost	Peak Hour	LOS	LOS MITIGATED	Volume Project	Volume Growth	Airport Share of Traffic Growth	Remarks
2024										
Int 15: Laurel St at Kettner Blvd	MM-TR-I-1c	• Restripe SB approach to LT T R R • Convert a SB thru lane into a second SB right-turn lane • Re-coordinate signals along Laurel Street • Add Class IV cycle track on Pacific Highway from Laurel St to Washington St	\$ 47,800	AM MID PM	F F F	D C D	1,343 1,532 1,306	1,736 1,956 1,852	77% 78% 71%	
Int 41: Kettner Blvd at Palm St	MM-TR-I-1e	• Install traffic signal	\$ 998,600	MID PM	F F	C C	711 810	1,478 1,560	48% 51%	
2026										
Int 15: Laurel St at Pacific Hwy	MM-TR-I-1b	• Remove a WB thru lane on the West leg and add a second EB left-turn lane • Convert a SB thru lane into a second SB right-turn lane • Re-coordinate signals along Laurel Street • Add Class IV cycle track on Pacific Highway from Laurel St to Washington St	\$ 4,632,200	AM MID PM	C E E	D D D	2,226 2,451 2,141	2,849 3,151 2,960	78% 78% 72%	Cost includes cycle track on Pacific Highway (\$3,385,500)
2030										
Int 14: Laurel St at North Harbor Dr	MM-TR-I-1a	• Remove SB left-turn movement (Non-signal traffic will be redirected to Pacific Highway - Hawthorn Street) • Add third EB left-turn lane and remove an EB thru lane	\$ 258,100	AM MID PM	F E F	D C D	3,773 4,117 3,627	4,701 4,921 4,924	80% 84% 74%	
Int 29: Grape St at Columbia St	MM-TR-I-4a	• Retine signals along Grape Street	\$ 60,000	AM MID PM	D D E	D C D	1,081 1,182 1,050	1,958 2,158 2,355	55% 55% 45%	Cost for improvements included in the MM-TR-I-4a
Int 30: Grape St at State St/5 SB Ramp	MM-TR-I-4b	• Retine signals along Grape Street	-	AM MID PM	C E E	C D D	1,081 1,182 1,050	1,777 1,924 2,090	61% 61% 50%	
Int 33: North Harbor Dr at Harbor Island Dr/ Airport Terminal Rd	MM-TR-I-1d	• Re-coordinate signals along North Harbor Drive	\$ 100,000	AM MID PM	D D E	D D D	520 560 520	2,445 2,375 2,918	21% 24% 18%	
2035										
Int 28: Grape St at India St	MM-TR-I-5c	• Remove parking from the south side and add a 4th travel lane from North Harbor Drive to State Street • Retine signals along Grape Street	-	AM MID PM	D D F	C C C	1,336 1,338 1,133	2,376 2,679 2,791	52% 50% 41%	Cost for improvements included in the MM-TR-RS-1b, MM-TR-RS-1c, MM-TR-RS-1d, Signal retaining completed as part of MM-TR-I-4a and MM-TR-I-4b.

Total Intersection Mitigation Cost \$ 6,096,700

EXHIBIT B

ROADWAY IMPROVEMENTS – TOTAL \$1,371,000:

Location	Description	Cost
Sassafras St: Pacific Hwy-Kettner Blvd	3 Lane Collector (w/o TWLT lane) to 4 lane Collector	\$227,100
Grape St: Harbor Dr-Pacific Hwy	3 Lane Collector (one way) to 4 Lane Collector (one way)	\$1,143,900*
Grape St: Pacific Hwy-India St	3 Lane Collector (one way) to 4 Lane Collector (one way)	*
Grape St: India St-State St	3 Lane Collector (one way) to 4 Lane Collector (one way)	*
Palm St: Pacific Hwy to Kettner Blvd	2 Lane Collector (w/o TWLT lane) to 4 Lane Collector (w/o TWLT lane)	Costs are included in intersection of Kettner Blvd at Palm St in table below

*Cost includes improvements for entire Grape St Corridor

INTERSECTION IMPROVEMENTS – TOTAL \$6,342,100

Location	Description	Cost
Laurel St at Kettner Blvd	Restripe SB approach to LT T R R	\$47,800
Kettner Blvd at Palm St	Install traffic signal	\$998,600
Laurel St at Pacific Hwy	Multiple improvements including: -remove a WB thru lane on the west leg and add a second EB left-turn lane -convert a SB thru lane into a second SB right-turn lane -re-coordinate signals along Laurel St -add Class IV cycle track on Pacific Hwy from Laurel St to Washington St	\$4,632,200
Laurel St at North Harbor Dr	Multiple improvements including: -remove SB left-turn movement (non-airport traffic will be redirected to Pacific Hwy-Hawthorn St) -add third EB left-turn lane and remove EB thru lane	\$258,100
Grape St at Columbia St	Retime signals along Grape St	\$60,000
Grape St at State St/I-5 SB Ramp	Retime signals along Grape St	Costs are included in intersection improvement above
North Harbor Dr at Harbor Island Dr/Airport Terminal Rd	Re-coordinate signals along North Harbor Dr	\$100,000

Grape St at India St	Multiple improvements including: -remove parking from the south side and add a 4th travel lane -realign signals along Grape St	Costs are included in other related intersection & roadway improvements listed
Pacific Hwy at Sassafras St/Admiral Boland Way	-restripe WB approach to a left lane, thru lane, and right-turn lane	\$155,000
Kettner Blvd at Sassafras St	-restripe SB approach to a left lane, 2 thru lanes, a thru/right-turn lane, and a right-turn lane	\$90,400
Grape St at Kettner Blvd	Multiple improvements including: -remove parking from the south side and add a 4th travel lane -realign signals along Grape St	Costs are included in other related intersection & roadway improvements listed

Final Water Supply Assessment

SAN DIEGO PUBLIC UTILITIES DEPARTMENT
WATER SUPPLY ASSESSMENT
Water Code § 10910 *et seq.*

To: (Lead Agency)
San Diego Development Services Department
1222 1st Ave MS 301
San Diego, CA 92101

(Applicant)
San Diego International Airport
3225 N. Harbor Drive, 3rd Floor
San Diego, CA 92101

Project Information

PTS#: 634371 (Intern. Airport NEW WSA2019)

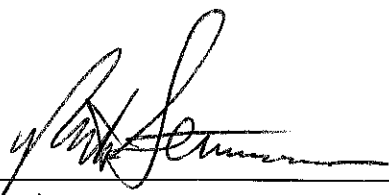
Project Title: San Diego International Airport, Airport Development Plan

Assessment of Availability of Water Supply

The Public Utilities Department (PUD) has approved the herein assessment and made the following determination regarding the above-described Project:

A sufficient water supply is available for the Project. The total water supplies available to PUD during normal, single-dry and multiple-dry years within a 20-year projection will meet the projected water demand of the Project in addition to the demand of existing and other planned future uses.

The foregoing determination is based on the following Water Supply Assessment Information and supporting information in the records of PUD.

	10/4/19	Senior Civil Engineer
Signature	Date	Title

Purpose

This Water Supply Assessment was produced for, and returned to, the Development Services Department (DSD) and/or the CEQA Lead Agency as part of the City of San Diego's overall Discretionary CEQA consistency determination for the subject project. Note that this Assessment evaluates Public Utilities Department availability of water supplies for the project and does not constitute approval of the project. Under SB 610, as codified in the California Water Code Section 10910, a Water Supply Assessment (WSA) must be furnished to the lead agency for inclusion in any project requiring California Environmental Quality Act (CEQA) review and approval. The thresholds for a "project" under the California Water Code are detailed in Section 10912. In summary, Section 10912 defines a "project" as any development that propose to construct 500 or more residential units, or that will use an amount of water equivalent to what would be used by 500 residential units and that are subject to CEQA.

California State Senate Bill 610 (SB 610) identifies the Urban Water Management Plan (UWMP) of the respective water agency as the primary planning document used by a water supplier to assist in determining whether a sufficient water supply is available for the development and to identify UWMP planned supply expansion alternatives that may help to develop a sufficient supply. Water Suppliers utilize their respective UWMP's when evaluating water demand growth within their jurisdiction and evaluating the water supply impacts of development and re-development projects. It is crucial that cities, counties, water wholesale agencies and water suppliers work together when developing and updating the State-required UWMP. The City of San Diego's 2015 UWMP was developed in collaboration with the San Diego County Water Authority (Water Authority), was adopted by the San Diego City Council in June of 2016 and serves as the basis for this Water Supply Assessment.

This Assessment evaluates water supplies that are or will be available during normal, single-dry year, and multiple-dry water years during a 20-year projection to meet the projected demands of the Project in addition to existing and planned future water demands of the PUD.

This Assessment also includes identification of existing water supply entitlements, water rights, water service contracts or agreements relevant to the identified water supply for the Project and quantities of water received in prior years pursuant to those entitlements, rights, contracts and agreements.

Project Description

The 661 acre San Diego International Airport (SDIA) site, where the proposed project will occur, is located northwest of downtown San Diego on the San Diego Bay, and is bounded to the north by Barnett Avenue and Pacific Highway, to the east by Interstate-5, to the south by North Harbor Drive and West Laurel Street, and to the west by a naval water channel of the San Diego Bay.

The San Diego County Regional Airport Authority (SDCRAA) is proposing various improvements at SDIA within the framework of an Airport Development Plan (ADP). The Authority published a Draft EIR for the ADP improvements in July 2018, for which a Water Supply Assessment was completed by San Diego Public Utilities Department. Subsequent to publication of the Draft EIR, the



Authority developed new information regarding the environmental analysis of the ADP, including an updated forecast of future passenger levels at SDIA, for which the Authority will publish a Recirculated Draft EIR. As part of that process, the Authority has identified a new alternative to the proposed project – Alternative 4, which focuses the ADP on the replacement of Terminal 1, without the previously proposed commercial development area, and also foregoes the previously proposed expansion and improvement of Terminal 2. The following summarizes the main development characteristics of the originally proposed project and Alternative 4, as related to potential increases in water demands.¹

SDIA ADP PROJECT SITE AREA USES (Square Feet)							
	Current Area	Proposed Project			Alternative 4		
		Demolition	Construction	Total Future	Demolition	Construction	Total Future
Terminal 1 Replacement	336,000	336,000	1,210,000	1,210,000	336,000	1,210,000	1,210,000
Terminal 2-West Addition and Terminal 2-East Replacement	350,000 (T2-E)	350,000 (T2-E)	450,000 (T1-W Addition) 250,000 (T2-E Replacement)	700,000	NA	NA	NA
Terminals 1 and 2 Total	686,000	686,000	1,910,000	1,910,000	336,000	1,210,000	1,210,000
Administration Buildings	325,500	174,750	150,000	300,750	174,750	150,000	300,750
Ramp Control Tower	0	0	806	806	0	806	806
Central Utility Plan Upgrade and Expansion	14,500	0	12,000	26,500	0	12,000	26,500
Commercial Development	0	0	400,000	400,000	0	0	0

In light of the updated forecast, which projects a greater number of passengers at SDIA in the future than projected under the previous forecast, and the new alternative that will be included in the Recirculated Draft EIR, an updated Water Supply Assessment has been prepared.

This updated Water Supply Assessment addresses the projected water demand associated with the originally proposed project and with Alternative 4. It should be noted that Alternative 4 proposes less new building construction.

¹In addition to the uses identified in the table, the ADP also includes improvements related to development of a new on-airport access road, improvements to aircraft taxiways, and replacement and expansion of aircraft apron areas; however, those uses do not affect water demands.

Table A - Water Demand Estimate (2040), Net Increase Over Baseline (2015 UWMP) Conditions

PROPOSED PROJECT							
	2015	2040	Net Increase	Demand Factor	Demand, gpd	Demand, afy	Notes
Factors Affecting Future Demand							1
Airport Employees	6,054	11,847	5,793	8.7 gpcd	50,399	56	2, 4
Commercial Development Area Employees (sf)	NA	800	800	8.7 gpcd	6,960	8	3, 4
Annual Number of Passengers	20,322,000	39,760,000	19,438,000	2 gpcd	106,510	119	5, 4
Central Utility Plant Expansion (sf)	14,500	26,500	12,000	2.8 gal/sf/day	33,600	38	6
Total Net Increase in Water Demand - Proposed Project					197,469	221	
% of UWMP Forecasted City Demands						0.08%	7

ALTERNATIVE 4							
	2015	2040	Net Increase	Demand Factor	Demand, gpd	Demand, afy	Notes
Airport Employees	6,054	11,847	5,793	8.7 gpcd	50,399	56	2, 4
Annual Number of Passengers	20,322,000	39,760,000	19,438,000	2 gpcd	106,510	119	5, 4
Central Utility Plant Expansion (sf)	14,500	26,500	12,000	2.8 gal/sf/day	33,600	38	6
Total Net Increase in Water Demand - Alternative 4					190,509	213	
% of UWMP Forecasted City Demands						0.08%	7

Notes:

- Future water demand assumed to be the net increase in 2040 over existing conditions in 2015 when the 2015 UWMP was prepared.
- Airport employment estimate for 2015 is based on the combination of aviation, concessions, and government employees at SDIA in 2017 per Table 5-1 of the *San Diego International Airport Economic Impact Study* completed in June 2018 by CDM Smith for the San Diego County Regional Airport Authority, as adjusted to the passenger activity level at SDIA in 2015 (i.e., 2017 employment of 6,667 reduced to 6,054 in 2015, in proportion with annual passenger activity level at SDIA in 2015 being approximately 20,322,000 compared to 22,370,000 in 2017). The airport employees for 2040 were estimated based on that same ratio of employees to passengers.
- One (1) employee per 500 feet is the acceptable standard for estimating commercial employment density.
- Airport employee and passenger gpd demand factors are based on SDIA Domestic Water use for the 5-year average water consumption during 2013-2017. Passenger demand is estimated at 2 gpcd and Airport employee demand is estimated at 8.7 gpcd. The factors are considered to be conservative in that they don't account for increased presence of water conservation features in new construction (i.e., low flow toilets, sensor activated faucets, etc.).
- The number of passengers in 2015 is based on the SDIA Annual Activity Report. Available: https://www.san.org/DesktopModules/Bring2mind/DMX/Download.aspx?EntryId=12777&Command=Core_Download&language=en-US&PortalId=0&TabId=403. The number of passengers projected for 2040 is based on the San Diego County Regional Airport Authority Technical Memorandum Aviation Activity Forecast Update – San Diego International Airport prepared by LeighFisher, April 2019.
- CUP (Central Utilities Plant) expansion is based on Applicant data and additional 12,000 sf resulting in an increase of 2.8 gallons/sf in water demand.
- See tables in Availability of Sufficient Supplies section for reference.

Table B - Water Capacity Estimate

Project Site Capacity	Est. Fixture Units	Est. EDUs
Est. Transferable	10,385 min.	Up to 420
Proposed Project	$10,385 + [(190,509 \text{ gpd}/500 \text{ gpd}) \times 20 \text{ FUs/DU}] = 18,005 \text{ FUs}$	900
Net Increase	7,620	480

This assessment assumes that the project will utilize all “Equivalent Dwelling Unit” (EDU) water supply capacity owned by the SDIA and serving the existing site. Water billing records indicate substantially less water consumption than the estimated transferable EDU capacity and **Table A** above suggests a net increase to water demand less than the corresponding net increase to EDU’s in **Table B**. Therefore, a potential adjusted net increase to capacity at the project permitting and capacity fee evaluation stage is anticipated. The outcome of any reduced (or negated) net increase to capacity accounting would be considered to further reduce net demands imposed by the proposed project (**Table A**). See last page of this WSA for details.

Furthermore, in 2014 the Airport initiated an Air Conditioning Condensate Capture and Reuse Program that currently includes condensate collection containers at 15 gates and a 500-gallon water transport truck. The salvaged water is used for a variety of uses, such as power washing sidewalks and the airfield, for construction/demolition dust control, and for cleaning vehicles and equipment. The airport is currently also exploring potential stormwater capture and reuse options on-site. Landscaping is anticipated to remain the same, or be reduced, in the future. Specifically, the Project is targeting a Leadership in Energy and Environmental Design (LEED) Silver certification or better. This entails the use of high efficiency plumbing fixtures such as motion activated faucets and lavatories to reduce water use to a fraction of the older manual water fixtures. Also, a Stormwater Capture and Reuse System is proposed to be implemented at SDIA, which will reduce demands on potable water.

The water demand estimates presented in the tables above do not include the aforementioned water conservation and water demand reduction features, and, therefore, the estimates are considered to be conservative.

Availability of Sufficient Supplies

As indicated in the Executive Summary of the 2018 SDIA ADP Draft EIR (ES.5.1; Assembly Bill 93) the SDCRAA Act established SDCRAA jurisdiction over the 661-acre site as of 2003. Previous to the SDCRAA Act, ownership and operation of the airport was under the San Diego Unified Port District (1962 Port District control of the regional municipal airport). Section ES 5.3 indicates planned improvements to existing utilities surrounding the project area that require removing existing underground utility lines to accommodate new and modified structures and installing new lines and new connections to new and modified structures. Utility improvements are noted to occur in coordination with service providers such as PUD. Section ES 5.4 describes construction phasing for this project.

Under an evaluation of Level of Service (LOS) reliability in providing sufficient project-level supplies to meet proposed project demands for the ADP, this WSA assumes that the above described activity will, at a minimum, include relocation of all water meters to PUD accessible locations adjacent to North Harbor Dr. in coordination with the City's Development Services Department. The current airport yard piping and facility metering does not meet PUD standards requiring public water mains to be located within public right-of-ways and water meters to be located at the edge of the public right-of-way at the customer property line. This is required for access, maintenance and repair. Note that of the 27 existing water meters on-site, 14 meters are currently located on N. Harbor Dr in compliance with PUD standards. The remaining onsite yard pipe must be privatized and the meters moved to the edge of the public right-of-way to meet standards as a condition of any City permit approvals including this Water Supply Assessment.

The City's 2015 Urban Water Management Plan (UWMP) forecasted water demands compared with projected supplies for the PUD are shown in the series of **Tables 1-3** (UWMP, Sec. 8) on the following pages of this document. These demonstrate that with existing supplies, imported water purchases and demand "buffers" (e.g. an approximate 11,185 acre-feet per year (afy) Accelerated Forecasted Growth regional buffer described in the Water Authority and City's respective UWMP), as well as implementation of the projects discussed in the three agencies planning documents, there were adequate anticipated water supplies to serve all anticipated growth at the SDIA site.

Furthermore, PUD data and interim supply and demand forecast tracking in 2018 supports a reduction in 2015 UWMP projected demands as a result of permanent citywide water conservation measures not accounted for in the 2015 UWMP .

Both the City of San Diego and County Water Authority 2015 UWMPs are available online and incorporated by reference into this document to support evidentiary record of the availability of sufficient supplies. Note that Pure Water Phase 1 (City of San Diego 2015 UWMP, pg. 6-16) has since been approved as an additional verifiable water supply source and this was also not included under the City's 2015 UWMP.

Conclusion

In summary, the WSA findings substantiate that there is sufficient planned water supply to serve this Project's future water demands within the PUD's water service area in normal, single-dry year, and multiple-dry water year forecasts.

Therefore, this WSA concludes that the projected level of water demand for this Project is within the regional water resource planning documents of the City, Water Authority, and MWD. Current and future water supplies, as well as the actions necessary to develop these supplies, have been identified in the water resources planning documents of the PUD, Water Authority, and MWD to serve the projected demands of the Project, in addition to existing and planned future water demands of the PUD.

TABLE 1 - PROJECTED SUPPLY AND DEMAND COMPARISON – NORMAL YEAR

Normal Year Demands/Supplies	Demand and Supplies (AFY)				
	2020	2025	2030	2035	2040
Water Demand (with wholesale and conservation)	200,984	242,038	264,840	273,748	273,408
Local Water Supplies					
Recycled Water (City service area only)	13,650	13,650	13,650	13,650	13,650
Local Surface Supply	22,900	22,800	22,700	22,600	22,500
Groundwater	3,100	3,100	3,100	3,100	3,100
Sub-Total Local Supplies	39,650	39,550	39,450	39,350	39,250
Water Supply from SDCWA (purchased water)	161,334	202,488	225,390	234,398	234,158
Total City Water Supplies	200,984	242,038	264,840	273,748	273,408
Estimated Water Shortages	0	0	0	0	0

TABLE 2 - PROJECTED SINGLE-DRY YEAR SUPPLY AND DEMAND COMPARISON

Single-Dry Year (1990)	Demand and Supplies (AFY)				
	2020	2025	2030	2035	2040
Water Demand (with wholesale and conservation)	213,161	256,883	281,167	290,654	290,292
Local Water Supplies					
Recycled Water (City service area only)	13,650	13,650	13,650	13,650	13,650
Local Surface Supply	16,657	16,584	16,512	16,439	16,366
Groundwater	3,100	3,100	3,100	3,100	3,100
Sub-Total Local Supplies	33,407	33,334	33,262	33,189	33,116
Water Supply from SDCWA (purchased water)	179,754	223,549	247,906	257,466	257,176
Total City Water Supplies	213,161	256,883	281,167	290,654	290,292

**TABLE 3 - PROJECTED SUPPLY AND DEMAND COMPARISON DURING MULTIPLE DRY YEAR PERIOD
ENDING IN 2040**

Dry Year 1 (1990) Demands/Supplies	Demand and Supplies (AFY)				
	2020	2025	2030	2035	2040
Water Demand (with wholesale and conservation)	213,161	256,883	281,167	290,654	290,292
Local Water Supplies					
Recycled Water (City service area only)	13,650	13,650	13,650	13,650	13,650
Local Surface Supply	16,657	16,584	16,512	16,439	16,366
Groundwater	3,100	3,100	3,100	3,100	3,100
Sub-Total Local Supplies	33,407	33,334	33,262	33,189	33,116
Water Supply from SDCWA (purchased water)	179,754	223,549	247,906	257,466	257,176
Total City Water Supplies	213,161	256,883	281,167	290,654	290,292
Estimated Water Shortages	0	0	0	0	0
Dry Year 2 (1991) Demands/Supplies	Demand and Supplies (AFY)				
	2020	2025	2030	2035	2040
Water Demand (with wholesale and conservation)	200,610	241,581	264,338	273,228	272,888
Local Water Supplies					
Recycled Water (City service area only)	13,650	13,650	13,650	13,650	13,650
Local Surface Supply	16,233	16,162	16,091	16,020	15,949
Groundwater	3,100	3,100	3,100	3,100	3,100
Sub-Total Local Supplies	32,983	32,912	32,841	32,770	32,699
Water Supply from SDCWA (purchased water)	167,627	208,669	231,469	240,457	240,189
Total City Water Supplies	200,610	241,581	264,338	273,228	272,888
Estimated Water Shortages	0	0	0	0	0
Dry Year 3 (1992) Demands/Supplies	Demand and Supplies (AFY)				
	2020	2025	2030	2035	2040
Water Demand (with wholesale and conservation)	208,665	251,402	275,139	284,412	284,058
Local Water Supplies					
Recycled Water (City service area only)	13,650	13,650	13,650	13,650	13,650
Local Surface Supply	18,962	18,879	18,796	18,714	18,631
Groundwater	3,100	3,100	3,100	3,100	3,100
Sub-Total Local Supplies	35,712	35,629	35,546	35,464	35,381
Water Supply from SDCWA (purchased water)	175,953	215,773	239,592	248,948	248,677
Total City Water Supplies	208,665	251,402	275,139	284,412	284,058
Estimated Water Shortages	0	0	0	0	0

Airfield/Airspace Simulation Analysis

Attachment 3a – Airfield/Airspace Simulation Analysis

San Diego International Airport Airport Development Plan Environmental Review

Airfield/Airspace Simulation Analysis

June 5, 2019

Overview

■ Background

- Modeled ADP Scenarios
- Modeled Airfield Configurations
- Experimental Design

■ Results

- Travel Time
- Runway Throughput
- Annualized Delay Curve

■ Assumptions

- Airspace Infrastructure and Procedures
 - Airspace Routing
 - Separation of arrival and departure operations
- Airfield Infrastructure and Procedures
 - Taxi Speeds
 - Turnaround Times
 - Airfield Operating Restrictions
 - Taxi Flows
 - Runway Exit Utilization
 - Pushback and Engine Spool Up
 - Gate Utilization and Tow Time Optimization

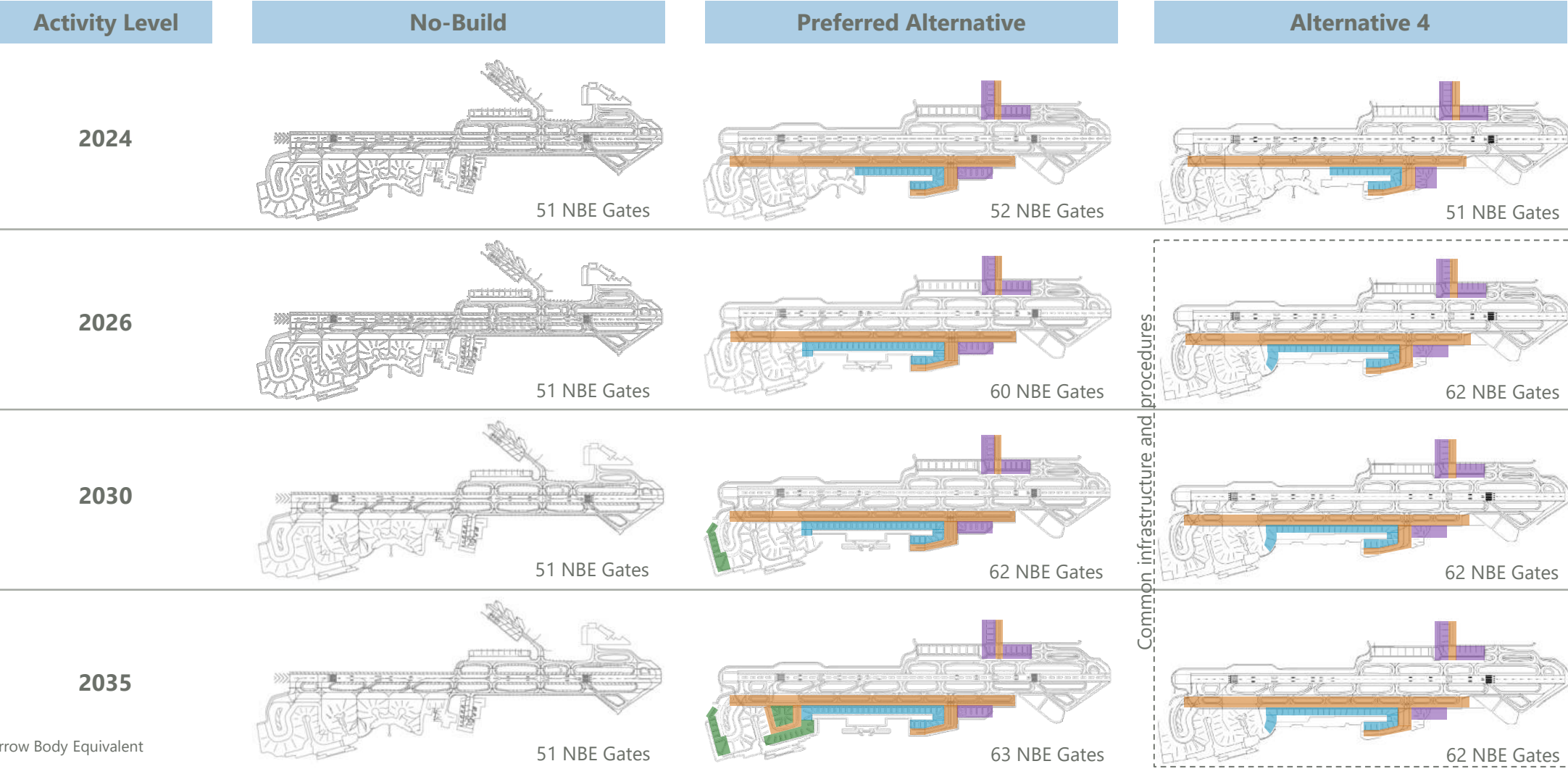
Background

- Ricondo & Associates, Inc., (Ricondo) was tasked to perform airfield and airspace simulation
 - Of San Diego International Airport's Airport Development Plan (ADP)
 - To support completion of an Environmental Impact Report (EIR)
- Ricondo was subcontracted under LeighFisher and provided data directly to CDM Smith to support environmental analysis
- LeighFisher provided gated design day flight schedules for all scenarios to be evaluated
- Jacobsen-Daniels provided airfield and terminal gate layouts
- Ricondo coordinated with LeighFisher and Airport Planning and Operations personnel to confirm operating assumptions used to develop the simulation models
 - Gating assumptions were documented by LeighFisher¹
 - Other operating assumptions are documented in the following slides
 - Assumptions for No Build operations were confirmed by coordination with Airport Operations personnel during the model calibration process
 - Assumptions for the Preferred Alternative and Alternative 4 scenarios were derived from the calibration assumptions based on Ricondo's general knowledge of and experience modeling airfield operations

Source:

1/ LeighFisher, Inc., *SAN Gating Analysis 2019 Update*, April 2019.

Modeled ADP Scenarios



NOTE:
NBE – Narrow Body Equivalent

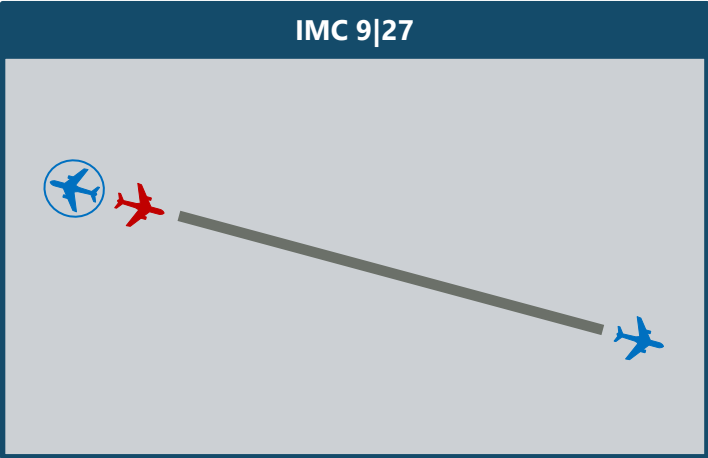
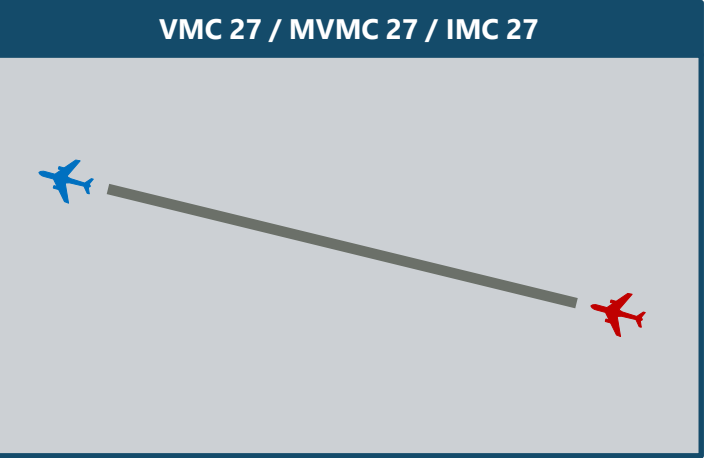
SOURCE:
LeighFisher, Inc., *SAN Gating Analysis 2019 Update*, April 2019.

Legend | New Taxiways New Terminal 1 Stands New Terminal 2 Stands Other New Stands

Modeled Airfield Operating Configurations

Weather Category	Associated Conditions		Runway Weather Coverage		
	Ceiling Height (ft ASL)	Visibility (statute mi)	27	9	Total
VMC	$c \geq 2,000$	$v \geq 3$	77.1%	1.2%	78.3%
MVMC	$1,000 \leq c < 2,000$	$v \geq 3$	16.4%	0.3%	16.7%
IMC 1	$700 \leq c < 1,000$	$1 \leq v < 3$	2.8%	0.1%	2.9%
IMC 2	$c < 700$	$v < 1$	0.0%	2.1%	2.2%
Total			96.4%	3.6%	100.0%

Configuration Name	Runway Assignment		Utilization	
	Arrivals	Departures	Raw	Normalized
VMC 27	27	27	77.1%	78.3%
MVMC 27	27	27	16.4%	16.7%
IMC 27	27	27	2.8%	2.9%
IMC 9 27	9	9/27	2.1%	2.1%
Total			98.5%	100.0%



Legend

- Primary Arrivals
- Primary Departures
- Secondary Departures



NOTES:
VMC = visual meteorological conditions
MVMC = marginal visual meteorological conditions
IMC = instrument meteorological conditions
9 = operations on Runway 9
27 = operations on Runway 27

SOURCES:
1/ National Climatic Data Center, San Diego International Airport, 2007 through 2016.
2/ Federal Aviation Administration, Aviation System Performance Metrics (ASPM), 2016.

Experimental Design

- All experiments were simulated for 11 iterations. The travel time, throughput, and annualized delay curve results detailed in the following slides are the 11-iteration average.

No-Build		
Year	Experiment Number	Configuration
2024	111	VMC 27
	121	MVMC 27
	131	IMC 27
	141	IMC 9 27
2026	112	VMC 27
	122	MVMC 27
	132	IMC 27
	142	IMC 9 27
2030	113	VMC 27
	123	MVMC 27
	133	IMC 27
	143	IMC 9 27
2035	114	VMC 27
	124	MVMC 27
	134	IMC 27
	144	IMC 9 27

Preferred Alternative		
Year	Experiment Number	Configuration
2024	211	VMC 27
	221	MVMC 27
	231	IMC 27
	241	IMC 9 27
2026	212	VMC 27
	222	MVMC 27
	232	IMC 27
	242	IMC 9 27
2030	213	VMC 27
	223	MVMC 27
	233	IMC 27
	243	IMC 9 27
2035	214	VMC 27
	224	MVMC 27
	234	IMC 27
	244	IMC 9 27

Alternative 4		
Year	Experiment Number	Configuration
2024	311	VMC 27
	321	MVMC 27
	331	IMC 27
	341	IMC 9 27
2026	312	VMC 27
	322	MVMC 27
	332	IMC 27
	342	IMC 9 27
2030	313	VMC 27
	323	MVMC 27
	333	IMC 27
	343	IMC 9 27
2035	314	VMC 27
	324	MVMC 27
	334	IMC 27
	344	IMC 9 27

NOTES:

VMC = visual meteorological conditions MVMC = marginal visual meteorological conditions IMC = instrument meteorological conditions 9 = operations on Runway 9 27 = operations on Runway 27

Results

Annualized Travel Time

ADP Scenario	Year	Average Delay (min/op)									Average Unimpeded Time (min/op)						Average Operational Time (min/op)					
		Arrivals				Departures				Tot	Arrivals			Departures			Arrivals			Departures		
		Air	Rwy Xing	Taxi In	Gate	Gate	Taxi Out	Rwy Xing	Air		Air	Gnd	Tot	Air	Gnd	Tot	Air	Gnd	Tot	Air	Gnd	Tot
No Build	2024	6.4	0.2	0.5	0.0	0.4	4.9	0.1	0.0	6.2	16.7	4.3	21.0	14.2	11.8	26.0	23.1	5.0	28.1	14.2	17.2	31.4
	2026	7.0	0.2	0.5	0.0	0.4	6.0	0.1	0.0	7.1	16.6	4.3	20.9	14.3	11.6	25.9	23.6	5.0	28.7	14.3	18.1	32.4
	2030	8.4	0.2	0.6	0.0	0.4	7.7	0.1	0.0	8.8	16.5	4.4	20.9	14.3	11.8	26.1	25.0	5.2	30.2	14.3	20.1	34.4
	2035	11.2	0.2	0.6	0.0	0.4	12.8	0.2	0.0	12.7	16.5	4.5	20.9	14.3	11.9	26.2	27.6	5.3	32.9	14.4	25.2	39.6
Preferred Alternative	2024	4.9	0.1	0.4	0.0	0.3	3.8	0.0	0.0	4.8	16.7	4.4	21.1	14.2	11.1	25.3	21.6	5.0	26.6	14.2	15.2	29.4
	2026	5.4	0.2	0.3	0.0	0.3	4.7	0.0	0.0	5.4	16.6	4.3	20.9	14.3	10.8	25.1	22.0	4.8	26.8	14.3	15.8	30.1
	2030	6.7	0.1	0.3	0.0	0.2	5.3	0.0	0.0	6.4	16.5	4.3	20.8	14.3	11.1	25.5	23.2	4.8	28.0	14.3	16.7	31.0
	2035	9.3	0.1	0.4	0.0	0.2	10.0	0.0	0.0	10.0	16.5	4.4	20.8	14.3	11.1	25.5	25.7	5.0	30.7	14.4	21.3	35.7
Alternative 4	2024	5.0	0.1	0.4	0.0	0.4	4.1	0.0	0.0	5.1	16.7	4.8	21.5	14.2	11.0	25.2	21.7	5.4	27.1	14.2	15.6	29.8
	2026	5.4	0.1	0.3	0.0	0.3	4.3	0.0	0.0	5.2	16.6	4.4	21.0	14.3	10.8	25.1	21.9	4.9	26.8	14.3	15.4	29.7
	2030	6.8	0.1	0.4	0.0	0.3	5.2	0.0	0.0	6.4	16.5	4.5	21.0	14.3	10.9	25.3	23.3	5.0	28.4	14.3	16.4	30.7
	2035	9.7	0.1	0.4	0.0	0.3	9.2	0.0	0.0	9.8	16.5	4.6	21.0	14.3	11.0	25.4	26.1	5.1	31.2	14.4	20.5	34.9

SOURCE: SIMMOD Output, Average of 11 Iterations, June 2019.

- Delay
 - Air – accumulated in the airspace
 - Runway crossing – accumulated while waiting to cross a runway
 - Taxi – accumulated between the runway and the gate due to traffic on taxiways
 - Gate – accumulated by departures before pushback or by arrivals if an assigned gate is occupied
- Operational time – total time aircraft are active in the simulation model (discounting gate occupancy time)
- Unimpeded travel time – total operational time minus delay, for respective categories

Travel Time

No Build

Year	Configuration	Average Delay (min/op)									Average Unimpeded Time (min/op)						Average Operational Time (min/op)					
		Arrivals				Departures				Tot	Arrivals			Departures			Arrivals			Departures		
		Air	Rwy Xing	Taxi In	Gate	Gate	Taxi Out	Rwy Xing	Air		Air	Gnd	Tot	Air	Gnd	Tot	Air	Gnd	Tot	Air	Gnd	Tot
2024	VMC 27	2.8	0.2	0.5	0.0	0.4	4.5	0.1	0.0	4.2	16.6	4.3	20.9	14.2	11.8	26.1	19.4	4.9	24.4	14.2	16.8	31.1
	MVMC 27	4.8	0.2	0.4	0.0	0.5	3.9	0.1	0.0	4.9	16.6	4.3	20.9	14.2	11.8	26.1	21.4	4.9	26.3	14.2	16.2	30.5
	IMC 27	12.1	0.1	0.6	0.0	0.5	18.6	0.1	0.0	15.9	16.6	4.3	20.9	14.2	11.8	26.1	28.7	5.0	33.7	14.2	31.0	45.2
	IMC 9 27	143.9	0.9	1.4	0.6	0.4	9.6	0.1	0.0	78.6	19.9	8.0	27.9	12.5	8.6	21.1	163.8	10.9	174.7	12.5	18.7	31.3
2026	VMC 27	3.1	0.2	0.5	0.0	0.4	5.4	0.1	0.0	4.8	16.5	4.2	20.8	14.3	11.7	26.0	19.6	4.9	24.5	14.3	17.6	31.9
	MVMC 27	4.8	0.2	0.5	0.0	0.4	4.3	0.1	0.0	5.1	16.5	4.2	20.8	14.3	11.7	26.0	21.3	4.9	26.2	14.3	16.5	30.8
	IMC 27	14.9	0.1	0.5	0.0	0.3	29.2	0.1	0.0	22.6	16.5	4.3	20.8	14.3	11.7	26.0	31.4	4.9	36.3	14.3	41.4	55.7
	IMC 9 27	161.7	0.9	1.3	0.4	0.5	9.9	0.1	0.0	87.3	20.0	7.9	27.9	12.6	8.7	21.3	181.7	10.4	192.1	12.6	19.1	31.7
2030	VMC 27	3.7	0.2	0.6	0.0	0.4	6.5	0.1	0.0	5.8	16.5	4.3	20.8	14.4	11.9	26.2	20.2	5.1	25.3	14.4	18.9	33.3
	MVMC 27	6.0	0.2	0.5	0.0	0.4	5.0	0.1	0.0	6.1	16.5	4.3	20.8	14.4	11.9	26.2	22.5	5.0	27.5	14.4	17.5	31.8
	IMC 27	20.4	0.1	0.6	0.0	0.4	54.9	0.1	0.0	38.3	16.5	4.4	20.8	14.4	11.9	26.2	36.9	5.1	42.0	14.4	67.2	81.6
	IMC 9 27	187.2	0.8	1.1	0.6	0.5	10.7	0.1	0.0	100.3	20.0	8.2	28.1	12.6	8.8	21.3	207.2	10.7	217.9	12.6	20.1	32.7
2035	VMC 27	5.0	0.2	0.5	0.0	0.4	10.6	0.2	0.0	8.5	16.4	4.4	20.8	14.4	12.0	26.3	21.4	5.1	26.5	14.4	23.1	37.5
	MVMC 27	7.9	0.2	0.5	0.0	0.4	7.8	0.2	0.0	8.5	16.4	4.4	20.8	14.4	12.0	26.3	24.2	5.1	29.4	14.4	20.3	34.7
	IMC 27	34.2	0.1	0.8	0.0	0.3	99.7	0.1	0.0	67.7	16.4	4.4	20.8	14.4	11.9	26.3	50.5	5.3	55.9	14.4	112.1	126.5
	IMC 9 27	234.7	0.9	1.6	0.4	0.5	12.9	0.1	0.0	125.4	20.0	8.0	28.0	12.5	8.8	21.4	254.7	10.9	265.6	12.6	22.3	34.9

SOURCE: SIMMOD Output, Average of 11 Iterations, June 2019.

Travel Time

Preferred Alternative

Year	Configuration	Average Delay (min/op)									Average Unimpeded Time (min/op)						Average Operational Time (min/op)					
		Arrivals				Departures				Tot	Arrivals			Departures			Arrivals			Departures		
		Air	Rwy Xing	Taxi In	Gate	Gate	Taxi Out	Rwy Xing	Air		Air	Gnd	Tot	Air	Gnd	Tot	Air	Gnd	Tot	Air	Gnd	Tot
2024	VMC 27	2.8	0.1	0.4	0.0	0.3	3.5	0.0	0.0	3.6	16.6	4.3	21.0	14.2	11.1	25.3	19.4	4.9	24.3	14.2	15.0	29.2
	MVMC 27	4.4	0.1	0.4	0.0	0.3	2.5	0.0	0.0	3.8	16.6	4.3	21.0	14.2	11.1	25.3	21.0	4.8	25.8	14.2	13.9	28.2
	IMC 27	10.8	0.1	0.3	0.0	0.3	13.7	0.0	0.0	12.6	16.6	4.4	21.0	14.2	11.1	25.3	27.4	4.8	32.2	14.2	25.1	39.3
	IMC 9 27	81.1	0.7	0.6	0.7	0.2	8.9	0.0	0.0	46.2	19.9	8.2	28.0	12.4	8.8	21.3	101.0	10.2	111.1	12.5	18.0	30.4
2026	VMC 27	3.0	0.1	0.3	0.0	0.3	4.2	0.0	0.0	4.0	16.5	4.3	20.8	14.3	10.9	25.2	19.5	4.7	24.2	14.3	15.4	29.7
	MVMC 27	4.5	0.2	0.3	0.0	0.3	3.0	0.0	0.0	4.2	16.5	4.3	20.8	14.3	10.9	25.2	21.1	4.8	25.8	14.3	14.2	28.5
	IMC 27	13.4	0.1	0.3	0.0	0.3	22.6	0.0	0.0	18.3	16.5	4.3	20.8	14.3	10.9	25.2	29.9	4.7	34.6	14.3	33.7	48.0
	IMC 9 27	87.6	0.6	0.4	0.7	0.1	9.5	0.0	0.0	49.5	20.0	7.6	27.6	12.5	8.8	21.4	107.6	9.4	117.0	12.6	18.4	31.0
2030	VMC 27	3.6	0.1	0.3	0.0	0.2	4.3	0.0	0.0	4.2	16.5	4.2	20.7	14.4	11.2	25.6	20.0	4.6	24.7	14.4	15.7	30.0
	MVMC 27	5.7	0.1	0.3	0.0	0.2	3.3	0.0	0.0	4.8	16.5	4.2	20.7	14.4	11.2	25.6	22.2	4.6	26.8	14.4	14.7	29.1
	IMC 27	21.0	0.1	1.9	0.0	0.2	41.4	0.0	0.0	32.3	16.5	4.2	20.7	14.4	11.2	25.6	37.5	6.3	43.7	14.4	52.8	67.1
	IMC 9 27	111.4	0.6	0.8	0.5	0.2	10.8	0.0	0.0	62.1	20.0	7.9	27.9	12.6	9.1	21.6	131.4	9.9	141.2	12.6	20.1	32.7
2035	VMC 27	5.1	0.1	0.3	0.0	0.2	7.7	0.0	0.0	6.7	16.4	4.3	20.7	14.4	11.2	25.6	21.5	4.7	26.2	14.4	19.1	33.5
	MVMC 27	8.3	0.1	0.3	0.0	0.2	6.1	0.0	0.0	7.5	16.4	4.3	20.7	14.4	11.2	25.6	24.7	4.7	29.4	14.4	17.5	31.9
	IMC 27	35.4	0.1	3.6	0.0	0.2	88.3	0.0	0.0	63.8	16.4	4.4	20.7	14.4	11.2	25.6	51.8	8.0	59.8	14.4	99.6	114.0
	IMC 9 27	134.1	0.7	2.2	0.6	0.2	17.1	0.1	0.0	77.4	20.0	7.8	27.8	12.5	9.5	22.0	154.1	11.4	165.5	12.6	26.8	39.4

SOURCE: SIMMOD Output, Average of 11 Iterations, June 2019.

Travel Time

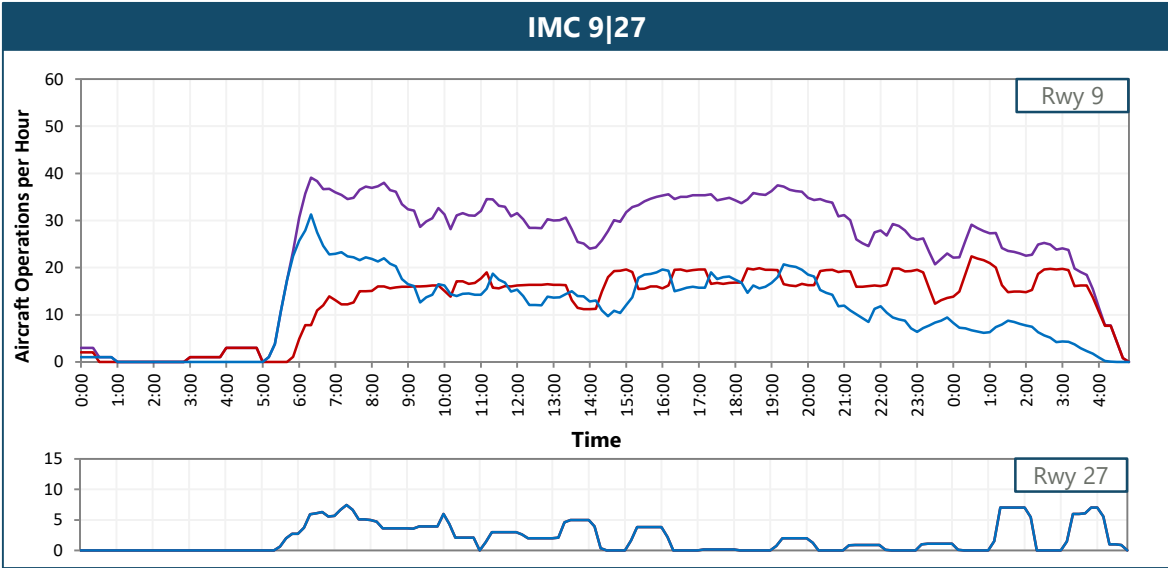
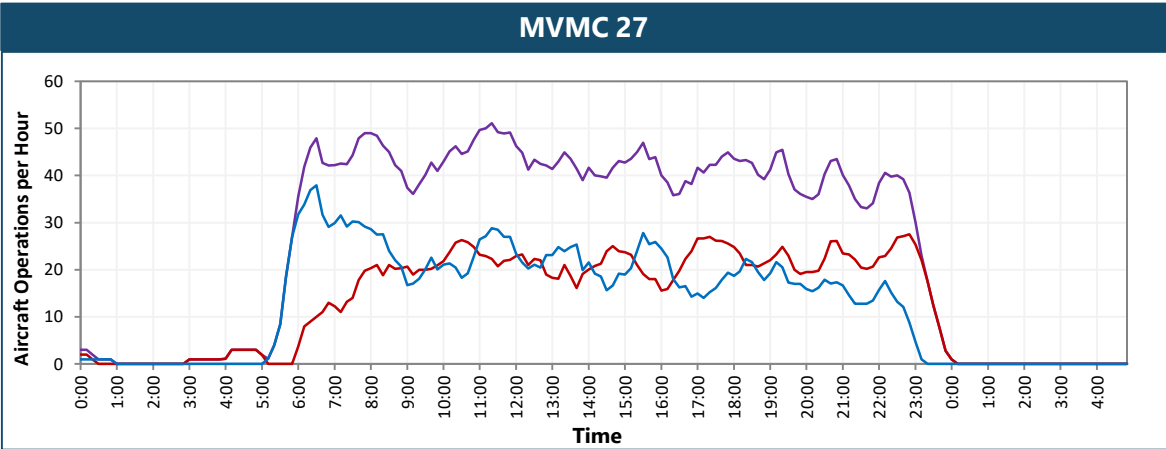
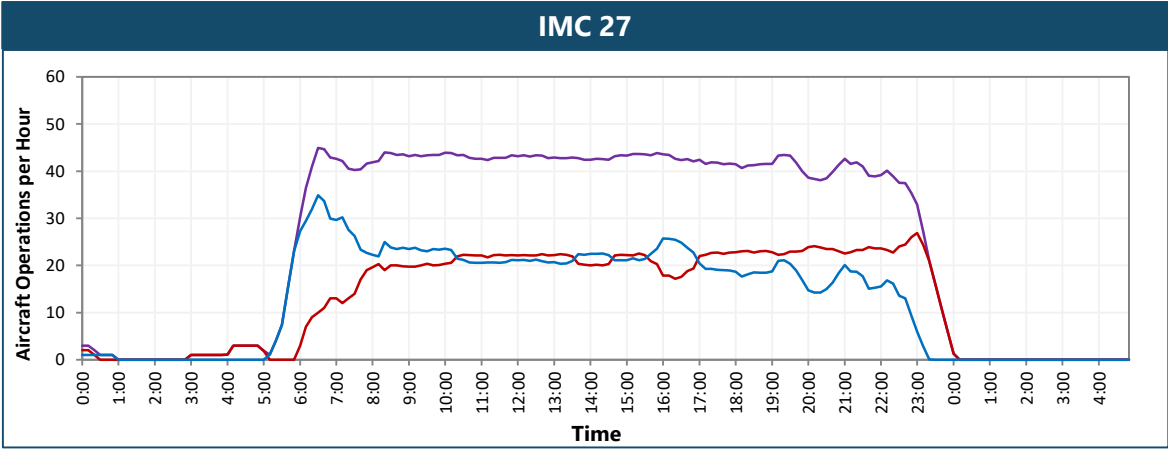
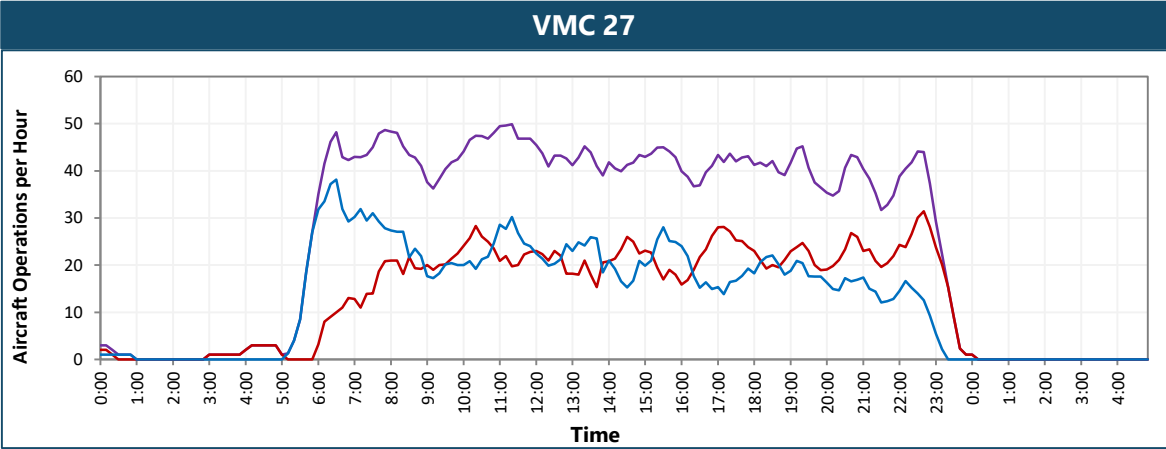
Alternative 4

Year	Configuration	Average Delay (min/op)									Average Unimpeded Time (min/op)						Average Operational Time (min/op)					
		Arrivals				Departures				Tot	Arrivals			Departures			Arrivals			Departures		
		Air	Rwy Xing	Taxi In	Gate	Gate	Taxi Out	Rwy Xing	Air		Air	Gnd	Tot	Air	Gnd	Tot	Air	Gnd	Tot	Air	Gnd	Tot
2024	VMC 27	2.8	0.1	0.4	0.0	0.4	3.9	0.0	0.0	3.9	16.6	4.8	21.4	14.2	11.1	25.3	19.4	5.3	24.8	14.2	15.4	29.6
	MVMC 27	4.5	0.1	0.4	0.0	0.4	2.8	0.0	0.0	4.2	16.6	4.8	21.4	14.2	11.1	25.3	21.1	5.3	26.4	14.2	14.3	28.5
	IMC 27	10.9	0.1	0.4	0.0	0.4	13.4	0.0	0.0	12.6	16.6	4.8	21.4	14.2	11.1	25.3	27.5	5.2	32.8	14.2	24.9	39.2
	IMC 9 27	81.5	0.7	0.7	0.6	0.3	9.6	0.1	0.0	46.8	19.9	8.0	27.9	12.5	9.5	22.0	101.3	10.0	111.3	12.5	19.5	32.1
2026	VMC 27	3.0	0.1	0.3	0.0	0.3	3.8	0.0	0.0	3.8	16.5	4.4	20.9	14.3	10.9	25.2	19.5	4.8	24.3	14.3	15.0	29.3
	MVMC 27	4.6	0.1	0.3	0.0	0.3	2.8	0.0	0.0	4.1	16.5	4.4	20.9	14.3	10.9	25.2	21.2	4.8	25.9	14.3	14.0	28.3
	IMC 27	13.5	0.1	0.3	0.0	0.3	22.1	0.0	0.0	18.1	16.5	4.4	20.9	14.3	10.9	25.2	30.0	4.7	34.8	14.3	33.2	47.6
	IMC 9 27	88.0	0.7	0.4	0.6	0.2	9.3	0.1	0.0	49.7	20.0	7.6	27.6	12.6	9.0	21.6	108.0	9.3	117.3	12.6	18.6	31.2
2030	VMC 27	3.6	0.1	0.4	0.0	0.3	4.3	0.0	0.0	4.4	16.5	4.4	20.9	14.4	11.0	25.3	20.1	4.9	25.0	14.4	15.6	30.0
	MVMC 27	5.7	0.1	0.3	0.0	0.3	3.1	0.0	0.0	4.8	16.5	4.4	20.9	14.4	11.0	25.3	22.2	4.9	27.0	14.4	14.4	28.8
	IMC 27	20.7	0.1	1.0	0.0	0.3	36.0	0.0	0.0	29.1	16.5	4.4	20.9	14.4	11.0	25.3	37.2	5.6	42.7	14.4	47.3	61.6
	IMC 9 27	115.6	0.7	0.6	0.4	0.2	9.8	0.1	0.0	63.6	20.0	7.7	27.6	12.6	9.1	21.7	135.6	9.3	144.9	12.6	19.2	31.8
2035	VMC 27	5.2	0.1	0.3	0.0	0.3	7.1	0.0	0.0	6.5	16.4	4.5	20.9	14.4	11.1	25.5	21.6	4.9	26.5	14.4	18.5	32.9
	MVMC 27	8.3	0.1	0.3	0.0	0.3	5.5	0.0	0.0	7.2	16.4	4.5	20.9	14.4	11.1	25.5	24.6	4.9	29.5	14.4	16.9	31.3
	IMC 27	35.3	0.1	2.3	0.0	0.3	83.1	0.0	0.0	60.6	16.4	4.5	20.9	14.4	11.1	25.5	51.6	6.9	58.6	14.4	94.5	108.9
	IMC 9 27	153.6	0.7	1.4	0.4	0.2	13.6	0.1	0.0	84.9	20.0	7.6	27.6	12.5	9.2	21.7	173.6	10.1	183.7	12.6	23.1	35.6

SOURCE: SIMMOD Output, Average of 11 Iterations, June 2019.

Runway Throughput

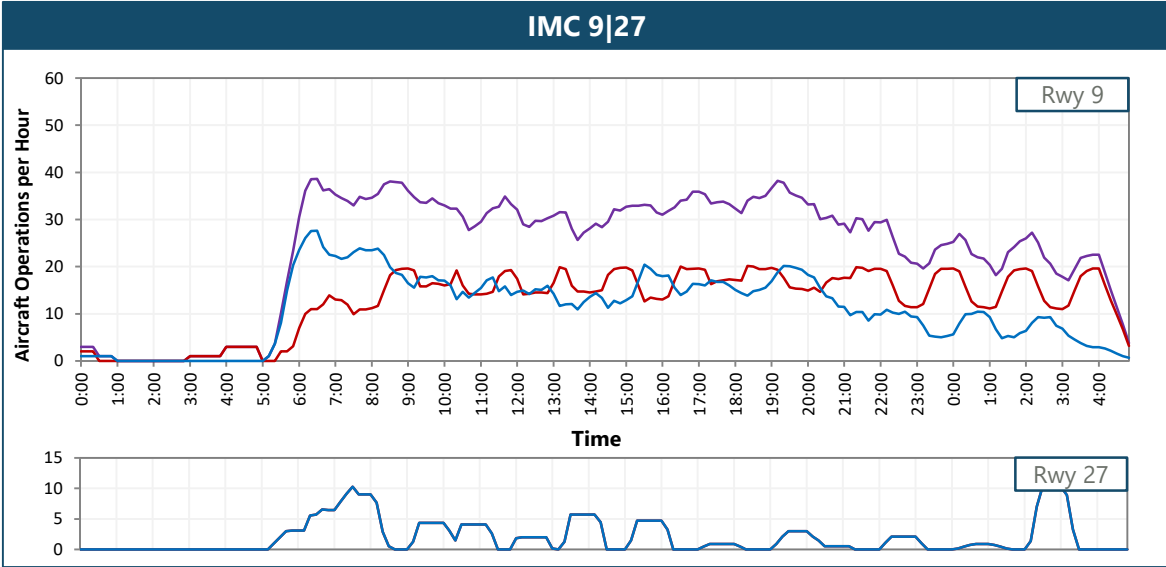
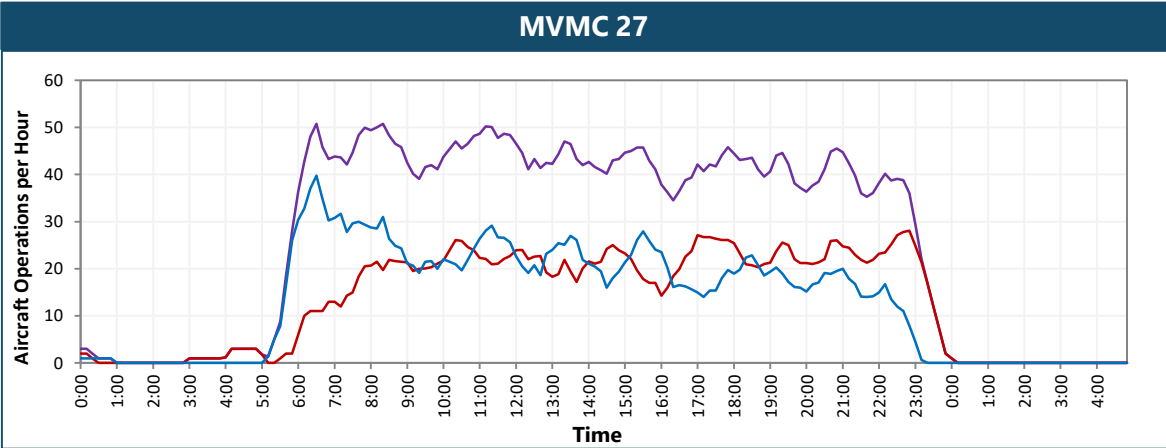
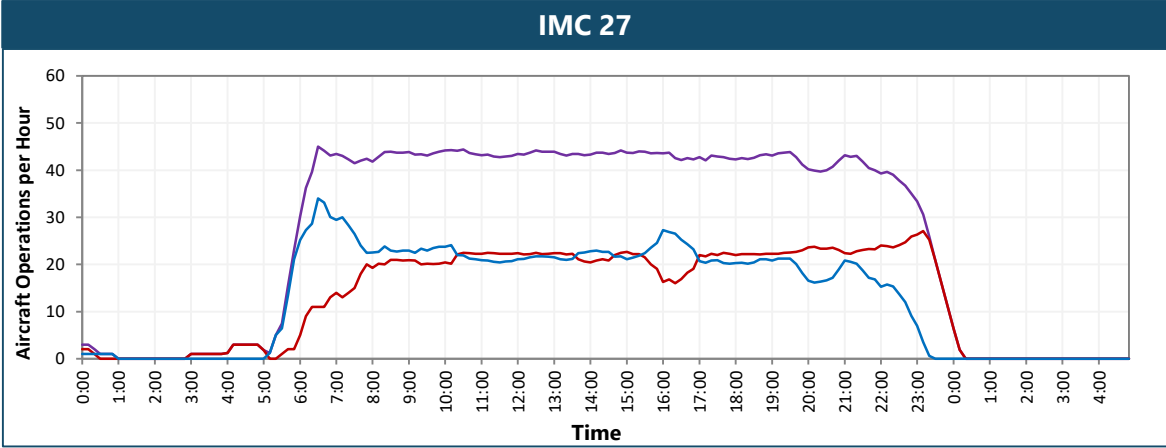
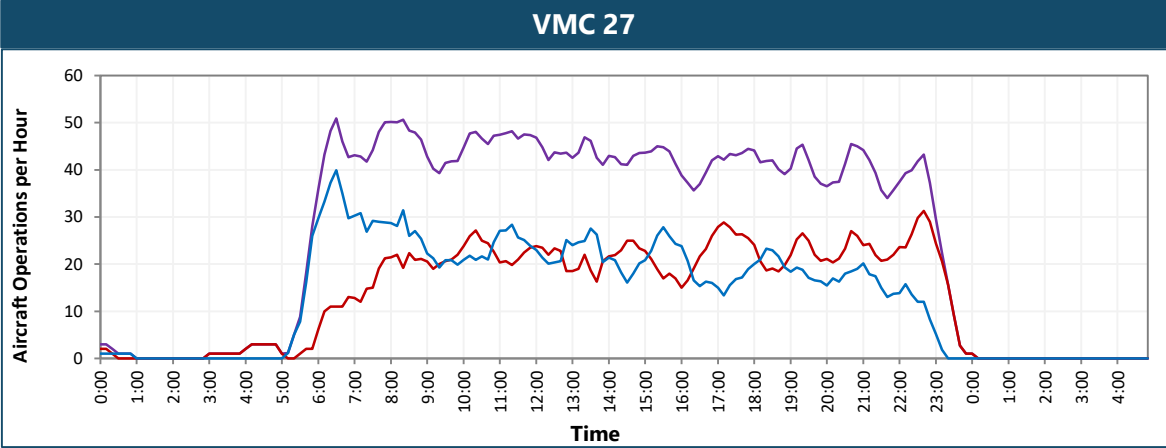
No Build – 2024



SOURCE: SIMMOD Output, Average of 11 Iterations, June 2019.

Runway Throughput

No Build – 2026



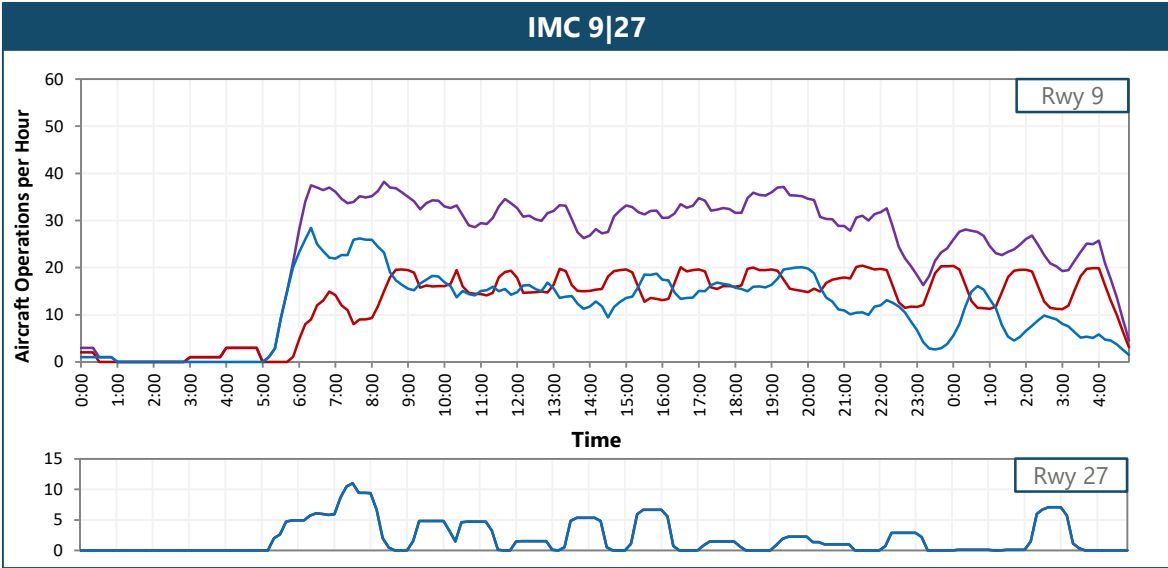
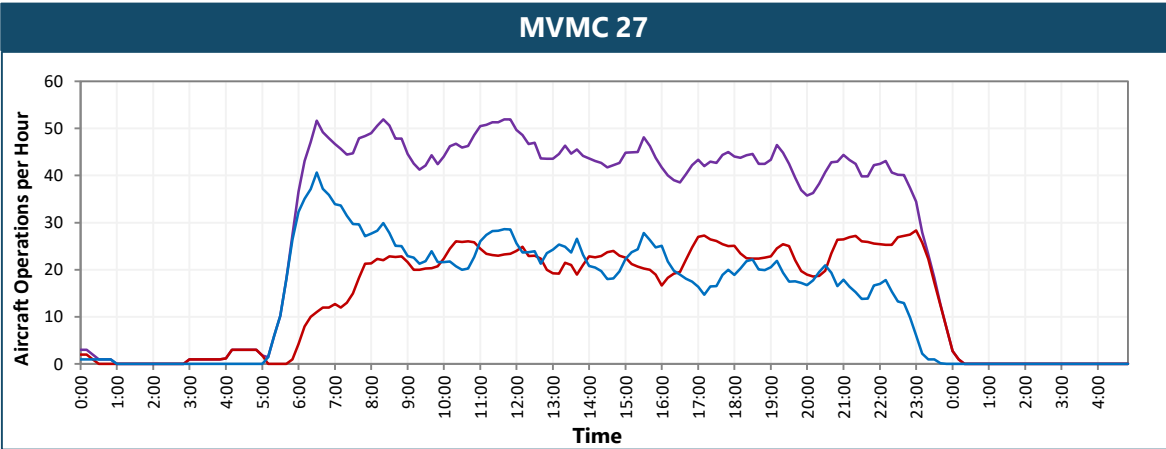
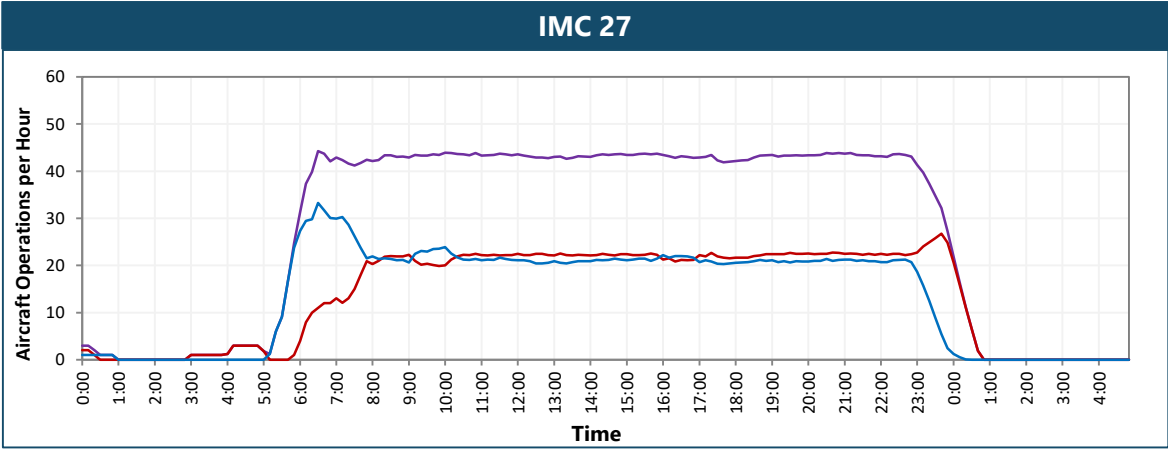
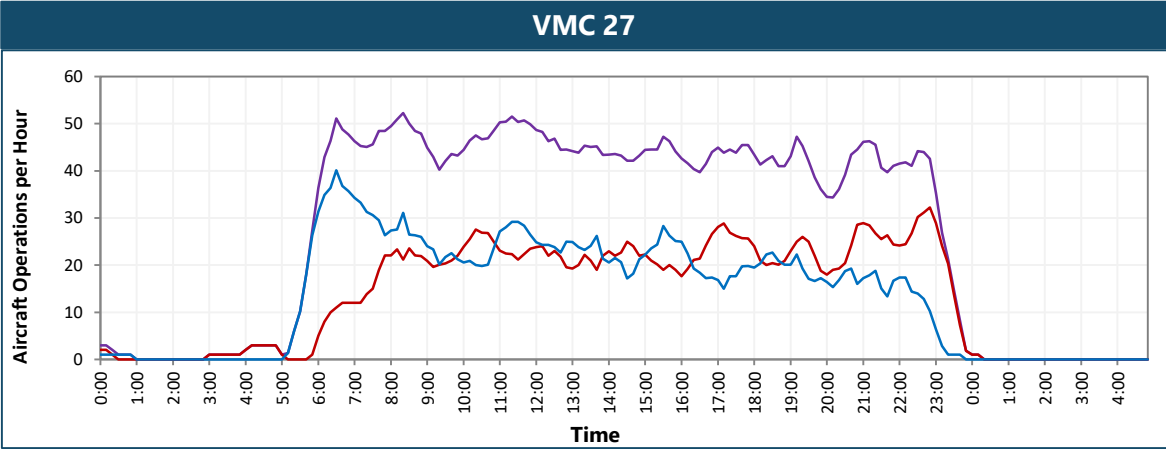
Legend

— Simulated Total — Simulated Arrivals — Simulated Departures

SOURCE: SIMMOD Output, Average of 11 Iterations, June 2019.

Runway Throughput

No Build – 2030



Legend

Simulated Total

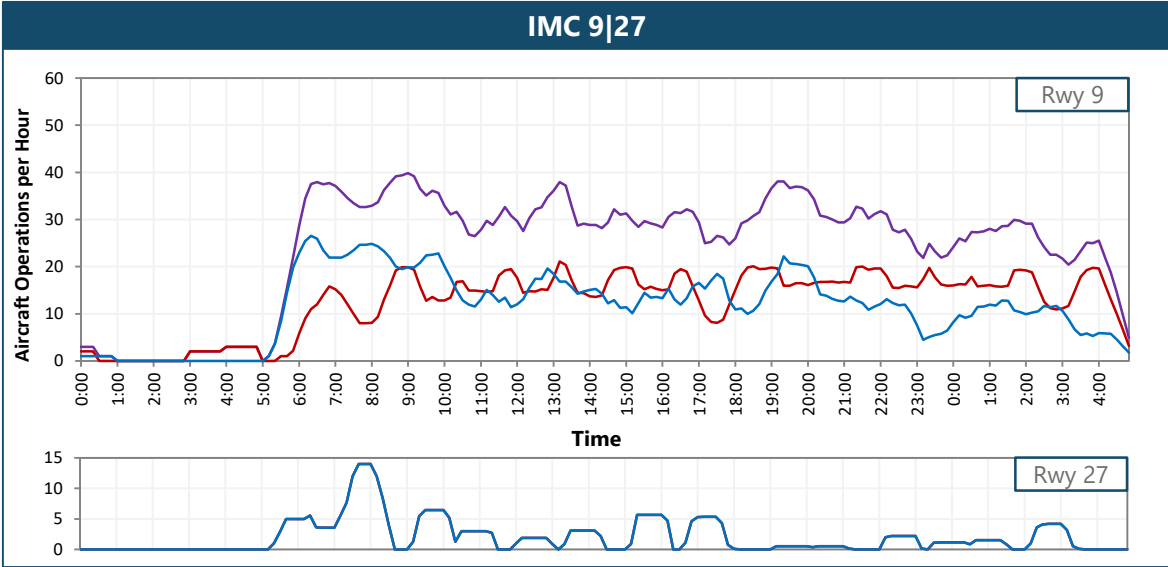
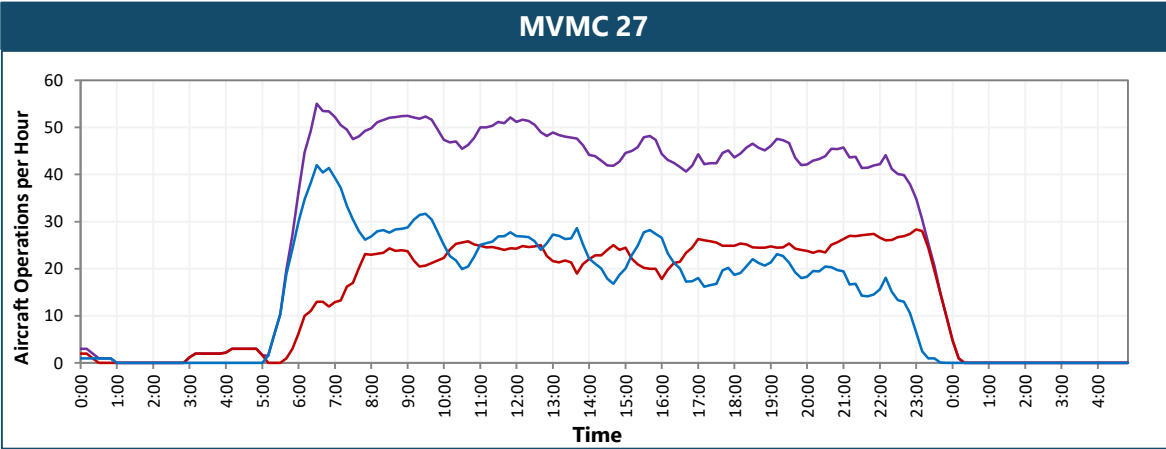
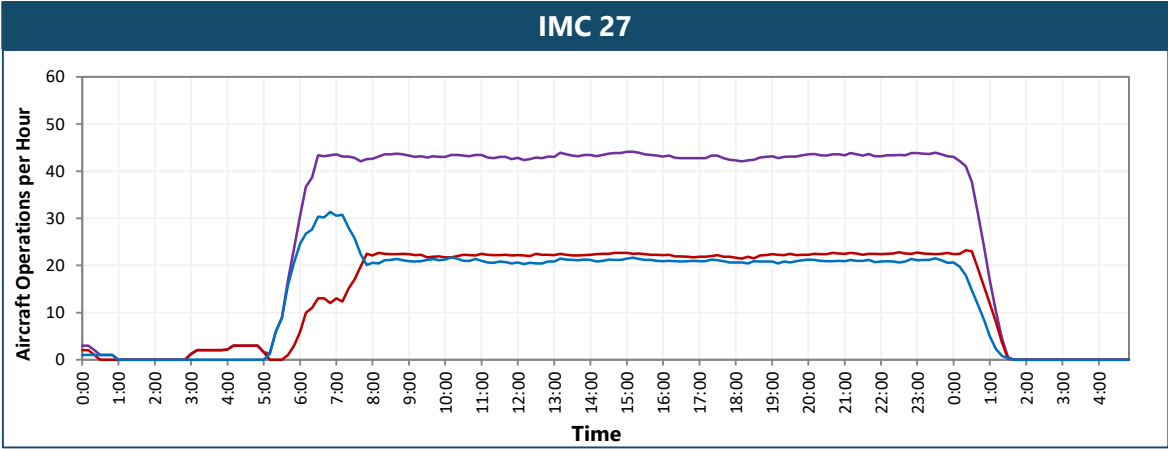
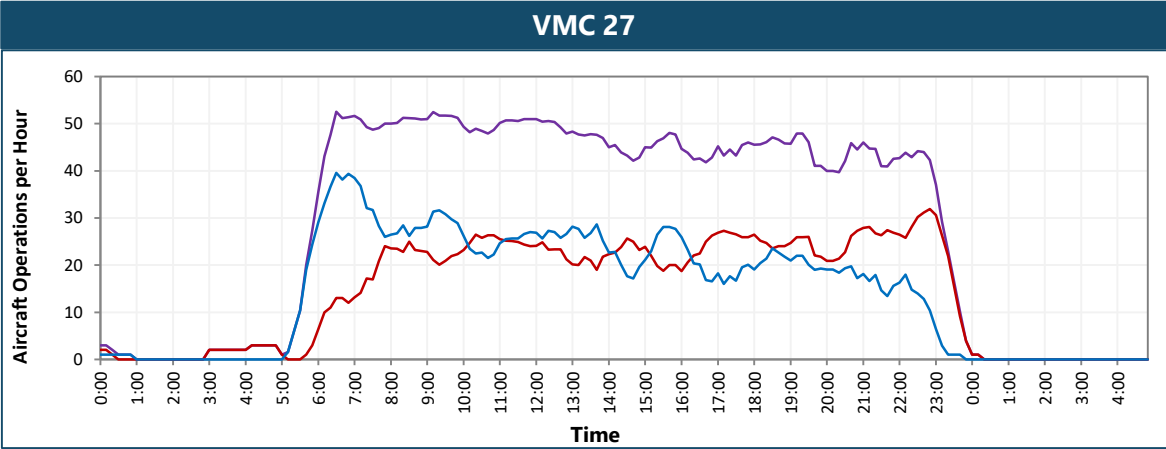
Simulated Arrivals

Simulated Departures

SOURCE: SIMMOD Output, Average of 11 Iterations, June 2019.

Runway Throughput

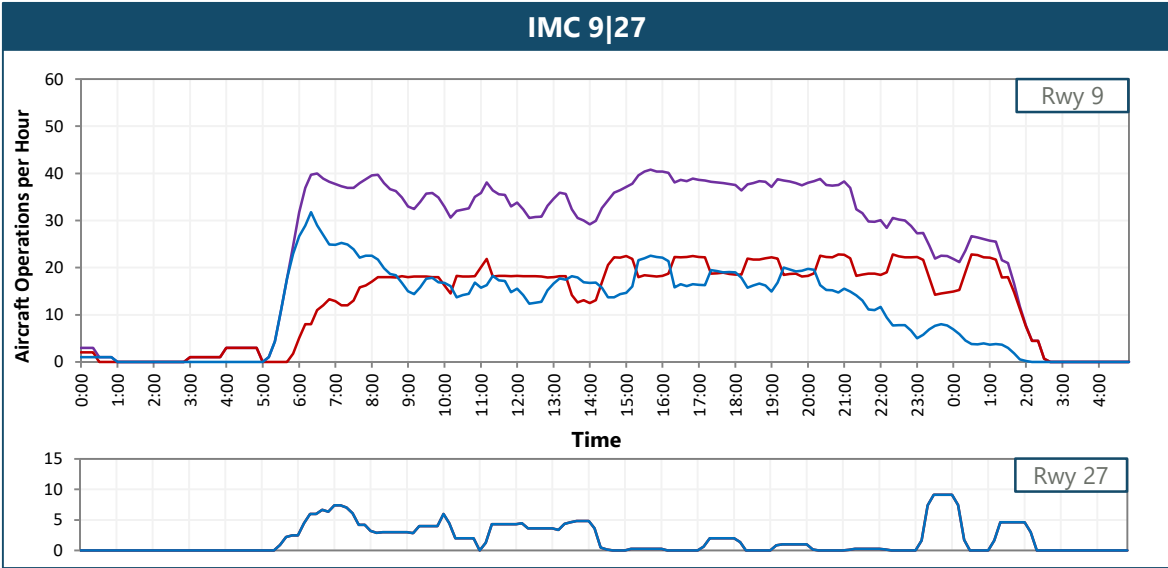
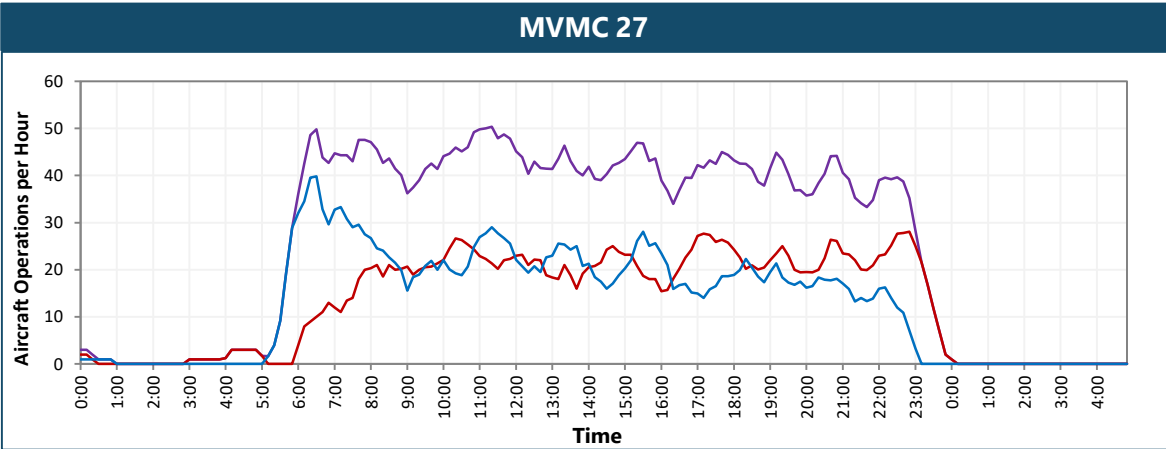
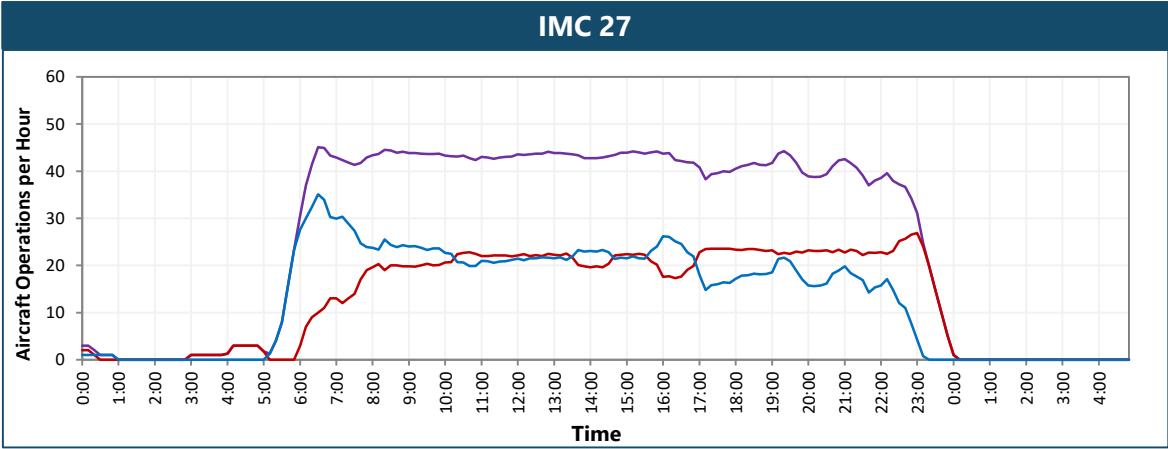
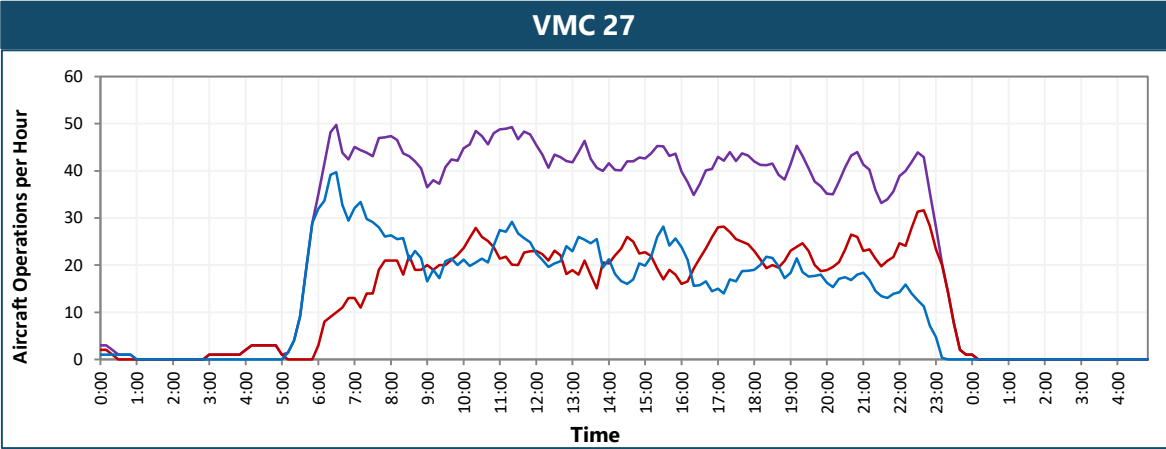
No Build – 2035



SOURCE: SIMMOD Output, Average of 11 Iterations, June 2019.

Runway Throughput

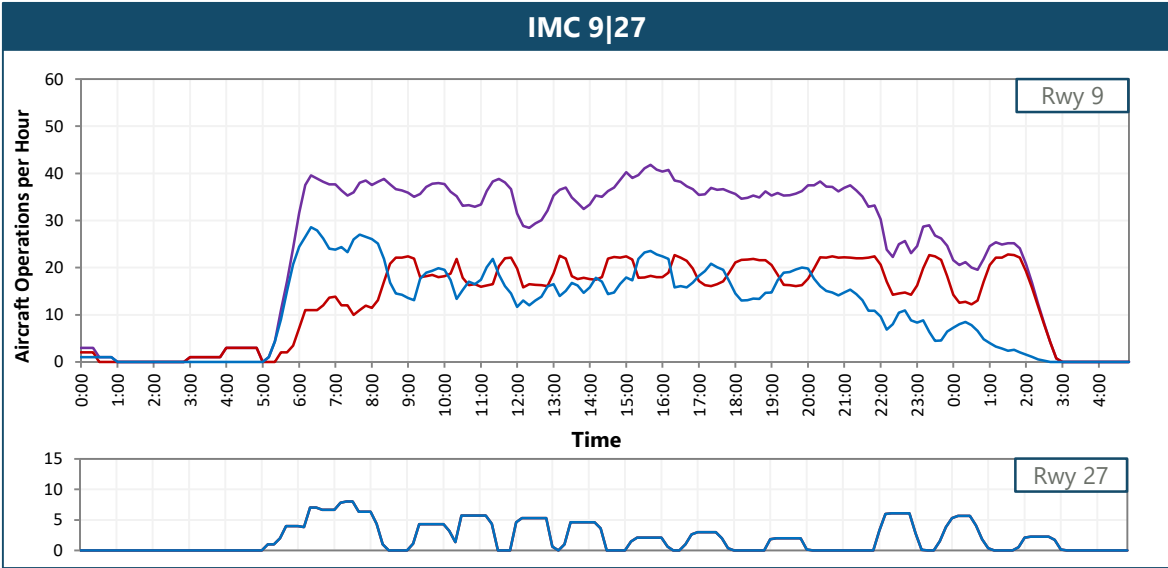
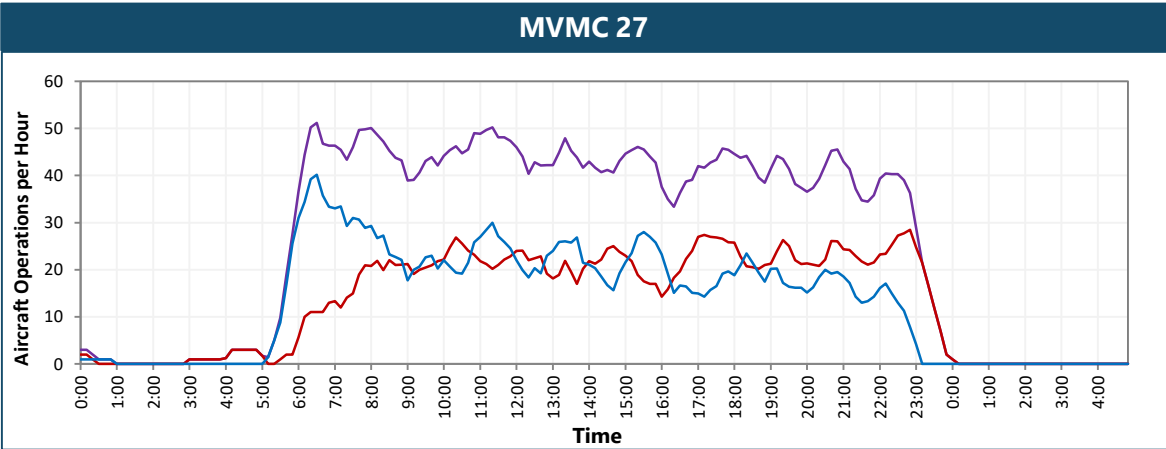
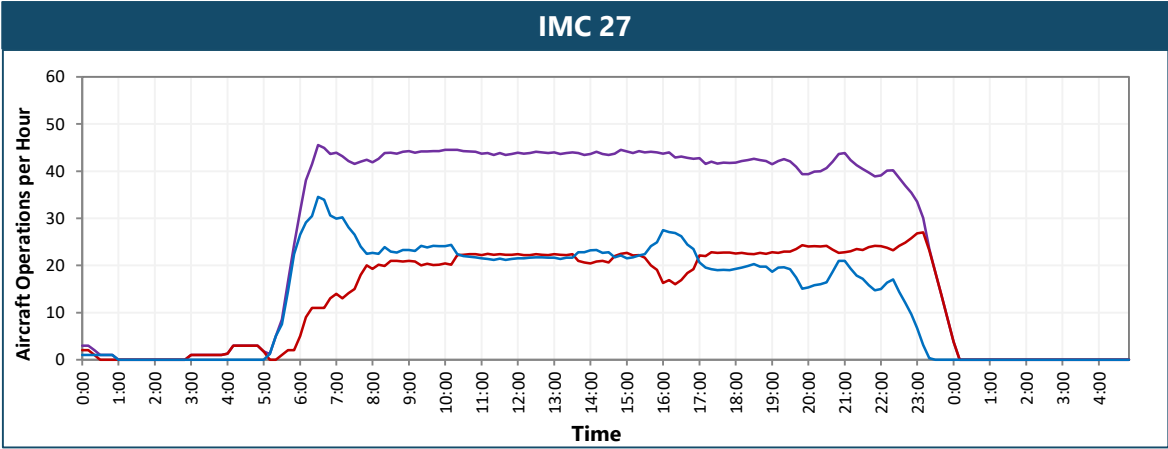
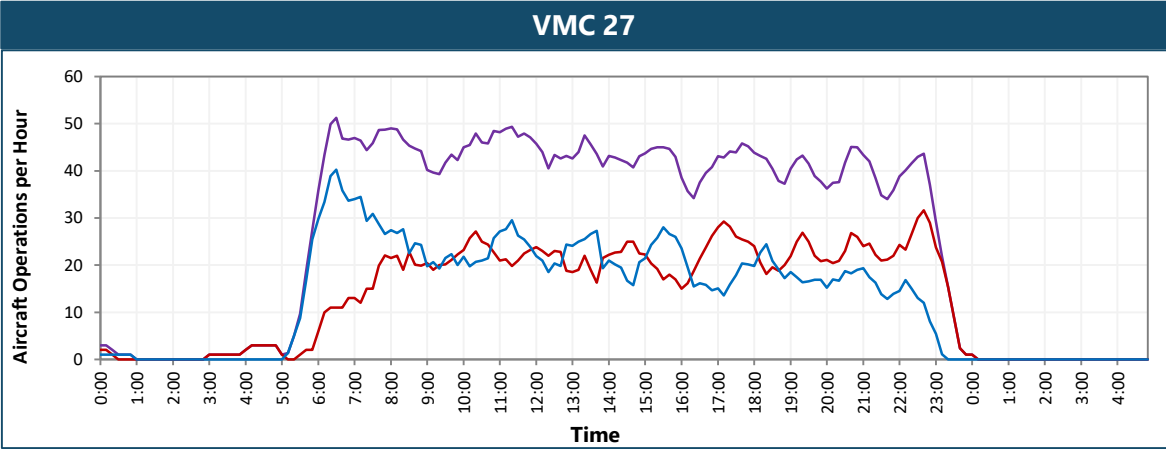
Preferred Alternative – 2024



SOURCE: SIMMOD Output, Average of 11 Iterations, June 2019.

Runway Throughput

Preferred Alternative – 2026



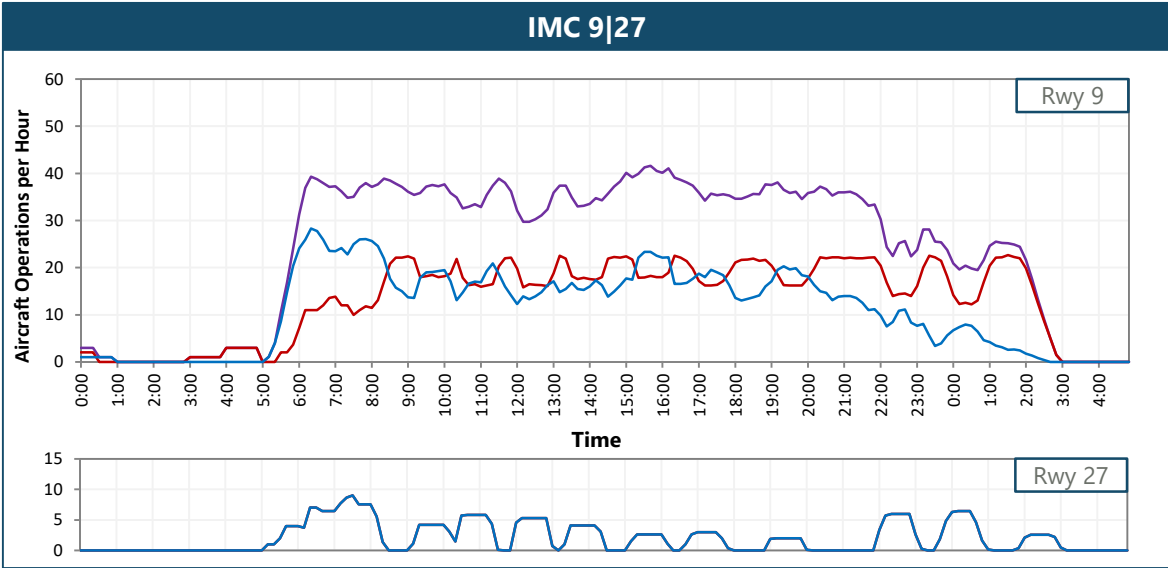
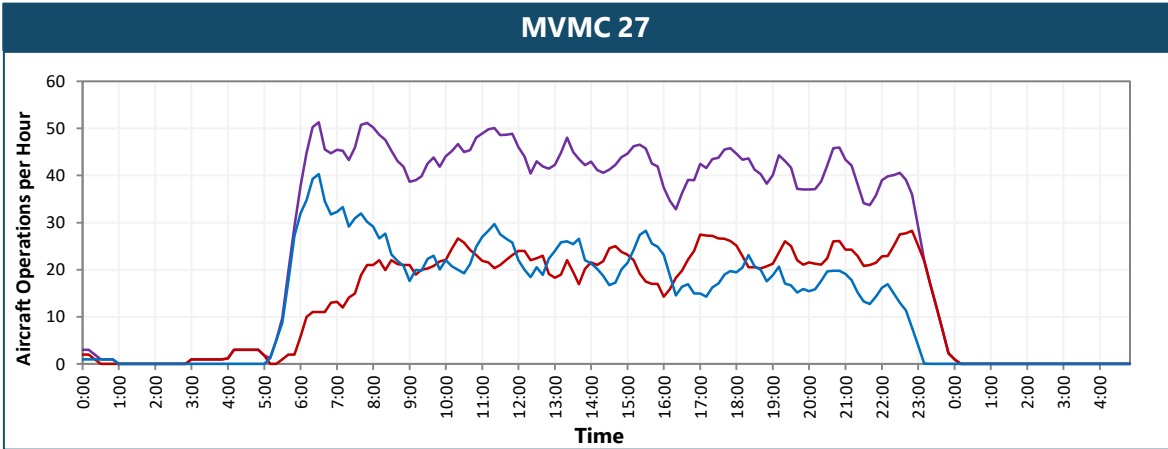
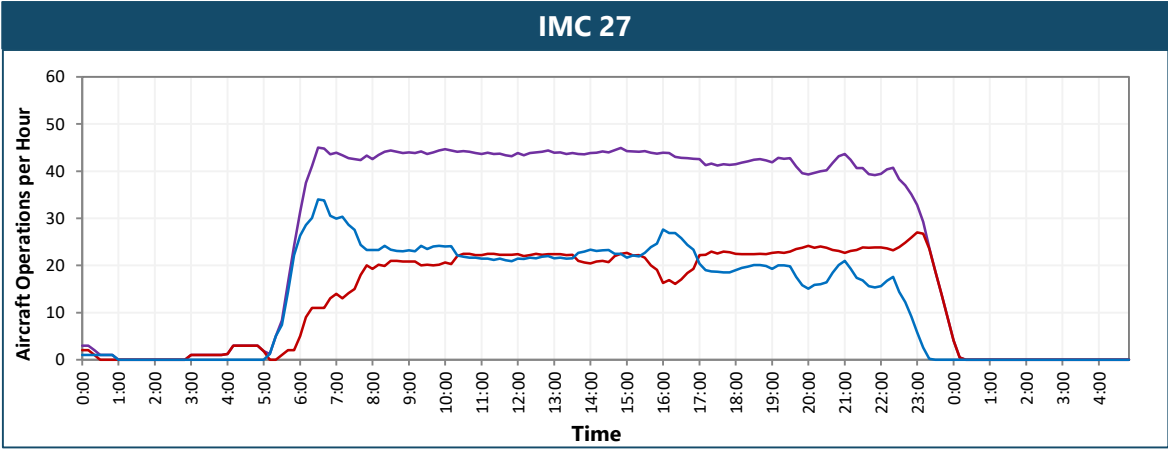
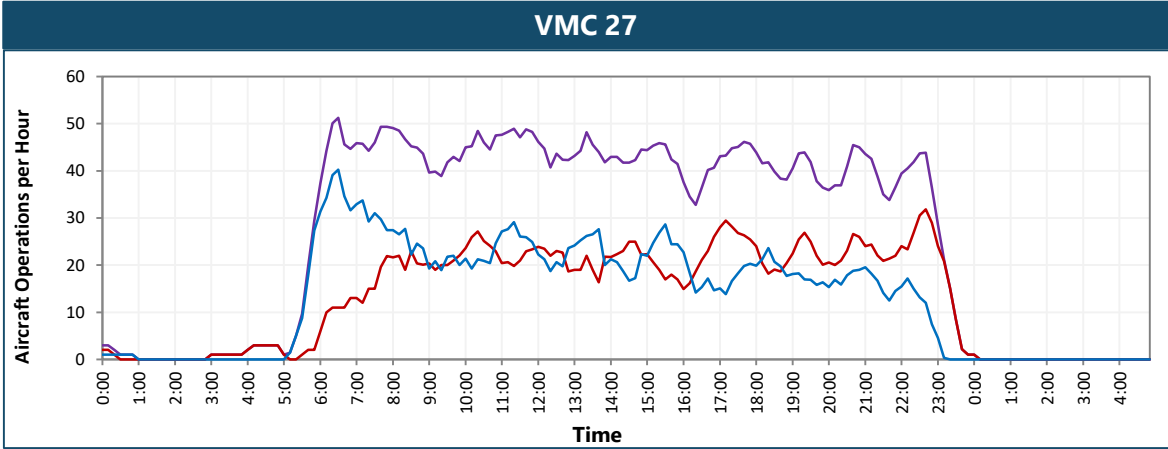
Legend

— Simulated Total — Simulated Arrivals — Simulated Departures

SOURCE: SIMMOD Output, Average of 11 Iterations, June 2019.

Runway Throughput

Alternative 4 – 2026



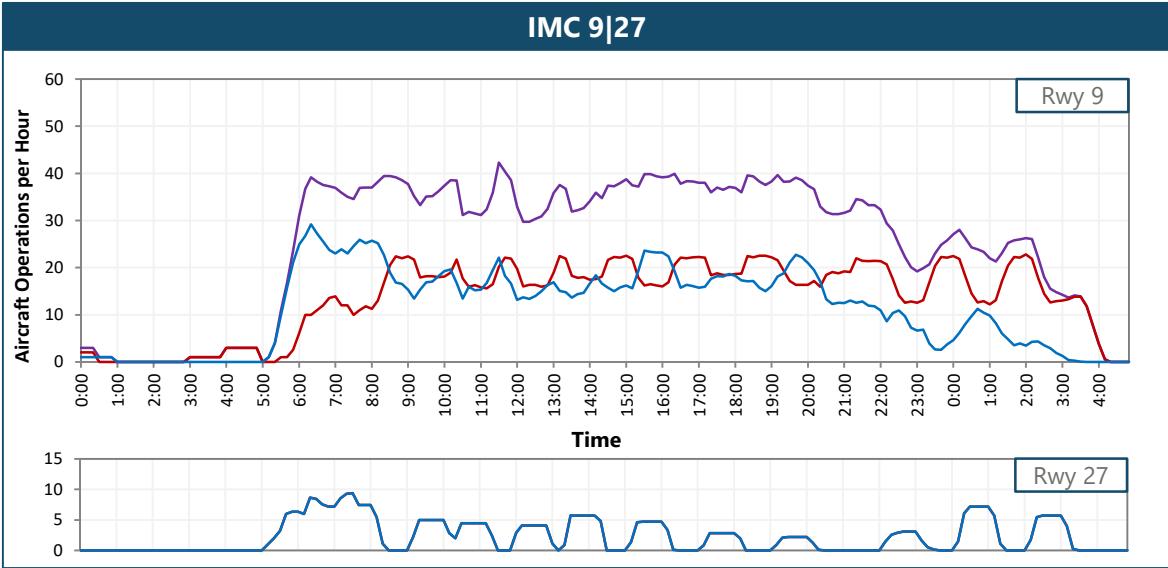
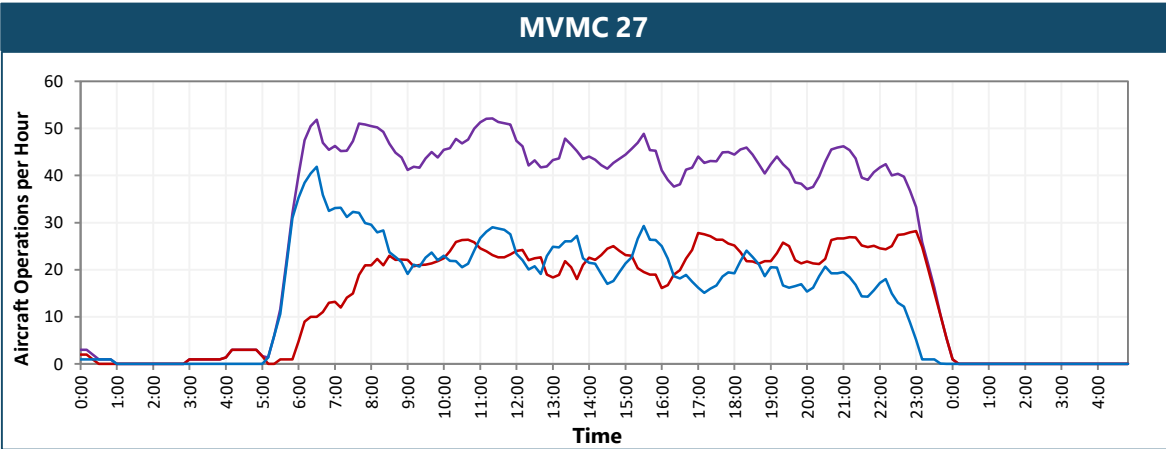
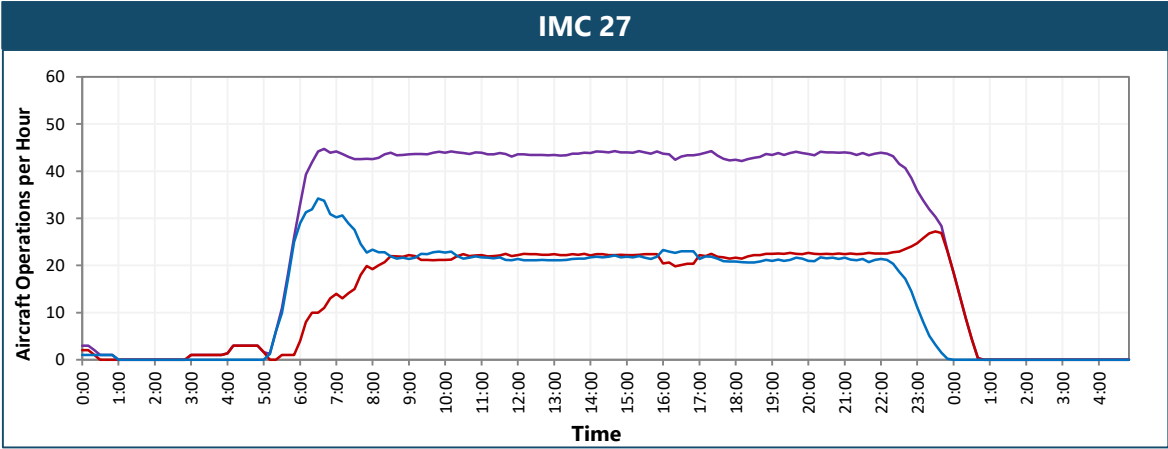
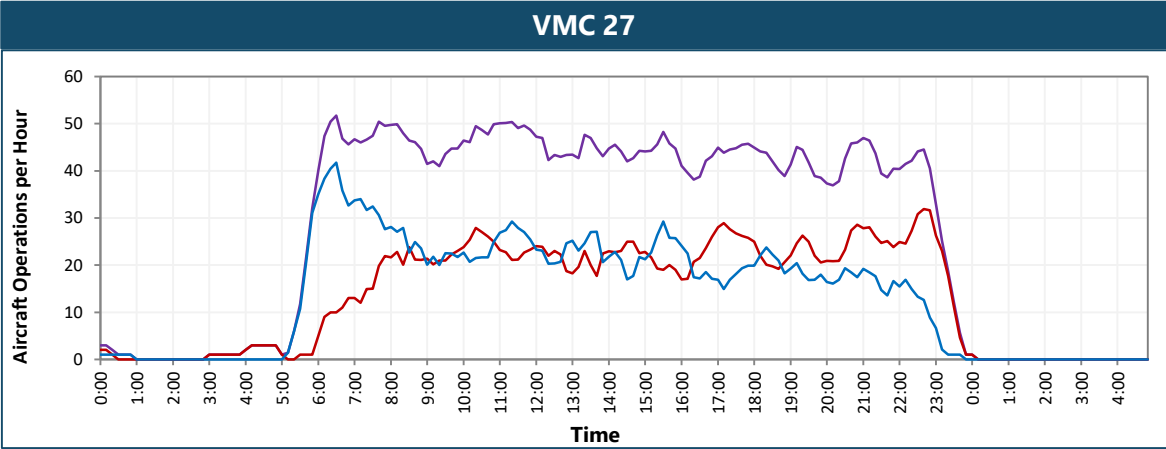
Legend

— Simulated Total — Simulated Arrivals — Simulated Departures

SOURCE: SIMMOD Output, Average of 11 Iterations, June 2019.

Runway Throughput

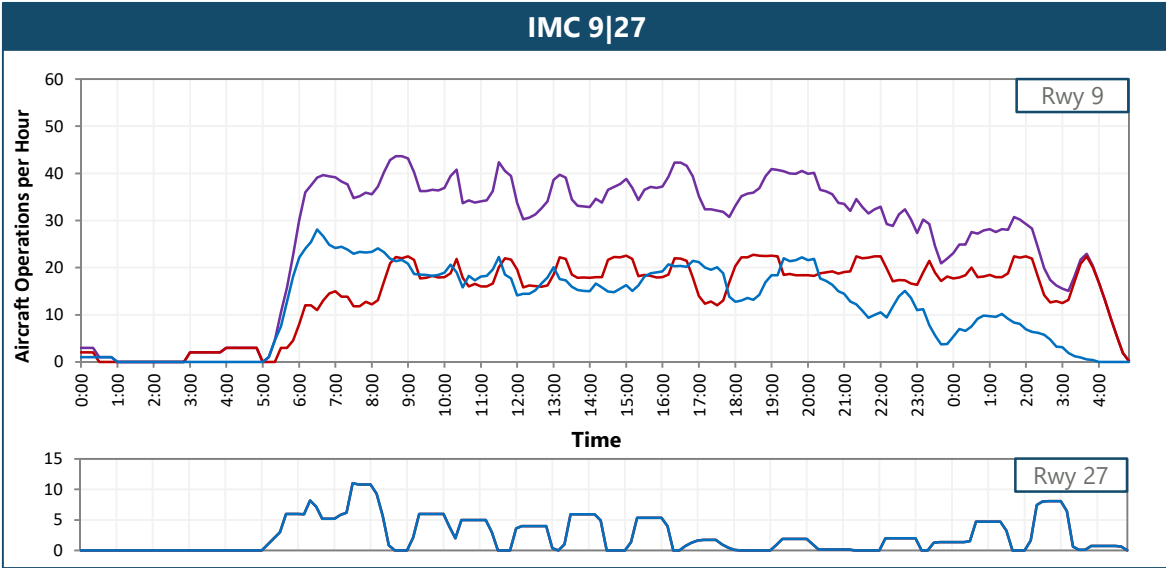
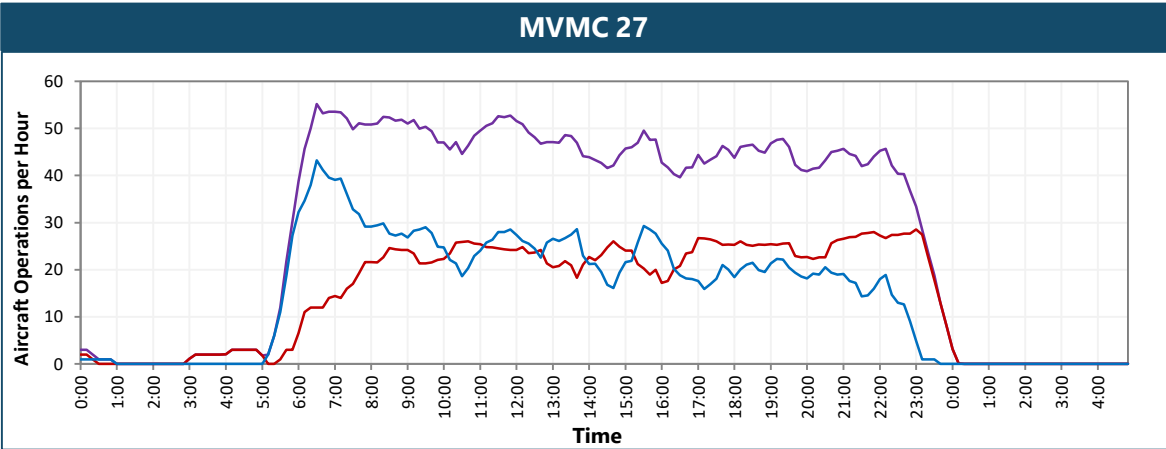
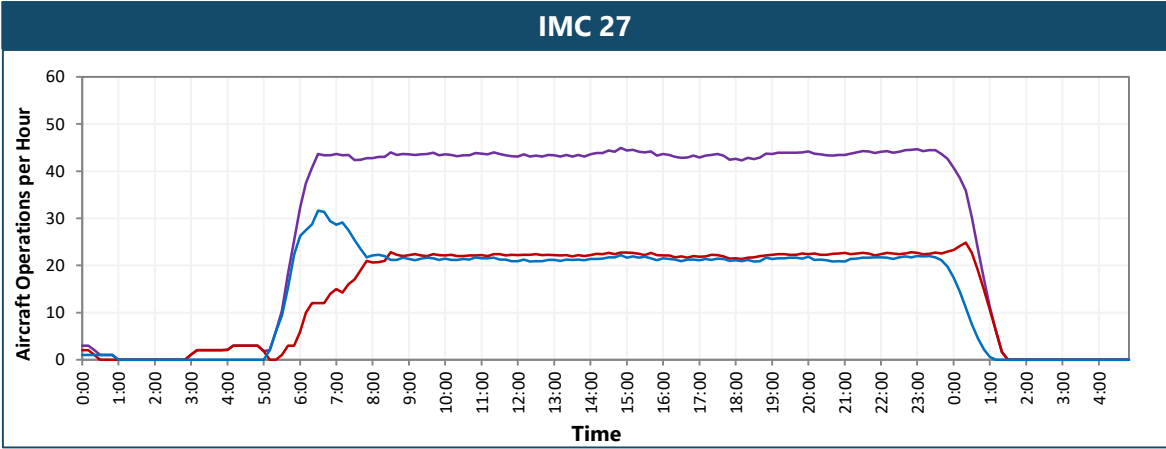
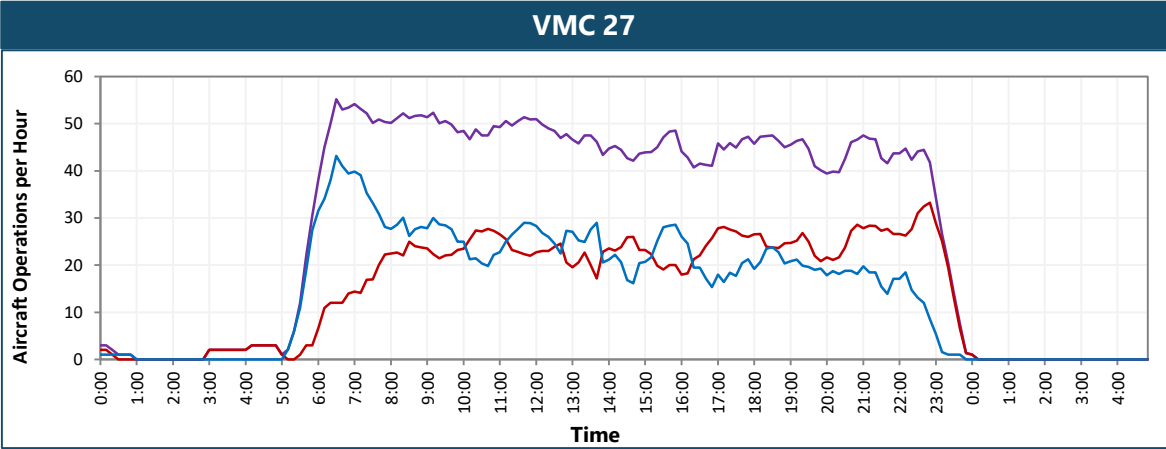
Preferred Alternative – 2030



SOURCE: SIMMOD Output, Average of 11 Iterations, June 2019.

Runway Throughput

Preferred Alternative – 2035



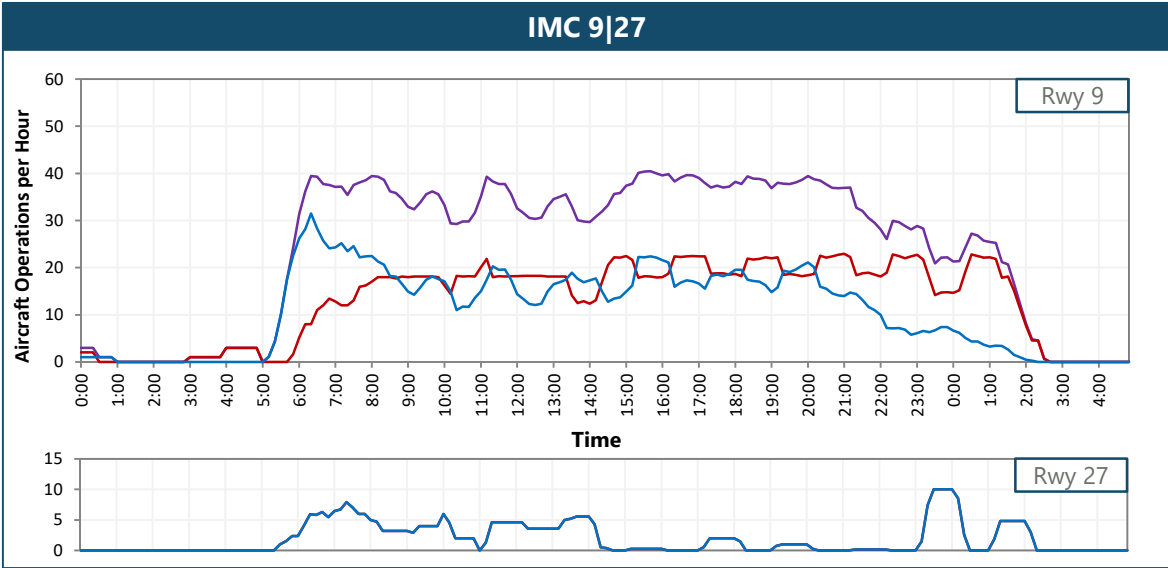
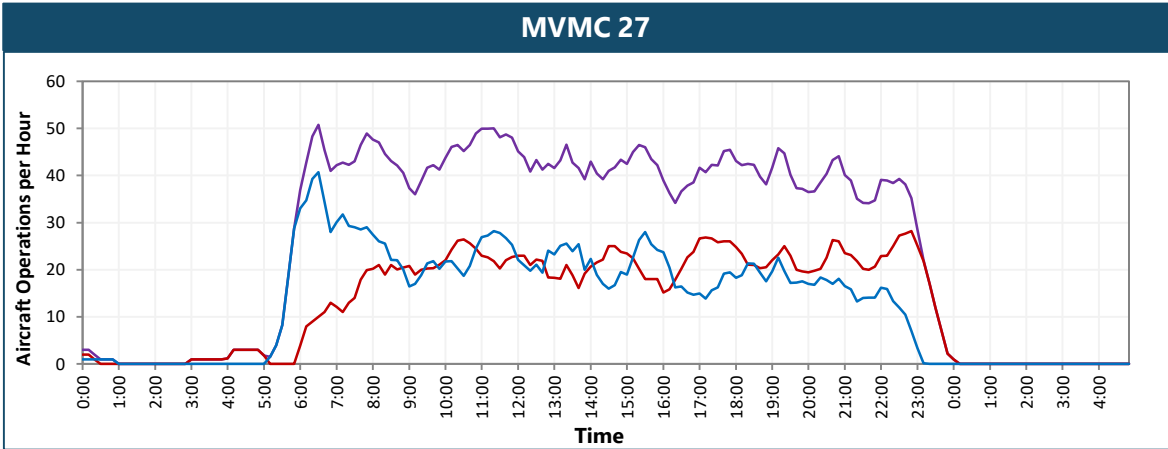
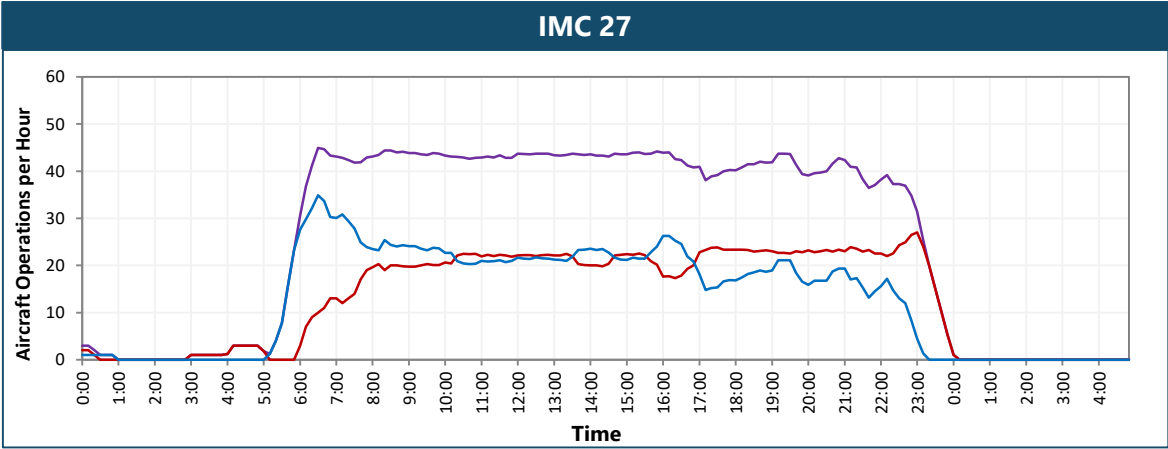
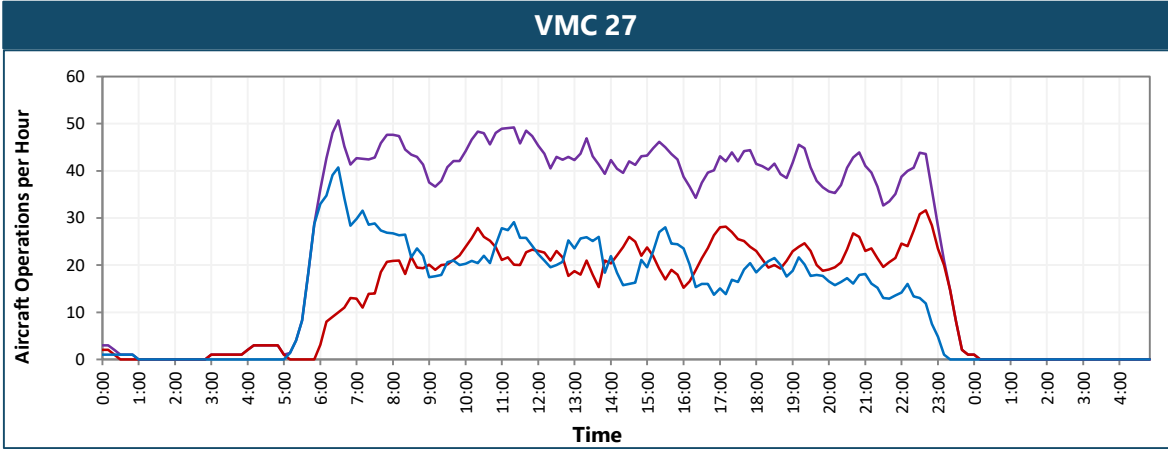
Legend

— Simulated Total — Simulated Arrivals — Simulated Departures

SOURCE: SIMMOD Output, Average of 11 Iterations, June 2019.

Runway Throughput

Alternative 4 – 2024



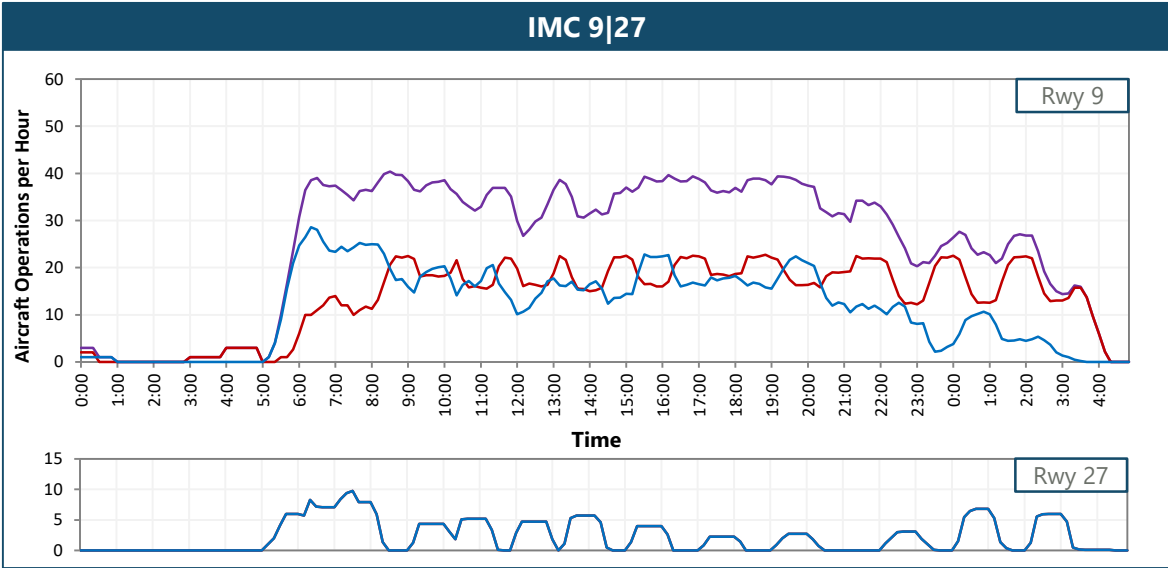
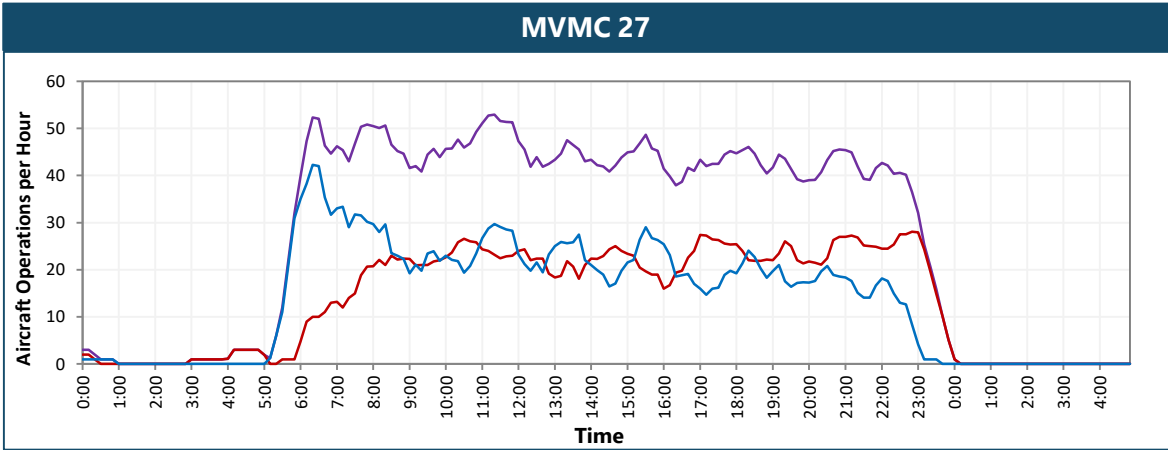
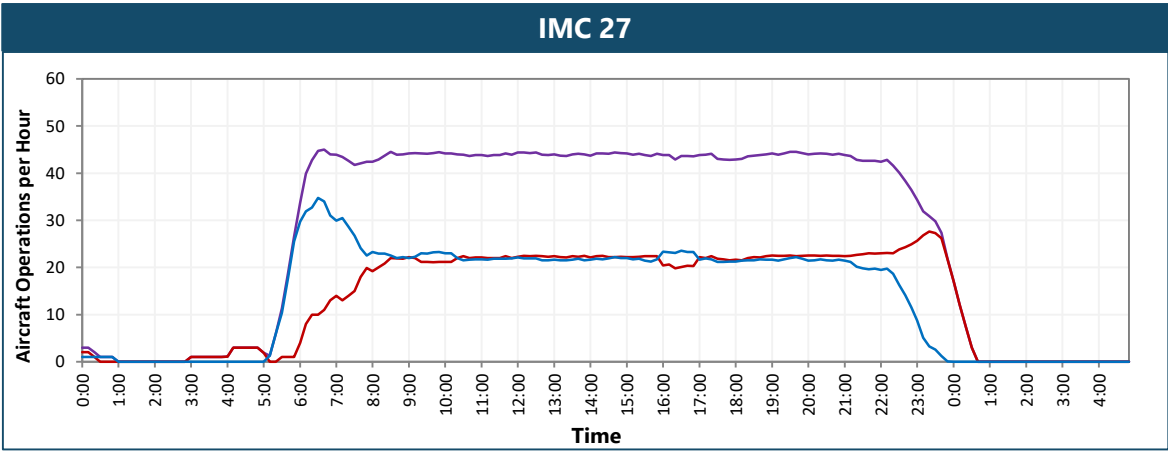
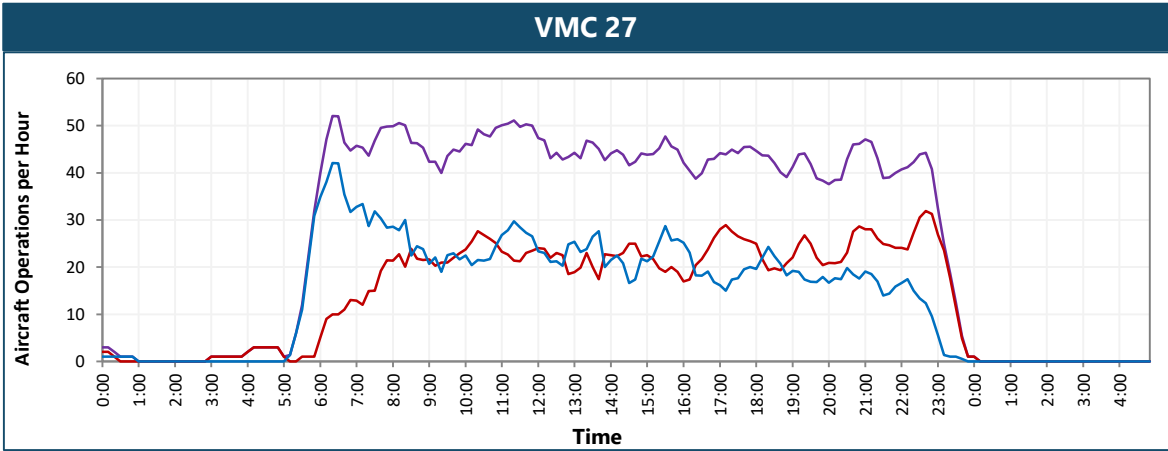
Legend

- Simulated Total
- Simulated Arrivals
- Simulated Departures

SOURCE: SIMMOD Output, Average of 11 Iterations, June 2019.

Runway Throughput

Alternative 4 – 2030



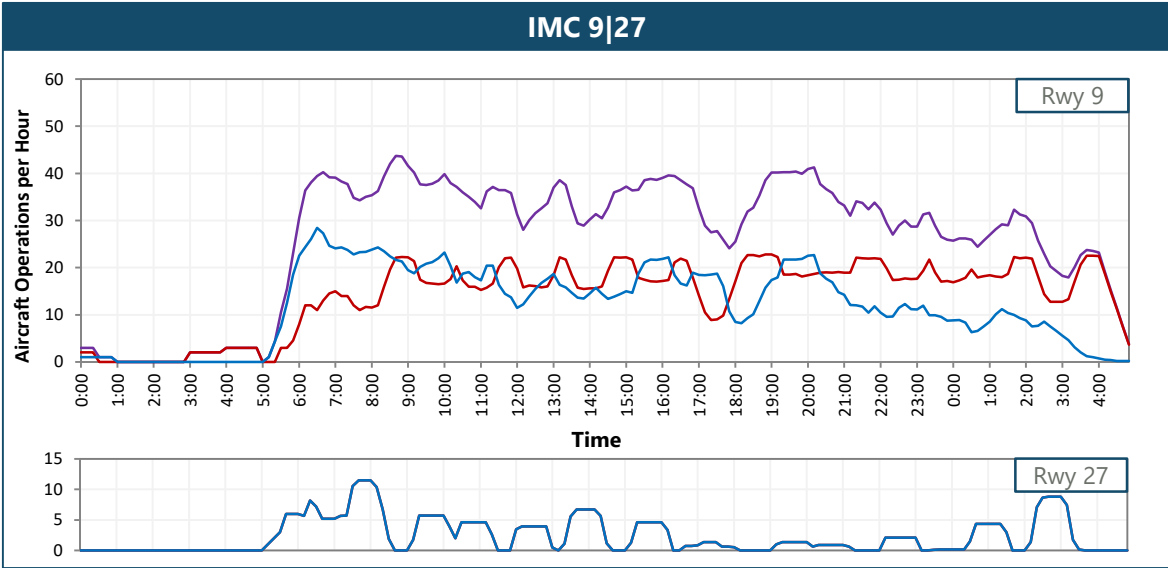
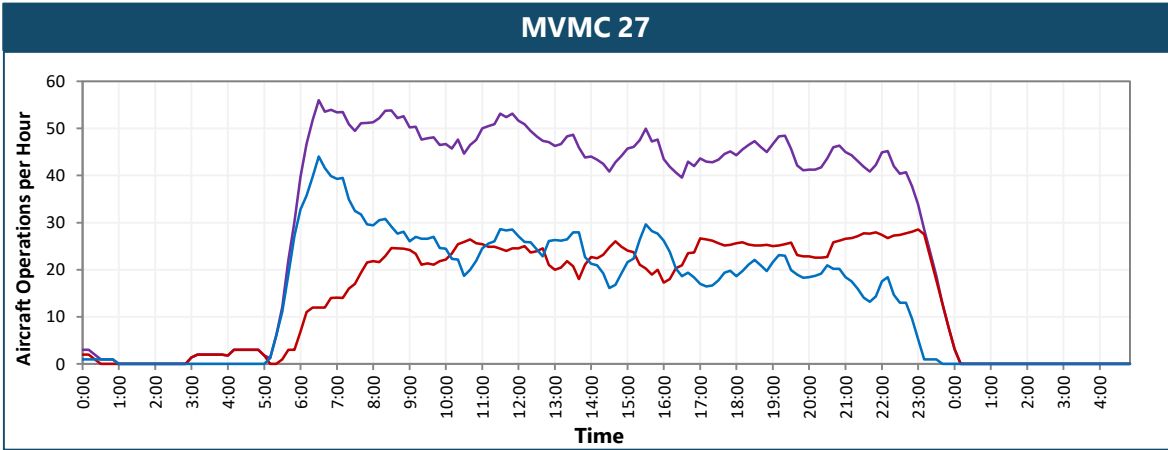
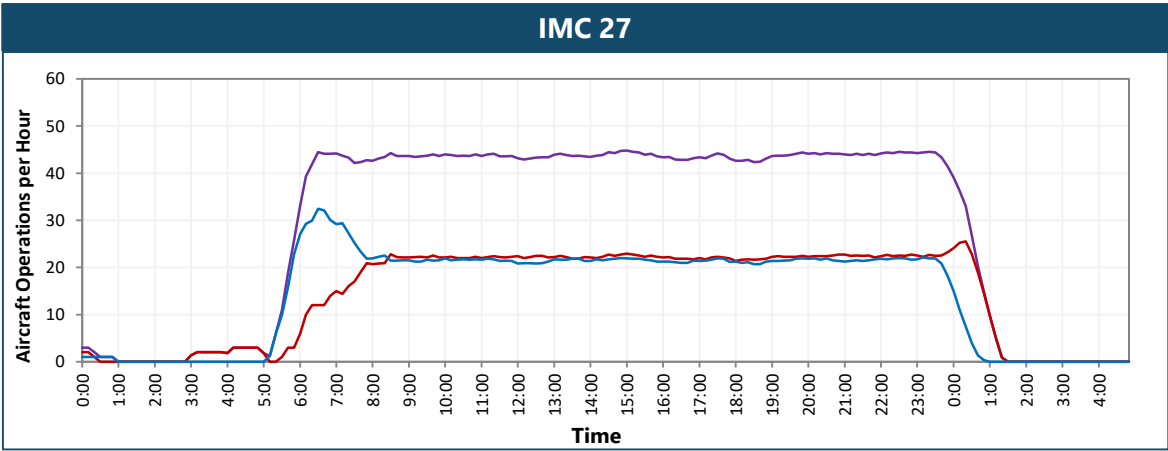
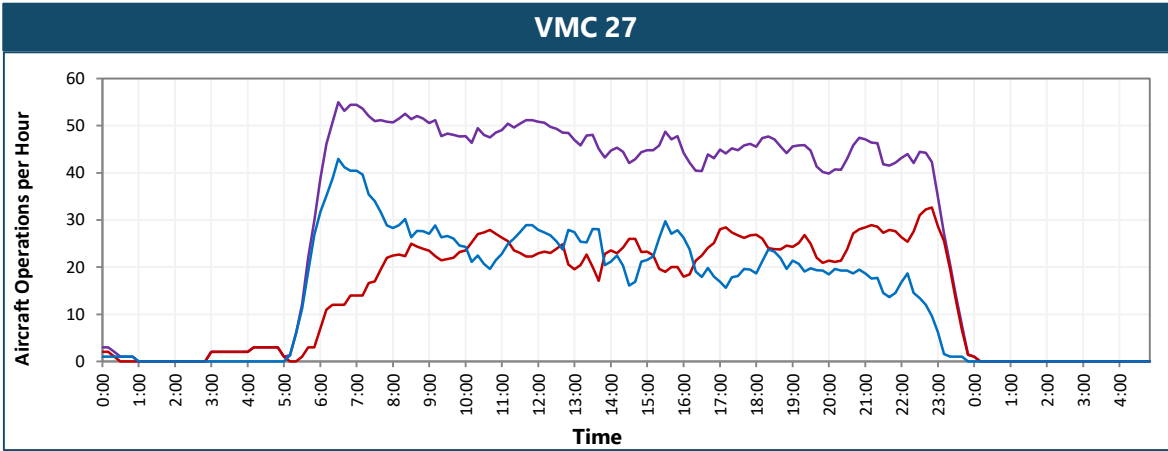
Legend

- Simulated Total
- Simulated Arrivals
- Simulated Departures

SOURCE: SIMMOD Output, Average of 11 Iterations, June 2019.

Runway Throughput

Alternative 4 – 2035

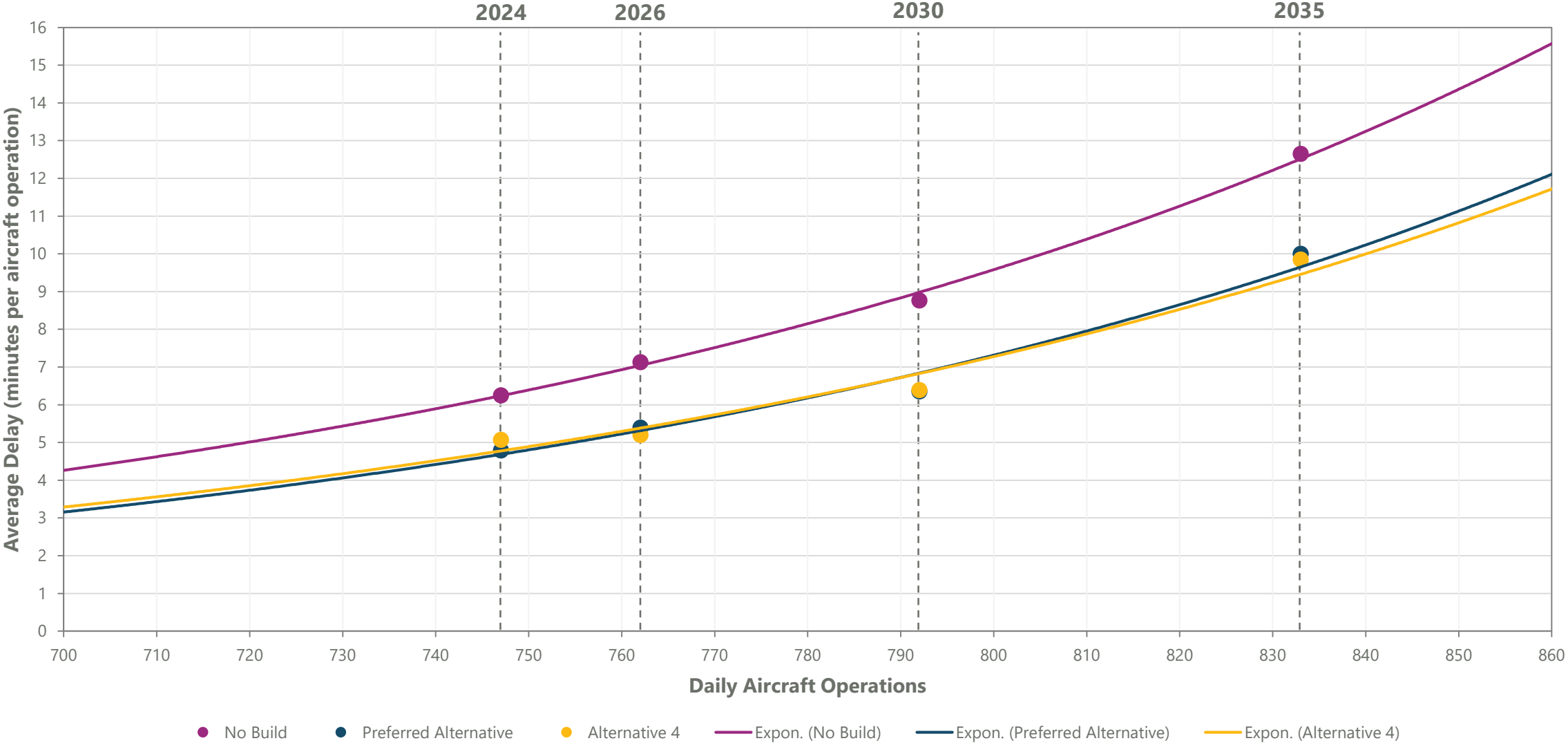


Legend

- Simulated Total
- Simulated Arrivals
- Simulated Departures

SOURCE: SIMMOD Output, Average of 11 Iterations, June 2019.

Annualized Delay Curve



SOURCE: SIMMOD Output, Average of 11 Iterations, June 2019.

Assumptions

Airspace Movements

Airspace Routing – Arrivals

- Airspace modelling extends approximately 50 NM from the Airport
- Routing assigned based on aircraft origin

Routing by Origin - West Flow				
LUCKI		COMIX		J01
LVELL/TTRU/PKE	HOGGZ/IPL	HUULK/LAX	SXC	
CYYZ	KABQ	CYVR	PHKO	MMSD
EGKK	KATL	CYYC	PHLI	
EGLL	KAUS	KBOI	PHNL	
KBOS	KBNA	KFAT	PHOG	
KDEN	KBWI	KLAX	YSSY	
KDTW	KCLT	KMRY		
KEWR	KDAL	KOAK		
KJFK	KDFW	KPDX		
KLAS	KFLL	KRNO		
KMCI	KHOU	KSEA		
KMDW	KIAD	KSFO		
KMKE	KIAH	KSJC		
KMSP	KMCO	KSMF		
KORD	KMIA	KSTS		
KPHL	KMSY	RJAA		
KSLC	KPHX			
KSTL	KSAT			
	KTUS			

Routing by Origin - East Flow			
TOPGN		PLAYA	J01
TTRU/PKE	IPL	LAX	
CYYZ	KABQ	CYVR	MMSD
EGKK	KATL	CYYC	
EGLL	KAUS	KBOI	
KBOS	KBNA	KFAT	
KDEN	KBWI	KLAX	
KDTW	KCLT	KMRY	
KEWR	KDAL	KOAK	
KJFK	KDFW	KPDX	
KLAS	KFLL	KRNO	
KMCI	KHOU	KSEA	
KMDW	KIAD	KSFO	
KMKE	KIAH	KSJC	
KMSP	KMCO	KSMF	
KORD	KMIA	KSTS	
KPHL	KMSY	PHKO	
KSLC	KPHX	PHLI	
KSTL	KSAT	PHNL	
	KTUS	PHOG	
		RJAA	
		YSSY	

Airspace Movements

Airspace Routing – Departures

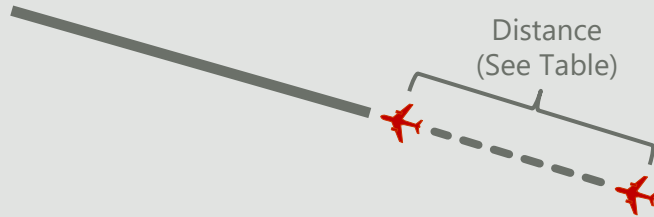
- Airspace modelling extends approximately 50 NM from the Airport
- Routing assigned based on aircraft destination

Routing by Destination West Flow/East Flow			
ZZOOO/SAYOW			PADRZ/MMOTO
MTBAL	IPL	CENZA/SAYOW	ALL
KSLC	KMCI	MMSD	KBOI
EGLL	KEWR		CYYC
EGKK	KJFK		KLAS
KMSP	KPHL		YSSY
KDEN	KSTL		PHKO
KMKE	KBWI		PHOG
CYYZ	KIAD		PHNL
KORD	KABQ		PHLI
KMDW	KBNA		RJAA
KDTW	KCLT		KMRY
KBOS	KPHX		KLAX
	KATL		KSFO
	KDFW		KSJC
	KDAL		KOAK
	KMCO		KSTS
	KMSY		KSMF
	KMIA		KFAT
	KFLL		KRNO
	KAUS		KPDX
	KIAH		CYVR
	KHOU		KSEA
	KTUS		
	KSAT		

Airspace Movements

Separation of Arrival and Departure Operations

Arrival – Arrival



Terminal Airspace			Following (NM)				
			Upper Heavy	Lower Heavy	Large	Small Plus	Small
	Leading	Upper Heavy	MRS	4	5	5	5
		Lower Heavy	MRS	MRS	3.5	5	5
		Large	MRS	MRS	MRS	MRS	4
		Small Plus	MRS	MRS	MRS	MRS	MRS
		Small	MRS	MRS	MRS	MRS	MRS

Final Approach			Following (NM)				
			Upper Heavy	Lower Heavy	Large	Small Plus	Small
	Leading	Upper Heavy	MRS	4	5	5	6
		Lower Heavy	MRS	MRS	3.5	5	6
		Large	MRS	MRS	MRS	MRS	4
		Small Plus	MRS	MRS	MRS	MRS	MRS
		Small	MRS	MRS	MRS	MRS	MRS

- Aircraft separated into groups based on weight and performance

Aircraft Group	Representative Aircraft
Upper Heavy	B747, A330, B787, B777
Lower Heavy	A310, B763, MD11
Large	B737, A320, MD80, E170
Small Plus	B190, E120, LJ45, SW4
Small	BE20, C25A, SR22

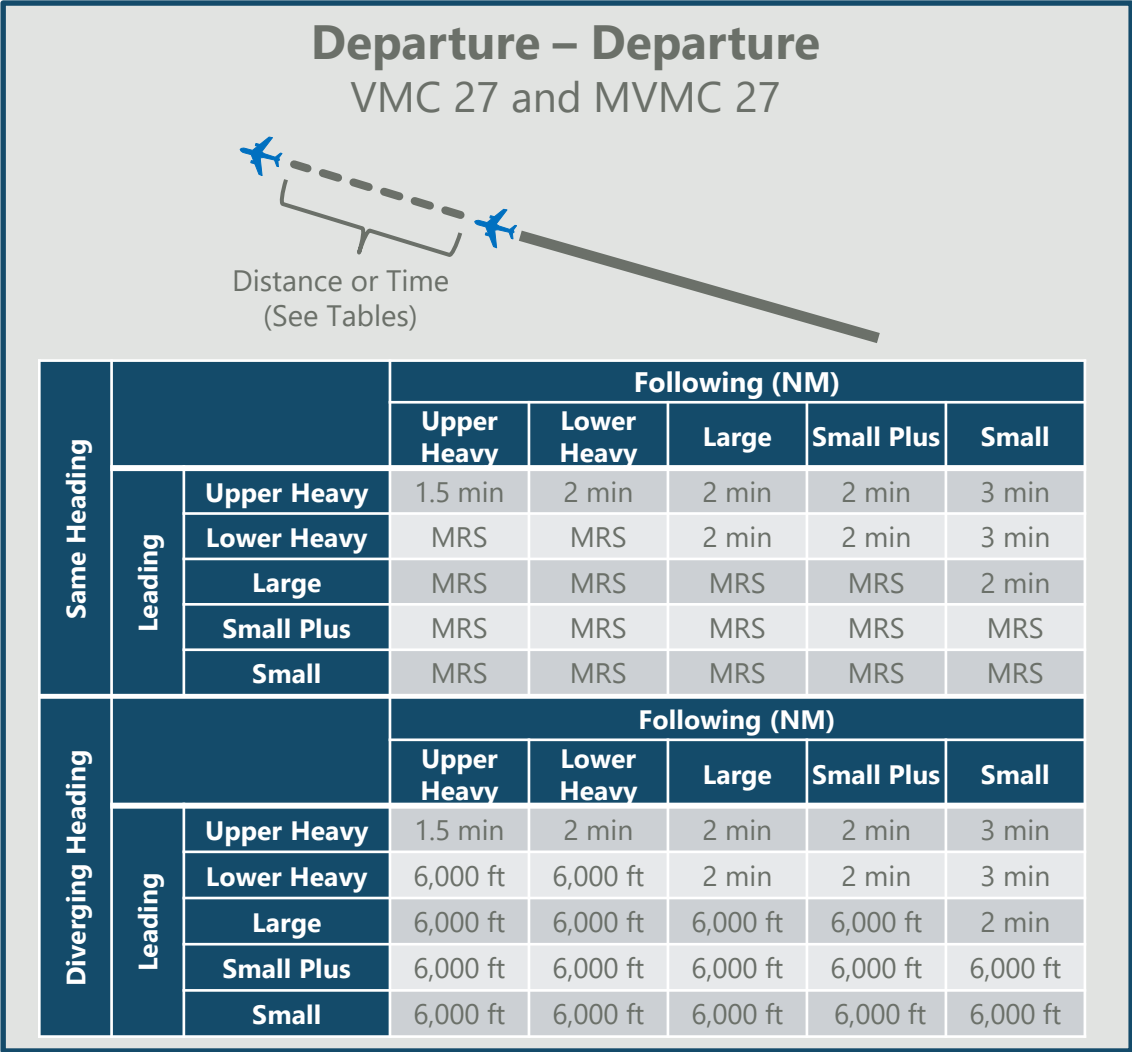
- Minimum separation (MRS) applied according to weather conditions
 - VMC 27 – 3 NM
 - MVMC 27 and IMC 27 – 4 NM
 - IMC 9|27 – 5 NM
- Analysis of airport radar data from April 26, 2004 to May 25, 2004 used to determine multiplication factor for applied separation.

Applied Separation	Separation Multiplication Factor		Probability
	Min	Max	
	1.00	1.15	25%
	1.15	1.30	75%

- Wake Turbulence Recategorization (RECAT) was implemented at the Southern California TRACON (SoCAL) on September 26, 2016

Airspace Movements

Separation of Arrival and Departure Operations



- **Time separation** – the minimum duration between the start of take-off roll for a departure-departure pair
- **Distance separation (Same)** – the minimum separation between a departure-departure pair when succeeding departure becomes airborne
- **Distance separation (Diverging)** – the minimum separation between the start of take-off roll for a departure-departure pair

Aircraft Group	Representative Aircraft
Upper Heavy	B747, A330, B787, B777
Lower Heavy	A310, B763, MD11
Large	B737, A320, MD80, E170
Small Plus	B190, E120, LJ45, SW4
Small	BE20, C25A, SR22

Airspace Movements

Separation of Arrival and Departure Operations

Departure – Departure

IMC 27 and IMC 9|27

Distance or Time
(See Tables)

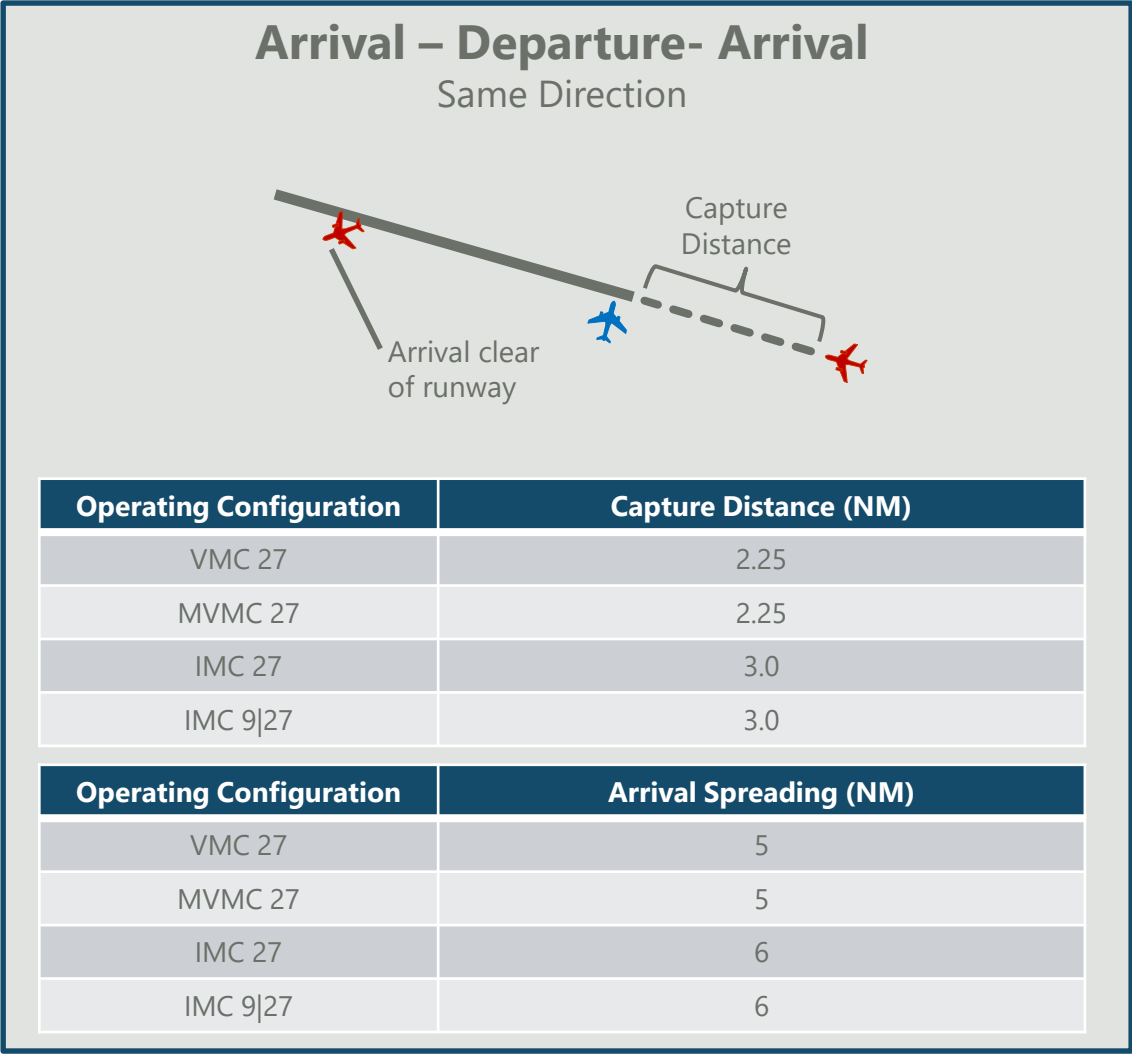
Same Direction (All Headings)		Following (NM)					
		Upper Heavy	Lower Heavy	Large	Small Plus	Small	
	Leading	Upper Heavy	1.5 min	2 min	2 min	2 min	3 min
		Lower Heavy	MRS	MRS	2 min	2 min	3 min
		Large	MRS	MRS	MRS	MRS	2 min
		Small Plus	MRS	MRS	MRS	MRS	MRS
		Small	MRS	MRS	MRS	MRS	MRS
Opposite Direction (All Headings)		Following (NM)					
		Upper Heavy	Lower Heavy	Large	Small Plus	Small	
	Leading	Upper Heavy	2.5 min	3 min	3 min	3 min	4 min
		Lower Heavy	Rwy Clear	Rwy Clear	3 min	3 min	4 min
		Large	Rwy Clear	Rwy Clear	Rwy Clear	Rwy Clear	3 min
		Small Plus	Rwy Clear	Rwy Clear	Rwy Clear	Rwy Clear	Rwy Clear
		Small	Rwy Clear	Rwy Clear	Rwy Clear	Rwy Clear	Rwy Clear

- **Time separation** – the minimum duration between the start of take-off roll for a departure-departure pair
- **Distance separation (Same)** – the minimum separation between a departure-departure pair when succeeding departure becomes airborne

Aircraft Group	Representative Aircraft
Upper Heavy	B747, A330, B787, B777
Lower Heavy	A310, B763, MD11
Large	B737, A320, MD80, E170
Small Plus	B190, E120, LJ45, SW4
Small	BE20, C25A, SR22

Airspace Movements

Separation of Arrival and Departure Operations



- **Capture Distance** – the minimum distance an arrival can be from the threshold when a departure starts its take-off roll
- **Arrival Spreading** – increased arrival-arrival separation to allow an intermediate departure
- Separation multiplication applied to arrival spreading consistent with arrival-arrival separation

Airspace Movements

Separation of Arrival and Departure Operations

Arrival – Departure- Arrival
Opposite Direction

Operating Configuration	Capture Distance (NM)
IMC 9 27	10

- Typical – 27 departures wait for sufficient natural arrival-arrival gap to allow departure
- Manual – arrival-arrival gaps manually created to allow departures
 - 10 mile gaps for alternating arrival/departure
 - Hold all arrivals for consecutive departures

- **Capture Distance** - minimum distance an arrival can be from the threshold when a departure starts its take-off roll
- Separation multiplication applied to arrival spreading consistent with arrival-arrival separation

Ground Movements

■ Taxi Speeds

Link Location	Link Speed (knots)
Taxiway	12
Taxiway Adjacent to Apron	10
Apron Taxilanes	7
Gate Lead-In Line	5

■ Pushback and Engine Start Time

- Time for pushback, tug detach, and engine start
- Continuous movement/no pause when seen in playback

Aircraft Group	Minimum	Maximum
1 and 2	2:15	3:15
3 and 4	3:15	4:15
5 and 6	4:15	5:15

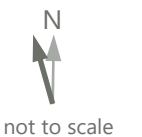
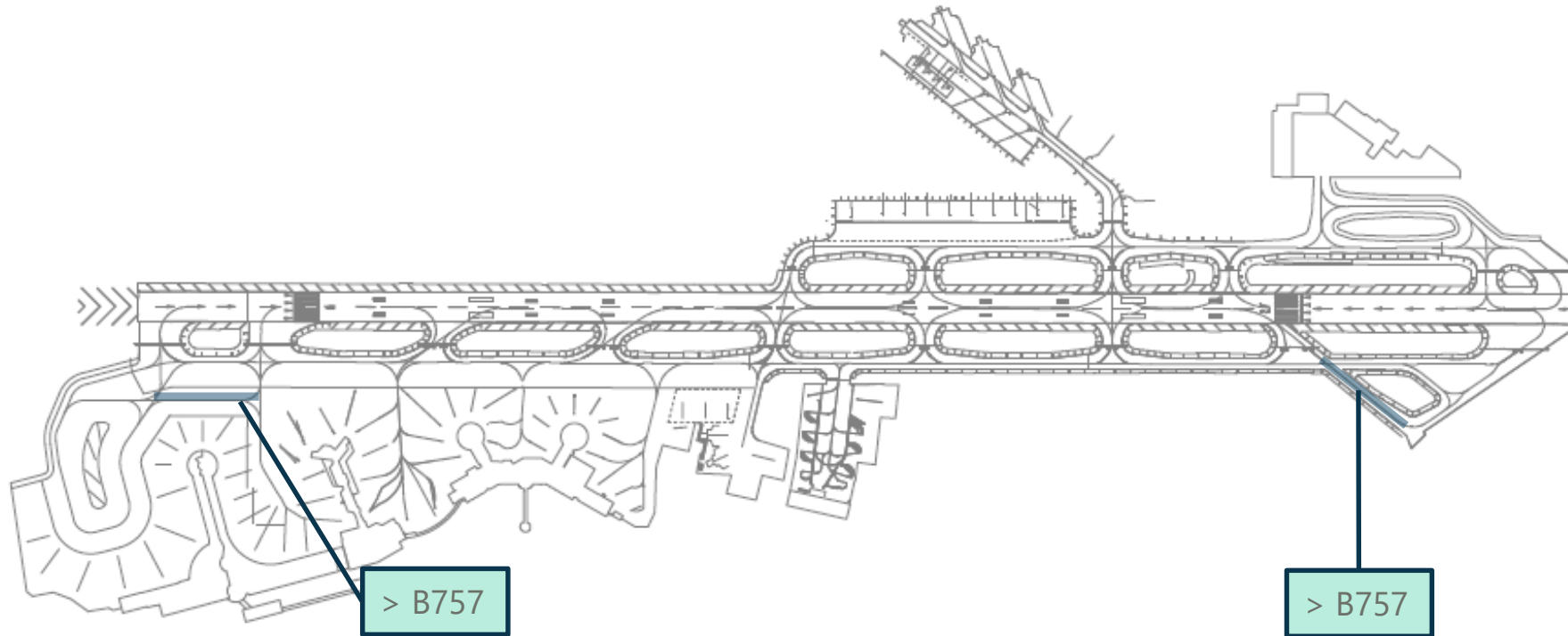
■ Minimum Turn Times

- Minimum unloading and loading times ensure appropriate gate occupancy in the event arrival leg is late
- Analyzed DDFS (all years) to determine minimum scheduled turn times for each aircraft group

Aircraft Group	Aircraft Type	Minimum Total Turn Time
1	C172, SR22	30 minutes
2	DHC8, SF340	30 minutes
3	CRJ	30 minutes
4	A320, B737	30 minutes
5	B757, B767	50 minutes
6	A330, B747	50 minutes

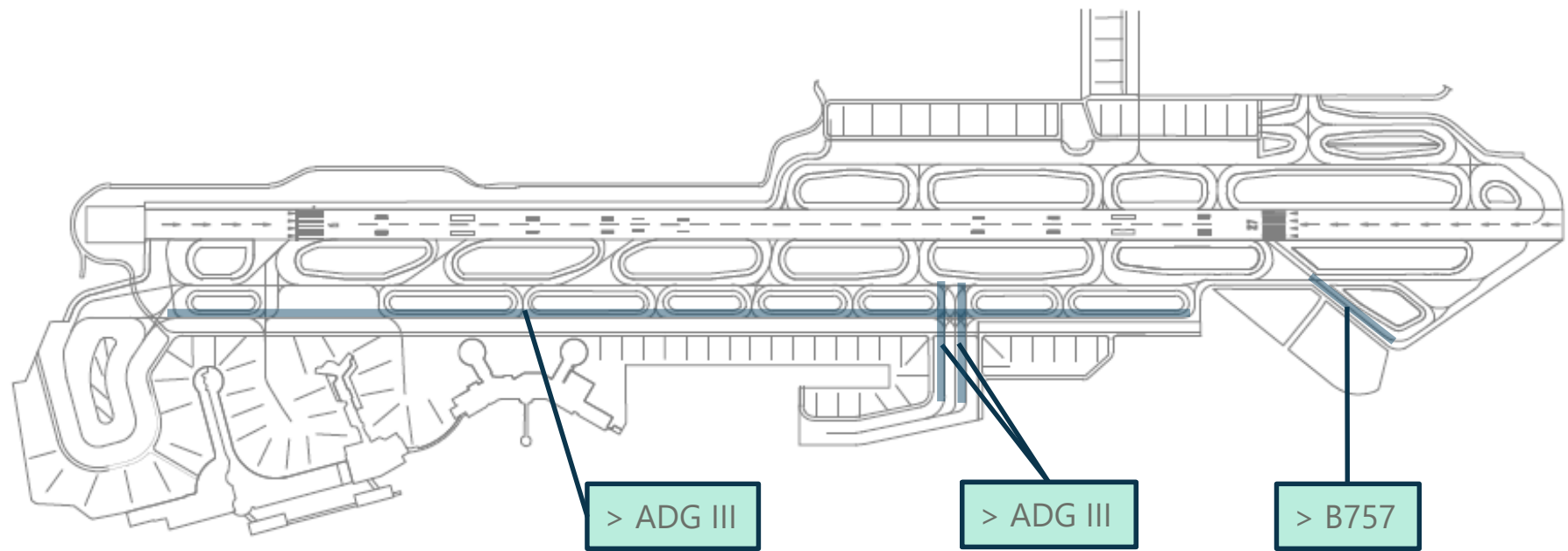
Ground Movements

Airfield Restrictions – No Build



Ground Movements

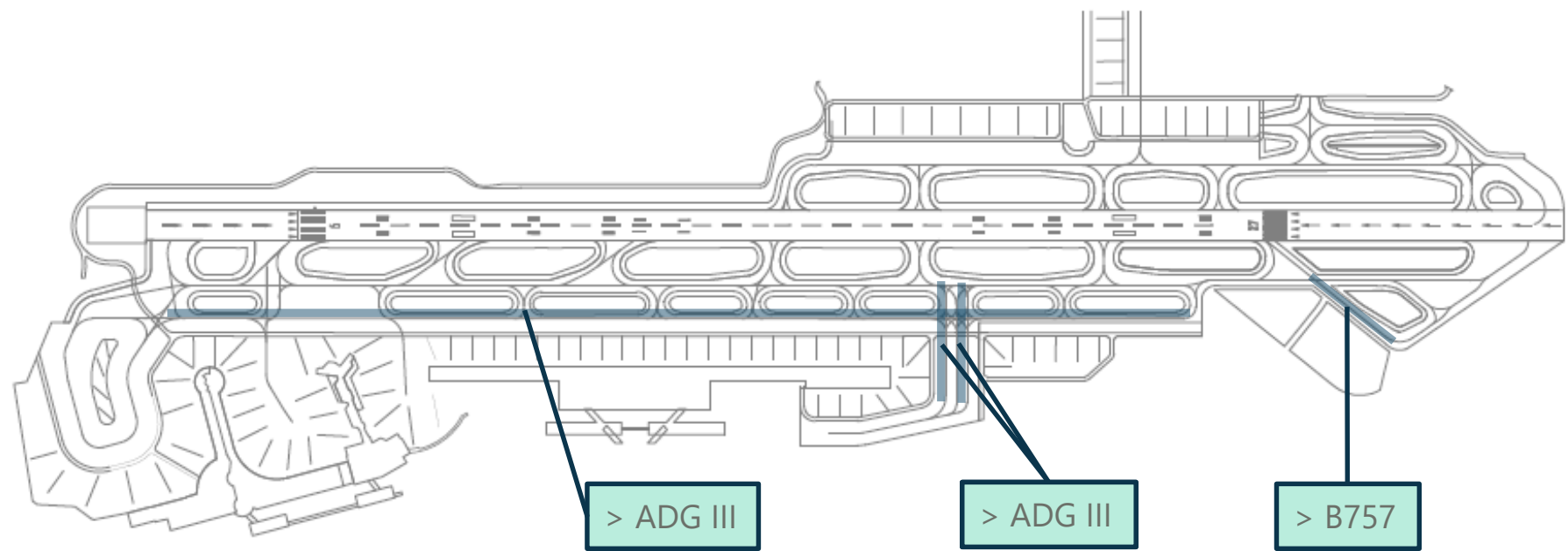
Airfield Restrictions – Preferred Alternative: 2024



SOURCE: San Diego County Regional Airport Authority; June 21, 2017.

Ground Movements

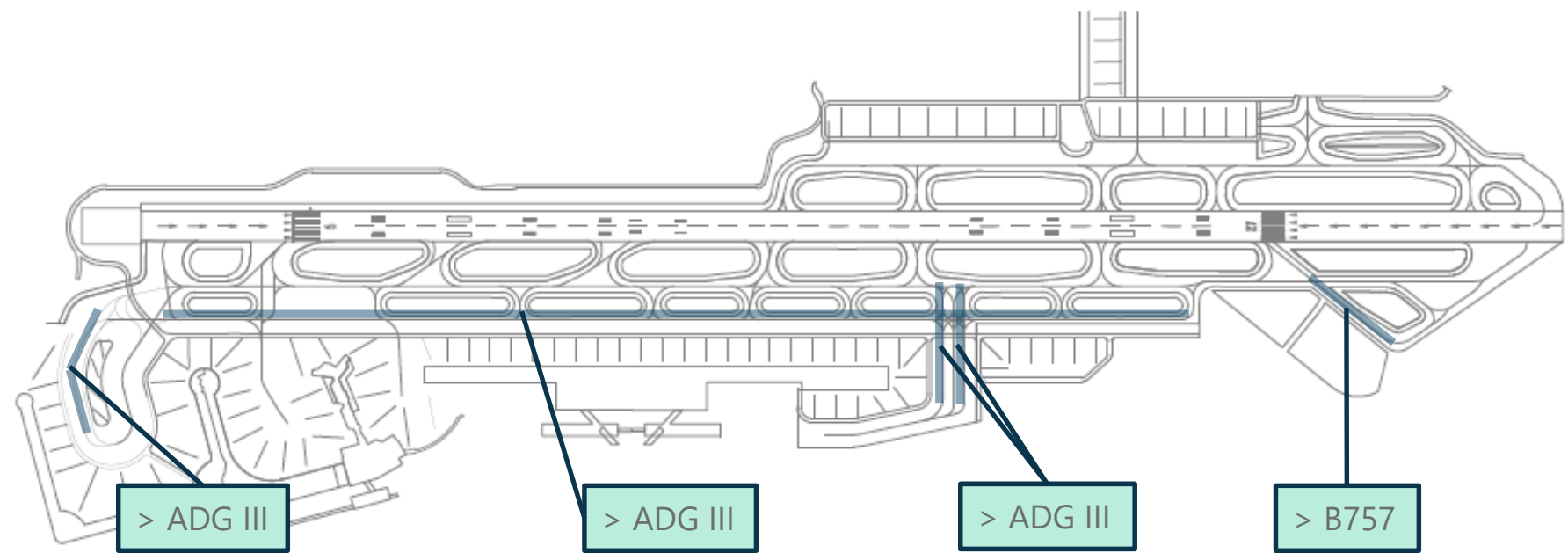
Airfield Restrictions – Preferred Alternative: 2026



SOURCE: San Diego County Regional Airport Authority; June 21, 2017.

Ground Movements

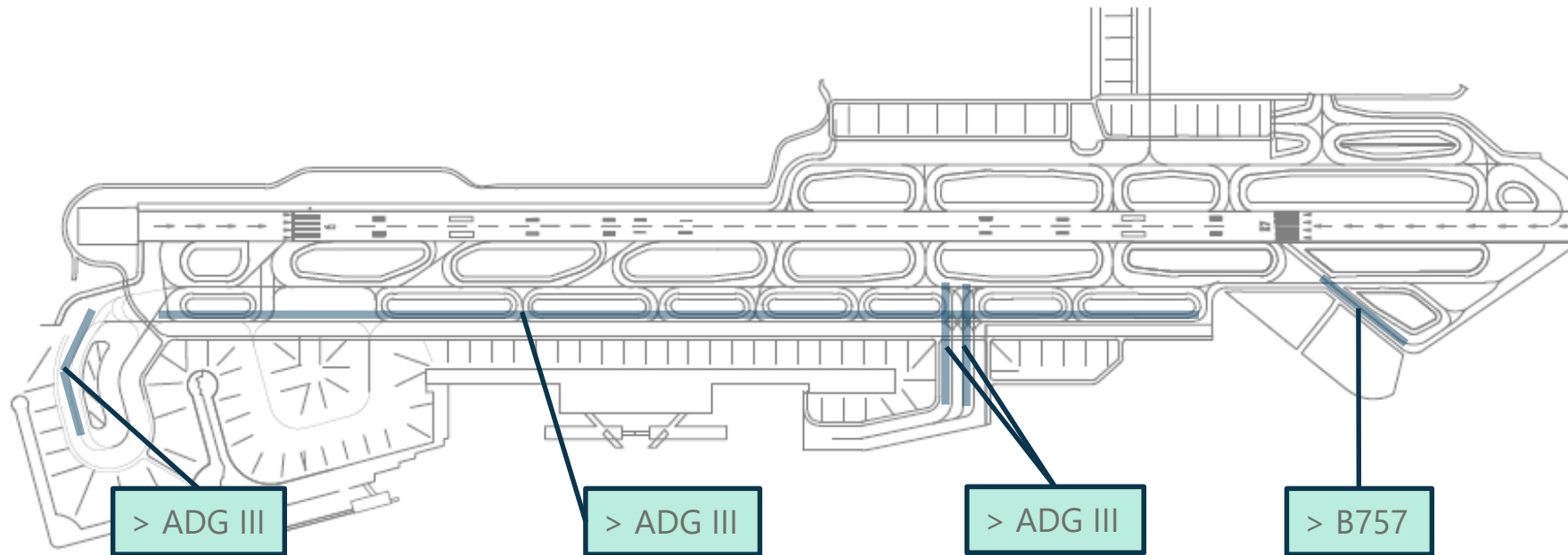
Airfield Restrictions – Preferred Alternative: 2030



SOURCE: San Diego County Regional Airport Authority; June 21, 2017.

Ground Movements

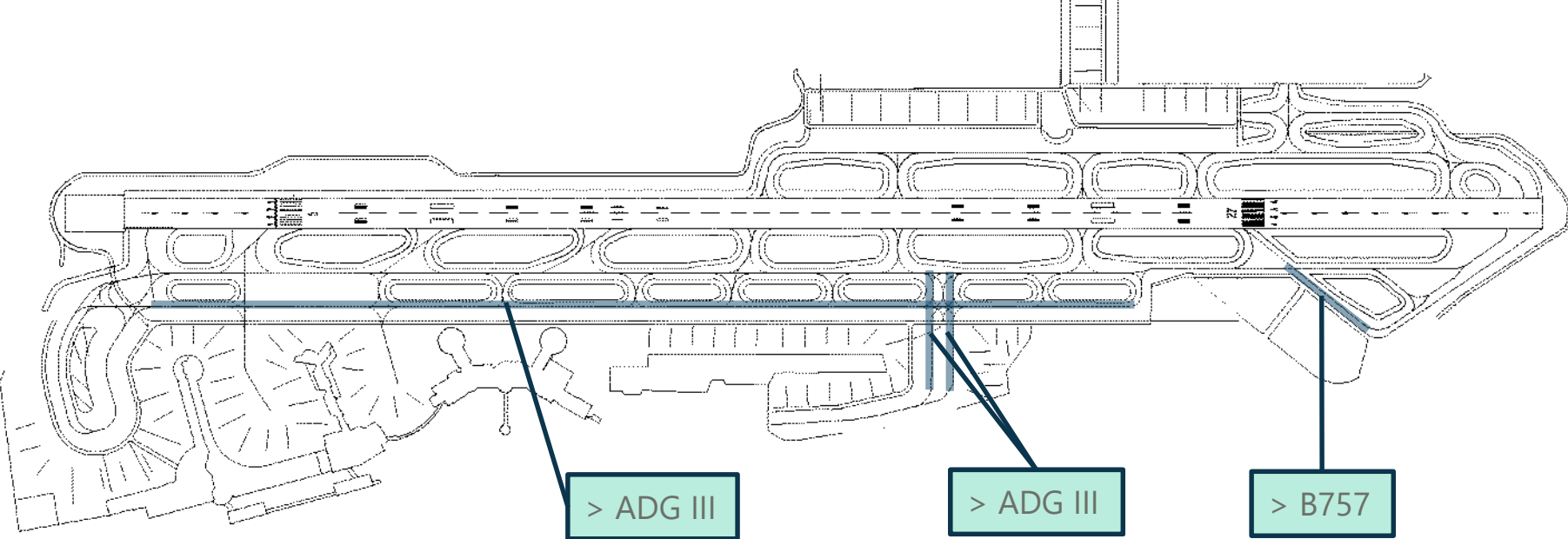
Airfield Restrictions – Preferred Alternative: 2035



SOURCE: San Diego County Regional Airport Authority; June 21, 2017.

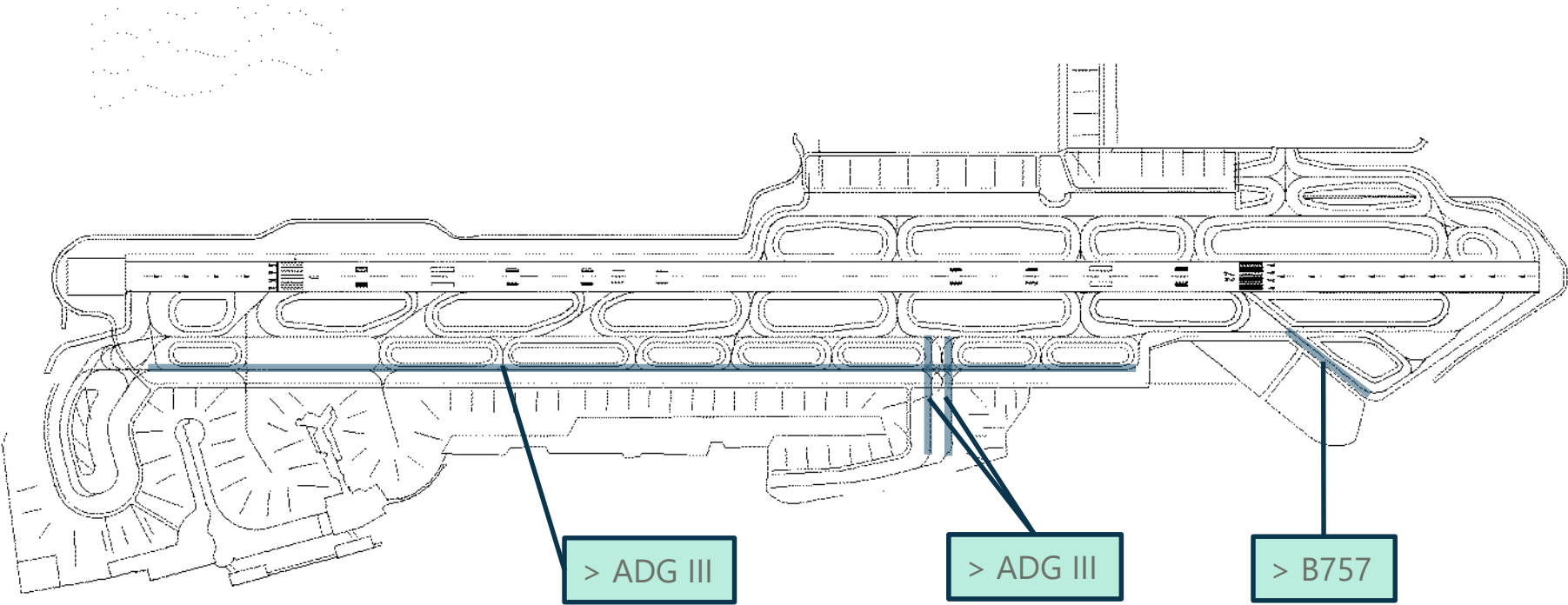
Ground Movements

Airfield Restrictions – Alternative 4: 2024



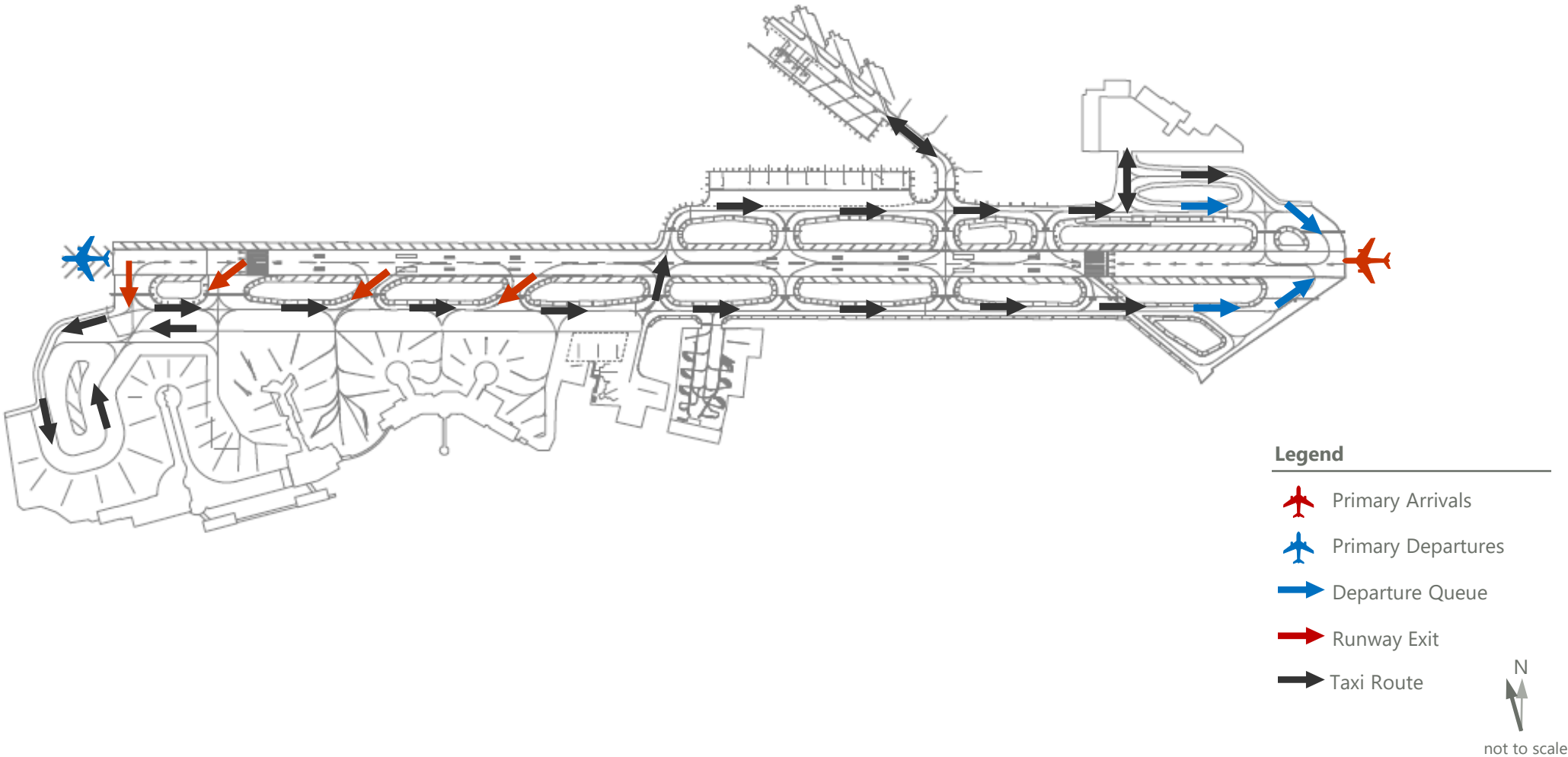
Ground Movements

Airfield Restrictions – Alternative 4: 2026, 2030, and 2035



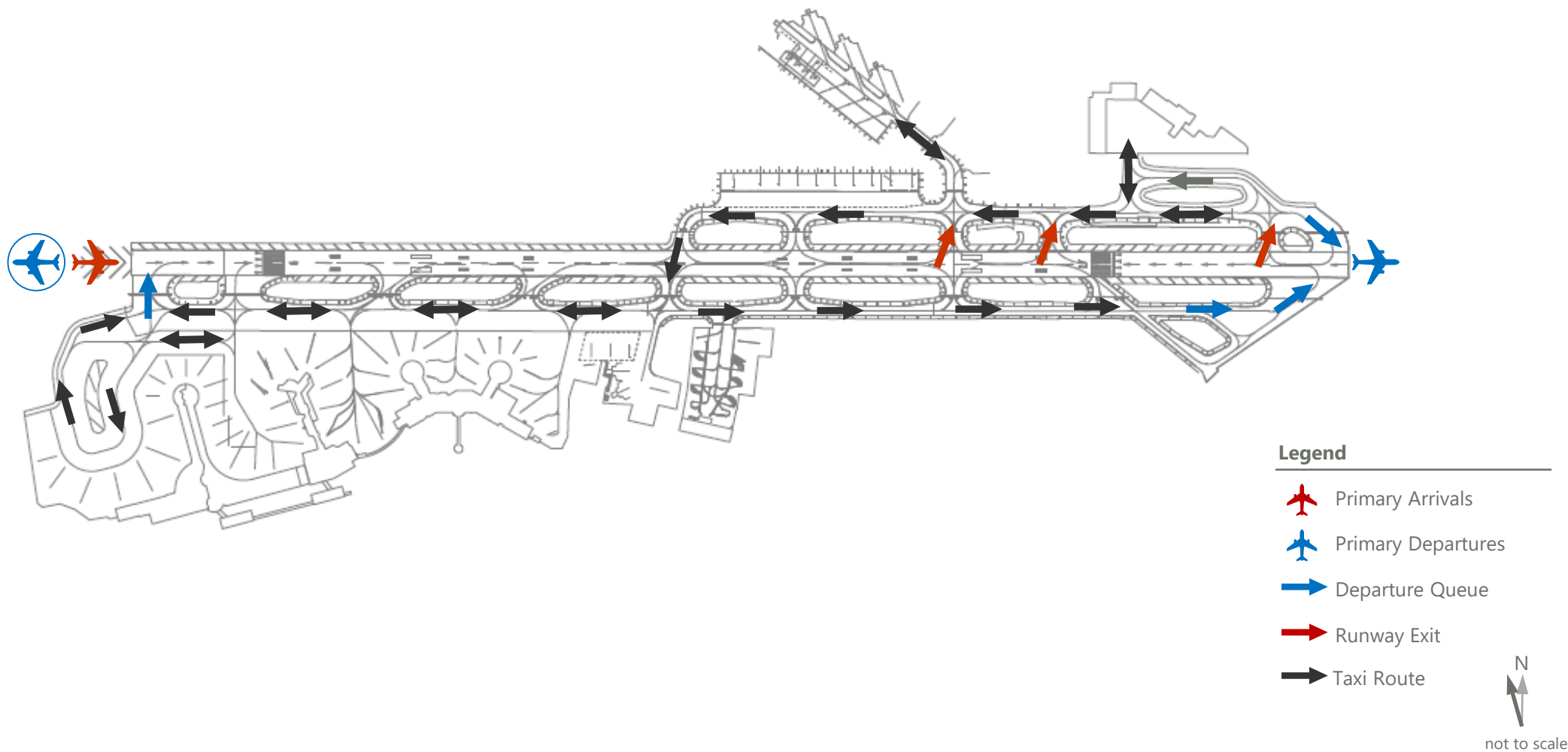
Ground Movements

No Build Taxi Flows – West Flow



Ground Movements

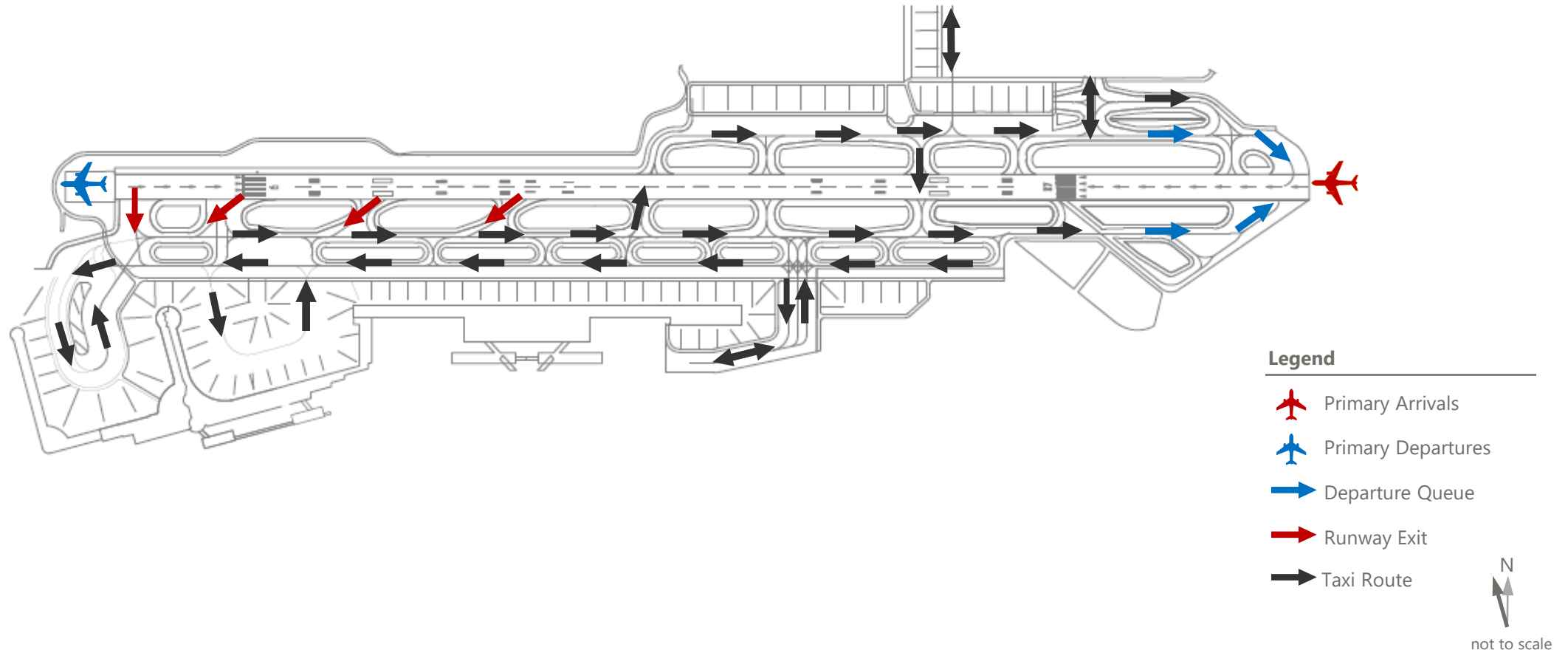
No Build Taxi Flows – Mixed Flow



Ground Movements

Preferred Alternative Taxi Flows – West Flow

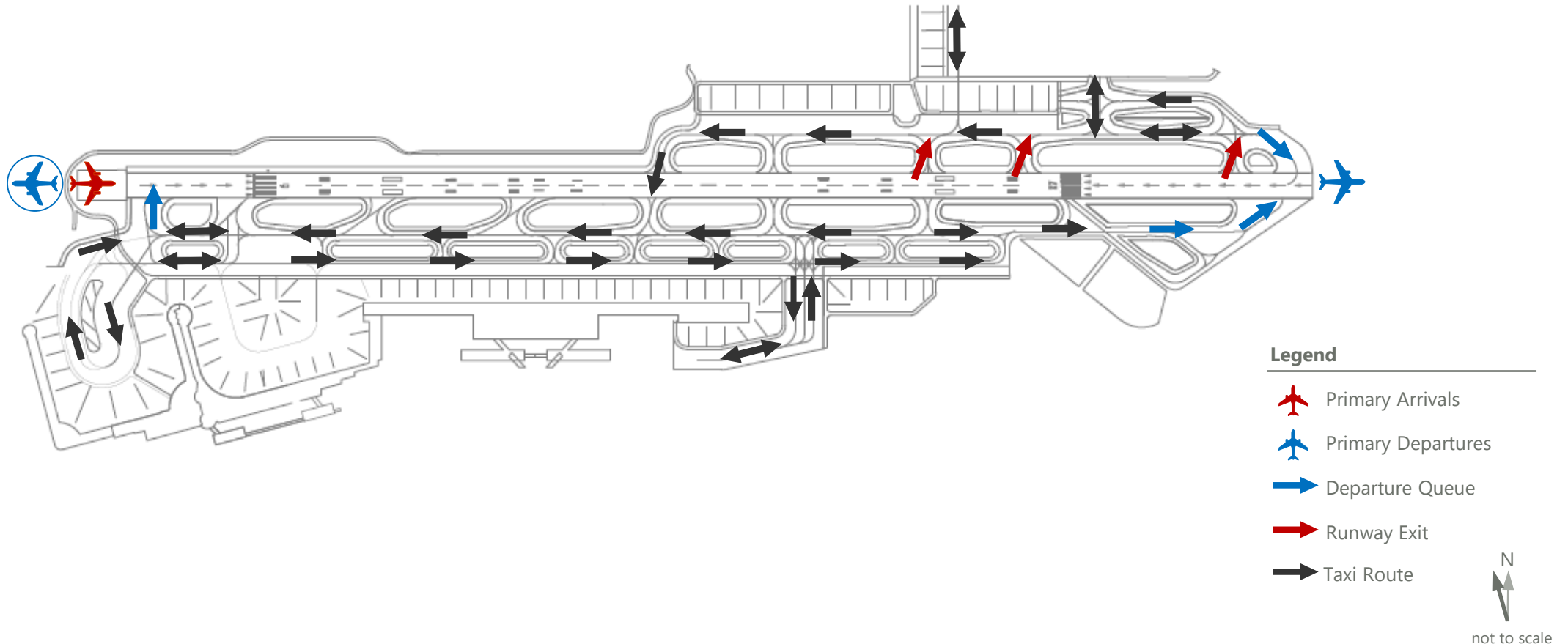
- 2035 shown
- Preceding phases are similar



Ground Movements

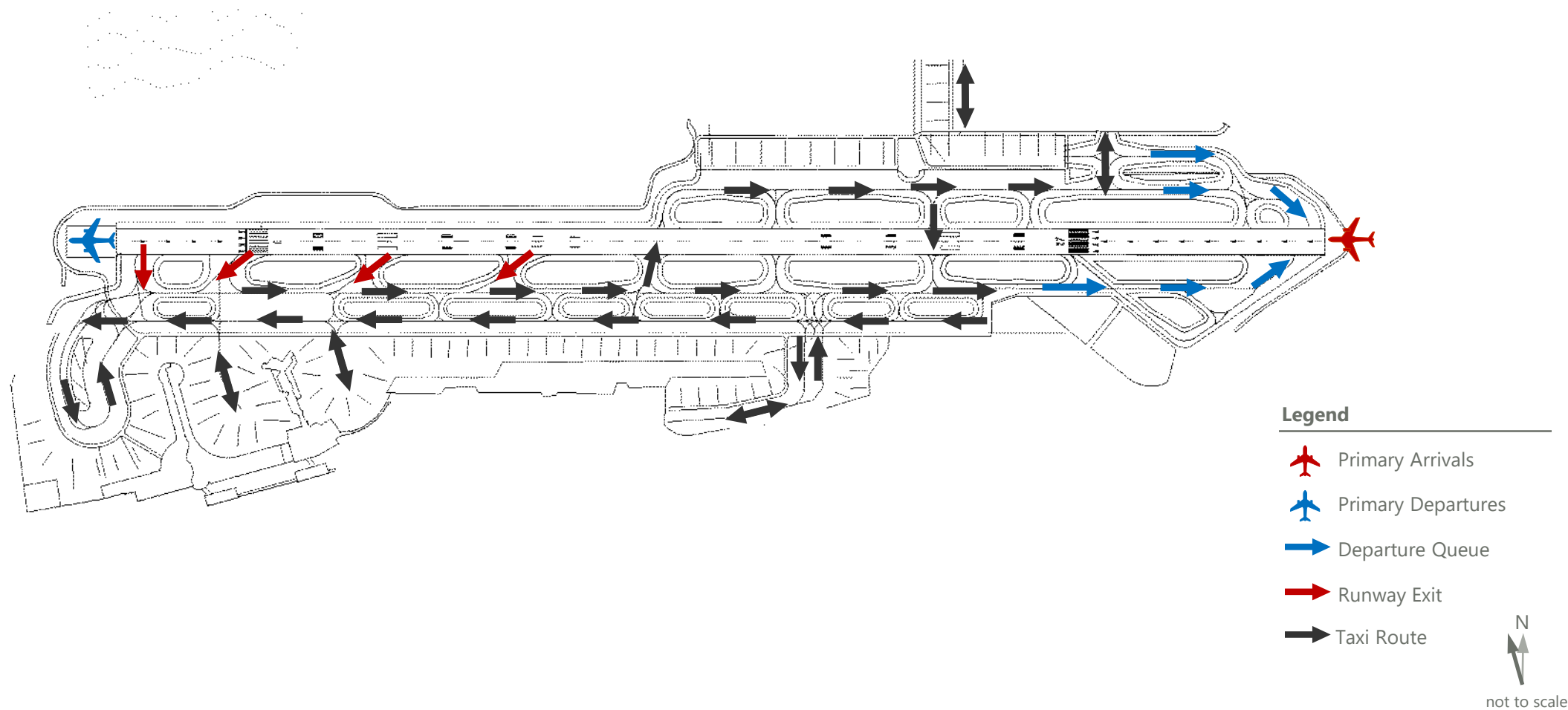
Preferred Alternative Taxi Flows – Mixed Flow

- 2035 shown
- Preceding phases are similar



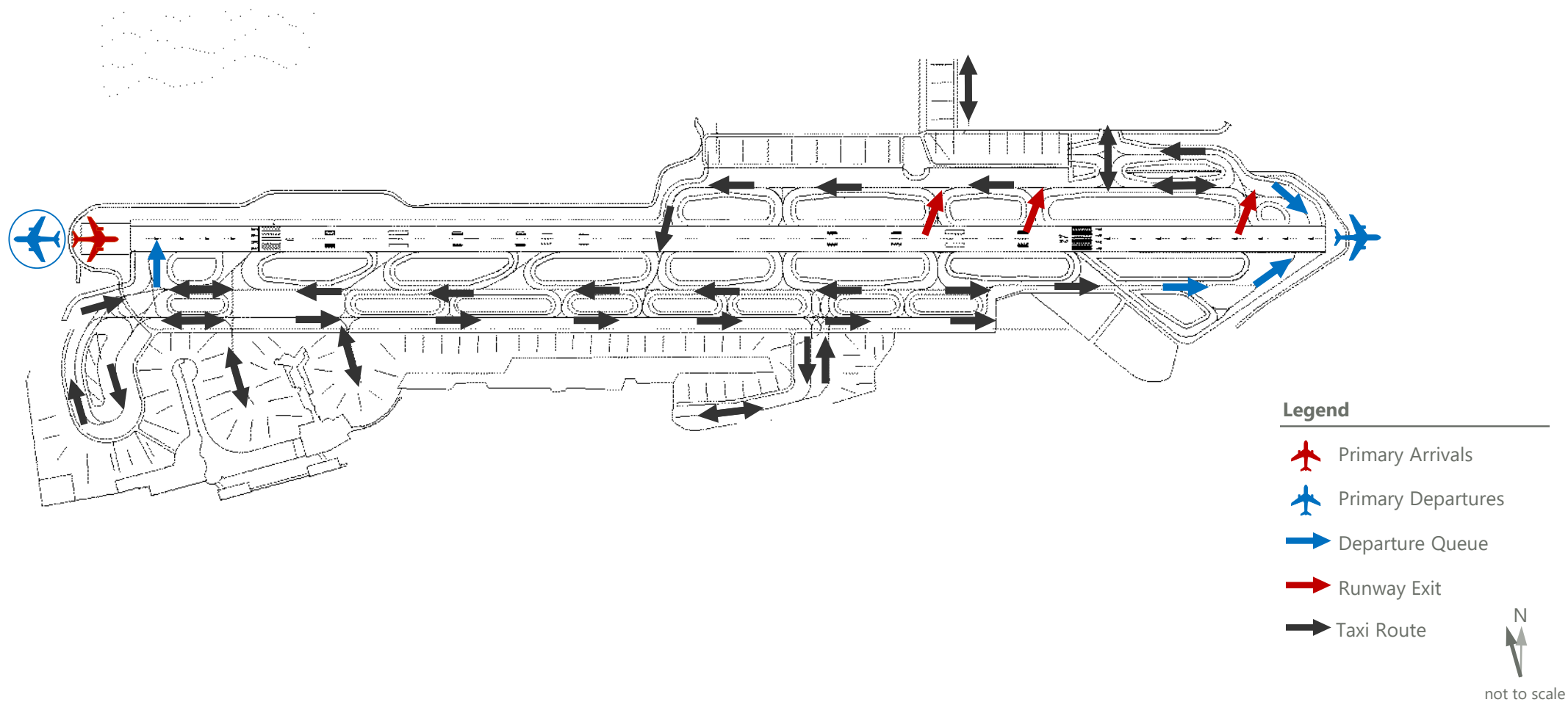
Ground Movements

Alternative 4 Taxi Flows – West Flow



Ground Movements

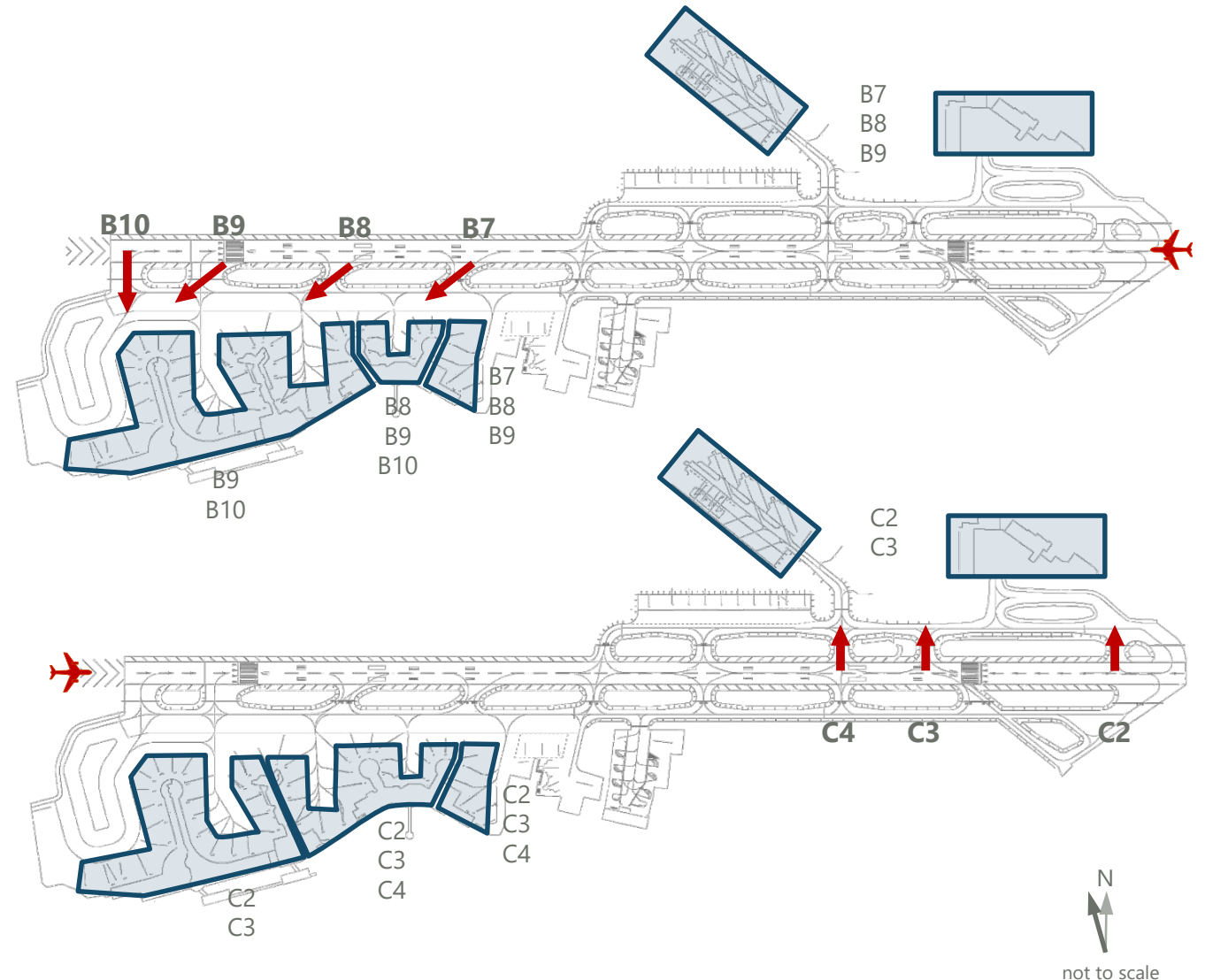
Alternative 4 Taxi Flows – Mixed Flow



Ground Movements

Runway Exit Utilization

- Runway exit distributions were kept consistent with those from the calibration models
- Distributions were reallocated to new gates in the Build scenarios based on groupings similar to those shown for the existing scenario



Ground Movements

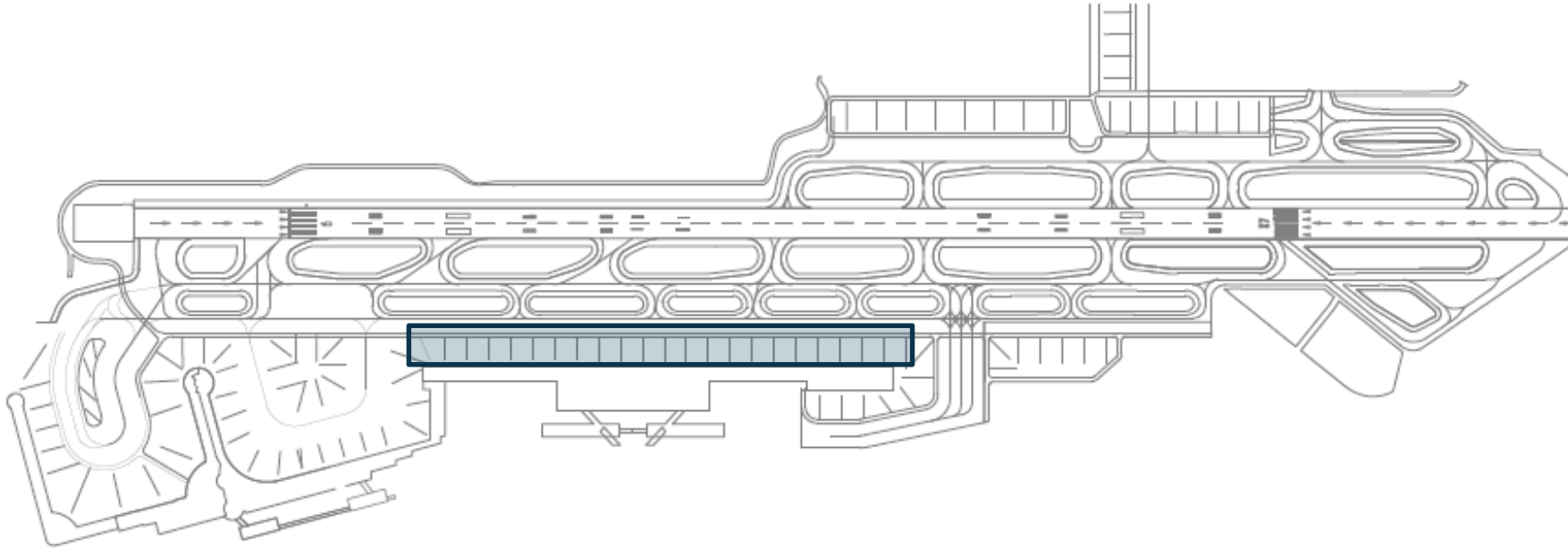
Gate Utilization and Tow Time Optimization

- Gate Utilization
 - Gates were initially assigned according to the flight schedules
 - An arriving aircraft whose gate was still occupied by the preceding aircraft due to an accumulation of delay in the system was sent to a standoff position to wait for its assigned gate to become available
 - Gate capacity was increased for selected gates as necessary to avoid conflicts with remain overnight (RON) flights at the end of the simulation day
 - Required to avoid gridlocks caused when RON flights arrive before other flights due to an imbalanced accumulation of delay at the end of the day
- Tow Time Optimization
 - The start tow time for aircraft towing from remote positions to departure gates between 5:00 a.m. and 8:00 a.m. were optimized to minimize the number of aircraft moving on the taxiway network simultaneously
 - The minimum modeled times from start of tow to scheduled departure are:
 - Narrowbody – 45 minutes
 - Widebody – 60 minutes

Ground Movements

Pushback Procedures

- Pushback procedures for existing gates remained consistent with those applied during the model calibration process
- New gates were assumed to push straight back and block adjacent taxilanes during engine spool-up
- Future Terminal 1 gates accessed via Taxiway A were assumed to push straight back and block Taxiway A during engine spool-up



not to scale

Attachment 3b – Simulated Airport Throughput vs. Scheduled Demand

San Diego International Airport Airport Development Plan Environmental Review

Simulated Airport Throughput vs. Scheduled Demand

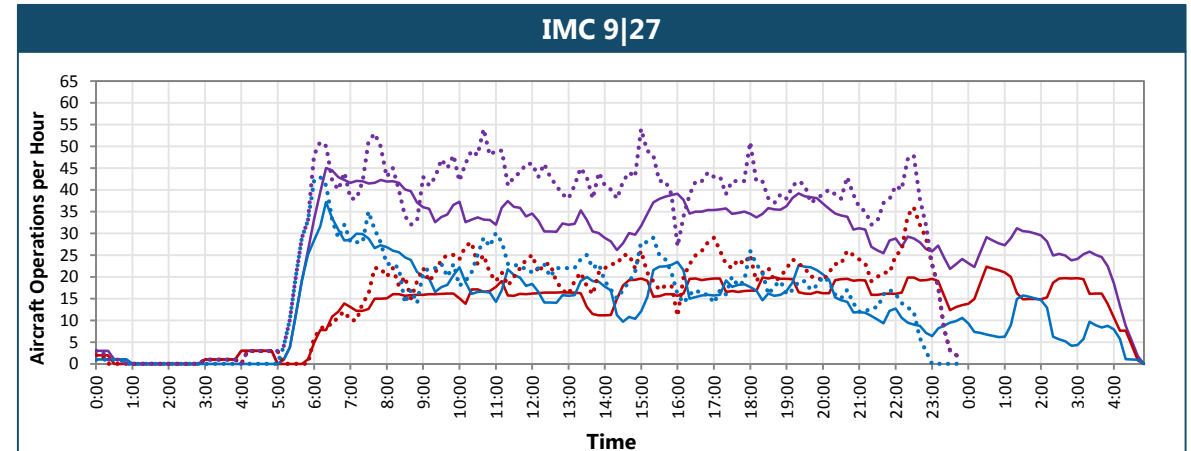
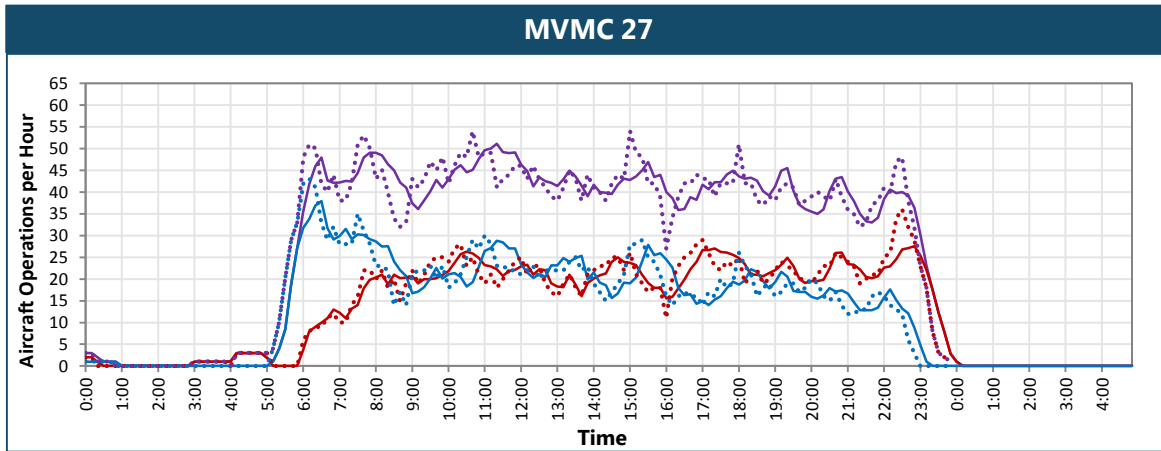
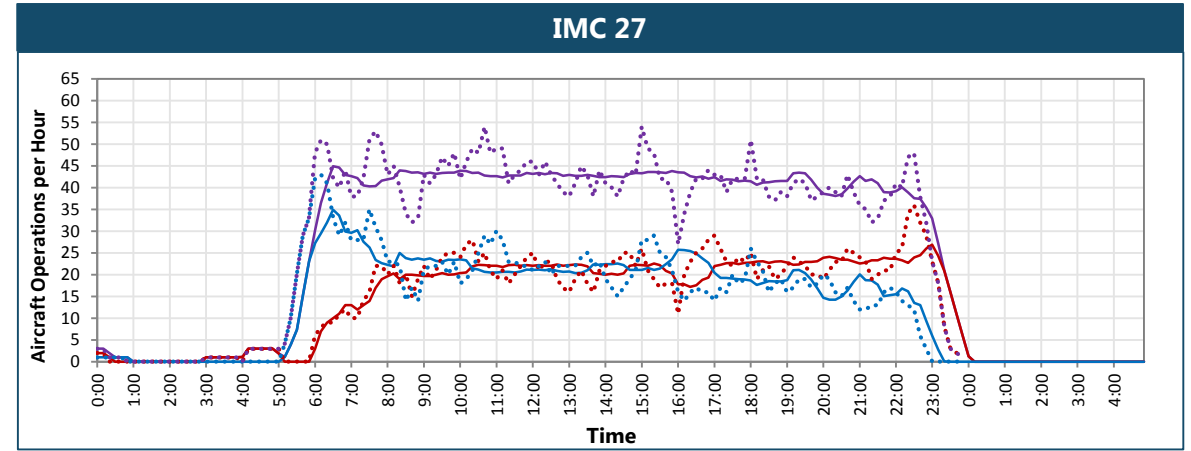
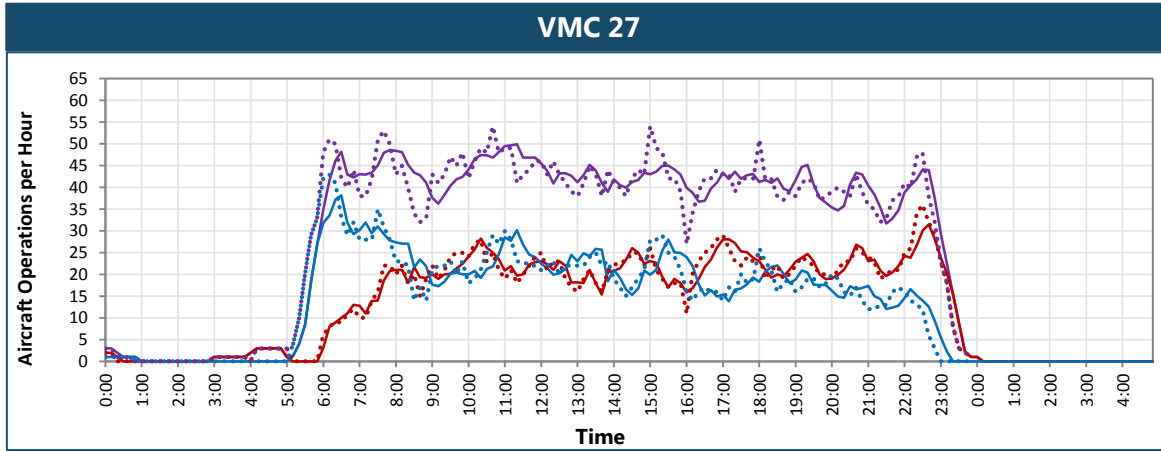
June 3, 2019

Overview

- The following slides compare rolling-hour profiles of simulated airport throughput and design day flight schedules
- Simulated Airport Throughput
 - Each runway movement (arrival or departure operation) was assigned to a 10-minute bucket according to the commencement of the movement (touchdown or start of takeoff roll)
 - The rolling hour operations are the sum of the aircraft arriving/departing in that bucket and the subsequent 5 buckets (six 10-minute buckets per hour) divided by 11 (number of simulation iterations)
- Scheduled Demand
 - Each arrival or departure operation was assigned to a 10-minute bucket according to the scheduled gate time (on-block or off-block time)
 - The rolling hour operations are the sum of the aircraft scheduled to arrive/depart in that bucket and the subsequent 5 buckets (six 10-minute buckets per hour)

Simulated Airport Throughput vs. Scheduled Demand

No Build – 2024

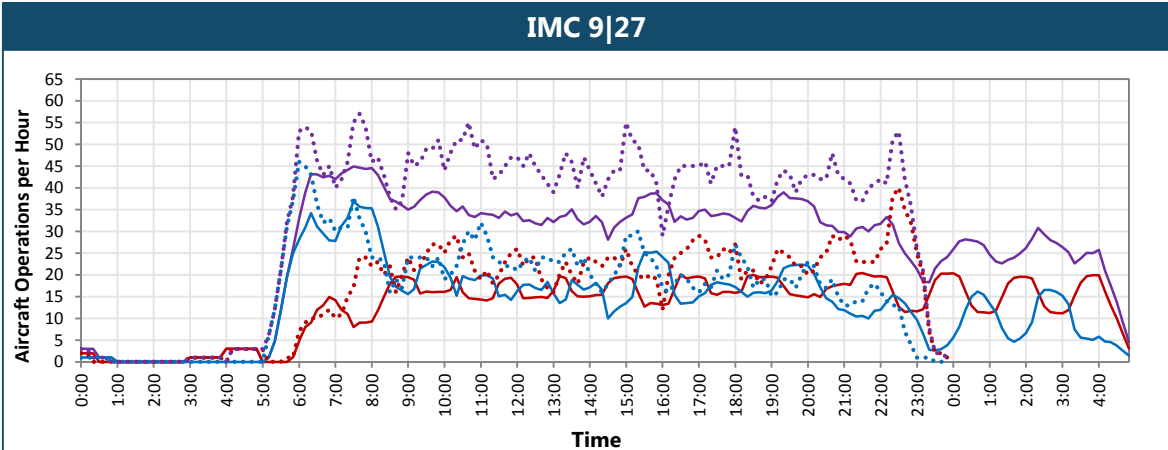
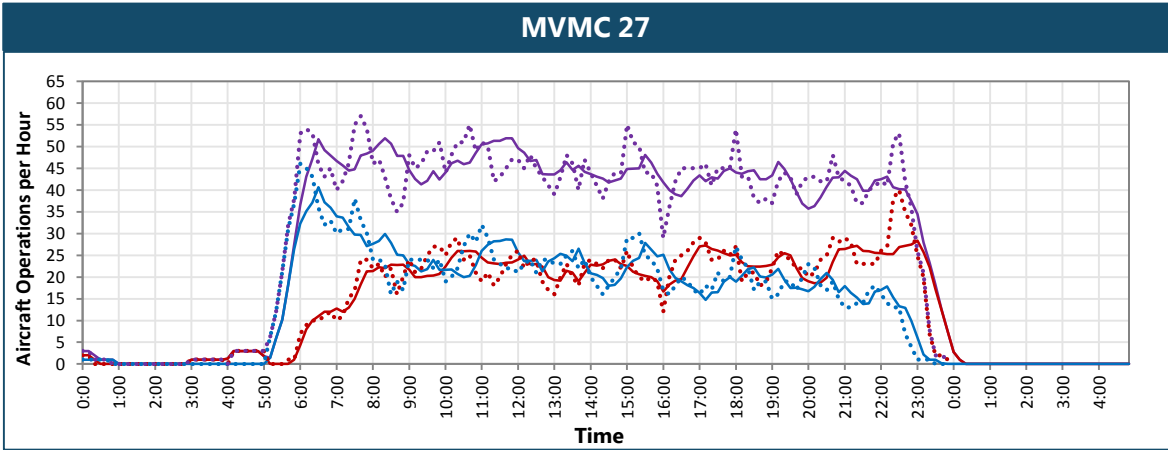
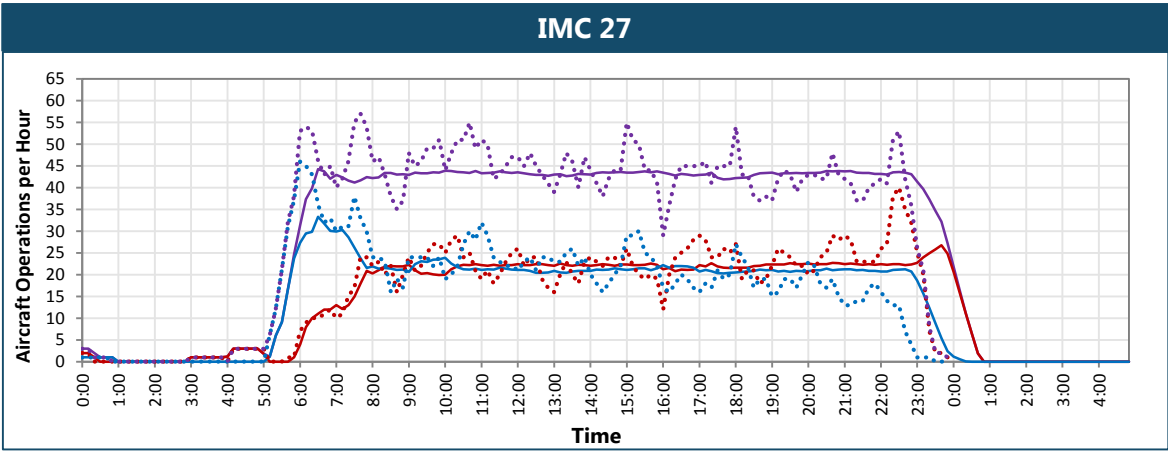
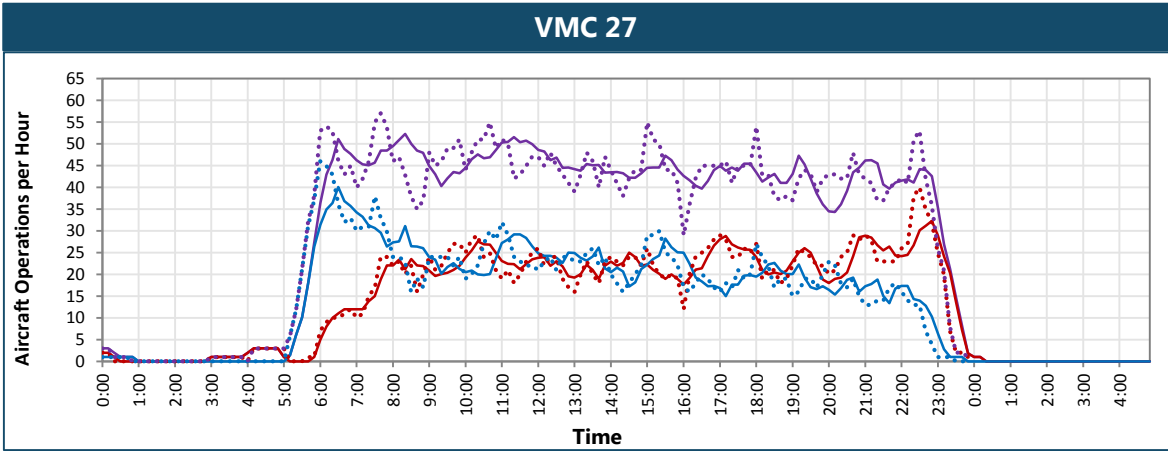


SOURCES: LeighFisher, Inc., Design Day Flight Schedules, April 2019;

Ricondo & Associates, Inc., SIMMOD Output - Average of 11 Iterations, May 2019.

Simulated Airport Throughput vs. Scheduled Demand

No Build – 2030



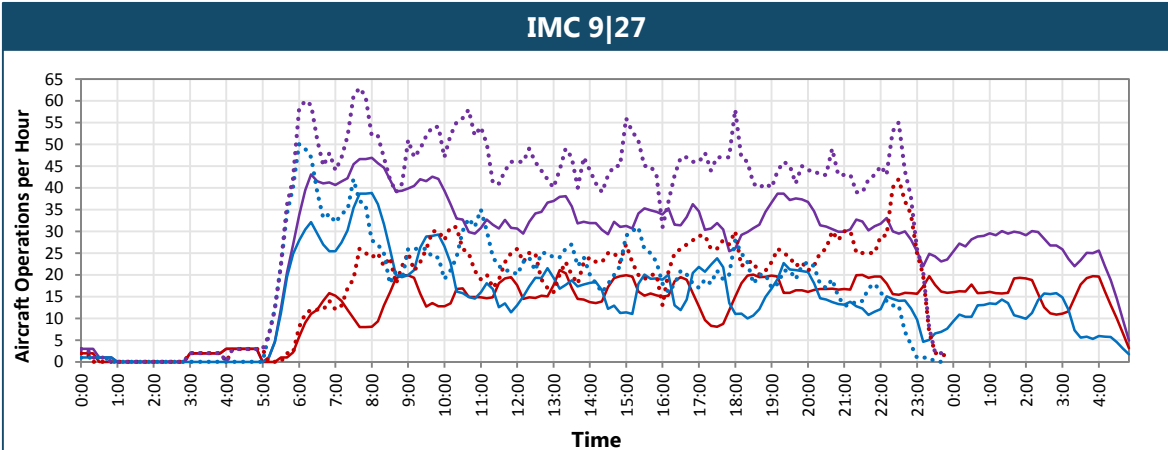
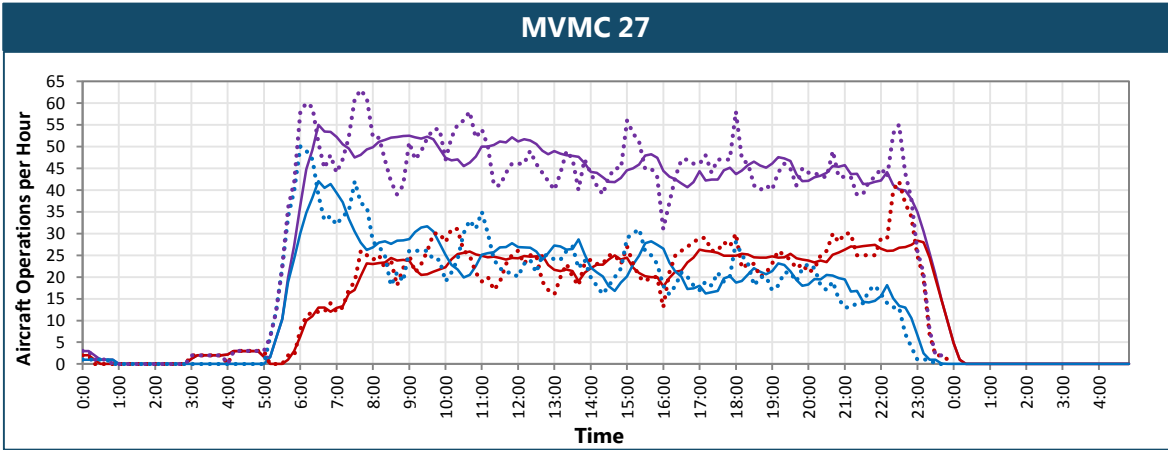
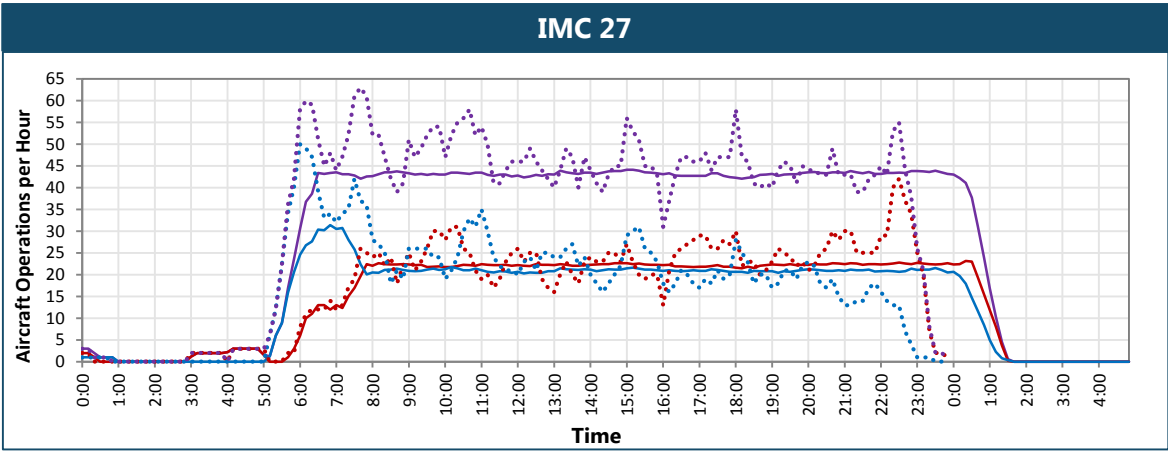
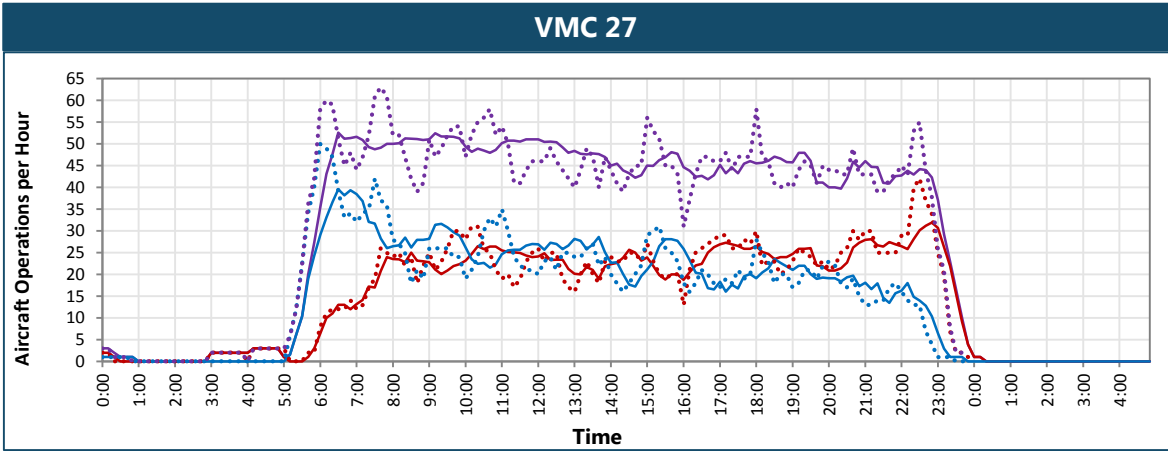
SOURCES: LeighFisher, Inc., Design Day Flight Schedules, April 2019;
Ricondo & Associates, Inc., SIMMOD Output - Average of 11 Iterations, May 2019.

Legend

- Simulated Total (Runway Time)
- Simulated Arrivals (Runway Time)
- Simulated Departures (Runway Time)
- ... Scheduled Total (Gate Time)
- ... Scheduled Arrivals (Gate Time)
- ... Scheduled Departures (Gate Time)

Simulated Airport Throughput vs. Scheduled Demand

No Build – 2035



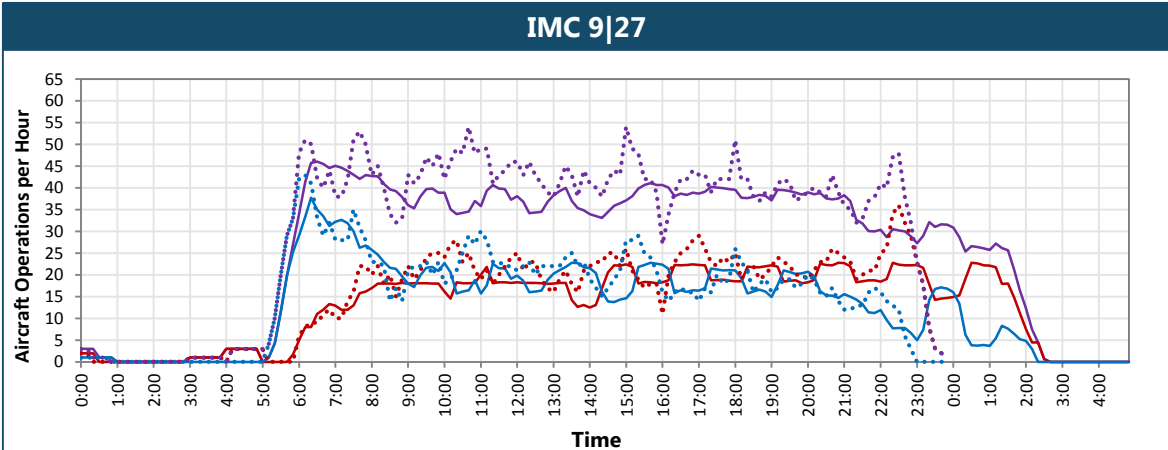
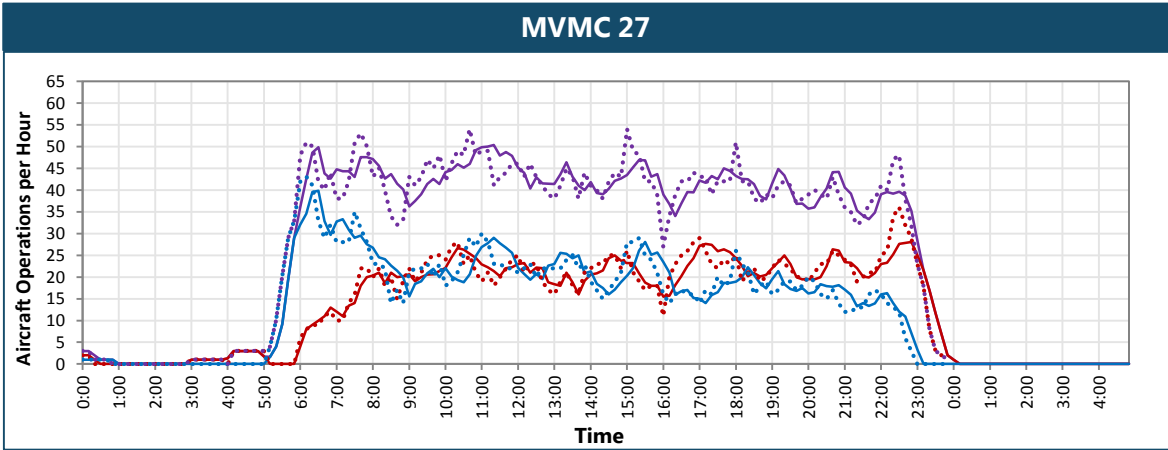
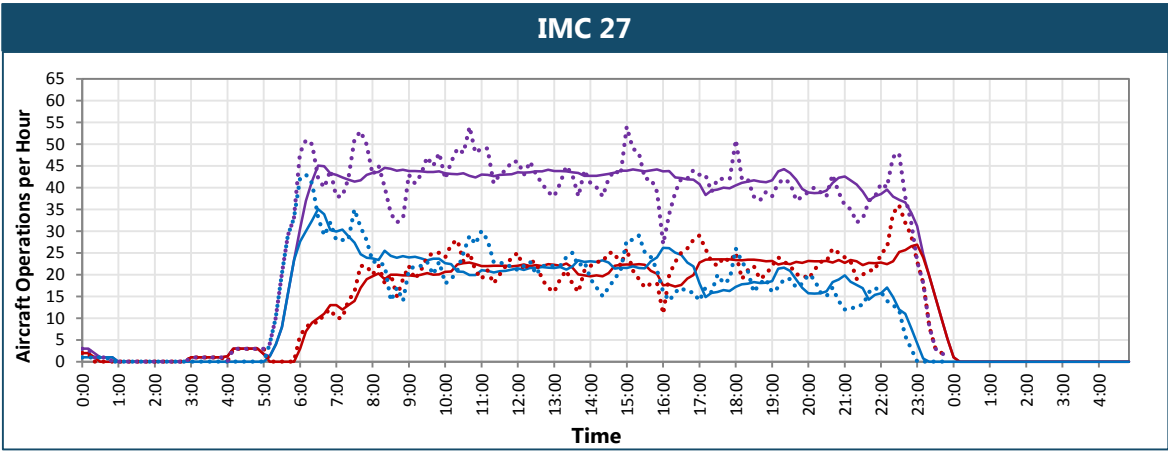
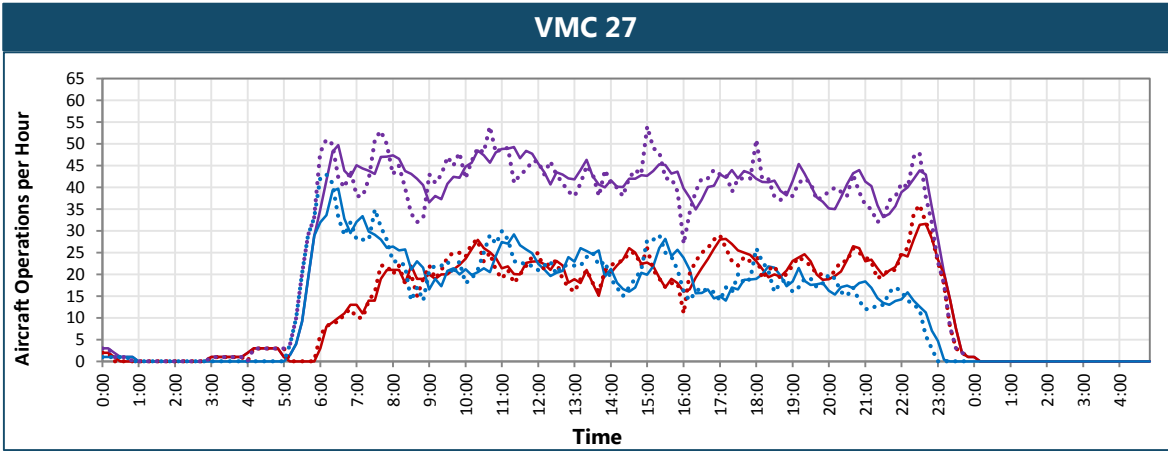
SOURCES: LeighFisher, Inc., Design Day Flight Schedules, April 2019;
Ricondo & Associates, Inc., SIMMOD Output - Average of 11 Iterations, May 2019.

Legend

- Simulated Total (Runway Time)
- Simulated Arrivals (Runway Time)
- Simulated Departures (Runway Time)
- Scheduled Total (Gate Time)
- Scheduled Arrivals (Gate Time)
- Scheduled Departures (Gate Time)

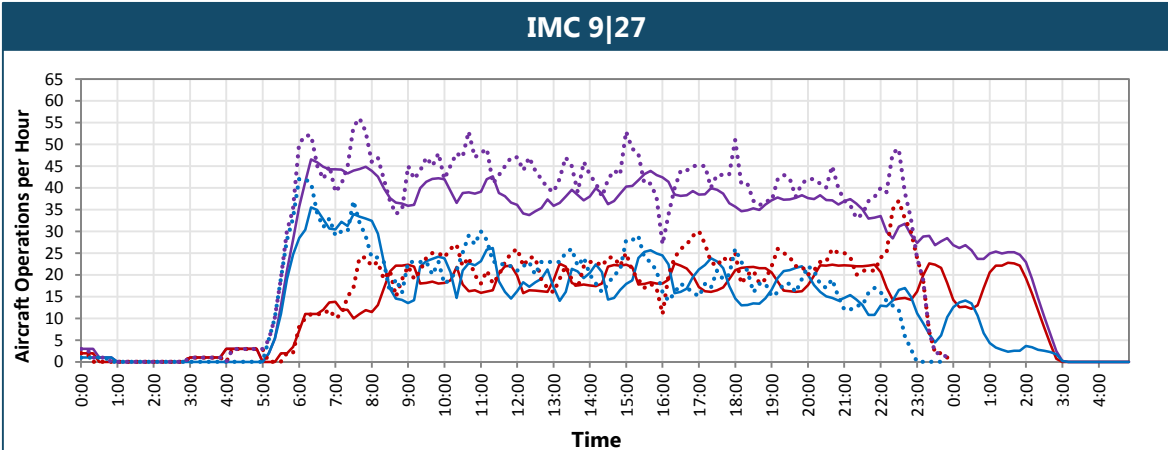
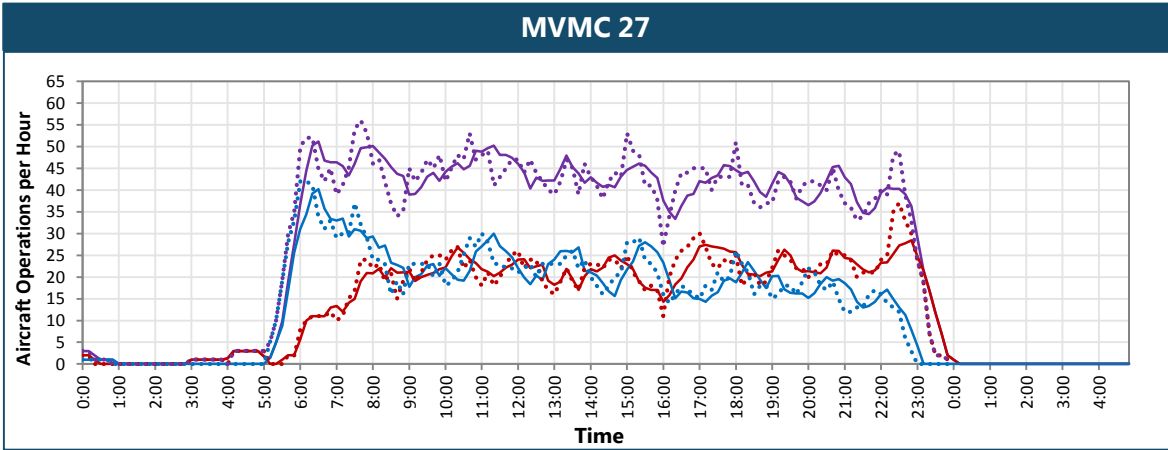
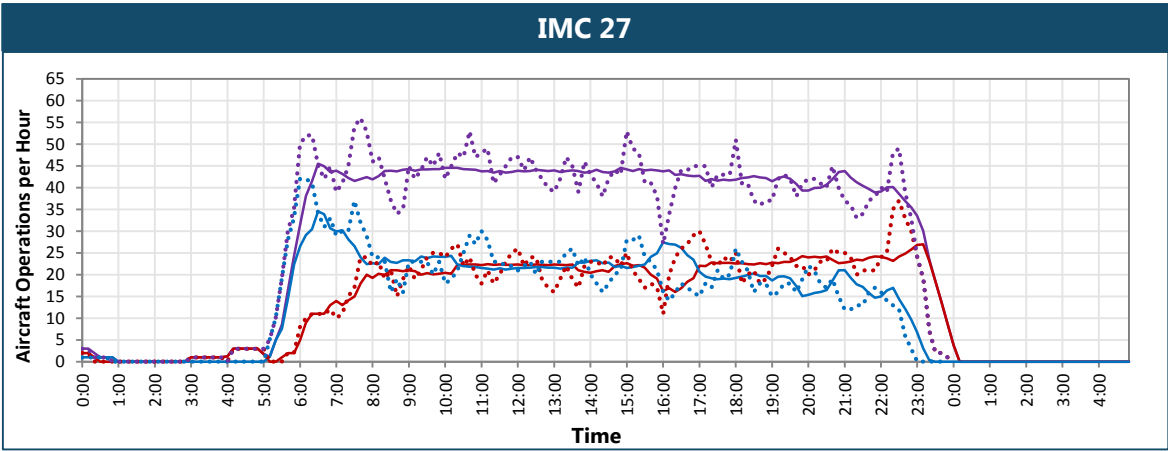
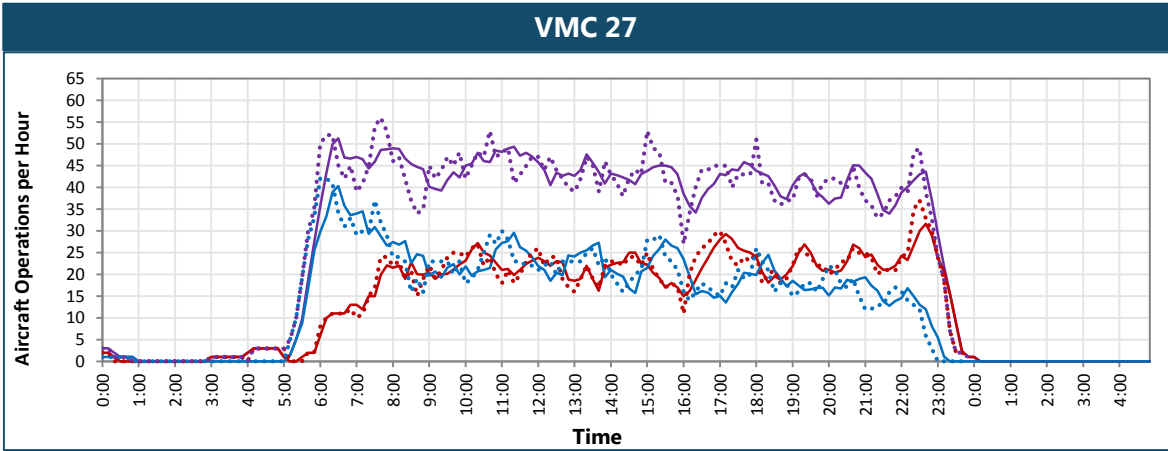
Simulated Airport Throughput vs. Scheduled Demand

Preferred Alternative – 2024



Simulated Airport Throughput vs. Scheduled Demand

Preferred Alternative – 2026



SOURCES: LeighFisher, Inc., Design Day Flight Schedules, April 2019;
Ricondo & Associates, Inc., SIMMOD Output - Average of 11 Iterations, May 2019.

Legend

— Simulated Total (Runway Time)

..... Scheduled Total (Gate Time)

— Simulated Arrivals (Runway Time)

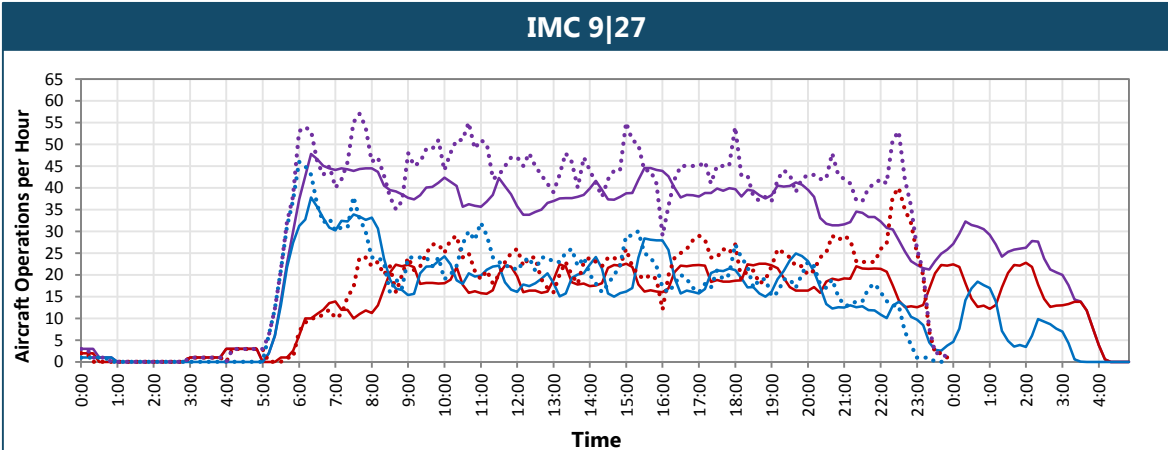
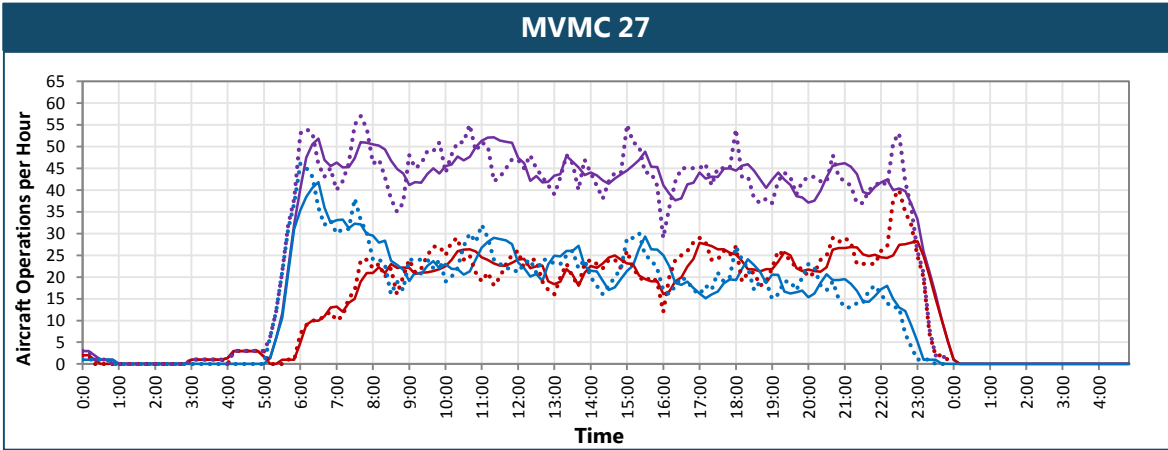
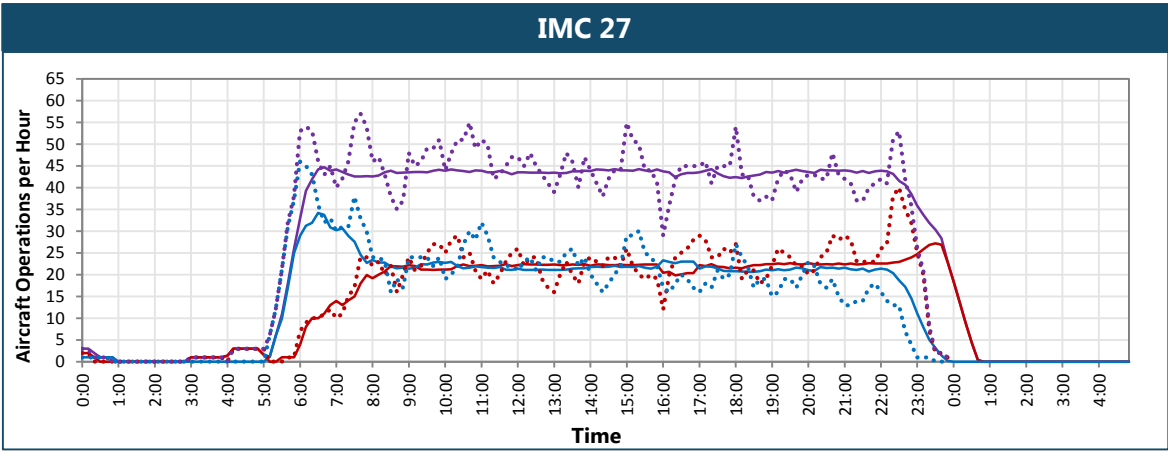
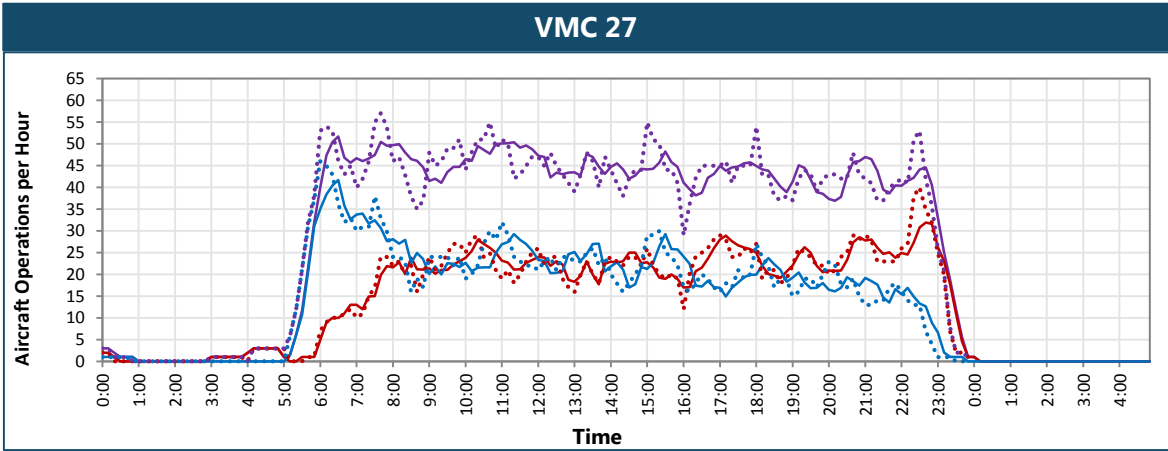
..... Scheduled Arrivals (Gate Time)

— Simulated Departures (Runway Time)

..... Scheduled Departures (Gate Time)

Simulated Airport Throughput vs. Scheduled Demand

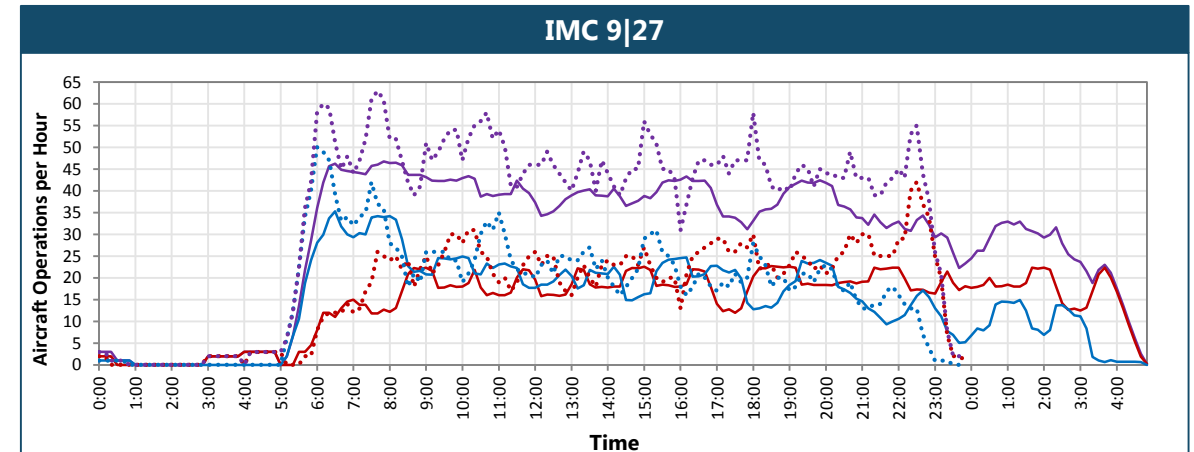
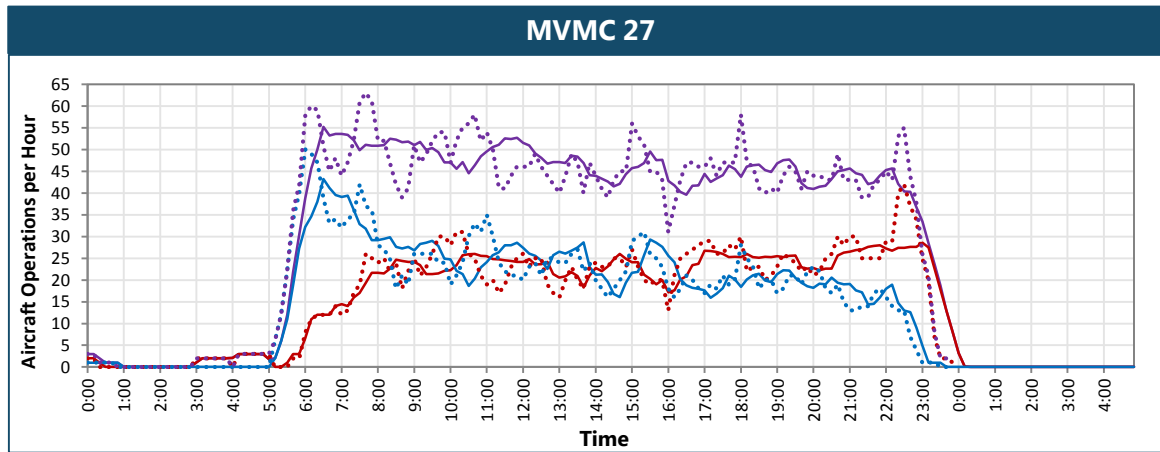
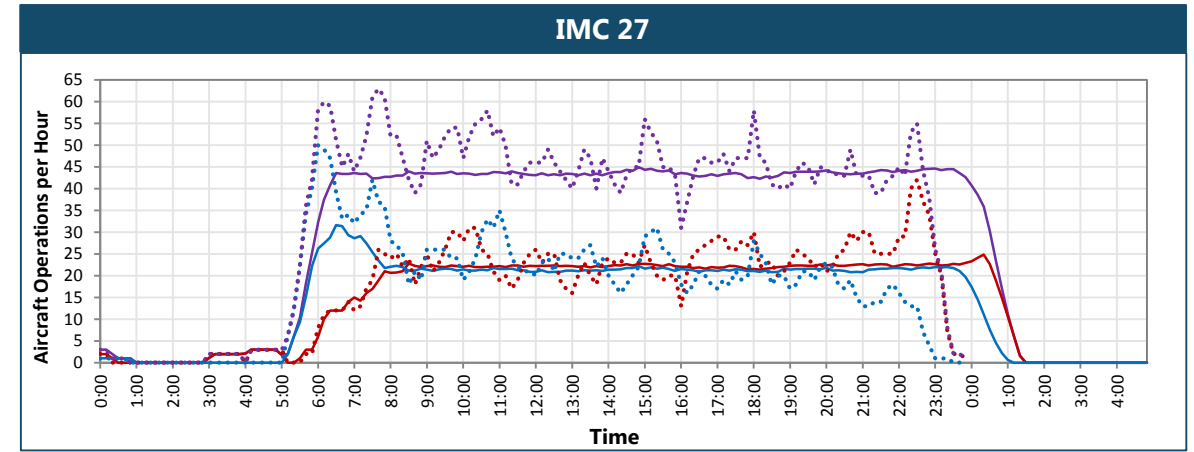
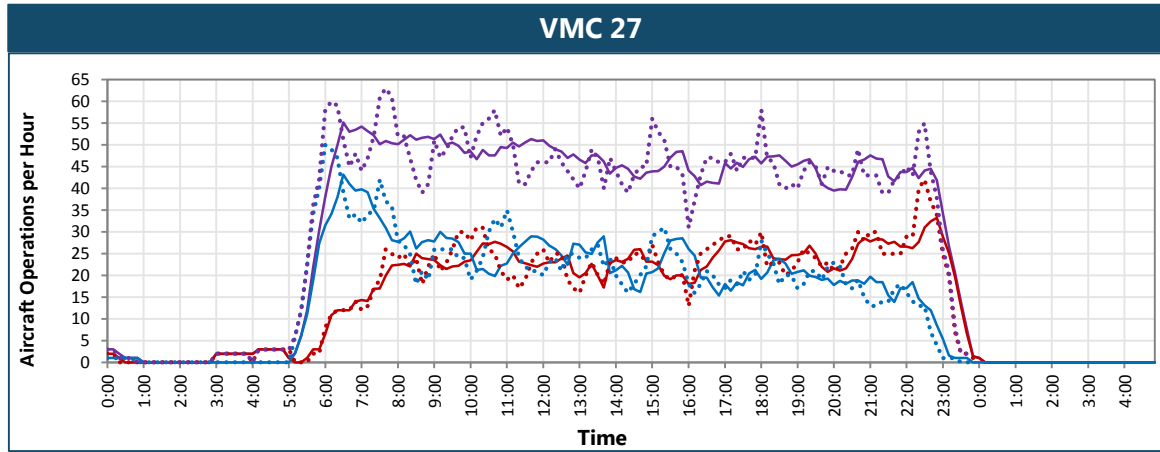
Preferred Alternative – 2030



SOURCES: LeighFisher, Inc., Design Day Flight Schedules, April 2019;
Ricondo & Associates, Inc., SIMMOD Output - Average of 11 Iterations, May 2019.

Simulated Airport Throughput vs. Scheduled Demand

Preferred Alternative – 2035

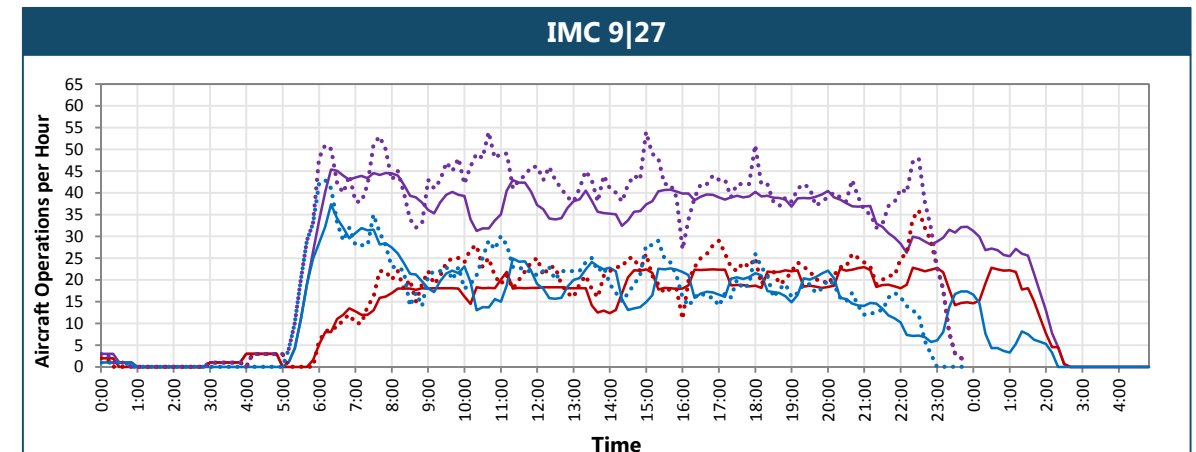
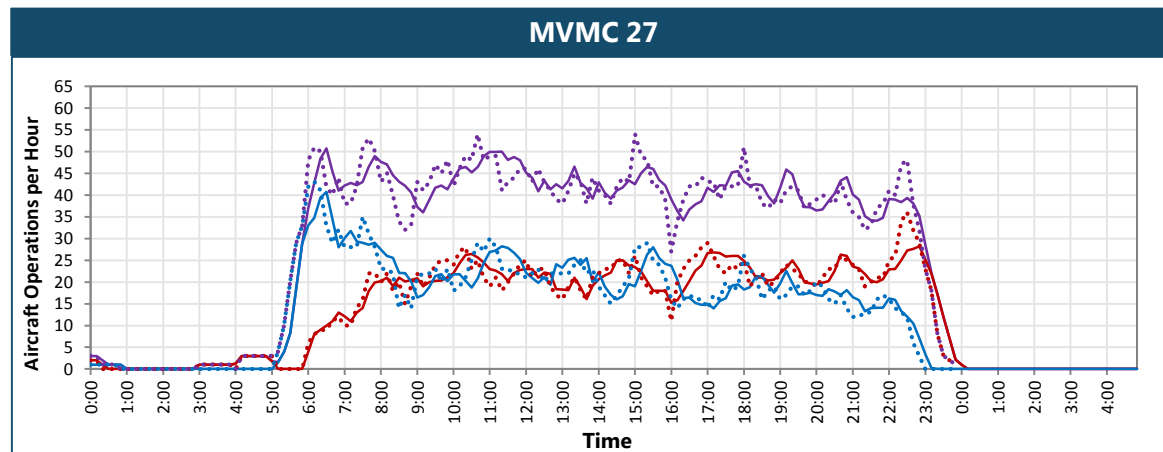
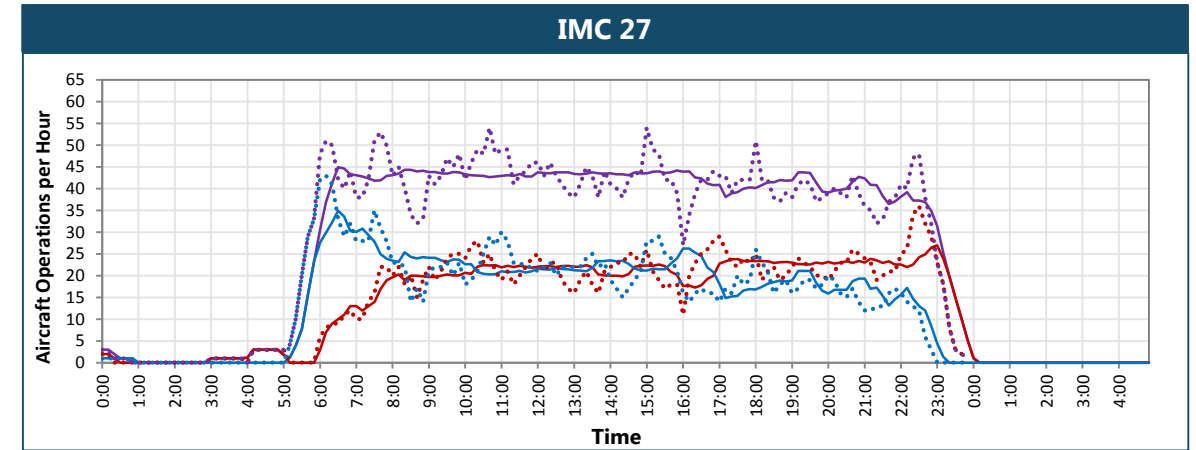
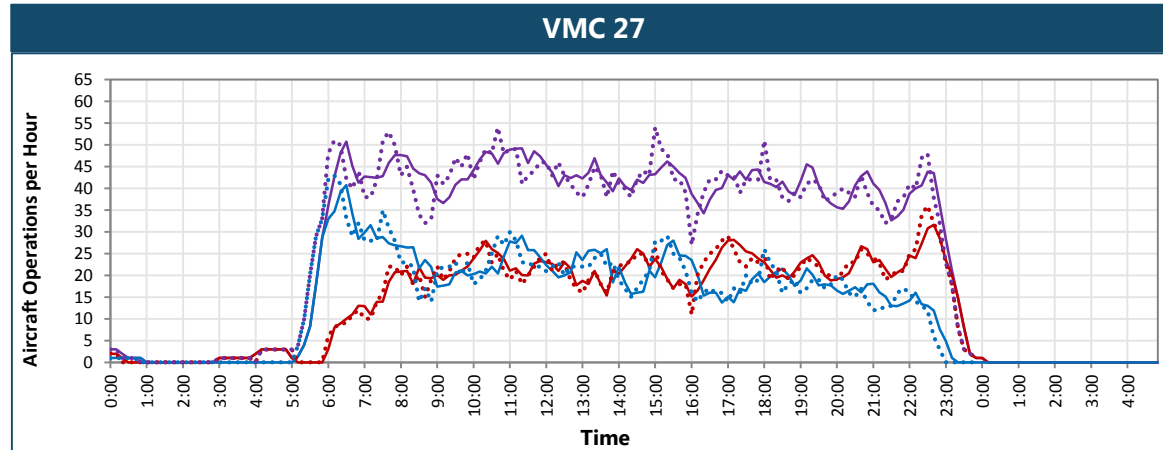


SOURCES: LeighFisher, Inc., Design Day Flight Schedules, April 2019;

Ricondo & Associates, Inc., SIMMOD Output - Average of 11 Iterations, May 2019.

Simulated Airport Throughput vs. Scheduled Demand

Alternative 4 – 2024

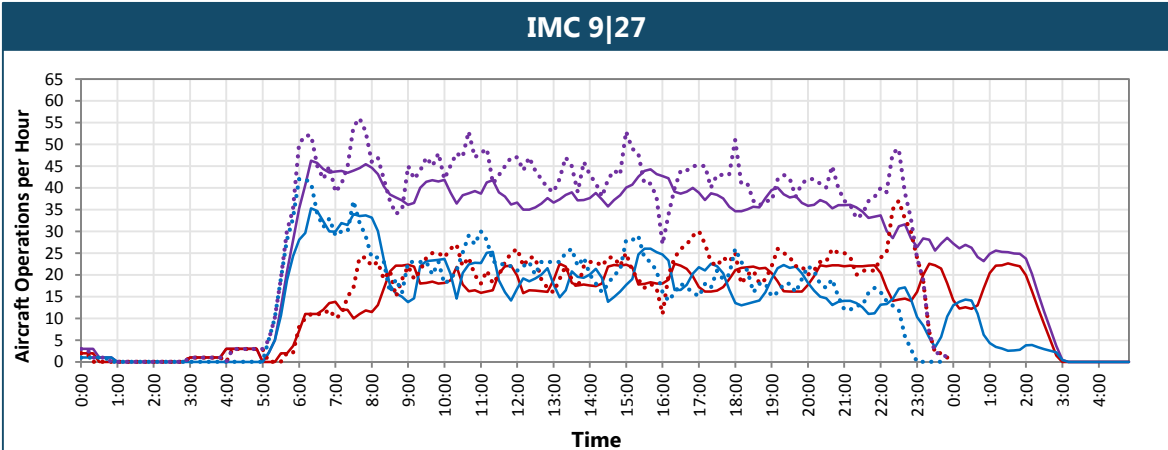
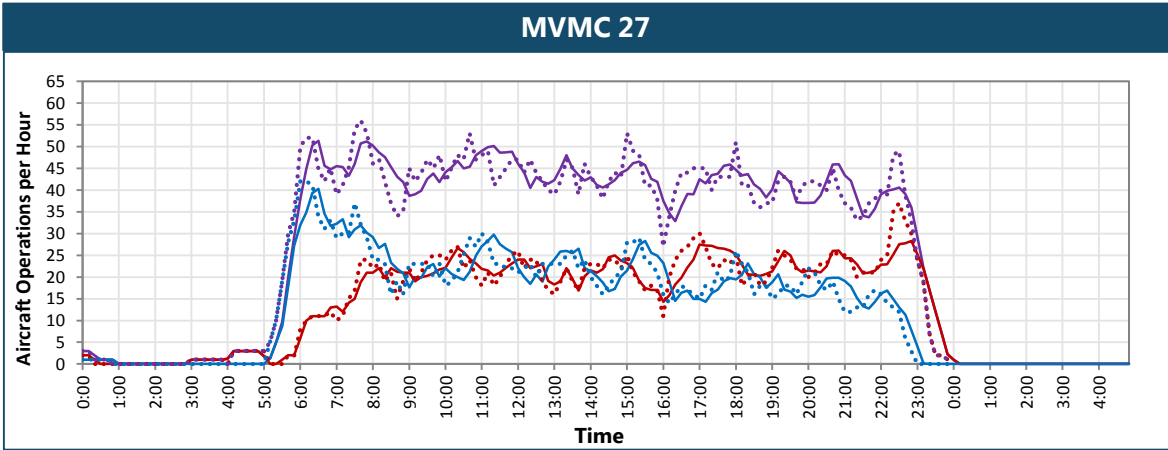
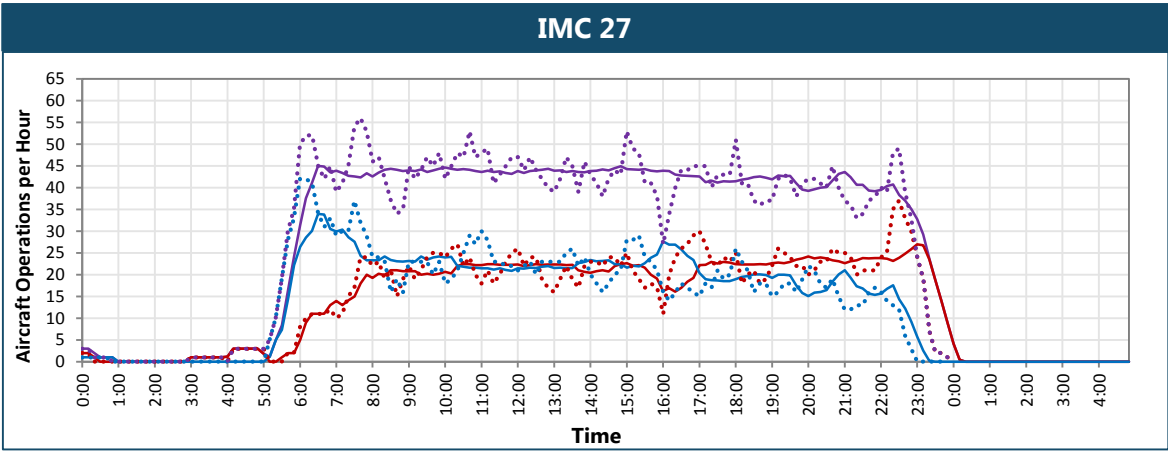
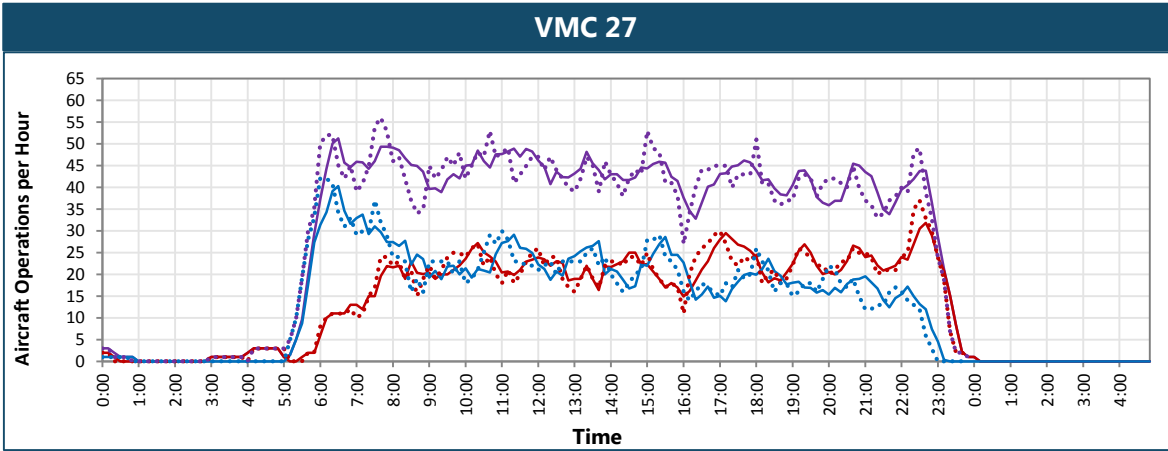


SOURCES: LeighFisher, Inc., Design Day Flight Schedules, April 2019;

Ricondo & Associates, Inc., SIMMOD Output - Average of 11 Iterations, May 2019.

Simulated Airport Throughput vs. Scheduled Demand

Alternative 4 – 2026



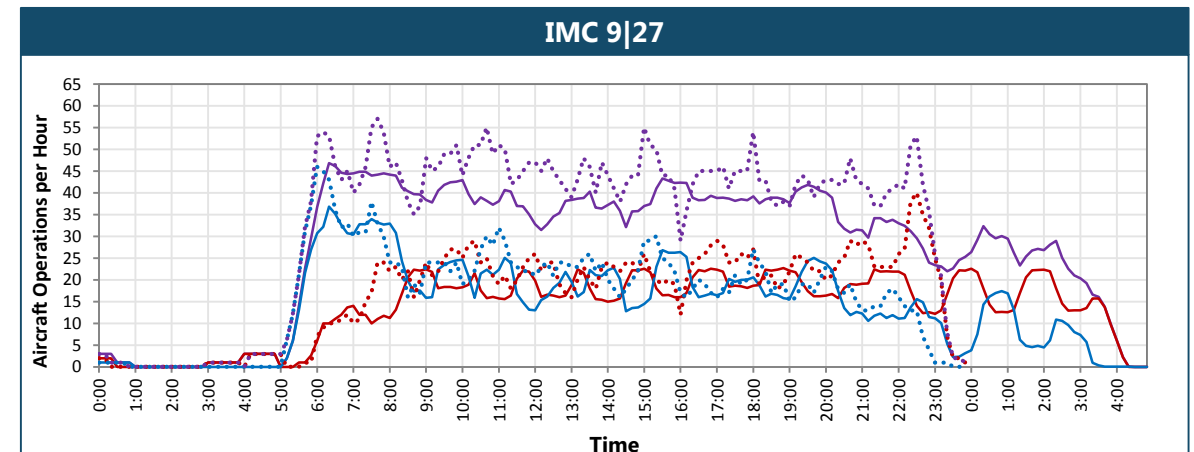
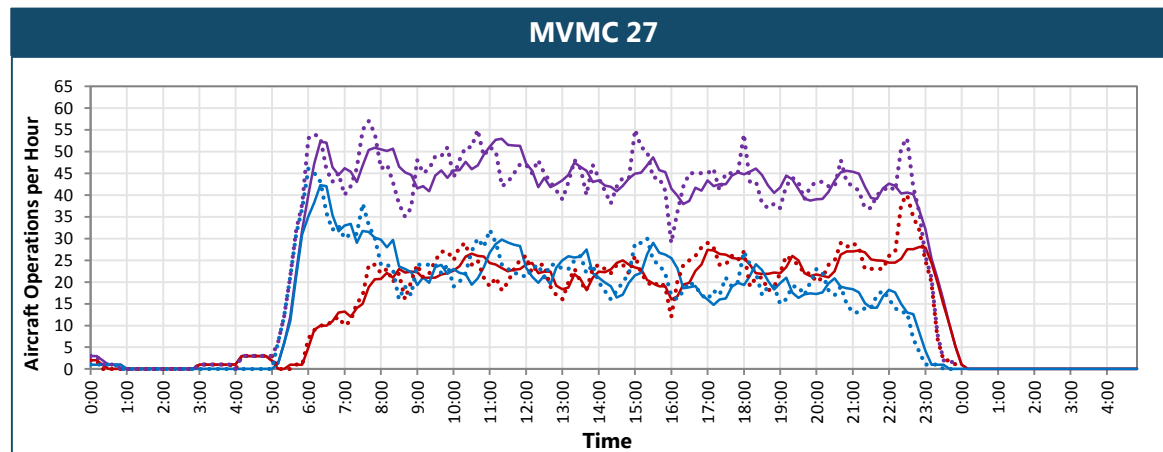
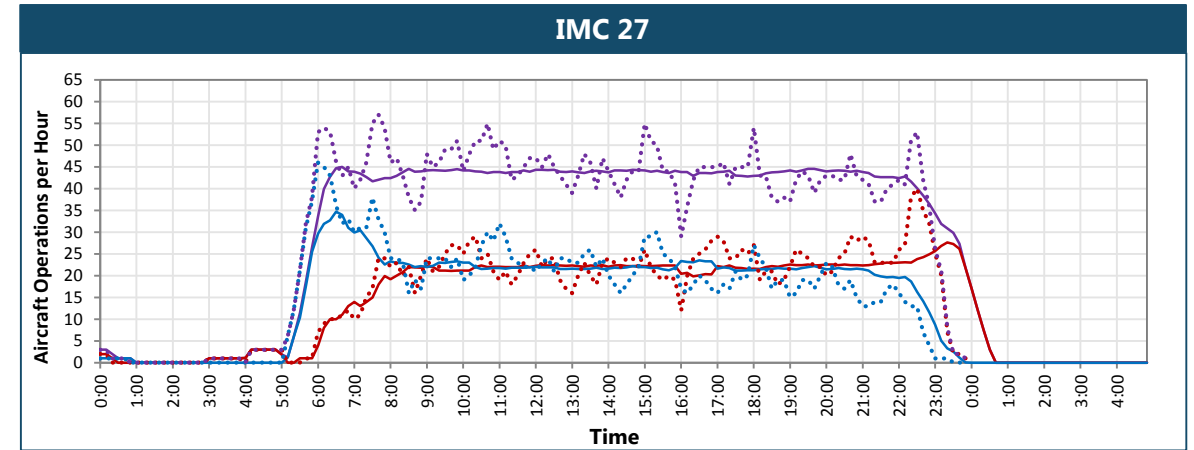
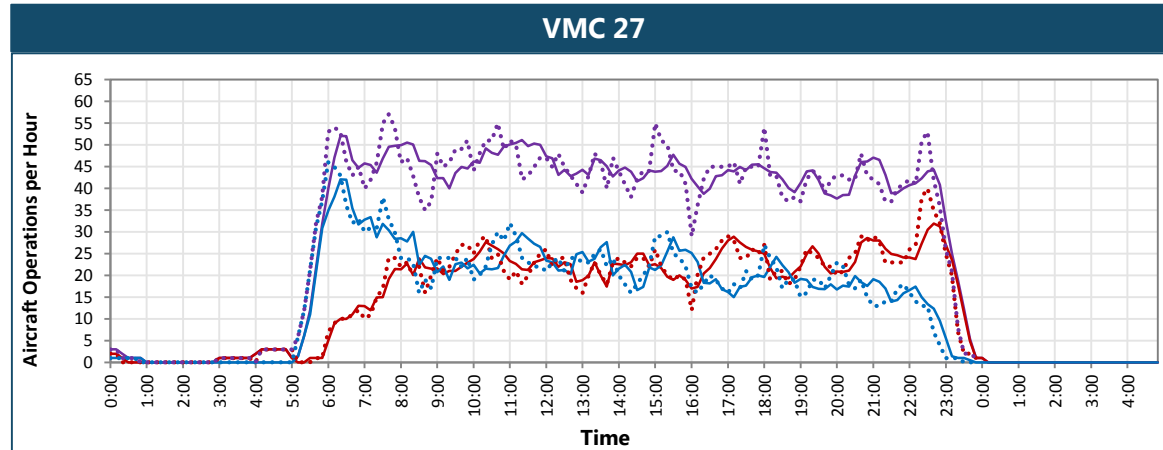
SOURCES: LeighFisher, Inc., Design Day Flight Schedules, April 2019;
 Ricondo & Associates, Inc., SIMMOD Output - Average of 11 Iterations, May 2019.

Legend

- Simulated Total (Runway Time)
- Simulated Arrivals (Runway Time)
- Simulated Departures (Runway Time)
- Scheduled Total (Gate Time)
- Scheduled Arrivals (Gate Time)
- Scheduled Departures (Gate Time)

Simulated Airport Throughput vs. Scheduled Demand

Alternative 4 – 2030

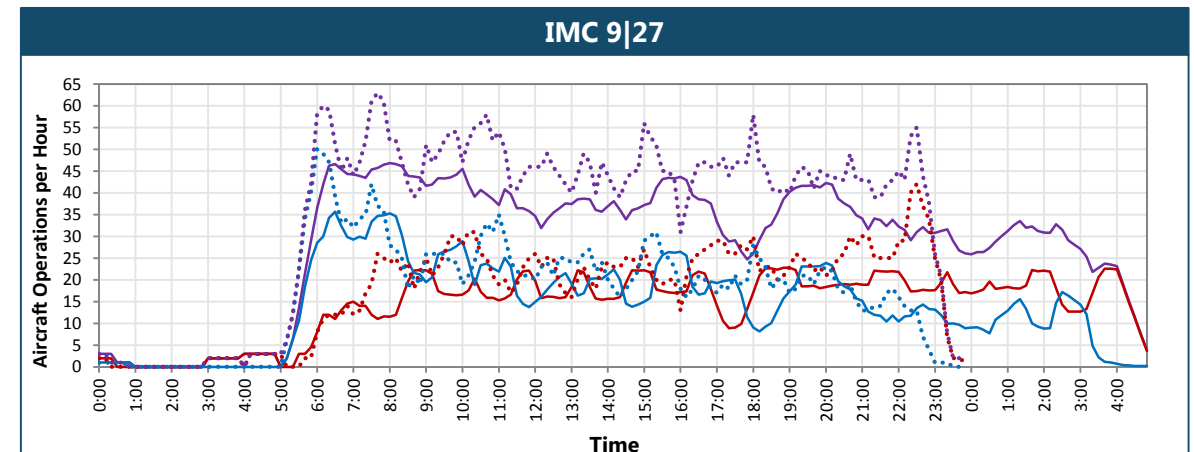
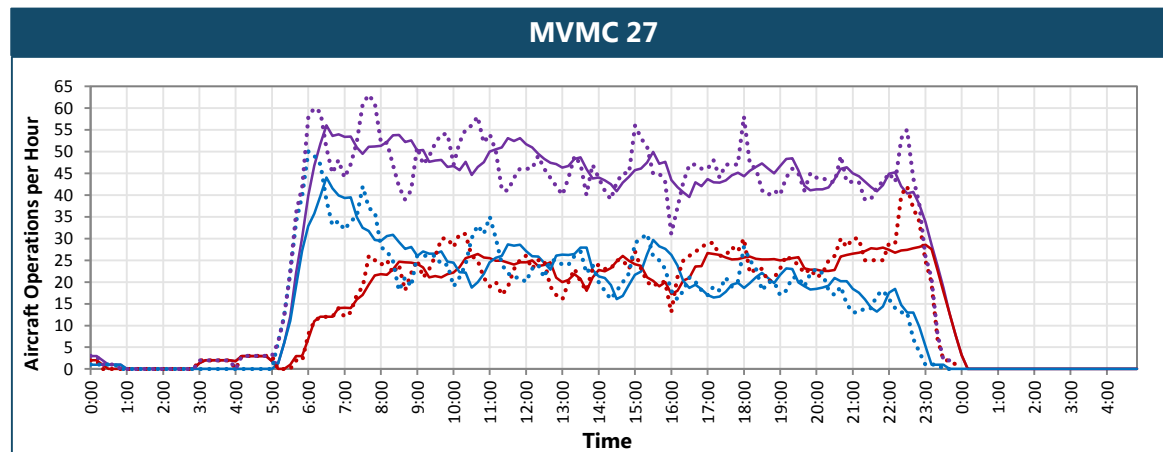
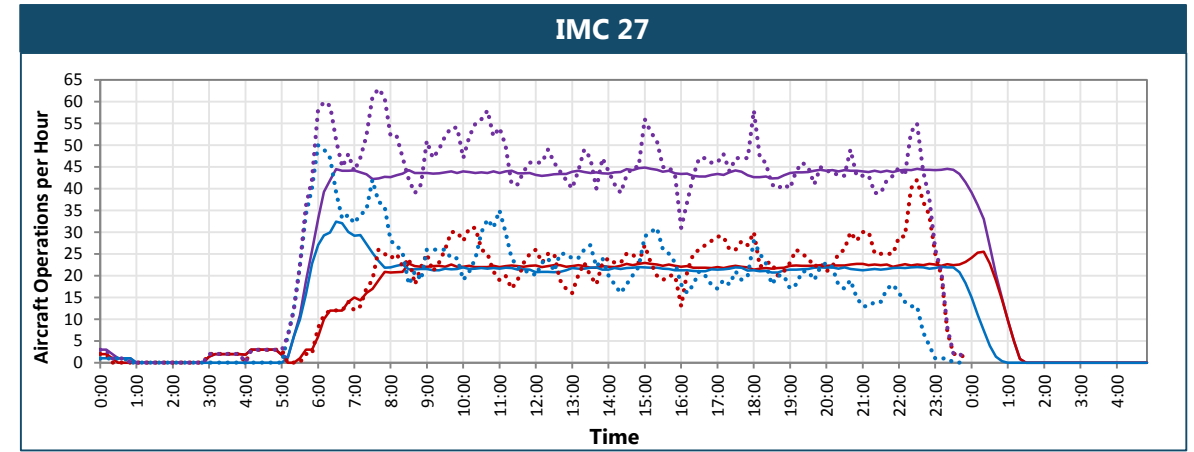
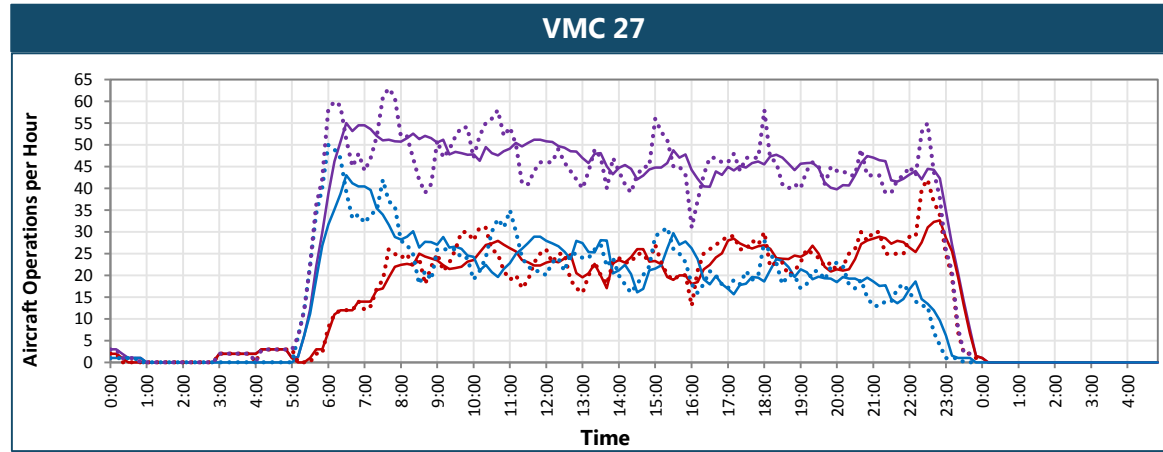


SOURCES: LeighFisher, Inc., Design Day Flight Schedules, April 2019;

Ricondo & Associates, Inc., SIMMOD Output - Average of 11 Iterations, May 2019.

Simulated Airport Throughput vs. Scheduled Demand

Alternative 4 – 2035



SOURCES: LeighFisher, Inc., Design Day Flight Schedules, April 2019;

Ricondo & Associates, Inc., SIMMOD Output - Average of 11 Iterations, May 2019.

Legend

— Simulated Total (Runway Time) — Simulated Arrivals (Runway Time) — Simulated Departures (Runway Time)
⋯ Scheduled Total (Gate Time) ⋯ Scheduled Arrivals (Gate Time) ⋯ Scheduled Departures (Gate Time)

Attachment to Comment Letter R-AS004

California Coastal Commission comments on the 2018 Draft EIR

CALIFORNIA COASTAL COMMISSION

SAN DIEGO AREA
7575 METROPOLITAN DRIVE, SUITE 103
SAN DIEGO, CA 92108-4421
(619) 767-2370



RECEIVED
NOV 20 2019

September 7, 2018

BY:

Mr. Ted Anasis
San Diego County Regional Airport Authority
P.O. Box 82776
San Diego, CA 92138

Subject: Comments on the Draft Environmental Impact Report for the San Diego International Airport Development Plan

Dear Mr. Anasis:

Thank you for the opportunity to review and comment on the above-referenced Draft Environmental Impact Report (DEIR), prepared by the San Diego County Regional Airport Authority (Airport Authority) and received by our San Diego District Office on July 26, 2018. The Airport Development Plan (ADP or project) consists of improvements that will enable the San Diego International Airport (SDIA or airport) to meet demand through 2035, and includes: (1) demolition of the existing 19-gate, 48 ft. tall, two-story, 336,000 sq. ft. Terminal 1 and replacement with a new 30-gate, 65 ft. tall, three-story, 1,120,000 sq. ft. terminal with an adjacent 400,000 sq. ft. non-airport related commercial development area; (2) construction of a five-story, 85 ft. tall, 2,780,000 sq. ft., 7,500-space parking structure adjacent to the new Terminal 1; (3) a new on-airport entry roadway with a multi-use pedestrian and bicycle pathway that would connect to North Harbor Drive and allow westbound airport traffic to enter the airport at a new intersection west of the existing intersection of North Harbor Drive and Laurel Street; (4) construction of a new 7-gate, 450,000 sq. ft. concourse at Terminal 2 West; (5) replacement of Terminal 2 East with a linear 250,000 sq. ft., three-story concourse connector between Terminal 2 West and the new Terminal 1 resulting in a net decrease of six gates; (6) 12,000 sq. ft. expansion of the Central Utility Plant; (7) demolition of the existing 65 ft. tall, 132,000 sq. ft. administration building and replacement with a new 95 ft. tall, 150,000 sq. ft. administration building in a different location; (8) a new airfield taxiway and new remain overnight (RON) aircraft parking areas; and (9) other associated infrastructure improvements. Ultimately, the number of gates at SDIA would increase from 51 to 61.

The SDIA was previously under the coastal permit jurisdiction of the San Diego Unified Port District (Port) and the standard of review was the certified Port Master Plan; however, state legislation transferred authority over airport property to the newly created Airport Authority in January 2003. Thus, the airport is now within the Coastal Commission's permit jurisdiction. As such, the subject project will require a coastal development permit (CDP) and the standard of review is the Chapter 3 policies of the Coastal Act. Accordingly, any airport improvements should be designed to be consistent with those policies which require the protection of public access and recreation, water quality, air quality, sensitive species, scenic and visual qualities of coastal areas; the minimization of energy consumption and vehicle miles traveled; assuring the potential

for public transit for high intensity uses; and minimizing risks in areas subject to coastal hazards (e.g., flooding, sea level rise). The airport is also subject to the Public Trust Doctrine since it is located on tidelands. The Public Trust Doctrine guarantees the public's right of access and use of California's waterways, including San Diego Bay, for navigation, fishing, boating, natural habitat protection and other water oriented activities.

The DEIR raises many concerns regarding the proposed ADP's consistency with the Coastal Act and the Public Trust Doctrine. According to the DEIR, the ADP will result in 17 years of construction and significant unmitigated impacts on traffic, air quality, climate change and greenhouse gas emissions, historical resources, land use and planning, and noise. The Coastal Act consistency analysis on pages 3.11-29 to 3.11-30 of the DEIR is inadequate and fails to thoroughly evaluate the project's consistency with Chapter 3 of the Coastal Act. The DEIR states that only seven Coastal Act policies are applicable to the project; however, the DEIR should address consistency with all relevant Chapter 3 policies. This section should be revised to provide a more detailed analysis of the project's consistency with the Coastal Act. If the ADP is found to be inconsistent with any of the Chapter 3 policies, mitigation measures or adoption of an alternative would be required to ensure the ADP is brought into conformance with the Coastal Act. Given the deficiency of this section and those deficiencies identified below, we recommend that the DEIR be revised to address these comments and recirculated for additional public review.

Of primary concern to Commission staff is the proposal to significantly expand the capacity of the airport (from 51 gates to 61 gates) without implementing adequate improvements to alternative transportation infrastructure in order to accommodate the increase in passengers arriving and departing from the airport on North Harbor Drive, a major coastal accessway. North Harbor Drive serves as a primary access route not only to the airport but to and along the San Diego Bay, the shoreline promenade, Harbor Island, Shelter Island, Cabrillo Monument, Point Loma, parks, sports fishing interests, marinas, boat launch facilities and many other coastal destinations. Over 70% of the total vehicle traffic on North Harbor Drive is airport-related and the roads surrounding the airport currently experience congestion and levels of service "F" on some street segments and intersections as a result. While we appreciate the incorporation of pedestrian and bicyclist access to the airport as part of the proposed circulation system, these improvements alone will not adequately mitigate for the anticipated traffic impacts on 16 intersections, 18 road segments and 27 freeway segments. The ADP should include more robust public transportation alternatives to increase public access to the airport via modes that minimize traffic and associated greenhouse gas emissions.

These concerns have been previously raised in recent Commission actions, including the Commission's approval of the rental car center (CDP No. 6-13-011) and the Terminal 2 parking structure (CDP No. 6-14-1886), as well as our March 1, 2017 comment letter regarding the Notice of Preparation for the subject environmental document. In both those actions, the Commission found that additional parking infrastructure could be approved consistent with the Coastal Act because the Airport Authority would continue to plan, implement, and improve alternative transportation options to the airport as part of

future redevelopment. Specifically, the findings of approval for the rental car center stated:

The Commission is strongly supportive of these transit planning efforts, and in particular, efforts to provide airport bus and/or shuttle service for the public from the Old Town Transit Center and/or park and ride type shuttle stops at trolley stations located inland of Pacific Highway, between the Old Town Station and the Santa Fe Station (where the existing public bus stops). Allowing the public to access an airport shuttle or an MTS bus from these locations would be a significant improvement in transit airport access for the public.

The findings of approval for the Terminal 2 parking structure reiterated this statement and also mentioned the Intermodal Transit Center (ITC) which is planned to connect the rail corridor to the airport via a pedestrian bridge.

In August 2013, when the Commission approved the CDP for the rental car center (CDP No. 6-13-011), it imposed Special Condition No. 8 which required a Transportation Demand Management (TDM) program. The TDM program requires an annual status report documenting the current status of efforts made to add or improve mass transit linkage to the airport for employees and users, including the development of the ITC that will connect to the north side of the airport and provide transit users free shuttle service to the terminals, an airport shuttle from the Old Town Transit Center, a direct airport shuttle from the trolley stations between Old Town Transit Center and Santa Fe Depot, and coordination with MTS to expand direct bus service to the airport. Another requirement of the TDM Program included implementation of an on-demand car or shuttle pick-up service provided from the closest transit stations to the rental car center; however, the shuttle service that the airport has implemented in response to this requirement is not what was required or envisioned. The airport shuttle that picks up trolley users is located on airport property and trolley passengers must walk approximately 8 minutes from the trolley station across a busy road (Pacific Highway) to access the shuttle. Thus, this shuttle should be reevaluated and improved as part of the ADP to make the connection from the trolley to the airport more user-friendly, and to be in conformance with the required special condition.

To ensure that the Airport Authority would continue efforts to expand public transit options to the airport, in August 2015 the Commission imposed Special Condition No. 3 as part of the approval for the parking structure (CDP No. 6-14-1886) which requires an update to the comprehensive Airport Transit Plan and an annual progress report documenting the current status of efforts to improve existing and add new mass transit linkages to the airport for employees and passengers. Special Condition No. 2 also required a Public Transit Outreach Program to inform airport users of public transit opportunities to the airport and encourage their use. Finally, Special Condition No. 4 requires that future CDP applications for additional parking at the airport include: an up to date traffic analysis; a comprehensive parking management plan; a detailed parking demand analysis reflecting current conditions; a list of the efforts made by the airport in collaborating with the regional transit agencies in the planning and construction of the

planned ITC; a comprehensive traffic and parking analysis detailing the effects of public transit on parking demand; and an evaluation of parking demand and traffic impacts with and without the ITC in order to determine its impact on airport traffic and parking.

While the airport is located in the center of the City of San Diego, it has not historically been accessible via public transit, except by one bus route (Metropolitan Transit System Bus 992) that stops at the Santa Fe Depot in downtown San Diego. The ADP continues to support reliance on single-occupancy vehicles by proposing a new 7,500-space parking structure at Terminal 1 instead of considering meaningful public transportation alternatives that would make public transit to the airport more easily accessible from the major transit hubs (e.g., Old Town Transit Center, ITC, Santa Fe Depot) and encourage more people to access the airport via public transit, thereby reducing vehicle miles traveled and associated greenhouse gas emissions.

The airport has already spent considerable time and effort identifying potential transit alternatives in the development of an Airport Transit Plan in 2010, updating that plan in 2016, and as a member of the Harbor Drive Mobility Committee. Instead of building another parking structure, some combination of the following alternatives should be considered and analyzed as part of the revised DEIR:

- Contribute to the funding of planning and environmental studies to facilitate development of the ITC to accommodate a future rail connection to the airport.
- Improve the existing airport shuttle to the Middletown trolley station. Currently, transit users must walk from the trolley station, down Palm Street, across Pacific Highway, and then north on airport property to reach the shuttle stop. A more direct connection where shuttles pick up and drop off users at the trolley station would make the connection more convenient and comfortable, and would likely increase use. In the meantime, immediate improvements that should be implemented include signage, sidewalk branding with airport logo, and coordination with the San Diego Unified Port District (Port), City of San Diego, and MTS to repair the Palm Street sidewalk, improve the Pacific Highway crosswalk, and construct a shuttle bus turn-out area at or directly adjacent to the trolley station.
- Construct an automated people mover to take airport passengers/employees from either the Washington Street or Middletown trolley stations directly to the terminals, as well as connect to the Rental Car Center. This improvement could serve as a catalyst for the ITC identified in the San Diego Association of Government (SANDAG) existing Regional Plan as part of the 2035 Revenue Constrained Scenario.
- Contribute to the funding of planning and environmental studies to facilitate development of direct transit connection to the airport (e.g., trolley, rail)
- Convert MTS Route 992 to a Rapid Bus route between the airport and Santa Fe Depot to increase the frequency and limit stops which will result in shorter travel times and increased reliability. If MTS is not in support of conversion of Route 992 to a Rapid Bus route, add direct shuttle between the airport and Santa Fe Depot. The existing MTS Route 992 should also include branding to identify that

it is an airport-bound bus and include improvements (e.g., luggage area) to make the bus more user friendly for airport passengers.

- Dedicate a transit only lane for buses and/or other transit vehicles on North Harbor Drive in order to reduce travel times.

In addition, a shuttle to the Old Town Transit Center should be implemented as part of this project as an interim measure to connect rail passengers (i.e., Coaster and Amtrak) from north San Diego County, trolley passengers from east San Diego County, and bus passengers from around the County to the airport. The Old Town Transit Center shuttle would provide a more direct and efficient connection to the airport via the on-airport roadway, rather than traveling downtown to the Santa Fe Depot and backtracking through traffic on North Harbor Drive, and should be prioritized until such time as the ITC or another direct rail connection to the airport can be built. It is critical that the Airport Authority begin coordination with relevant agencies, including the City of San Diego, California State Parks, MTS, North County Transit District (NTCD), and Amtrak, as soon as possible in order to determine an appropriate parking management plan to ensure that the parking lot at the Old Town Transit Center is only used by transit riders and visitors of the State Park, and does not become a lot for airport employees or passengers to park and ride the shuttle to the airport. Given the importance of the Old Town Transit Center shuttle in linking Coaster passengers from North San Diego County, Amtrak passengers from Los Angeles/Orange County, MTS trolley passengers from East San Diego County, and bus passengers from around the County, this shuttle should be implemented concurrent with the commencement of construction of the ADP to help mitigate the anticipated construction impacts.

The DEIR acknowledges multiple measures that could be implemented to mitigate for project impacts associated with traffic and circulation; however, these mitigation measures are identified as “infeasible” because the Airport Authority has not yet received permission from the Federal Aviation Authority (FAA) to use airport related revenues to mitigate offsite for impacts caused by the proposed development. Specifically, the DEIR states:

Now that SDCRAA has identified specific mitigation measures for Project impacts, SDCRAA will make specific requests to the FAA, where appropriate, for it to allow funding of off-Airport mitigation measures.

It is unclear whether the Airport Authority has had any conversation regarding the approval process with the FAA and therefore the subject mitigation measures should not yet be considered “infeasible”.

Even if the Airport Authority does not have jurisdiction to implement necessary traffic improvements because those improvements would be located within another agency’s jurisdiction, the improvements may still be feasible under the California Environmental Quality Act (CEQA), and the Airport Authority may mitigate the ADP’s significant impacts by contributing funds to pay its fair share of the cost to implement the necessary mitigation measures. Based on coordination with other stakeholders, it is our

understanding that many agencies would be willing to enter into an agreement with the Airport Authority to implement mitigation measures if the Airport Authority is willing to provide its fair share of mitigation. The Airport Authority should coordinate with Caltrans, the City of San Diego, MTS, Port, and SANDAG to determine which mitigation measures may be feasible in each of their jurisdictions. The DEIR should then be revised to identify the cost of each of the recommended improvements, the formula for determining the airport's fair share, and the percentage and dollar amount of the airport's fair share of the cost of each of the recommended improvements. Unless the FAA determines that such fair share contribution is prohibited by law, the airport should contribute its fair share of the cost of the necessary improvements to the agency with jurisdiction over the affected traffic facility. Following this coordination, the DEIR should also be revised to identify mitigation measures which are within the jurisdiction of another agency as "can and should be adopted by such other agency."

In addition, it is unclear from the DEIR language which mitigation measures the Airport Authority believes are appropriate and the process necessary to receive FAA approval of mitigation funds. As such, please identify the criteria used to select appropriate mitigation measures, the process to request funding, the expected timeline for request and approval of mitigation funds, and information regarding any preliminary correspondence the Airport Authority has had with the FAA regarding use of these funding mechanisms for mitigation projects. We also recommend additional coordination with the City of San Diego, Port, SANDAG, Caltrans, MTS, and the Commission prior to the final selection of mitigation measures to seek FAA approval for to ensure they are in alignment with current plans for the region.

Finally, please clarify whether the airport has revenue sources that are not subject to FAA approval that could be used to pay the airport's fair-share of the cost of off-airport improvements necessary to mitigate the ADP's numerous significant impacts on traffic in the surrounding area.

Greenhouse Gas (GHG) Emissions and Climate Change

We appreciate the Airport Authority's implementation of energy efficiency measures and its goal of achieving carbon neutral operations for those direct and indirect emissions within its control, as described in the DEIR's Section 3.3.2.2. To help achieve this goal and to allow consistency with prior Commission actions, we recommend the DEIR be modified to address the following two issues.

First, we recommend the DEIR's *Section 3.3.4.3 – State Plans, Policies, and Regulations* be revised to identify the Coastal Act as a State-level policy and regulatory mechanism that is applicable to the proposed project. We also recommend that the document describe the Commission's GHG-related findings and conditions required through CDP Nos. 6-09-015 and 6-09-15-A1, issued to the airport in 2009 and 2018 respectively. The permit authorized development similar to that being currently proposed, required the airport to identify all increased emissions resulting from the project, and required mitigation through several types of measures, including implementing emission reduction methods and obtaining credits and offsets that were consistent with AB 32

requirements. The end result was to ensure that net emissions from the project did not exceed a 7,000 tonne per year threshold that had been established through a Memorandum of Understanding between the airport and the State Attorney General (described in this DEIR's Section 3.3.4.5).

We also recommend the DEIR's *Section 3.3.7 – Project Impacts* be revised to identify how the Airport could implement similar measures to mitigate or offset all emissions above that same threshold (or another more recent relevant threshold level). For example, as shown in Table 3.3-6, the total incremental increase above existing emissions due to the proposed project would be greater than the 7,000-tonne threshold in 2026, 2030, 2035, and presumably in the years in between that were not included in the table. Later in this section, the DEIR describes several mitigation measures that are expected to reduce this incremental increase, though the reductions are not quantified and they are not tied to any relevant threshold level. We recommend that, as an additional mitigation measure, the Airport Authority consider including in the DEIR a description of annual monitoring or quantification it will implement to identify actual direct and indirect emissions resulting from the project, along with measures such as credits or offsets that it will obtain to ensure net emissions do not exceed the relevant threshold.

The DEIR should also evaluate the project's long-range GHG impacts for the year 2050 in light of the GHG emissions reduction target for that year in Executive Order S-3-05.

Sea Level Rise

Sea Level Rise (SLR) analysis is necessary to fully evaluate impacts related to current and future hazards, including tidal and storm flooding, wave runup, groundwater levels, saltwater intrusion, and erosion, and how the project will minimize risks in areas subject to those hazards. Specifically, to comply with Coastal Act Section 30253, the project will need to be planned, located, designed, and engineered for the changing water levels and associated impacts that might occur over the life of the development. This analysis is also necessary to evaluate the current and future impacts the project will have on public access and recreation, biological resources, and other coastal resources set forth in Chapter 3 of the Coastal Act. To address these potential impacts, as well as compile the appropriate analysis in preparation for CDP review, the DEIR should include a comprehensive SLR analysis and vulnerability assessment for the proposed project.

The analysis should include determining the range of SLR projections specific to the project area over the duration of the project life, identifying potential physical SLR impacts, and how the project may impact coastal resources such as public access and recreation, water quality, coastal habitats, and visual resources over time, given the influence of SLR. The analysis should also identify appropriate mitigation measures, changes to the project design, and adaptation strategies for the project over time as sea levels rise. The analysis should be conducted in accordance with the Commission's SLR Guidance Update along with the Ocean Protection Council's 2018 State of California Sea Level Rise Guidance Update, which is the current best available science on climate change and SLR impacts for the State of California. Please refer to Table 34 of Appendix 3 in the OPC Guidance for the probabilistic projections for the height of sea

level rise for the San Diego tide gauge. We recommend considering a range of high emissions (RCP 8.5) scenarios including the 0.5% probability (for medium-high risk aversion), and the H++ scenario (for extreme risk aversion) for the life of the proposed structures. Including the “extreme risk aversion” (H++) scenario is necessary to evaluate the vulnerability of planned or existing assets that have little to no adaptive capacity, that would be irreversibly destroyed or significantly costly to repair, and would have considerable public health, public safety, or environmental impacts should that level of SLR occur, such as large infrastructure projects like the one proposed in the DEIR. The Airport Authority may also consider evaluating the lower projections (those with a higher probability) to gain an understanding on what is likely to be vulnerable regardless of modeling uncertainty and future greenhouse gas emissions.

Passenger Growth

The DEIR states that the annual rate of growth in aircraft operations and passenger levels at SDIA is expected to be the same with or without the ADP improvements; however, there is no evidence presented in the DEIR to support this assertion. The reduced number of gates associated with existing conditions would limit the number of flights and result in fewer flights and fewer passengers than could be accommodated with the ten additional gates proposed in the ADP. The use of this assumption likely underestimates the potential environmental impacts of the project. The DEIR should be revised to include a detailed analysis of the current capacity and future capacity with the ADP that explains the relationship between passengers, flights, and number of gates, as well as the efficiencies that may be gained through reconfiguration of the taxiways. This analysis should also clearly identify growth-inducing impacts from the ADP. All analyses that rely on the assumption that passenger growth will be the same with or without the ADP improvements are inaccurate and should be reevaluated once an appropriate passenger growth without the ADP improvements is determined.

The DEIR does not disclose actual existing aircraft operations and passenger levels from 2012 to 2017 or the percentage of growth between these timespans. Instead, the analysis of passenger growth in the DEIR relies on forecasted numbers from 2012 that are significantly lower than the actual number of passengers served today. Specifically, the forecast identifies approximately 9.3 million passengers in 2016 growing to approximately 17.6 million passengers in 2050, even though actual 2017 passenger data indicated the number was well beyond the forecasted numbers at approximately 22 million passengers. Thus, the DEIR’s forecasts are underestimated, and the project’s environmental impacts are likewise underestimated. As such, we request that the Airport Authority include the most recent actual passenger numbers from 2016 and 2017 to forecast passenger growth and revise all analyses in the DEIR that rely on this outdated forecast, including air quality, noise, greenhouse gas emissions, health hazards, traffic and circulation, and utility impacts, so that the significance of environmental impacts are appropriately assessed and mitigated.

Environmental Justice

Section 30604(h) of the Coastal Act allows the Commission to consider environmental justice, or the equitable distribution of environmental benefits throughout the state. Coastal Act Section 30107.3 defines environmental justice as:

...the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies.

As such, please add a discussion that addresses environmental justice. Currently, the project unduly burdens the general public's ability to access the coast. In order to ensure consistency with the public access/recreation and environmental justice policies of the Coastal Act, we recommend the reevaluation of mitigation measures and alternatives that would avoid or minimize adverse impacts from traffic, air quality, climate change and greenhouse gas emissions.

Vehicular Circulation

The description of the proposed new on-airport access road is unclear and fails to discuss how vehicles will turn onto the road and whether any of the proposed improvements will require the use of off-airport land and approvals from other agencies. What improvements to Laurel Street are necessary to access the on-airport road and how will Laurel Street be impacted by the on-airport road? North Harbor Drive is a major coastal accessway to and along the San Diego Bay and Laurel Street is an important east-west link to North Harbor Drive. As such, any modifications to the circulation system should be carefully analyzed for impacts to public access, including vehicular access to and along the bay. Access along North Harbor Drive in both eastbound and westbound directions should be protected for those visitors that want to access and recreate along the San Diego Bay.

Parking Analysis

The DEIR should address the need for 7,500 new parking spaces in light of the current underutilization of parking at SDIA. In addition, the parking impact analysis referenced in the DEIR should be included as an appendix. Finally, any modifications to the public and employee parking lot located at the west end of the airport should be included in the project description, including the number of existing and proposed parking spaces.

Commercial Space

The DEIR states that a commercial space could be used for a farmers' market, conference facilities, expanded restaurant, or retail. The intended use of the proposed 400,000 sq. ft. commercial space should be clarified in the project description. Any commercial space should be designed to serve airport passengers only and should not add to the parking demand of the project. Given the number of significant unmitigated impacts associated with the proposed ADP, the Airport Authority should reconsider whether this additional space is necessary. Would the elimination of this area or reduction in size of this area reduce the amount of environmental impacts?

Visual Resources

The proposed Terminal 1 parking structure would result in adverse visual resource impacts due to its height and its proximity to North Harbor Drive. Specifically, the proposed parking structure would be 85 ft. tall which is significantly taller than the 66-ft. Terminal 2 parking structure and the existing 48-ft. Terminal 1 buildings. In addition, the visual analysis provided in the DEIR indicates that a large stretch of the eastern side of North Harbor Drive would be walled off by the proposed parking structure. As stated previously, Commission staff would not support the addition of another parking structure without an appropriate increase of multimodal transit opportunities to the airport.

Should the Airport Authority continue to pursue a parking structure, other alternatives should be considered and analyzed including a smaller parking structure on the existing surface parking lot located on the north side of the airport off of Pacific Highway which has a more direct connection to the region via Interstate-5 and would avoid traffic impacts on North Harbor Drive, the primary coastal access corridor to the bay for the public. In addition, design plans should be included in the visual analysis in order to give the Commission and the public the opportunity to review and comment on the proposed design. Effort should be taken to break up the massing of the structure by reducing the height and stepping it back from adjacent public roads in order to reduce the visual impact.

In addition, the DEIR should include a discussion of the visual impacts of the proposed 95 ft. tall, 150,000 sq. ft. airport administration building, which would be significantly taller than any of the surrounding development. Section 30251 of the Coastal Act requires development to be sited and designed to protect views to and along scenic coastal areas and to be visually compatible with the character of surrounding areas. Given that a 95 ft. tall building would be inconsistent with the surrounding community character, a shorter administration building should be considered and analyzed as an alternative, especially given that the existing building is much smaller at 65 ft. tall and 132,000 sq. ft.

Please include a detailed discussion of the proposed lighting associated with the ADP, including number of lights, types of lights and their Kelvin temperature, as well as conduct a lighting study that analyzes how lighting would impact visual receptors, including sensitive biological species such as the California Least Tern colony.

Please include any proposed signage in the project description. Signs with advertisements or commercialized messaging are not appropriate and should not be included in the project. Digital signs that would be visible from public roads, parks, or any other public areas should also be avoided.

Biological Resources

Given the significant decrease in the population of the California Least Tern (CLT) colony on-site, the DEIR should clarify whether the airport has implemented all of the identified mitigation measures required by the 1993 Biological Opinion and the 2013 Section 7 Consultation. In addition, if these measures are proposed to be included in the

ADP, this should be clarified. The DEIR should also identify how close construction and operational activities will be located to the CLT nesting oval. In light of the dramatic decline in the estimated number of nesting pairs and nests at SDIA, additional and more stringent measures should be required as part of the ADP, including a prohibition on any construction within 1,200 feet of the CLT nesting sites during the nesting season. In addition, the airport should coordinate with the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife to determine how far construction storage and staging areas should be located from the CLT colony in order to avoid disturbance.

The essential fish habitat report and 2012 wetlands delineation are outdated and need to be updated. The wetlands delineation should include areas of San Diego Bay that would be impacted by airport stormwater runoff including, but not limited to, the Laurel Hawthorne anchorage, Convair Lagoon, Harbor Island East and West Basins, and the Navy Boat Channel.

Construction

Given that construction of the project is proposed to take place for 17 years, the DEIR should identify and analyze the anticipated construction impacts. Construction impacts may be determined by identifying proposed construction approach, equipment, staging areas, truck trips, lighting, number of employees, employee parking locations, restricted work hours, etc.

Mitigation Measure MM-TR-Con-1 requires SDIA only to “promote” TDM strategies and to “consider” establishing a remote parking lot and shuttle service for construction workers, but does not require any action that will result in quantifiable reductions in construction traffic. This measure should be revised to require TDM strategies and establishment of a remote parking lot and shuttle service for construction workers.

The proposed mitigation for 2020 construction traffic impacts at many intersections is misleading and ineffective. CEQA requires mitigation to be implemented before or at the time the significant impact is anticipated to occur. Mitigation measures for these intersections, including at Laurel Street and Kettner Boulevard, are not required to be installed until “prior to the first occupancy of any new or developed facility that is part of Phase 1b.” The significant traffic impacts associated with construction necessarily will occur and presumably will conclude before the first occupancy of any new or developed Phase 1b facility. As a result, the recommended mitigation will not avoid or reduce the significant impact. Please revise the timing of these mitigation measures to ensure they are implemented before the significant impact is anticipated to occur.

Gates

The DEIR identifies that there are 19 existing gates in Terminal 1 and the new terminal would have 30 gates, which would result in 11 additional gates. The Terminal 2 West improvements consist of adding a new “stinger” concourse with 7 new gates. The Terminal 2 East improvements include the removal of the easternmost portion of the terminal and replacement with a new concourse that connects Terminal 2 to Terminal 1; this would result in the loss of 13 existing gates and the addition of 7 new gates, which

would result in a net decrease of six gates. The DEIR states that ultimately the number of gates at SIDA would increase from 51 to 61; however, given the numbers in the project description, it appears the ADP would result in 12 new gates (11 Terminal 1 + 7 Terminal 2 West Stinger – 6 Terminal 2 East = net increase of 12 gates). Please clarify the number of existing and proposed gates at each terminal and the net increase in gates airport-wide.

Rideshare

Approximately 12% of airport traffic currently accesses the airport with transportation network company (TNC) vehicles. The DEIR does not address this significant, and growing, portion of the ground transportation network. Please revise the DEIR to assess the projected growth of TNCs and associated decrease in parking and rental car demand. The ADP should identify phased operational solutions to be developed to accommodate increasingly larger rideshare volumes; identify and design specific rideshare passenger pick-up and drop-off points, including designs for curbside in front of Terminal 1 to accommodate growing rideshare and future autonomous vehicles; and coordinate with TNCs to designate and design one or more staging areas for TNC drives that reduces air emissions. If TNC and taxis were allowed to drop-off and pick-up passengers without exiting the terminals, this would result in a reduction of vehicle trips to and from the queuing area on North Harbor Drive, therefore reducing traffic and associated greenhouse gas emissions.

Thank you again for the opportunity to review and comment on the proposed ADP. We look forward to continuing to work with the Airport Authority to help advance public transit to and from the airport as part of future redevelopment in collaboration with State, regional and local agencies, including but not limited to, SANDAG, Caltrans, City of San Diego, Port District, MTS, NCTD, and State Parks. If you have any questions or require further clarification, please do not hesitate to contact Melody Lasiter or myself at the above office.

Sincerely,



Kanani Leslie
Senior Coastal Planner

Cc (copies sent via e-mail):

Karl Schwing (CCC)
Deborah Lee (CCC)
Melody Lasiter (CCC)
Jacob Armstrong (Caltrans)
Tait Galloway (City of San Diego)
Paul Jablonski (MTS)
Matthew Tucker (NCTD)
Lesley Nishihira (Port of San Diego)
Charles "Muggs" Stoll (SANDAG)
Jennifer Lucchesi (State Lands Commission)
Darren Smith (State Parks)

Attachment to Comment Letter R-PC021

Shute, Mihaly & Weinberger LLP on behalf of the Cleveland
National Forest Foundation comments on the 2018 Draft EIR
and other exhibits

Exhibit List

Exhibit	Title
1	Cleveland National Forest Foundation, Letter Re: San Diego International Airport Development Plan Draft Environmental Impact Report (Sept. 5, 2018).
2	SANDAG Board Meeting Results (Sept. 27, 2019)
3	SANDAG Board of Directors Agenda, Item 16: Recommended Concepts for Improved Regional Connectivity (Sept. 27, 2019)
4	San Diego International Airport, News Release: Airport Authority, Airlines Reach Landmark Pact on Transportation Infrastructure Investment (July 2, 2019)
5	U.S. EPA and Dept. of Transportation, Final Rule: The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program, 84 Fed. Reg. 51,310 (Sept. 27, 2019).
6	Intergovernmental Panel on Climate Change, IPCC Special Report: Aviation and the Global Atmosphere; Summary for Policymakers (1999).
7	purpleair.com, Sensor Data, "OB Flight Path" (October 29, 2019, 12:59:40 PM).

EXHIBIT

1



396 HAYES STREET, SAN FRANCISCO, CA 94102
T: (415) 552-7272 F: (415) 552-5816
www.smwlaw.com

September 5, 2018

Via Federal Express

Ted Anasis, Manager
Airport Planning
San Diego County Regional Airport
Authority
3225 North Harbor Drive, 3rd Floor
San Diego, CA 92101

Re: San Diego International Airport Development Plan Draft
Environmental Impact Report

Dear Mr. Anasis:

We submit this letter on behalf of the Cleveland National Forest Foundation (CNFF), a nonprofit organization committed to sustainable regional land use planning to stem the tide of urban encroachment into the San Diego backcountry and its wildlands. The purpose of this letter is to provide comments on the Draft Environmental Impact Report (DEIR) for the San Diego International Airport Development Plan (Project).

For the reasons set forth below, it is our opinion that the DEIR for the Project violates the minimum standards of adequacy under the California Environmental Quality Act (CEQA), Public Resources Code § 21000 et seq., and the CEQA Guidelines, California Code of Regulations, title 14, § 15000 et seq. As described below, the DEIR fails to adequately describe the Project and fails to analyze the significant environmental impacts of the Project or propose adequate mitigation measures or alternatives to address those impacts. Because of the DEIR's numerous and serious inadequacies, there can be no meaningful public review of the Project. The San Diego Regional Airport Authority (Authority) must revise and recirculate the DEIR to permit an adequate understanding of the environmental issues at stake.

I. The Authority Has an Unprecedented Opportunity to Improve Intermodal Access to the Airport.

San Diego International Airport (Airport or SDIA) is about to undertake the largest improvement project in the Airport's 90-year history. It proposes to replace Terminal 1 with a new 30-gate terminal, expand security, improve the aircraft apron and taxiways, and expand on-airport roadways and parking. With the proposed Project, the Authority has an unprecedented opportunity to undertake expansion of the Airport while also achieving the region's environmental sustainability goals. By improving multi-modal access to the Airport, the Authority could reduce traffic congestion in and around the Airport while also reducing greenhouse gas and criteria air pollutant emissions.

However, as currently designed, the Project does not take advantage of these opportunities because it would be 100-percent auto-based. It would develop numerous new roads and build a massive new parking garage, improvements that would greatly facilitate vehicular access. Even the measures proposed to reduce the Project's significant transportation impacts are almost exclusively auto-based. Because the Project foregoes any real effort to improve intermodal access to the Airport, traffic volumes accessing the Airport are projected to skyrocket. Terminal 1 currently generates 42,241 trips per day, yet would generate 88,696 trips per day in 2050. DEIR Appendix H, Volume 1 at 4. Vehicle miles traveled (VMT) is also projected to soar from just over 1,567,000 in 2017 to 2,403,300 in 2050. DEIR at 3.14-255.

Describing the proposed Project, Kimberly Becker, CEO of the Airport Authority, states: "Upon completion, San Diego residents and visitors will enjoy a truly 21st century airport for decades to come."¹ A 21st century airport, however, is one that addresses future facility requirements for the airfield and passenger terminals while also considering social concerns regarding the natural environment and responsible regional development. In addition to causing significant traffic congestion on local roads and nearby freeways, the proposed Project would result in a significant and unavoidable increase in greenhouse gas emissions and would conflict with numerous plans, policies and regulations adopted for the purpose of reducing these emissions. In addition, although the DEIR would have readers believe that this Project would improve air quality, in future years the Project would in fact cause a significant and unavoidable increase in ozone precursor emissions. As the San Diego region already fails to attain the

¹ "What's in the San Diego International Airport's \$3 billion redevelopment plan," San Diego Union-Tribune, July 11, 2018; available at: <http://www.sandiegouniontribune.com/business/tourism/sd-fi-airport-eir-20180710-story.html>; accessed August 8, 2018.

National and California Ambient Air Quality Standards for ozone, the Airport should be taking every action to reduce ozone precursor emissions.

It is astonishing that that a \$3 billion-dollar Project that is intended to meet the region's commercial aviation needs for at least the next 30 years appears to be making *no attempt* to provide intermodal access to the Airport. This Project poses a very real opportunity to increase local transit mode share, as more than one-third of all trips to the Airport are short-distance trips from the greater downtown and waterfront areas.² Recognizing this potential, numerous agencies including Caltrans, California Coastal Commission, SANDAG, the Port of San Diego, and the City of San Diego explicitly requested that the Authority include multi-modal access in the Project. DEIR at 3.14-1, 3.14-2. These requests should come as no surprise, as there have been numerous studies over the last 15 years confirming and reinforcing the need for a substantial increase in public transit to meet local and regional transportation demand, including the following:

- **LOSSAN Corridor (Los Angeles to San Diego Proposed Rail Corridor Improvement Studies (2004))** –Recognizing that southern California's existing transportation network was currently operating at or near its design capacity, Caltrans and the Federal Railroad Administration (FRA) studied the entire LOSSAN corridor.³ The agencies determined that an efficient and functioning rail corridor was the preferred alternative to freeway widening. The Study explained that improvements, including double-tracking the LOSSAN corridor, would help improve air quality and would protect important coastal and environmental resources. (*See Exhibit 7*).
- **Independent Transit Planning Review (2006)** – The Independent Transit Planning Review was a study required of SANDAG when the voters re-approved *Transnet*, the region-wide half-cent sales tax dedicated to transportation. A peer review panel was created to provide expert guidance and assistance to SANDAG to coordinate "smart growth" initiatives with the transit elements of the Regional Transportation Plan (RTP). Among its most important findings, the Review Panel determined that the Downtown Region is a key to the success of the regional transportation center. It also determined that the transit planning approach should be a top-down effort, starting with creating a good system plan and then bringing

² San Diego International Airport Transit Plan, San Diego County Regional Airport Authority, Nelson Nygaard, June 2016 at 1-1, attached as Exhibit 8.

³ The LOSSAN Corridor provides service between Los Angeles, Orange, and San Diego Counties (between Los Angeles Union Station and San Diego Santa Fe Depot).

the process to the corridor level. Ensuring that a strong network is in place to meet modal share is critical. The Review also addressed parking with its finding that there is an inverse relationship between the amount of transit patronage and the amount of destination parking. In other words, as the amount of destination parking increases, the tendency to use transit decreases. (*See Exhibit 6*).

- **Complete Mobility Plan (2007)** – McCormick Rankin conducted a study of mobility options for San Diego’s downtown. The Complete Mobility Plan’s findings regarding population and job growth were striking: By the year 2030, the Plan projected there would be a 264 percent increase in residential units, a 127 percent increase in office space, a 128 percent increase in retail space and a 127 percent increase in hotel rooms. The Plan determined that it will be impossible for this growth to occur without state-of-the-art transit, as road infrastructure is completely inadequate to meet the demands that development will place on it. The Plan concluded if the region did not build transit, downtown would experience gridlock conditions by 2030. All freeway segments would have LOS F service conditions, and 62 intersections would have LOS F at one or both peaks. To enable complete mobility, the Plan identified the need for transit objectives. Specifically, the plan determined that about 50 percent of all peak-hour commuters would need to travel by transit compared with about 23 percent (in 2007, when the Plan was prepared). (*See Exhibit 9*).
- **Regional Aviation Strategic Plan and Airport Multimodal Accessibility Plan (2011)** – SANDAG’s 2011 AMAP anticipated future development of an Intermodal Transit Center (ITC) at the north end of the Airport with connections to trolley, commuter rail, and local and regional buses, along with the possibility of connecting to High Speed Rail if developed in the future, and related development of a North Side Terminal Complex that would include passenger processing facilities. DEIR at 3.2-10. (*See Exhibit 13*).
- **Destination Lindbergh (2011)** – SANDAG and the Airport Authority’s Destination Lindbergh Plan evaluates opportunities to minimize airport-related traffic impacts to adjacent communities and to improve intermodal access to the Airport. Destination Lindbergh’s recommended development plan also calls for the development an ITC that would include trolley, rail, and bus station platforms that would connect the Airport to regional transit infrastructure. The ITC would be designed to encourage increased transit ridership and reduce automobile traffic by providing a single location for currently available and future transit modes. (*See Exhibit 4*).

- **RTP/SCS Urban Area Transit Strategy (2011)** – To initiate the transit planning effort for the 2050 Regional Transportation Plan (RTP), SANDAG developed an “Urban Area Transit Strategy” (UATS) focused on the most urbanized areas of the region where investments in transit are generally most efficient and effective. The overarching goal of the UATS was to create a world-class transit system for the San Diego region, with the aim of significantly increasing the attractiveness of transit, walking, and biking in the most urbanized areas of the region. The vision called for a network of fast, flexible, reliable, safe, and convenient transit services that connect homes to the region’s major employment centers and destinations. SANDAG determined that achievement of this vision would make transit a more appealing option for many trips, reducing the impact of vehicular travel on the environment and on public health. Other key goals included: (1) making transit more time-competitive with automobile travel; (2) maximizing the role of transit within the broader transportation system; and (3) reducing VMT and greenhouse gas emissions in the region. The UATS identified transit mode share goals in the region, ranging from under 5 percent in outlying areas to 24 percent in the downtown urban core. (See Exhibit 14).
- **San Diego Airport Multimodal Accessibility Plan (2012)** – SANDAG’s 2012 AMAP determined that because of the existing auto-based roadway infrastructure, aviation demand puts pressure on already crowded freeways and roadways, further limiting their ability to efficiently serve the region. To this end, the AMAP called for roadway modifications, reconfiguration of existing and development of new transit services and facilities, and new express bus service to SDIA. (See Exhibit 1).
- **City of San Diego General Plan Mobility Element (2015)** – A primary objective of the City’s General Plan is to reduce dependence on the automobile by expanding transit service. To this end, the General Plan Mobility Element calls for increased efforts to attain a balanced, multimodal transportation network. General Plan Mobility Element, ME-17. The Mobility Element identifies a goal of improving passenger rail opportunities, recognizing that commuter, intercity and high-speed passenger rail services can help reduce demand on our freeways and at our airports by providing alternatives to auto and air travel for intercity trips. (See Exhibit 5).
- **San Diego International Airport Transit Plan Update (2016)**. The Authority’s Airport Transit Plan focused on near-term transit program that could increase connectivity to existing transit systems, particularly the light rail stations and

transit centers at Santa Fe Depot and the Old Town Transit Center which include light rail, heavy rail (including the Coaster and Amtrak) and bus connections. (*See Exhibit 8*).

- **City of San Diego Climate Action Plan (2016).** The City's Climate Action Plan (CAP) identifies several strategies for meeting the City's climate change goals, including strategies calling for an increase in transit, bicycling, and walking mode shares. The CAP identifies a transit mode share of 12 percent by 2020 and 25 percent by 2035; a walking commuter mode share of 4 percent by 2020 and 7 percent by 2035; and a 6 percent bicycle mode share by 2020 and 18 percent mode share by 2035. (*See Exhibit 15, Chapter 3, Implementation and Monitoring at 37; 38.*)
- **Harbor Drive Mobility Study (2017).** The Authority Board directed and approved the formation of a multi-agency committee comprised of key land use and transportation agencies. The Board requested the organization establish a cadre of stakeholders to evaluate and recommend transit alternatives to remedy traffic and accessibility concerns around San Diego Airport. The Mobility Study states, "The airport roadway facilities must be integrated into the surrounding urban fabric. This includes transit, vehicular, freight, pedestrian, and bicycle transportation. By designing for connections with existing transit and pedestrian movements, the landside element can effectively bridge the off-airport and on-airport environments." DEIR at ES-9; 2-10; Harbor Drive Mobility Study Technical Report at 4-1 (December 2017) (included as an appendix to the DEIR).

Every one of the aforementioned documents recommends taking action to increase public transit infrastructure and service in San Diego. Most of the documents identify specific projects that should be implemented at the Airport to enhance multi-modal access, including specific components of the ITC that lie within the Authority's jurisdiction. As discussed above, state, regional and local agencies have not only urged the Authority to make a sustained effort to increase public transit access to the Airport, but also have expressed their intent to collaborate with the Airport Authority to achieve this goal. With the proposed Project, the Authority can and should *lead* the region into a more sustainable future. It should use this opportunity to create an airport plan that will allow San Diego residents and visitors to enjoy a truly 21st century airport as the Airport Authority's CEO envisions.

II. The DEIR Fails to Comply With CEQA.

A. The DEIR's Project Description Is Inadequate.

“[E]very EIR must set forth a project description that is sufficient to allow an adequate evaluation and review of the environmental impact.” *San Joaquin Raptor Rescue Center v. County of Merced* (2007) 149 Cal.App.4th 645, 654 (citing CEQA Guidelines § 15124). “An accurate, stable and finite project description is the *sine qua non* of an informative and legally sufficient EIR.” *County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185, 193. Among other things, a project description must contain a “description of the project’s technical, economic, and environmental characteristics, considering the principal engineering proposals if any and supporting public service facilities.” CEQA Guidelines § 15124(c).

“Only through an accurate view of the project may affected outsiders and public decision-makers balance the proposal’s benefit against its environmental cost, consider mitigation measures, assess the advantage of terminating the proposal (i.e., the ‘no project’ alternative) and weigh other alternatives in the balance.” *County of Inyo*, 71 Cal.App.3d at 192-93. A project description that gives conflicting signals to the public and decisionmakers, or that obscures or distorts essential project features, is inherently misleading and renders meaningful disclosure and analysis of a project’s environmental impacts impossible. *See, e.g., Washoe Meadows Community v. Department of Parks & Recreation* (2017) 17 Cal.App.5th 277, 287-88; *Communities for a Better Environment v. City of Richmond* (2010) 184 Cal.App.4th 70, 83-85; *San Joaquin Raptor Rescue Center*, 149 Cal.App.4th at 654-56; *County of Inyo*, 71 Cal.App.3d at 193-96.

The DEIR’s project description is fundamentally inadequate in three major respects.

First, the DEIR gives conflicting signals as to when Project “buildout” is deemed to occur. The DEIR’s analysis of some impacts (for example, air quality and greenhouse gas emissions) essentially ends in 2035, when construction is anticipated to be complete. *See* DEIR at 3.2-10, 3.2-22 (air quality); 3.3-26 to 3.3-27 (greenhouse gas emissions). In discussing traffic and transportation impacts, however, the DEIR states that “buildout” of the Project would occur in 2050. DEIR at 3.14-4.⁴ The aviation activity forecasts used in

⁴ The traffic section of the DEIR appears to distinguish between “the addition of Project Phase 2b in 2035” and “the addition of the Project buildout” in 2050, suggesting that

impact analyses throughout the EIR also extend through 2050. *See* DEIR at 2-14, 2-17 (Table 2-1). The DEIR's inconsistent characterizations of how long the Project's impacts will last leave the public and decisionmakers in the dark as to the precise nature and severity of those impacts, and fatally undermine the DEIR's analysis and conclusions.⁵

Second, the DEIR does not describe the "commercial development opportunity" component of the Project in sufficient detail to permit an understanding of its potential impacts. This aspect of the Project is almost completely undefined; the DEIR identifies only its rough size (400,000 ft²) and a few conceptual "potential uses" (a conference center, a farmer's market, restaurants, and/or retail). DEIR at 2-25. Accordingly, it is not clear whether the "commercial development opportunity" is intended to serve only airline travelers, or the public more broadly. On one hand, the DEIR states that the facility will serve "airport passengers." DEIR at 2-25. On the other hand, the DEIR states that the "commercial development opportunity" was determined "to generate trips independently of flight activity," DEIR at 3.14-11, suggesting that the broader public might also access the facility.

The DEIR also describes the "commercial development opportunity" as a potential source of non-airline revenue, *id.*, and estimates solid waste generation based on a "Regional Shopping Center," DEIR at 3.15-43, raising additional questions about its characteristics and the population it might serve. Expanded parking availability under the Project also suggests that the "commercial development opportunity" may be able to accommodate, and thus may generate, local traffic. At the same time, the few general "potential uses" identified are quite different from one another in terms of the consumers they might attract and serve. While retail and restaurants might conceivably be limited to travelers, a "conference center" would almost certainly generate local trips to the Airport, as could a farmer's market. The utility and commercial viability of either "potential use" could be limited if restricted to "airport passengers" who must pass through security. However, neither the text of the DEIR nor the technical appendix on transportation impacts (Appendix H1) clearly explains the assumptions used or the number of trips that may be generated by the "commercial development opportunity." The DEIR's vague, ill-defined, and internally inconsistent description of this aspect of the Project completely undermines any analysis of the Project's effects.

completion of construction and full "buildout" are two different things. DEIR at 3.14-3, 3.14-4.

⁵ As discussed in Part II.B.3 (a)(v) below, the DEIR fails to disclose or analyze the Project's operational GHG emissions after 2035; the DEIR's inconsistent and conflicting characterizations of Project "buildout" are likely to blame for this omission.

Third—and most fundamentally—the DEIR persistently attempts to obscure the fact that the Project will have any environmental impacts at all. The overarching theme of the DEIR is that growth in aviation activity—and all the impacts associated with it—will occur with or without the Project; on this basis, the DEIR constantly assures readers that many of the Project’s environmental effects will be less severe than they would be if the Project is not built.

The DEIR’s assurances are deeply misleading. In fact, the aviation activity forecasts used to predict future growth are admittedly “unconstrained.” In other words, the forecasts do not assume any “physical, regulatory, environmental or other impediments” to growth, DEIR at 2-14, but rather explicitly assume that “continued development of airline service at the Airport will not be constrained” by any number of factors, including “limitations in the capacity of the air traffic control system or the Airport.” *Id.* at 2-15.

The problem with these “unconstrained” assumptions is that they are objectively false. As the DEIR’s technical memorandum concedes—but the DEIR itself fails to acknowledge—“the capacity of SDIA *is constrained*” by its “single runway” and “limited property.” DEIR App. B-1 at 68 (emphasis added). SDIA’s Airport Master Plan acknowledged that, as of 2008, “improvements [would] be required” at the Airport to meet even short-term demand; specifically, the Airport urgently needed “additional aircraft gates” and was “struggling to accommodate new airline entrants as well as increased demand from existing airlines for facilities.” Exhibit 17 at 2-1 to 2-2. The Airport Master Plan thus concluded that a dramatic expansion of terminal capacity—both gates and passenger processing areas—would be required to accommodate projected growth within acceptable levels of service. *See generally* Exhibit 19, § 7.2. The Airport Master Plan also warned that the airfield “will become constrained beginning at approximately 260,000 annual operations,” and that as aviation activity levels continue to increase, “delay will reach intolerable levels without improvements to the airfield.” Exhibit 18 at 7-1, 7-2.⁶

⁶ It is not clear which aviation activity forecast the DEIR actually used in estimating Project impacts. DEIR Figures 2-4 and 2-5 reference forecasts conducted in 2007, 2011, and 2012, DEIR at 2-16, 2-19, while DEIR Appendix B-1 contains a set of forecasts dated March 2013. The DEIR does not explain the differences among the forecasts; nor does it justify any choice among potentially different methodologies or assumptions. The 2012 ADP aviation activity forecast, moreover, anticipates considerably less growth than other, prior forecasts. DEIR at 2-19 (Figure 2-5). Should prior forecasts prove correct, airfield constraints will lead to delays years earlier than currently projected.

The DEIR thus fails to acknowledge that the Project will *remove constraints on growth*, not simply accommodate growth that would occur anyway. Without the Project, the Airport's operations would be constrained by its current airfield and terminal configurations. Given those constraints, "unconstrained" growth cannot and will not occur as projected—at least not without results the Authority itself has described as "intolerable." By failing to describe the Project as a necessary condition for growth, the DEIR improperly attempts to sweep all of the Project's impacts under the rug by claiming that aviation activity would otherwise continue to grow in an unconstrained manner despite real and serious constraints. The EIR thus fails to accurately describe the purpose and objectives of the Project, *see* CEQA Guidelines § 15124(b), as well as its actual environmental impacts. As a result, the EIR also fails to properly analyze mitigation and alternatives that could avoid or reduce those impacts.⁷

The Authority may believe that accommodating anticipated growth at SDIA—rather than operating SDIA in accordance with its existing constraints—is a good thing as a matter of policy or economics. But such preferences are beside the point when it comes to CEQA compliance. Environmental documents may not put a thumb on the decisionmaker's scale one way or the other. Rather, under CEQA they must provide a full and fair analysis of impacts, mitigation measures, and alternatives so that decisionmakers can make environmentally informed choices and can be held accountable by the public for their actions. *See Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 392-93 ("*Laurel Heights I*"). This DEIR fails to fulfill CEQA's purpose.

B. The DEIR's Analysis of and Mitigation for the Impacts of the Proposed Project Violate CEQA.

The discussion of a proposed project's environmental impacts is at the core of an EIR. *See* CEQA Guidelines §15126.2(a) ("[a]n EIR shall identify and focus on the significant environmental effects of the proposed project"). As explained below, the DEIR's environmental impacts analysis is deficient under CEQA because it fails to provide the necessary facts and analysis to allow the City and the public to make informed decisions about the Project. An EIR must effectuate the fundamental purpose of CEQA: to "inform the public and responsible officials of the environmental consequences of their decisions before they are made." *Laurel Heights Improvement Ass'n v. Regents of University of California* (1993) 6 Cal.4th 1112, 1123 ("*Laurel*

⁷ For the same reasons, as discussed in Part II.C.1 below, the DEIR's "No Project" alternative is unsupported by substantial evidence, as are its conclusions regarding the impacts of the Project relative to the "No Project" alternative.

Heights II”). To do so, an EIR must contain facts *and* analysis, not just an agency’s bare conclusions. *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 568. Thus, a conclusion regarding the significance of an environmental impact that is not based on an analysis of the relevant facts fails to fulfill CEQA’s informational mandate.

Additionally, an EIR must identify feasible mitigation measures to reduce or avoid significant environmental impacts. CEQA Guidelines §15126.4. Under CEQA, “public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects. . . .” Pub. Resources Code § 21002; *see also id.*, § 21081 (no agency “shall approve or carry out a project” that will cause significant effects unless it finds that all feasible mitigation measures or alternatives have been adopted).

Although the proposed Project has the potential to cause extraordinary environmental degradation, neither the public nor decisionmakers have any way of knowing the magnitude of this harm. As we explain below, the DEIR fails to provide detailed, accurate information about the Project’s significant environmental impacts, and further fails to analyze mitigation measures or project alternatives that would reduce or avoid such impacts.

1. The DEIR Fails to Adequately Analyze and Mitigate the Project’s Transportation Impacts.

(a) The DEIR Fails to Evaluate the Project’s Potential to Increase VMT.

The DEIR relies on a level of service (LOS) metric to evaluate the Project’s impacts. Although lead agencies have the discretion to set or apply their own thresholds of significance, section 21099 of the Public Resources Code states that the criteria for determining the significance of transportation impacts must promote: (1) the reduction of greenhouse gas emissions; (2) the development of multimodal transportation networks; and (3) a diversity of land uses. Pub. Resources Code § 21099(b)(1). To this end, vehicle miles traveled (VMT) is now considered the most appropriate metric to evaluate a project’s transportation impacts. As one appellate court recently explained: “During the last 10 years, the Legislature has charted a course of long-term sustainability based on denser infill development, reduced reliance on individual vehicles and improved mass transit, all with the goal of reducing greenhouse gas emissions.” *Covina Residents for Responsible Development v. City of Covina* (2018) 21 Cal.App.5th 712, 729.

The Governor's Office of Planning and Research (OPR) has confirmed the importance of using VMT as a metric for analyzing a project's transportation impacts:

Beyond greenhouse gas emissions, increases in VMT also impact human health and the natural environment. Human health is impacted as increases in vehicle travel leads to more vehicle crashes, poorer air quality, increases in chronic diseases associated with reduced physical activity, and worse mental health. Increases in vehicle travel also negatively affects other road users, including pedestrians, cyclists, other motorists, and many transit users. The natural environment is impacted as higher VMT leads to more collisions with wildlife and fragments habitat. Additionally, development which leads to more vehicle travel also tends to consume more energy, water, and open space (including farmland and sensitive habitat). This increase in impermeable surfaces raises the flood risk and pollutant transport into waterways. (Fang et al., 2017.) Office of Planning and Research, *Evaluating Transportation Impacts* at 2 (April 2018), attached as Exhibit 3.

Here, because the Authority evaluated transportation impacts based solely on LOS (or roadway capacity), most of the Project's significant transportation impacts are proposed to be mitigated by roadway or intersection projects that would increase roadway capacity. Yet, widening a roadway often increases intersection crossing distances for people walking; encourages unsafe traffic speeds on city streets; increases vehicular traffic levels because of induced demand (which also increases air pollutant emissions, including greenhouse gas emissions); and requires more overall space for vehicular traffic, which may lead to physical displacement of people's businesses or homes.

If the DEIR had relied on VMT for its transportation analysis, the result would have been dramatically different. The EIR preparers would then have identified measures to *reduce* VMT from the Project, such as designing the proposed Project to facilitate passengers' use of sustainable travel modes, including transit. To comply with CEQA, law, the revised EIR must evaluate the Project's transportation impacts with the goal of reducing greenhouse gas emissions, developing multimodal transportation networks, and facilitating a diversity of land uses. Pub. Resources Code, § 21099(b)(1). The centerpiece of this analysis must be use of the VMT metric.

(b) The DEIR's Fails to Account for Induced Travel.

One of the primary elements of the proposed Project is to enhance vehicle travel to the Airport by constructing a new airport entry road and on-airport circulation roadway improvements including grade-separated direct access to Terminal 1. DEIR at 2-31. These roadway improvement projects are intended to increase the capacity of the roadway system in and around the Airport and to reduce traffic congestion. Although there is a direct relationship between increases in roadway capacity and induced vehicular travel, the DEIR fails to acknowledge this relationship or the accompanying environmental impacts.

The Surface Transportation Policy Project (STPP) cites a growing body of research showing that, in the long run, wider roadways actually create additional traffic, above and beyond what can be attributed to population increases and economic growth. *See* Surface Transportation Policy Project, *Build It and They'll Come*, attached as Exhibit 10. According to the STPP, 100 percent of additional VMT in Los Angeles County is attributable to “induced traffic.” *Id.* This means that increases in roadway capacity induce additional traffic—it does not simply “accommodate” existing or predicted traffic.

The California Air Resources Board (CARB) has weighed in on the relationship between increases in highway capacity and induced travel. In its report entitled “Impact of Highway Capacity and Induced Travel on Passenger Vehicle Use and Greenhouse Gas Emissions,” CARB confirms that increased capacity induces additional VMT. *See* Exhibit 11 at 3. CARB attributes this phenomenon to the basic economic principles of supply and demand: adding capacity decreases travel time, in effect lowering the “price” of driving; when prices go down, the quantity of driving goes up. *Id.* at 2.

CEQA also requires attention to induced travel. Recognizing induced travel demand as one of the “acknowledged long-term drawbacks of congestion relief,” the California Court of Appeal held that an EIR’s failure to assess a project alternative focused on reducing vehicle trips rather than relieving congestion was prejudicial error. *Cleveland National Forest Foundation v. San Diego Assn. of Governments* (2018) 17 Cal.App.5th 413, 437 (“*Cleveland II*”).

The proposed Project’s increase in parking supply would also facilitate increased vehicular travel as there is a “consequential” connection between the amount of parking and driving. Researchers at the University of Connecticut have found compelling evidence that parking is a “likely cause” of increased driving. *See* “Effects of Parking Provision on Automobile Use in Cities: Inferring Causality,” attached hereto as Exhibit 12; *see also* Exhibit 6 at ES-8 (Independent Transit Planning Review Report). As parking

spaces per building area increase, the amount of vehicle use also increases. Like induced vehicular travel, the more spaces there are to park, the more people will drive to reach them. In fact, the University of Connecticut researchers determined that as cities added more parking over the years, the share of commuters who drove to work increased. As a city goes from having about 20 parking spaces to 50 spaces per 100 people, the share of commuters driving rises from 60 percent to 83 percent. *Id.* at 7.

As of May 2018, when the new parking structure opened for SDIA's Terminal 2, the Airport has nearly 11,000 parking spaces. DEIR at 3.14-258. This does not include the parking supply for cargo, fixed-base operators, or off-site, privately branded airport parking, the latter of which is estimated to provide approximately 6,000 parking spaces. *Id.* at 3.14-258 and -259. The DEIR concludes that in the year 2030, the demand for parking will range from 5,974 to 9,522 parking spaces, which would result in a surplus of about 4,000 to 7,500 parking spaces. DEIR at 3.14-260. This amount of surplus parking would certainly remove a constraint to traveling by automobile to SDIA, but the DEIR provides no analysis of this impact.

Because the DEIR does not consider induced travel, it underestimates the increase in traffic caused by the proposed Project. The revised EIR should quantify the increase in VMT from the proposed Project.

(c) The DEIR's Fails to Evaluate the Project's Impact on Public Transit.

The Authority has identified numerous project objectives relating to public transportation. These include, for example, goals calling for the coordination of transit service to the Airport, improving mobility for transit users, and improving transit connections to the existing transit system, including bus shuttle service to light rail stations and to the Santa Fe Depot and Old Town Transit Centers. DEIR at 2-13. In their comments on the Notice of Preparation for the Project, numerous public agencies including SANDAG, the California Coastal Commission, the Port of San Diego, and the City of San Diego, advised the Authority to evaluate the Project's potential impacts on public transportation.⁸ *Id.* at 3.14-1; 3.14-2. Notwithstanding all these factors, the DEIR fails to provide any analysis of the Project's impact on public transit.

⁸ SANDAG is the metropolitan planning organization responsible for programming transportation improvements and for obtaining Federal and State funding for projects of regional significance. DEIR at 3.14-16.

As discussed above, the Project would result in a massive increase in vehicular traffic. The number of vehicular trips associated with the Airport's Terminal 1 would more than double by 2050 (from about 42,000 vehicle trips per day in 2017 to almost 89,000 trips per day in 2050). DEIR Appendix H, Volume 1 at 4. VMT is also projected to skyrocket from about 1,567,000 VMT per day in 2017 to more than 2,400,000 VMT in 2050. DEIR at 3.14-255. The Project's traffic would cause numerous intersections, roadway segments, and freeway segments to operate at unacceptable levels in every analysis year, i.e., in 2022, 2026, 2030, 2035 and 2050. *See* DEIR at ES-53 to -56.

This substantial increase in travel demand will undoubtedly impact the local and regional transit system. However, because the DEIR provides no information about transit service, the public, decisionmakers, and the transit service providers themselves have no way of knowing the extent of these impacts. To effectively address this impact, the revised EIR must identify existing transit mode share, i.e., what percentage of Airport patrons currently access the Airport via transit. The document must then compare transit demand from the proposed Project to transit capacity for all applicable transit lines. If the Project would cause transit lines to exceed capacity, the DEIR must identify mitigation for these impacts.

(d) The DEIR's Approach to Mitigation for the Project's Transportation Impacts Is Flawed.

The primary goal of an EIR is to identify a project's significant environmental impacts and find ways to avoid or minimize them through the adoption of mitigation measures or project alternatives. Pub. Resources Code §§ 21002.1(a), 21061. The lead agency must adopt all feasible mitigation measures that can substantially lessen the project's significant impacts, and it must ensure that these measures are enforceable. *Id.*, § 21002; CEQA Guidelines § 15002(a)(3), 15126.4(a)(2); *City of Marina v. Bd. of Trustees of the Cal. State Univ.* (2006) 39 Cal.4th 341, 359, 368-69. The requirement for enforceability ensures "that feasible mitigation measures will actually be implemented as a condition of development, and not merely adopted and then neglected or disregarded." *Federation of Hillside and Canyon Assns. v. City of Los Angeles* (2000) 83 Cal.App.4th 1252, 1261 (italics omitted); CEQA Guidelines § 15126.4(a)(2). The DEIR has failed to comply with these requirements.

(i) MM-TDM-1 Is Vague, Deferred, and Unenforceable.

Mitigation measures proposed in an EIR must be "fully enforceable" through permit conditions, agreements, or other legally binding instruments that will ensure the

measures are actually implemented—not merely adopted and then disregarded. Pub. Resources Code § 21081.6(b); CEQA Guidelines § 15126.4(a)(2); *Anderson First Coalition v. City of Anderson* (2005) 130 Cal.App.4th 1173, 1186-87; *Federation of Hillside & Canyon Assns.*, 83 Cal.App.4th at 1261. To reduce the Project's traffic impacts, the DEIR identifies just one mitigation measure that does not call for increases in roadway capacity. This measure, MM-TDM-1, is vague, unenforceable, and incapable of lessening the Project's significant impacts.

For example, MM-TDM-1 calls for implementing some TDM techniques over time, as labor contracts and lease agreements are negotiated. DEIR at 3.14-35. This measure falls short of any specific, enforceable commitment to take action. The measure does not identify the specific labor contracts and lease agreements nor the parties that would be involved in the negotiations. The TDM techniques that may be negotiated are similarly lacking in detail. One technique calls for charging a monthly parking fee for employees/workers who park at the airport. Charging for parking could be potentially effective in reducing vehicle trips but the DEIR fails to provide any study that identifies how much parking would have to cost to cause a meaningful reduction in vehicular trips.

Another TDM technique calls for possibly providing preferential parking for carpool and vanpool vehicles. Here too, preferential parking could encourage ridesharing but the measure lacks any specific information about how such a preferential parking program would work. As it is currently written, the measure is described in such vague and general terms that quantifying any potential trip reduction benefit is impossible. Another technique calls for providing a stipend that could be used by employees to purchase a transit pass or pay for on-airport parking. Providing a stipend for transit passes could be an effective technique for reducing trips but without concrete details as to how these stipends would be administered, it is not possible to determine their effectiveness in reducing vehicle trips. Furthermore, a stipend that could be used to help employees pay for on-Airport parking would encourage, not discourage, vehicular travel.

MM-TDM-1 also calls for partnering with transit operators to *consider* a transit line from the Old Town Transit Center and Amtrak to SDIA. DEIR at 3.14-34. A measure calling for the Authority to partner with a transit agency to “consider” a transit line fails to provide the necessary assurance that the mitigation measure would actually be implemented. Finally, MM-TDM-1 calls for working with companies such as Uber and Lyft to reduce their impact on roadways by, for example, providing well-marked curb-front space for drop-off and pick-up activity. DEIR at 3.14-35. Creating additional curb-front space for Uber and Lyft would appear to encourage, not discourage, vehicular travel to the airport. CEQA does not condone vague and ineffective mitigation measures.

(ii) The DEIR Has Not Established that Mitigation Is Infeasible.

The DEIR's discussion of mitigation also violates CEQA for a second reason: the agency improperly rejects mitigation measures as infeasible when the record indicates otherwise.

As discussed above, the DEIR identifies two types of mitigation measures for its significant traffic impacts: (1) off-Airport intersection, roadway segment, and freeway segment improvements, and (2) a transportation demand management program (MM-TDM 1). *See* DEIR at ES-60 through ES-72. The DEIR concludes, however, that every one of the off-Airport intersection, roadway segment, and freeway segment improvement measures would be infeasible because: (a) federal law prohibits expenditure of airport revenues and FAA grant funds for uses other than the capital or operating costs of the "airport, the local airport system or other local facilities owned or operated by the airport owner or operator that are directly and substantially related to the air transportation of passengers and property"; (b) the Authority has not yet asked the FAA for approval of expenditures for off-site mitigation; and (c) mitigation measures are within the jurisdiction of other local agencies, and the Authority may not "require" those agencies to implement the measures. DEIR at 3.14-33.

As a threshold matter, the Authority cannot avoid mitigating significant environmental impacts of the Project simply because those impacts occur off-site, or because another agency may have primary jurisdiction over implementation of mitigation measures. *See City of Marina v. Bd. of Trustees* (2006) 39 Cal.4th at 359-60, 366-67. If the Authority cannot directly construct facilities or make other improvements necessary to mitigate off-site impacts, it may voluntarily contribute funds to support other agencies' implementation of those measures. *Id.* at 360, 367; *see also City of San Diego v. Board of Trustees of California State University* (2015) 61 Cal.4th 945, 957-61. Accordingly, the Authority must examine whether it can feasibly contribute funding toward implementation of mitigation measures or alternatives identified in the DEIR.

None of the explanations provided in the DEIR justify its conclusion that all mitigation is infeasible. First, even if the DEIR's interpretation of applicable expenditure restrictions were correct—which, as explained below, it does not appear to be—the Authority has not demonstrated that it has no resources other than "airport revenues or FAA grant funds" that it might contribute toward mitigation. The Authority's FY 2018 Adopted Budget and FY 2019 Approved Conceptual Budget describes considerable

revenue—including more than \$130 million of “Non-Airline Revenue”—from a wide array of sources. Exhibit 20 at xiii. The DEIR does not address whether every last penny of this revenue is subject to FAA restrictions. The Authority also has express statutory power to issue bonds, levy special benefit assessments, and borrow money. Pub. Utilities Code §§ 170070, 170072, 170074. And the Authority “may receive state . . . grants” for the purpose of “providing ground access to airports under its control.” *Id.* at § 170064(d). The Authority must comprehensively examine all of these sources of funding before it can determine that mitigation is infeasible. *See City of San Diego*, 61 Cal.4th at 965-67.

Indeed, it appears that the Authority has not yet determined where the funding for the Project (part of its Capital Program) will come from. According to the Authority’s budget, one of its “highest priority” tasks for this fiscal year is to “[e]valuate multiple funding methods for the Capital Program (ADP and CIP), including public-private partnerships, select the best methods and execute the plan.” Exhibit 20 at 7. Other statements in the budget confirm that the funding plan for the Project remains to be developed. *See id.* at vii, 133, 163, 164, 174, 180. Again, the Authority cannot justify a finding that not a single penny of its revenue can be spent on mitigation when it has not yet decided where that revenue might come from.

Second, the DEIR’s description of restrictions on Authority expenditures is incomplete and potentially misleading. The DEIR refers the reader to “Appendix K,” which presents a 1,139-page grab-bag of statutes, Federal Register notices, FAA handbooks without any meaningful discussion or analysis. Readers cannot possibly be expected to “ferret out” unexplained and uninterpreted material buried in a voluminous technical appendix, and use that information to supplement explanations lacking in an EIR. “The data in an EIR must not only be sufficient in quantity, it must be presented in a manner calculated to adequately inform the public and decision makers, who may not be previously familiar with the details of the project. Information scattered here and there in EIR appendices, or a report buried in an appendix, is not a substitute for a good faith reasoned analysis.” *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 442 (internal quotations, brackets and citations omitted).

Some of the materials in Appendix K, moreover, suggest that restrictions on the Authority’s spending power may be neither as absolute nor as onerous as the DEIR describes. For example, the FAA’s Policy and Procedures Concerning the Use of Airport Revenue, 64 Fed. Reg. 7,696 (Feb. 16, 1999), states that FAA policy “take[s] into account the potential that an airport operator may be required by state or local law to finance the costs of mitigating the impact of certain airport development projects undertaken by the airport sponsor. *Therefore, where airport development causes a*

government agency to take an action, such as constructing a new highway interchange in the vicinity of the airport, airport revenues may be used equal to the prorated share of the cost,” provided the mitigation action is “necessitated by the airport development” and “located in the vicinity of the airport.” *Id.* at 7,708 (emphasis added). Moreover, it appears that the FAA has discretion to approve payments of “estimated impact fees at the commencement of a mitigation project,” *ibid.*, and may have discretion to authorize other expenditures as well. That the Authority has not yet sought FAA approval for any such expenditures, DEIR at 3.14-33, cannot justify a finding of infeasibility. Rather, the Authority must request adequate funding from available sources before concluding mitigation cannot feasibly be accomplished. *See City of Marina*, 39 Cal.4th at 367 (state agency must request appropriation from Legislature before declaring mitigation infeasible).

Notably, other airports in southern California have contributed to transit services that provide “closed door services”—services that are designed to benefit only airport passengers and affiliates. For example, Los Angeles World Airports contributes a guarantee of operating costs to private operators providing point-to-point FlyAway services. These operators provide non-stop, roundtrip bus service between LAX and about a half-dozen towns and central locations in the Los Angeles area. Those subsidies have varied depending on the route and the amount of fare charged to passengers, but generally have amounted to more than \$2 million per year in operating costs and costs for leased parking. *See Exhibit 8 (SDIA International Airport Transit Plan, June 2016)* at 5-3. The DEIR, as drafted, cannot support a finding that all off-Airport traffic and transportation mitigation is infeasible.

The DEIR also determines, erroneously, that Mitigation Measure TDM-1 is not “fully feasible” due to the same funding restrictions and because certain components of the TDM measure are outside the Airport Authority’s jurisdiction or would require implementation by an outside agency (MTS). DEIR at 3.14-35. This determination is unsupported, for the reasons discussed above. In addition, although the phrase “fully feasible” suggests that some components of TDM-1 *are* feasible regardless of the funding restrictions, the DEIR never explicitly identifies which components of TDM-1 might fall into the feasible category. Accordingly, it is impossible to determine if *any* of the TDM components will be adopted at all. The revised EIR must not only fully evaluate the feasibility of funding TDM-1, but must also clearly identify the specific TDM components that will be adopted and implemented.

Although there may be certain limitations on the Authority’s ability to fund off-Airport improvements using specific revenue streams, the Authority is nonetheless the regional agency that has both the authority and the responsibility to develop a sustainable

airport plan. The Authority is the agency that can plan for multi-modal access to the Airport, and should be a partner with local and regional agencies in defining transit needs. Indeed, the Authority is *required by law* to cooperate with SANDAG, local agencies, and Caltrans “to develop effective surface transportation access” to the Airport. Pub. Utilities Code § 170048(d). The Authority also “shall be responsible for developing all aspects” of facilities it operates, specifically including “[p]roviding for mass transportation access in cooperation and coordination with the responsible public transportation agency in whose jurisdiction the airport is located”; “[a]nalyzing and developing intercity bus and passenger rail access to terminals” if cost effective and feasible; and developing “all other facilities and services necessary to serve passengers and other customers of the airport.” *Id.* at § 170052(a), (c), (d). The Authority cannot avoid these responsibilities by way of the DEIR’s unsupported conclusions that mitigation is infeasible.

Certainly, the Authority could identify the specific transit infrastructure projects and service improvements that would reduce the Project’s significant traffic impacts. The Authority could then take the next step and identify the specific transit projects that could be adopted to promote multi-modal access. Once that list of projects is compiled, the Authority could then identify potentially feasible methods of paying for or contributing to the projects, e.g., identifying available sources of revenue, issuing bonds, levying special benefit assessments, or borrowing money. This entire analysis should be included in the revised EIR.

(iii) The DEIR Overlooks Feasible Mitigation Measures.

Finally, the DEIR overlooks mitigation measures that could readily mitigate the Project’s transportation impacts. The revised EIR should evaluate the following measures:

- Parking management strategies:
 - Even if the Airport Authority ultimately increases transit service to the Airport, passengers will likely travel by car rather than transit if there is abundant parking. Consequently, the Airport Authority should consider reducing the number of parking spaces in its proposed parking structure or eliminating the parking structure altogether.
 - Use of shared parking sites to accommodate the parking needs of the Airport, the Port of San Diego, and the City of San Diego. *See* Letter from

the San Diego Unified Port District to the to the Airport Authority, March 1, 2017.

- Enhanced TDM Program⁹ including:
 - Provision of adequate curb space to facilitate transit and shared mobility services such as rideshare and shuttle buses.
 - Provision of safe pedestrian and bicycle facilities with enhanced wayfinding signage that connects to public transit and other transportation services. Pedestrian and bicycle facilities should provide connections to passenger terminals, the ITC, and potential commercial development areas.
 - Provision of secure and convenient parking and amenities such as showers, lockers, and bicycle repair stands for airport employees.
 - Provision of free or reduced cost transit passes for employees of the Airport Authority and airport tenants.
 - Promotion of transit pass sales on-site to expand transit ridership and other connecting services within the airport and potential commercial development areas.
 - Provision of interactive transportation kiosks that display real-time information about regional transit services, bikeshare, carshare, rideshare, and other transportation options.
 - Eliminate subsidized parking for employees and offer an equivalent subsidy to employees that use commute alternatives to driving alone (transit, vanpool, etc.)

(e) The DEIR Fails to Address the Environmental Impacts of Proposed Mitigation Measures.

The DEIR identifies literally dozens of freeway, roadway, and intersection improvements as mitigation for the Project's significant traffic and transportation impacts. DEIR at ES-61 to ES-72. Many of these mitigation measures would be

⁹ These TDM measures were included in SANDAG's and the City of San Diego's letters to the Airport Authority, both dated March 1, 2017.

substantial projects in their own right. *See, e.g.*, DEIR at ES-62 to ES-64 (proposing to add additional lanes to I-5, I-8, and SR-163).

“An EIR is required to discuss the impacts of mitigation measures.” *Save Our Peninsula Committee v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 130. Specifically, “[i]f a mitigation measure would cause one or more significant effects in addition to those that would be caused by the project as proposed, the effects of the mitigation measure shall be discussed.” CEQA Guidelines § 15126.4(a)(1)(D); *see also id.*, § 15126.2(d) (EIR must discuss ways in which project may facilitate economic or population growth, require construction of new community service facilities, or encourage and facilitate other activities that might significantly affect the environment).

The DEIR completely fails to address the potential environmental impacts of the mitigation measures necessitated by the Project. The DEIR’s conclusion that nearly all of the transportation improvements are infeasible does not ameliorate this failure. First, as discussed above, the DEIR’s conclusions regarding the infeasibility of contributing to off-airport improvements are inadequately supported and potentially erroneous. Second, even if it is infeasible for the Authority to construct or contribute to certain off-airport improvements, it is reasonably foreseeable that some other agency (e.g., SANDAG, Caltrans, or the City of San Diego) will be forced to undertake the improvements in order to avoid or lessen the Project’s numerous, significant traffic and transportation impacts.

An EIR must address both direct and reasonably foreseeable indirect effects of a project, CEQA Guidelines section 15126.2(a), including reasonably foreseeable future development that may occur as a result of project approval. *See Laurel Heights I*, 47 Cal.3d at 396. The effects of mitigation measures that are likely to be required and implemented—whether or not the Authority itself carries them out—should be addressed at an appropriate level of detail in a revised and recirculated DEIR.

2. The DEIR Fails to Adequately Analyze and Mitigate the Project’s Air Quality Impacts.

(a) It Is Not Possible to Verify the Accuracy of the DEIR’s Air Quality Analysis Because the Document Lacks Critical Information.

San Diego County is in non-attainment status for ozone under the National and California Ambient Air Quality Standards. DEIR at 3.2-16. Motor vehicles are a major source of NO_x and VOC emissions, both of which are ozone precursors. DEIR at 3.2-2; 3.2-19; 3.2-20. Given the harmful effects of ozone, it is critical that the DEIR accurately

analyze the Project's air quality impacts. Unfortunately, the DEIR fails to conduct this analysis.

Except for the year 2035, the DEIR concludes that the Project would result in a reduction in emissions, including NO_x and VOC, compared to baseline conditions. Given the substantial increase in vehicular trips and VMT that would accompany the Project, it is counter-intuitive that motor vehicle-related NO_x and VOC emissions would decline upon implementation of the Project. Unfortunately, however, the DEIR fails to provide the information necessary to verify the accuracy of the DEIR's conclusions.

**(i) The DEIR Fails to Include Key Assumptions
Required for Calculating the Project's Air
Pollutant Emissions.**

The DEIR omits critical modeling assumptions used to identify the "existing 2016 baseline emissions" and the "with-project" emissions relating to motor vehicles. To quantify motor vehicle air pollutant emissions, one must consider factors such as: volume of vehicles, vehicle fleet mix, motor vehicle emission factors, travel distance, speed, year of analysis, and meteorological factors. However, the actual assumptions regarding most of these factors are missing from the DEIR, including its technical appendix. *See* DEIR, App. Cat C-35. Remarkably, the DEIR does not identify the volume of vehicles, travel distance, or assumed vehicular speed for any of the "with-project" forecast years or for the "existing 2016 baseline" condition. It is vital that the DEIR disclose this information because the document specifically attributes a reduction in motor vehicle emissions for future years to the proposed Project's roadway system improvements. DEIR at 3.2-30.

The DEIR may assume that motor vehicle emissions will decrease over time because the Project's roadway improvements would eliminate areas of congestion and increase travel speeds. But, as discussed above, increased vehicular speeds due to increases in capacity tend to be short-lived. While one might expect improved speeds and reduced vehicular air pollutant emissions in the short-term, increased capacity will lead to induced vehicular travel, especially in the absence of a viable alternative to the automobile, i.e., public transit. For these reasons, the DEIR must disclose its assumptions for quantifying the "existing 2016 baseline" and future "with-project" emissions. Without this information, it is not possible to determine whether the DEIR's air quality analysis has considered induced travel. If it has not, it is likely that the DEIR underestimated the Project's potential to increase VOC and NO_x emissions.

(ii) The DEIR Relies on Questionable Emission Factors.

In the few instances in which the DEIR opts to disclose its modeling assumptions, the information raises more questions than it answers. For example, the DEIR relies on EMFAC emission factors to calculate the Project's motor vehicle emissions. The DEIR's technical appendix states that the air quality model reflects emission benefits of CARB's recent rulemakings and that in general the current model predicts lower emissions after 2020. *Id.* This approach is problematic for two reasons.

First, the DEIR's calculation of "with-project" emissions assumes that future regulatory controls will be imposed and will be effective in reducing tailpipe emissions. The document thus compares future conditions to existing conditions without providing an independent measure of the Project's impacts. In this manner, the DEIR effectively assigns the *Project* credit for technological and regulatory advances that would potentially occur (see discussion in the next paragraph) regardless of its implementation. The revised EIR should analyze the criteria pollutant emissions that would be generated by the Project over the planning period. This analysis must disclose the Project's total amount of emissions, with and without emission reductions achieved from State-wide emission reduction programs.

Second, the Trump Administration plans to freeze rules that require automakers to build cleaner, more fuel-efficient cars. Accordingly, it may no longer be realistic to assume that motor vehicles will emit less pollution than they currently do. The Trump Administration recently proposed a rule that would roll back vehicle efficiency standards for model years 2021-2026 to 2020 levels.¹⁰ The rule also proposes to withdraw an existing Clean Air Act waiver allowing California to adopt more stringent standards. *See id.* at 31. The models used to estimate both air pollutant and greenhouse gas emissions in the DEIR use emissions factors that continue to decline in 2022 and 2026. DEIR App. C at C-31. If efficiency standards are frozen at 2020 levels as proposed by the Trump Administration, however, these emissions factors will likely underestimate the Project's actual emissions. Accordingly, the revised EIR must evaluate various scenarios, including one that analyzes Project emissions assuming the Trump Administration adopts

¹⁰ U.S. EPA and National Highway Traffic Safety Administration, *The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2016 Passenger Cars and Light Trucks* 7, 31 (prepublication version Aug. 2, 2018); available at https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/ld_cafe_my2021-26_nprm_2.pdf.

its proposed rollback of the fuel efficiency standards for future model years and revokes California's waiver.

(iii) The DEIR Fails to Provide Sufficient Information Regarding Existing 2016 Baseline Motor Vehicle Emissions.

Except for the year 2035, the DEIR concludes that future emissions with implementation of the proposed Project would be lower than “existing 2016 baseline emissions.” *See* DEIR at 3.2-25 (Table 3.2-11). The DEIR offers two reasons for these reduced emissions: (1) additional aircraft gates/terminal improvements and airfield improvements would reduce aircraft taxiing/idle times and aviation-related emissions; and (2) the Project's on-Airport roadway system improvements would result in improved motor vehicle movements which would reduce motor vehicle-related emissions. DEIR at 3.2-26; 3.2-27.

It is vital that the DEIR accurately identify existing emissions because if baseline emissions are inflated, the DEIR may arrive at an inaccurate and misleading conclusion that the Project would improve air quality. Accordingly, the DEIR must provide the methodology and modeling assumptions used to calculate baseline emissions. Here, the DEIR provides neither. It simply identifies a lump sum amount of air pollutant emissions. E.g., DEIR at 3.2-25 (projecting 1,068 tons per day of NO_x emissions in the “existing 2016 baseline”).

Compounding the problem, the DEIR identifies its baseline data for all sources of aircraft emissions in the aggregate, e.g., aircraft, auxiliary power units (APUs), ground support equipment, stationary sources, and motor vehicles. DEIR at 3.2-25. It makes no attempt to identify the baseline emissions attributable to an individual source.. As a result of this omission, there is no way of comparing the amount of motor vehicle-related air pollutant emissions expected to occur as a result of the Project to “existing 2016 baseline emissions” for motor vehicles. Consequently, even though the Project would result in a substantial increase in vehicular trips and VMT, the DEIR masks the actual emissions from this increased travel.

The Project would result in significant and purportedly unavoidable traffic, air quality, and as discussed below, greenhouse gas impacts. The Project's roadway improvements and a massive parking structure are key Project components. By obscuring motor vehicles' contribution to these impacts, the Authority is failing to fulfill its obligation to identify mitigation measures or Project alternatives that would enable air pollutant emissions to be reduced from motor vehicles. For example, as discussed above,

the Project proposes the construction of a 7,500-space parking garage. Given the relationship between parking and motor vehicle use, the revised EIR should evaluate the effect of mitigation measures and/or alternatives that eliminate this increase in parking.

(b) The DEIR Lacks Evidentiary Support for Its Conclusion That the Project Would Not Conflict with or Obstruct State and Federal Air Quality Plans.

The DEIR lacks evidentiary support for its conclusion that the Project would not conflict with or obstruct implementation of the State Implementation Plan (SIP) and the Regional Air Quality Strategy (RAQS). In particular, the DEIR includes an incomplete analysis of the Project's consistency with the SIP and fails to provide *any* analysis of the Project's consistency with the RAQS.

The DEIR relies on the Regional Aviation Strategic Plan (RASP) to conclude that the Project would not obstruct implementation of the SIP. The DEIR asserts that the increase in airline operations associated with the proposed Project at buildout in 2035 would not exceed the number of operations assumed in the RASP through the year 2030. DEIR at 3.2-22; 3.2-10. Yet, as discussed above, the DEIR contains conflicting information as to whether "buildout" (i.e., the end of the airport development planning phase) will occur in 2035 or 2050. *See* DEIR at 3.14-4 (traffic analysis describing "buildout" as occurring in 2050). Regardless of how the DEIR describes "buildout," operational air pollutant emissions will continue beyond 2035—and will continue to grow as aviation activity grows through 2050. The DEIR should have identified the Project's emissions in 2050 and then evaluated the effect these emissions would have on the SIP.

The DEIR also fails to evaluate the Project's potential to conflict with the RAQS. Instead, it suggests that the focus of the RAQS and the SIP is simply attainment of the National Ambient Air Quality Standard ozone standard for the County. DEIR at 3.2-22. yet, while the RAQS may address the federal standards, it also addresses California's standards, which for certain pollutants (VOC and NO_x (ozone precursor emissions)) are more stringent than the national standards. DEIR at 3.2-9; 3.2-10. The DEIR must evaluate the Project's potential to conflict with the RAQS. Until the EIR prepares this analysis, it has no basis to conclude that the Project would not conflict with the RAQS.

(c) The DEIR Fails to Provide Feasible Mitigation for the Project's Significant Air Quality Impacts.

Even with its faulty impact analysis, the DEIR determines the Project would result in significant impacts. In 2035, the VOC and NO_x emissions would exceed applicable thresholds of significance. DEIR at 3.2-30. The DEIR then looks to Mitigation Measure TDM-1 and Mitigation Measure GHG-1. By the DEIR's own admission, these measures would not reduce the Project's significant air quality impacts to less than significant levels. *Id.* Yet, rather than identify other feasible mitigation measures, the DEIR simply identifies the impacts as significant and unavoidable. DEIR at 3.2-30. This approach is contrary to the primary goal of an EIR, which is to identify a project's significant environmental impacts and find ways to avoid or minimize them through the adoption of mitigation measures or project alternatives. Pub. Resources Code §§ 21002.1(a), 21061.

3. The DEIR Fails to Adequately Analyze and Mitigate the Project's Climate Change Impacts.

The DEIR's failure to accurately account for and disclose all of the Project's greenhouse gas emissions prejudicially impairs the ability of decisionmakers and the public to understand the Project's cumulative contribution to climate change. The Authority's conclusion that climate impacts are significant and unavoidable cannot excuse the DEIR's deficiencies. "[A]n EIR's designation of a particular adverse environmental effect as 'significant' does not excuse the EIR's failure to reasonably describe the nature and magnitude of the adverse effect. [Citations.] An adequate description of adverse environmental effects is necessary to inform the critical discussion of mitigation measures and project alternatives at the core of the EIR." *Cleveland National Forest Foundation v. San Diego Assn. of Governments* (2017) 3 Cal.5th 497, 514-15 ("*Cleveland I*"). A revised EIR must be prepared that fully and accurately discloses all relevant emissions under both existing and Project conditions.

As discussed in detail below, the DEIR fails to inventory, disclose, and evaluate all relevant greenhouse gas emissions under both existing and Project conditions. The DEIR's estimates of mobile source emissions also lack evidentiary support. Furthermore, the DEIR's sole mitigation measure for the Project's climate impacts (MM-GHG-1) fails to satisfy CEQA's standards. The Authority cannot lawfully approve the Project without considering additional, feasible mitigation to reduce or avoid the Project's significant contributions to climate pollution.

(a) The DEIR Fails to Disclose All Relevant Greenhouse Gas Emissions Under Either Existing or Project Conditions.

(i) Legal Standards

Like all significance determinations under CEQA, “[t]he determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency.” CEQA Guidelines § 15064.4(a); *see also id.*, § 15064(b) (significance determination “calls for careful judgment . . . based to the extent possible on scientific and factual data”). Where, as here, an agency uses a model or methodology to quantify project emissions, it must support its chosen methodology with substantial evidence, and must “explain the limitations of the particular model or methodology selected for use.” *Id.*, § 15064.4(a). CEQA, moreover, requires analysis of the “whole of [the] action” before the lead agency, CEQA Guidelines § 15378(a), not just isolated components of a project. An EIR’s failure to disclose the information CEQA requires, in a manner that deprives the public and decisionmakers with a “full understanding of the environmental issues” raised by a project, is legal error. *Banning Ranch Conservancy v. City of Newport Beach* (2017) 2 Cal.5th 918, 942.

In assessing greenhouse gas emissions, an EIR must “reasonably evaluate [the] downstream impacts” of long-range projects that remain in the environment for many years, exerting an influence on travel behavior and emissions. *Cleveland I*, 3 Cal.5th at 513. This Project—which will influence both aviation activity and regional transportation for decades to come—requires a comprehensive and honest analysis.

(ii) The DEIR Omits an Accurate Baseline Inventory of Emissions Associated with Existing Conditions.

An accurate depiction of existing environmental conditions is critical to a complete assessment of project impacts. “[T]o inform decision makers and the public of any significant adverse effects a project is likely to have on the physical environment . . . , an EIR must delineate environmental conditions prevailing absent the project, defining a baseline against which predicted effects can be described and quantified.” *Neighbors for Smart Rail v. Exposition Metro Line Construction Authority* (2013) 57 Cal.4th 439, 447. Investigating and reporting existing conditions are “crucial function[s] of the EIR.” *Save Our Peninsula Comm. v. Monterey County* (2001) 87 Cal.App.4th 99, 122 (“SOPC”). “[W]ithout such a description, analysis of impacts, mitigation measures and project alternatives becomes impossible.” *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 953. Decisionmakers must be able to weigh the project’s effects against “real conditions on the ground.” *City of*

Carmel-by-the-Sea v. Bd. of Supervisors (1986) 183 Cal.App.3d 229, 246. “Because the chief purpose of the EIR is to provide detailed information regarding the significant environmental effects of the proposed project on the physical conditions which exist within the area, it follows that the existing conditions must be determined.” *SOPC*, 87 Cal.App.4th at 120 (internal quotation marks omitted).

Contrary to these requirements, the DEIR fails to provide a full and accurate inventory of existing greenhouse gas emissions. Rather, the DEIR estimates existing emissions only from a subset of sources: aircraft, auxiliary power units (APUs), ground service equipment (GSE), “stationary sources,” and motor vehicles. DEIR at 3.3-24. “Stationary sources” appear to consist only of the boilers at the Central Utility Plant (CUP). DEIR App. C at C-34 to -35, C-58. The DEIR thus omits from its inventory existing greenhouse gas emissions associated with, at a minimum, electricity and natural gas usage in the airport’s terminals and other facilities. *See* DEIR at 3.15-15 (stating that San Diego Gas & Electric company provides both electrical and natural gas service to the airport). The DEIR also omits greenhouse gas emissions associated with provision of essential services including water supply, wastewater treatment, and waste collection and disposal.

Absent full disclosure of existing, baseline airport greenhouse gas emissions, it is impossible for decisionmakers or the public to fully evaluate the emissions associated with the Project. As discussed below, moreover, this deficiency is compounded by the DEIR’s corresponding failure to disclose all Project-related emissions.

(iii) The DEIR Fails to Estimate or Disclose All Project-Related Emissions.

Just as it fails to adequately disclose all existing greenhouse gas emissions, the DEIR fails to disclose all Project-related emissions, including emissions associated with electricity and natural gas usage, wastewater treatment, water supply, and waste disposal. The utilities section of the DEIR reveals that the Project will increase demand for both electricity and natural gas, DEIR at 3.15-56 to -58, but the document fails to disclose even the fact that this increased usage will cause greenhouse gas emissions, much less the estimated amount of emissions. The DEIR similarly reveals that wastewater generation will nearly double under the Project, DEIR at 3.15-27, but fails to estimate greenhouse gas emissions associated with wastewater treatment. The DEIR also reveals that water usage at the airport is expected to more than double by 2040, DEIR at 3.15-32, but fails to estimate greenhouse gas emissions associated with the energy necessary to supply the additional water. Finally, the DEIR shows that the Project will substantially increase solid waste generation during both construction and operational phases. DEIR at 3.15-38 to -

41, 3.15-43. Yet the DEIR fails to estimate greenhouse gas emissions associated with the transportation, disposal, and decomposition of that waste.¹¹

The DEIR's emissions estimates are deficient in other respects as well. For example, the DEIR fails to address emissions from entire components of the Project, including emissions associated with tenant spaces and the "commercial development opportunity." Nor does the DEIR address the limitations of its chosen methodology, as CEQA Guidelines section 15064.4(a) requires. The DEIR's technical report, moreover, fails to explain how emissions from APUs and GSEs were calculated. *See* DEIR App. C at C-57 to -59. Finally, tables in the DEIR cite "KB Environmental Sciences, Inc., 2018" for emissions estimates, *see, e.g.*, DEIR at 3.3-24, 3.3-26 to -27, but the DEIR's list of references contains no report by this author that appears to estimate emissions from this Project.¹² The technical appendix does not detail how estimates were derived, other than to identify the models used in cursory terms.

These multiple omissions deprive the public and decisionmakers of information CEQA requires—information necessary to understand and comment meaningfully on the Project's impacts.

¹¹ Other agencies have conducted far more comprehensive inventories of existing and project-related emissions. Just by way of example—which should not be taken as an endorsement of all methodologies or conclusions therein—the greenhouse gas emissions inventory prepared for the Newhall Ranch development by the California Department of Fish and Wildlife quantified projected emissions from electricity and natural gas usage, water supply, waste disposal, and numerous other sources for a large residential and commercial development. *See* Cal. Dept. of Fish & Wildlife, Newhall Ranch Resource Management and Development Plan and Spineflower Conservation Plan Final Additional Environmental Analysis § 2.0 (June 12, 2017) (attached as Exhibit 27); Ramboll Environ, Greenhouse Gas Emissions Technical Report, Resource Management Development Plan & Spineflower Conservation Plan, Los Angeles County, California (Oct. 2016) (attached as Exhibit 28).

¹² The DEIR lists two documents co-authored by KB Environmental Sciences as references: (1) a 2009 "Final Draft" Air Quality Management Plan, and (2) a 2018 "Air Quality Assessment Protocol" for the "SAN Master Plan Update, Environmental Impact Report / Environmental Assessment (EA)." DEIR at 7-2, 7-5. The latter document does not appear to be publicly available on the Authority's website or elsewhere on the internet, so it is impossible to determine whether it has any bearing on this Project.

(iv) The DEIR Fails to Disclose Project-Related Aircraft Operational Emissions.

Aircraft greenhouse gas emissions are a significant contributor to climate change. According to recent estimates, aircraft account for about 2.5 percent of global CO₂ emissions, but U.S aircraft alone account for 30 percent of global aviation emissions. Exhibit 21 at 1.

The DEIR fails to disclose all aircraft-related greenhouse gas emissions associated with the Project's elimination of constraints on additional growth in aviation activity at SDIA. The DEIR's emissions estimates for aviation traffic include only taxiing, engine startup, and APU operation. DEIR App. C at C-21. The document thus fails to disclose any greenhouse gas emissions from takeoff, landing, or flight operations, potentially leaving the vast majority of project-related emissions unaccounted and undisclosed.

The DEIR does not explain why it omitted disclosure of these operational emissions. At best, the Authority merely points out that it "does not have the authority to regulate aircraft operations or emissions from aircraft engines." DEIR at 3.3-29. The DEIR does not explain what specific legal limitations the Authority believes might apply.

To the extent that there may be specific legal limitations on the Authority's ability to regulate emissions caused by the Project, any such limitations would not relieve the Authority of its responsibility under CEQA to disclose all emissions caused by the Project. Even where, for example, federal law might preempt local *regulation* of an activity, it would not necessarily preempt CEQA's *informational* requirements. *Association of Irrigated Residents v. Kern County Bd. of Supervisors* (2017) 17 Cal.App.5th 708, 749-50. If disclosure of Project-related aircraft emissions will not interfere with federal regulation of aviation operations or efficiency, for example—and there appears to be no logical reason why it would—the DEIR must disclose those emissions. *See id.* at 750-52 (concluding federal law did not preempt CEQA review of reasonably foreseeable environmental effects that might be caused by off-site railroad activities associated with project but beyond lead agency's direct control).

Moreover, even if the Authority may lack power to impose certain direct mitigation measures on air carriers, it must nonetheless consider whether other measures exist, fully explore any options that may be within the Authority's control, and adequately justify any finding of infeasibility. *Id.* at 752-53; *see* Pub. Resources Code § 21081(a)(2) (agency cannot approve project with significant effects unless it finds that mitigation measures to avoid or reduce those effects are "within the responsibility and jurisdiction of another public agency *and have been, or can and should be, adopted by*

that other agency”) (emphasis added); CEQA Guidelines § 15091(a)(2) (same), (c) (infeasibility finding cannot be made if lead agency has concurrent jurisdiction to implement mitigation; specific reasons for infeasibility finding must be described).

(v) The DEIR Fails to Estimate or Disclose the Project’s Operational Emissions Beyond 2035.

The DEIR fails to disclose any Project-related operational greenhouse gas emissions after 2035, even though it is clear that the Airport will continue to operate—and the Project’s effect on emissions will continue—well beyond 2035. This omission—which is closely related to the DEIR’s failure, discussed above, to consistently and accurately describe when Project “buildout” occurs—both deprives the public and decisionmakers of information necessary to a full understanding of the Project’s impacts, and divests the DEIR’s significance conclusions of evidentiary support.

The DEIR identifies Executive Order S-3-05, which establishes specific emissions reduction goals and guides state climate policy through 2050, as one of the policies with which the Project conflicts under Impact 3.3-2. DEIR at 3.3-33, 3.3-35. Yet the DEIR’s emissions estimates, even for operational emissions, run only through 2035. DEIR at 3.3-26 to -27 (Table 3.3-5); DEIR App. C at C-57.) The DEIR explains that GHG emissions were disclosed only for each of the years in which “completion of each major subphase” of *construction* is anticipated. DEIR at 3.3-26. While this approach might make sense for temporary construction emissions occurring during each such year, it cannot be justified for *operational* emissions, which it is reasonable to assume will continue beyond the completion of construction in 2035.

Where, as here, a project will have a long-lasting effect on travel patterns and greenhouse gas emissions, the lead agency must make a good-faith effort to disclose and analyze the significance of long-term climate impacts. *Cleveland I*, 3 Cal.5th at 513. In order to meaningfully compare the Project’s long-term emissions with long-term state and local policies and goals, it is necessary to estimate and disclose those long-term emissions. The DEIR may not avoid disclosure and analysis by simply declaring the impact significant and unavoidable, but rather must describe “the nature and magnitude of the effect.” *Id.* at 514-15. It appears that 2050 emissions could readily be estimated and disclosed here; the Authority’s aviation activity forecasts extend through 2050, DEIR at 2-14, 2-17 (Table 2-1), and the DEIR’s traffic analysis also extends to 2050. DEIR at 3.14-4. Absent disclosure of all operational emissions, the DEIR cannot fulfill its informational purpose.

(b) The DEIR's Mobile Source Emissions Estimates Are Not Supported by the Evidence.

As discussed in relation to traffic and air quality impacts, above, the DEIR fails to provide the information necessary to judge whether modeled emissions estimates are correct. For example, the technical report fails to explain how the emissions factors used to estimate mobile sources were derived (i.e., how “[a] composite emission factor representative of the fleet mix at an aggregated speed was calculated,” DEIR App. C at C-35). Also as previously discussed, the DEIR fails to account for the possibility that vehicle fuel efficiency standards will be frozen at 2020 levels through 2026 and the likelihood that the Trump Administration will seek to revoke California’s ability to adopt and enforce more stringent standards. The DEIR’s assumption that CO₂ emissions per mile will continue to decline significantly in 2022, 2026, and beyond, DEIR App. C at C-35, may no longer be justifiable.

Furthermore, it is not clear whether the emissions estimates in the DEIR accurately reflect congestion, vehicle idling, and delay associated with the dozens of significant traffic and transportation impacts the Project will cause. The DEIR concludes that a couple of on-airport roadway improvements will reduce overall mobile source emissions below baseline levels. *See* DEIR at 3.3-27. It is difficult to believe that a Project anticipated to cause significant delay and congestion at dozens of locations—likely increasing air pollution and greenhouse gas emissions—will nonetheless reduce overall emissions by easing congestion at one or two other locations. And even to the extent on-airport roadway improvements are expected to ease congestion, as discussed above, the DEIR fails to account for induced travel. Due to its failure to explain or support its opaque methodology, the DEIR offers no justification for its counterintuitive conclusion.

Finally, the DEIR modeled a vehicle fleet mix that appears to have dramatically overstated the number of diesel-fueled passenger vehicles on the roadways around SDIA, and thus potentially underestimated mobile source greenhouse gas emissions. The DEIR assumed a vehicle mix consisting of 42 percent gasoline passenger cars, *42 percent diesel* passenger cars, 14 percent diesel single-unit short-haul trucks, and 2 percent urban buses, purportedly based on “vehicle classification counts from roadways leading to SDIA.” DEIR App. C at C-35. Nothing in DEIR Appendix C or Appendix H-1 (the off-airport roadway volume analysis technical memorandum) appears to contain any “vehicle classification count” data, explain the classification methodology or process, or otherwise support the DEIR’s assumed fleet mix.

The percentage of diesel passenger vehicles purportedly counted on area roadways would represent a striking anomaly in that it vastly exceeds percentages found in nationwide fleet surveys. A 2015 report from the U.S. Department of Transportation's Bureau of Transportation Statistics shows that nationwide, diesel passenger cars and light trucks represented *less than two percent* of the 2014 overall vehicle fleet. Exhibit 22 at 1.¹³ The Energy Information Administration's 2018 Annual Energy Outlook confirms that as of 2017, diesel-powered cars and light trucks continued to represent a miniscule percentage of overall light-duty vehicle sales. Exhibit 23 at 113. Nor do regional variations appear to account for the difference; according to a diesel industry trade group, California was not even in the top 10 states in terms of percentage of the overall 2014 passenger fleet fueled by diesel (Wyoming led at roughly 11 percent, while Colorado was tenth, with 4.4 percent).¹⁴ Given these statistics, it would be extremely surprising if half the passenger vehicles approaching SDIA are diesel-powered. Because diesel vehicles tend to have lower CO₂ emissions per vehicle mile traveled than comparable gasoline vehicles, Exhibit 22 at 3, the inflated number of diesel vehicles in the fleet mix considered by the DEIR could result in a substantial underestimate of mobile source greenhouse gas emissions. The Authority must correct this apparent error and fully explain its assumptions in a revised and recirculated DEIR.

(c) Mitigation Measure GHG-1 Fails to Satisfy CEQA's Requirements.

(i) Public Agencies Must Identify and Implement Specific, Enforceable, Feasible Mitigation.

As previously discussed, an EIR's central purpose is to identify a project's significant environmental effects and then evaluate ways of avoiding or minimizing them. Pub. Resources Code §§ 21002.1(a), 21061. CEQA requires lead agencies to identify and analyze all feasible mitigation, even if this mitigation will not reduce the impact to a level of insignificance. CEQA Guidelines § 15126.4(a)(1)(A) (EIR "shall identify mitigation

¹³ Energy Information Administration data show that as of 2016, diesel cars and light trucks still represented only slightly more than one percent of overall light duty vehicle stock. Energy Information Administration, Annual Energy Outlook 2018, Table 40: Light-Duty Vehicle Stock by Technology Type, *available at* https://www.eia.gov/outlooks/aeo/supplement/excel/suptab_40.xlsx.

¹⁴ Diesel Technology Forum, *California #1 State in Total Diesel Cars in Operation & #1 in Total Hybrid Passenger Vehicles* (April 14, 2015), at <https://www.dieselforum.org/news/california-1-state-in-total-diesel-cars-in-operation-and-1-in-total-hybrid-passenger-vehicles> (visited Aug. 3, 2018).

measures for each significant environmental effect identified in the EIR”); *Woodward Park Homeowners Ass’n, Inc. v. City of Fresno* (2007) 150 Cal.App.4th 683, 724 (“The EIR also must describe feasible measures that could minimize significant impacts.”); 1 Kostka & Zischke, *Practice Under the California Environmental Quality Act* § 14.6 (2d ed. 2008) (“A mitigation measure may reduce or minimize a significant impact without avoiding the impact entirely.”). Moreover, CEQA requires the agency to adopt measures that mitigate significant effects to the extent feasible before approving any project. *See Citizens for Quality Growth v. City of Mount Shasta* (1988) 198 Cal.App.3d 433, 443, fn. 8.

Where all available and feasible mitigation measures have been identified, but are inadequate to reduce an environmental impact to a less-than-significant level, an EIR may conclude that the impact is significant and unavoidable. *See* CEQA Guidelines § 15126.2. However, the lead agency cannot simply conclude that an impact is significant and unavoidable and move on. *Berkeley Keep Jets Over the Bay Com. v. Board of Port Cmrs.* (2001) 91 Cal.App.4th 1344, 1371 (DEIR may not “travel the legally impermissible easy road to CEQA compliance . . . [by] simply labeling [an] effect ‘significant’ without accompanying analysis.”); *accord, Cleveland I*, 3 Cal.5th at 514-15. Rather, “a more detailed analysis of how adverse the impact will be is required.” *Galante Vineyards v. Monterey Peninsula Water Management Dist.* (1997) 60 Cal.App.4th 1109, 1123. Specifically, the agency must (1) perform a thorough evaluation of the impact and its severity before and after mitigation, and (2) propose *all* feasible mitigation to “substantially lessen the significant environmental effect.” CEQA Guidelines §§ 15091(a)(1), 15126.2(b) (requiring an EIR to discuss “any significant impacts, including those which can be mitigated but not reduced to a level of insignificance”).

Thus, the Authority is legally required to mitigate or avoid the significant impacts of the Project wherever it is feasible to do so. *See* Pub. Resources Code § 21002.1(b). In other words, it cannot approve the Project with significant environmental impacts if any feasible mitigation measure or alternative is available that will substantially lessen the severity of any impact. Pub. Resources Code § 21002; CEQA Guidelines § 15126(a).

Here, the DEIR’s single mitigation measure for the Project’s significant greenhouse gas emissions fails to satisfy CEQA’s standards.

(ii) MM GHG-1 Is Impermissibly Vague and Unenforceable.

Mitigation Measure GHG-1 fails to commit the Authority to specific, enforceable actions that will reduce or avoid Project emissions to the extent feasible.¹⁵ Mitigation measures proposed in an EIR must be “fully enforceable” through permit conditions, agreements, or other legally binding instruments that will ensure the measures are actually implemented—not merely adopted and then disregarded. Pub. Resources Code § 21081.6(b); CEQA Guidelines § 15126.4(a)(2); *Anderson First Coalition v. City of Anderson* (2005) 130 Cal.App.4th 1173, 1186-87; *Federation of Hillside & Canyon Assns.*, 83 Cal.App.4th at 1261.

MM-GHG-1 relies primarily on the “Environmental Sustainability and Compliance chapter” of a “Program Definition Document” for the Project, which the GHG claims will “reduce GHG emissions.” DEIR at 3.3-29. The DEIR suggests that a “Program Definition Document” exists in some form for the Terminal 1 Replacement Program, although it does not yet exist for Phase 2 of the Project. *Id.* However, no “Program Definition Document” appears in the DEIR’s list of references or supporting materials, and internet searches for the document were unsuccessful. Accordingly, it is impossible to determine what measures might or might not be incorporated into a “Program Definition Document,” whether those measures are concrete and enforceable, or to what extent any such measures might actually reduce emissions.

MM-GHG-1 also lists a handful of “sustainability measures” that purportedly will be incorporated into the Project. DEIR at 3.3-29 to -30. But many of these “sustainability measures” fall short of any specific, enforceable commitment to take action. For example, MM-GHG-1 states that the Project will achieve “LEED Silver certification (or equivalent),” DEIR at 3.3-29, but does not explain how “equivalency” will be determined or what standards might apply. The DEIR also claims that the Project will “[i]ninstall cool roofs and/or roof-mounted solar photovoltaic arrays . . . where feasible,” *id.*, but does not actually evaluate the feasibility of doing so, and thus fails to commit to implementation at all. The DEIR’s statement that the Project will “[u]tilize low- and zero-emitting equipment during construction activities, whenever possible,” similarly fails to provide any concrete detail as to what constitutes “low-emitting” equipment or what “whenever possible” means in context. Again, this does not constitute an enforceable commitment to mitigate. Moreover, numerous other “sustainability measures”—including but not limited to energy “sub-monitoring,” “communication dashboards,” and provision of some

¹⁵ MM-GHG-1 also incorporates MM-TDM-1; specific deficiencies in MM-TDM-1 are discussed in Part II.B.1(d), above.

undefined amount of parking for some unspecified combination of low-emitting and shared vehicles—are described in such vague and general terms that quantifying any emissions reduction benefit is impossible. Still other “sustainability measures” in MM-GHG-1—for example, the “Water Stewardship” measures—seem to have a fairly attenuated, and entirely unarticulated, relationship to greenhouse gas emissions. The reader simply cannot determine whether, or by how much, these measures might reduce emissions, if they are ever implemented at all.

Several elements of MM-GHG-1 do not even appear to be mitigation measures, but rather constitute elements that either are already part of the Project or that the Authority has already implemented in connection with prior projects. The “Airside Efficiency” measures, on-airport access roadway improvements, and stormwater capture and reuse system, for example, simply describe aspects of the Project as proposed. DEIR at 3.3-31. Project elements are not “mitigation.” An EIR must “separately identify and analyze the significance of impacts . . . before proposing mitigation measures.” *Lotus v. Dept. of Transportation* (2014) 223 Cal.App.4th 645, 658. When an agency folds discussion of mitigation into discussion of the project and impacts, this “subverts the purposes of CEQA,” because it results in omission of “material necessary to informed decisionmaking and informed public participation.” *Id.*; see also *Cleveland II*, 17 Cal.App.5th at 443 (questioning whether measures already incorporated into a project “even qualify as mitigation measures”). Other aspects of MM-GHG-1, such as the installation of “clear signage, wayfinding, and ticket machines to facilitate use of public transit,” DEIR at 3.3-30, have already been implemented, at least to some extent. Airport features that already exist are reflected in the existing conditions baseline, and by definition cannot avoid or reduce any emissions of the Project.

Cleveland II illustrates the deficiencies in this DEIR. In that case, the Court of Appeal found greenhouse gas mitigation measures for SANDAG’s Regional Transportation Plan/Sustainable Communities Strategy inadequate. 17 Cal.App.5th at 431-34. There, as here, the EIR deemed feasible measures “requiring little to no effort to implement and assuring little to no concrete steps toward emissions reduction,” including measures already incorporated into the transportation plan and its emissions estimates. *Id.* at 433. There, although the lead agency determined that its mitigation measures might “encourage reduction in greenhouse gas emissions,” those measures “did not provide a mechanism guaranteeing such reductions.” *Id.* at 431. Accordingly, SANDAG deemed impacts significant and unavoidable. *Id.* The DEIR reaches almost exactly the same conclusion here: “The measures set forth through MM-GHG-1 and MM-TDM-1 provide a wide variety of requirements and options for achieving GHG reductions; however, until the specifics of those project features are defined at more detailed levels of design, it is

not possible to quantify the amount of GHG reductions that would occur as a result of this mitigation measure. . . . [T]herefore, the proposed project would result in a significant and unavoidable impact.” DEIR at 3.3-31 (emphasis removed).

For all of these reasons, the various components of MM-GHG-1, individually or collectively, are impermissibly vague and unenforceable. The Authority cannot conclude, based on this DEIR, that greenhouse gas emissions have been mitigated to the extent feasible.

(iii) MM GHG-1 Lacks Performance Standards and Is Improperly Deferred.

For many of the same reasons, MM-GHG-1 also improperly defers formulation of mitigation measures. “Formulation of mitigation measures should not be deferred until some future time.” CEQA Guidelines § 15126.4(a)(1)(B). However, where mitigation for an impact “is known to be feasible,” but where “practical considerations prohibit devising such measures early in the planning process,” an agency “can commit itself to eventually devising mitigation measures that will satisfy specific performance criteria articulated at the time of project approval.” *Cleveland II*, 17 Cal.App.5th at 442-43. In order to defer formulation of mitigation measures, therefore, an agency must demonstrate (a) that mitigation of the impact is feasible; (b) that practical considerations preclude devising measures at the time of review; (c) specific, articulated performance criteria that will avoid or lessen the impact; and (d) a binding commitment to adopt measures that will meet or exceed those performance standards.

The DEIR fails to satisfy CEQA’s prerequisites for deferring mitigation. First, to the extent MM-GHG-1 relies on as-yet-unarticulated greenhouse gas reduction measures in the Environmental Sustainability and Compliance chapter of the Program Definition Document for the Project, it impermissibly defers mitigation. Again, it is not clear whether a PDD for Project Phase 1 even exists, much less what measures its Environmental Sustainability and Compliance chapter might contain; moreover, it is merely “anticipated” that “future PDDs” for Phases 2a and 2b “will include a similar Environmental Sustainability and Compliance chapter with GHG-reducing features,” whatever those features might be. DEIR at 3.3-29. An agency may not simply order preparation of a report and vaguely promise to follow whatever measures the report identifies. *See Cleveland II*, 17 Cal.App.5th at 443; *Preserve Wild Santee v. City of Santee* (2012) 210 Cal.App.4th 260, 280-81.

Second, for many of the same the reasons discussed above, MM-GHG-1 both fails to commit the Authority to implementing particular mitigation measures or achieving

specific performance criteria. For example, MM-GHG-1 fails to identify any specific performance criteria for LEED Silver equivalency, installation of cool roofs, solar panels, parking for low-emission and shared-ride vehicles, low- and zero-emitting construction equipment, bicycle storage and shower space, or the “Water Stewardship” measures. MM-GHG-1 also allows the Authority to avoid committing to cool roofs, solar panels, and low-emission construction equipment if the Authority determines later, without any defined standards, that such measures are not “feasible” or “possible.” Indeed, the DEIR admits that its proposed “requirements and options” for reducing greenhouse gas emissions are not sufficiently “defined” to enable any estimate of “the amount of GHG reductions that would occur as a result of this mitigation measure.” DEIR at 3.3-31. There could be no plainer indication that MM-GHG-1 lacks any meaningful performance standards. Absent performance standards that provide concrete “criteria for success” for mitigation measures, CEQA’s requirements are not satisfied. *See, e.g., California Clean Energy Committee v. City of Woodland* (2014) 225 Cal.App.4th 173, 196-96. Again, based on this DEIR, the Authority cannot make or support a finding that the Project’s climate impacts have been mitigated to the extent feasible, even if they remain significant after implementation of all feasible mitigation. *See Cleveland II*, 17 Cal.App.5th at 434.

(d) Additional Potentially Feasible Mitigation Must Be Considered.

Like the EIR in *Cleveland II*, the DEIR fails to identify and consider additional, potentially feasible mitigation measures that might further reduce emissions. In *Cleveland II*, the Court of Appeal held that “[m]issing from the EIR is what CEQA requires: a discussion of mitigation alternatives that could both substantially lessen the [project’s] greenhouse gas emissions impacts and feasibly be implemented.” 17 Cal.App.5th at 433. The court looked to SANDAG’s Climate Action Strategy for “a few examples of potential alternatives” that might offer meaningful mitigation. *Id.* at 433-34.

The DEIR here could similarly draw from a number of documents containing the kind of specific, measurable mitigation commitments that CEQA requires, and that are largely missing from MM-GHG-1. For example, the Authority could commit to implementing all applicable measures in the City of San Diego’s Climate Action Plan and consistency checklist. *See* Exhibits 15, 16. Unlike MM-GHG-1, the Climate Action Plan’s consistency checklist contains actual performance standards for, among other things, cool/green roofs, low-flow plumbing fixtures, commercial appliances and fixtures, bicycle parking spaces, employee showers and lockers, parking spaces for low-emitting and ride-sharing vehicles, and TDM programs. Exhibit 16 at 5-10 & Attachment A. Moreover, because much of the Airport is located within a Transit Priority Area, the Authority should also consider applicable Step 3 questions, particularly questions 2

through 4 (concerning support for transit, pedestrian improvements, and bicycle improvements). *Id.* at 11.

Moreover, rather than simply referencing its memorandum of understanding with the California Attorney General's office, the Authority could identify, and specifically commit to implementing, all applicable measures therein. *See* Exhibit 24 at Exh. A, pp. i-vi.¹⁶ The Authority similarly could review and commit to specific applicable measures in the Port of San Diego's Climate Action Plan. *See* Exhibits 25, 26.¹⁷

The Authority also should consider greenhouse gas reduction measures found feasible in the context of other projects. The Newhall Ranch EIR, for example, committed (among other things) to "zero net energy" non-residential buildings and provision of electric vehicle charging stations in commercial portions of the development. *See* Exhibit 27 at 2.1-26 to -29. The Airport's existing microgrid may facilitate additional renewable energy generation, adding to the feasibility of a "zero net energy" approach. *See* DEIR at 3.15-15 to -16. Accordingly, the Authority should consider the feasibility of dramatically expanding solar generation capacity, which under the current Project would offset only 20 percent of annual electricity demand, DEIR at 3.15 to -16, to supply 100 percent of on-site demand (and potentially even generate additional electricity sufficient

¹⁶ Such measures could include, but are not necessarily limited to, the following measures in Exhibit A to the MOU: § 1.f, implement recommendations resulting from inventory and study of aircraft movements/techniques to reduce emissions; § 2, replace all ground support vehicles and shuttles with electric or alternative fuel vehicles (to the extent not already accomplished), and require the use of such vehicles in all terminals and future operations; § 3.a(i), use cool pavements for no less than 80 percent of new or replaced pavements; § 4, require contractors to use green construction methods and equipment; and § 5.a., 5.c., coordinate with tenants to address greenhouse gas emissions through recycling and carbon footprint reduction.

¹⁷ The DEIR claims in conclusory fashion that the Project is consistent with the Climate Action Plans developed by both the City of San Diego and the Port of San Diego. DEIR at 3.3-35. As suggested in the discussion above, however, there are significant differences between the vague, general, optional provisions of MM-GHG-1 and the specific measures and standards adopted in the Climate Action Plans. Consistency with a Climate Action Plan means actual compliance with its specific provisions and greenhouse gas reduction measures. *See Mission Bay Alliance v. Office of Community Investment & Infrastructure* (2016) 6 Cal.App.5th 160, 202-03. The DEIR thus fails to explain, or justify with substantial evidence, its conclusion that the Project is consistent with both plans.

to reduce or eliminate reliance on natural gas for commercial and utility uses). Furthermore, it appears that the Authority can do better than LEED Silver certification; the recently completed T2 West project received LEED Platinum certification, DEIR at 3.15-19, and the DEIR does not provide any reason why the buildings contemplated in the Project could not feasibly do the same.

Moreover, although MM-GHG-1 calls for installation of electrical boxes sufficient to support electric vehicle charging stations, it does not clearly commit to installation of any actual charging stations. DEIR at 3.3-30. Electrical infrastructure, without actual charging stations, does nothing to reduce emissions; drivers cannot plug their cars into electrical boxes. Newhall Ranch expressly committed to provide Level 2 electric vehicle charging opportunities to 7.5 percent of the total number of parking spaces in the commercial development area. Exhibit 27 at 2.1-28.

In short, the DEIR impermissibly leaves a long list of potentially feasible mitigation measures on the table, and thus cannot support the findings CEQA requires. Simply declaring the Project's climate impacts significant and unavoidable due to their inconsistency with short, medium, and long-term state climate policy is insufficient. The Authority must do everything it feasibly can to reduce or avoid emissions.

4. The DEIR Fails to Adequately Analyze and Mitigate the Project's Energy Impacts.

(a) An EIR Must Address CEQA's Specific Requirements Regarding Energy Use.

An EIR must include a "detailed statement" setting forth, among other things, "measures to reduce the wasteful, inefficient, and unnecessary consumption of energy." Pub. Resources Code § 21100(b)(3). Appendix F to the CEQA Guidelines contains a "list of energy impact possibilities and potential conservation measures" that lead agencies should consider if "applicable or relevant" to the project for which an EIR is prepared. CEQA Guidelines, App. F, § II. In evaluating energy impacts, public agencies may not rely on energy efficiency requirements in building codes or other standards, or on the beneficial side effects of measures to reduce greenhouse gas emissions, because such standards and measures do not address all of the requirements of Appendix F. *California Clean Energy Committee v. City of Woodland* (2014) 225 Cal.App.4th 173, 211. Rather, EIRs must quantify the energy impacts of proposed projects, and must consider specific measures to reduce those impacts. *See id.* at 211-12; *Ukiah Citizens for Safety First v. City of Ukiah* (2016) 248 Cal.App.4th 256, 264-65.

The DEIR's assessment of the Project's energy impacts—which the DEIR shoehorns into a portion of the Utilities chapter—fails to comply with CEQA. As a threshold matter, the DEIR fails to discuss Appendix F or identify any specific provisions of Appendix F that may be applicable to the Project. For example, the DEIR does not consider the energy intensiveness of materials required for the Project, the additional energy consumed by vehicle trips as opposed to other transportation modes, effects of the Project on peak and base period demand for electricity and other forms of energy, or the Project's overall use of efficient transportation alternatives. CEQA Guidelines, App. F, §§ II.A.1, II.A.5, II.C.3, II.C.6. Nor does the DEIR expressly consider all potentially applicable mitigation measures described in section II.D of Appendix F; the omission of any detailed consideration of alternative energy systems, *id.*, section II.D.4, is especially glaring. To the extent the DEIR does identify features of the Project that purportedly reduce energy usage, the document fails to explain why those measures were incorporated and why others were dismissed. *Id.*, § II.D.1. The recent appellate decisions discussed above—*California Clean Energy Committee* and *Ukiah Citizens*—make clear that analysis of energy impacts is central to CEQA, and should not be treated as an afterthought.

(i) The EIR Fails to Fully Disclose and Analyze the Project's Construction Energy Usage.

The DEIR's discussion of construction energy impacts is incomplete and not in compliance with Appendix F. Most strikingly, the DEIR admits that energy usage during construction will consist almost entirely of burning diesel fuel and gasoline. DEIR at 3.15-45, -51. This admission appears to confirm that the vague, hortatory provisions of MM-GHG-1 discussing the use of zero-emission and alternative-fuel construction equipment may never actually be implemented. The DEIR does not identify any energy inputs other than diesel and gasoline for construction; electricity and natural gas are discussed only in terms of reduced demand resulting from demolition of existing structures. *See* DEIR at 3.15-51 to -54.

The DEIR does not identify any specific measures that would meaningfully reduce fossil fuel consumption during construction. Rather, the DEIR concludes that the Project will not cause wasteful or inefficient use of energy because the contractor “would be contracted to conform to the applicable construction-related environmental and sustainability goals identified for the proposed project in the Program Definition Document and [Strategic Energy Plan].” DEIR at 3.15-53. As discussed above in the context of greenhouse gas emissions, the Program Definition Document was not released with the DEIR, apparently exists (if at all) only in draft form, is not publicly available, and addresses only Phase 1 of the Project. Moreover, the exhortations in the DEIR to use

low- and zero-emitting equipment “whenever possible “ and to employ “best practices” such as alternative fuel vehicles, clean-burning diesel engines, construction employee shuttle service, DEIR at 3.15-53, are vague and non-committal—as the DEIR perhaps unintentionally reveals in estimating construction energy usage based entirely on liquid fossil fuels. The DEIR also states that “green construction methods and equipment would be utilized to meet performance thresholds and benchmarks developed under third-party certifications.” DEIR at 3.15-53. But the DEIR does not specify what any of these “thresholds and benchmarks” might be. It is thus impossible to determine whether any of the documents referenced in the DEIR, separately or collectively, addresses all of the concerns in Appendix F. It is also impossible to determine whether any of the general measures described in the DEIR will reduce energy consumption, and if so, by how much. Again, agencies may not fulfill their responsibilities under Appendix F by merely pointing to documents and standards developed for other purposes. *See California Clean Energy Committee*, 225 Cal.App.4th at 211.

(ii) The EIR Fails to Fully Disclose and Analyze the Project’s Operational Energy Usage.

The DEIR’s discussion of operational energy impacts is also flawed.

First, with respect to consumption of transportation fuels, the DEIR concludes that because the Project will improve aircraft movements and comply with regulations and policies reducing energy demand—including California’s renewable portfolio standard—impacts will be less than significant. DEIR at 3.15-55 to -56. There are several problems with this conclusion. Again, the DEIR impermissibly attempts to rely on compliance with unspecified regulations and policies as a substitute for consideration of the specific concerns in Appendix F.¹⁸ Furthermore, the renewable portfolio standard addresses electricity generation, not transportation fuels, and thus lends no support to the DEIR’s conclusion. *See* Pub. Utilities Code § 399.11(a).

As previously discussed, moreover, the DEIR’s assertion that aviation activity at the airport would grow at exactly the same rate with or without the Project, DEIR at 3.15-55, is misleading. Accommodating additional growth in air travel by removing existing constraints will foreseeably lead to greater aviation fuel consumption, which must be addressed in an EIR. Moreover, it is not clear whether the aircraft fuel consumption figures in the DEIR (at 3.15-54 to -55) are limited to startup, taxiing, and APU

¹⁸ As previously discussed, the assumption that gasoline consumption will decrease as vehicle efficiency standards increase, DEIR at 3.15-54, has been called into serious question by current Trump Administration proposals.

operations; as discussed above in the context of greenhouse gases, limiting analysis to this subset of operations conflicts with CEQA's information disclosure requirements. To the extent that the DEIR fails to account for all aviation fuel usage caused by the Project, it fails to comply with Appendix F. *See California Clean Energy Committee*, 225 Cal.App.4th at 212.

The DEIR further fails to include any meaningful effort to reduce fuel consumption by automobiles. Indeed, much of the Project—on-airport roadway improvements and a massive expansion of parking—appears designed to increase reliance on automobiles at the expense of more efficient alternatives. As a result, the DEIR fails to account for the “additional energy consumed per trip by mode.” CEQA Guidelines, App. F, § II.A.5. The DEIR also fails to evaluate impacts related to the Project's “overall use”—or, rather, overall lack—of “efficient transportation alternatives.” *Id.*, § II.C.6. The DEIR also fails to address whether the Authority would be making an irreversible commitment of resources by designing a long-term airport development plan around automobile access rather than actively incorporating transit alternatives. *Id.*, § G.

Second, with respect to operational electricity and natural gas consumption, the DEIR reaches several unsupported conclusions. Using modeled demand factors derived from office parks, office buildings, and shopping centers—not airports—the DEIR concludes that both electricity demand and natural gas demand will roughly double as a result of the Project. DEIR at 3.15-56, -57. Given that the Authority presumably has a wealth of information at hand concerning energy usage at the airport's terminals and other facilities, it is not clear why the DEIR chose to use demand factors for other types of facilities rather than extrapolate from more meaningful airport-specific data, and the DEIR fails to explain its rationale. The DEIR's use of demand factors derived from non-airport structures also results in a failure to estimate electricity and natural gas demand from all relevant aspects of the Project. For example, the DEIR fails to estimate operational energy usage at the expanded CUP, as well as energy usage associated with runway and taxiway lighting, roadway lighting, cargo facilities, ground support equipment, landscaping, and other airport features not necessarily included or reflected in office parks and shopping centers. The omission of entire aspects of a project from an EIR's energy analysis violates CEQA. *California Clean Energy Committee*, 225 Cal.App.4th at 212.

The DEIR's electricity and natural gas demand factors are themselves opaque, unexplained, and unjustified. For example, given that the “commercial development opportunity” is proposed to be “include[d]” in the new Terminal 1, DEIR at 2-25, it is not clear why the DEIR would use different demand factors for these two portions of the

Project, or why the DEIR preparer believes that the “commercial development opportunity” will use substantially less energy than the terminal. According to tables in the DEIR, the “commercial development opportunity” is projected to use only 12.56 kWh/year of electricity and 2 kBtu of natural gas per square foot, while the new terminal building *containing* the “commercial development opportunity” will use 15.78 kWh/year of electricity and 33 kBtu of natural gas per square foot. *See* DEIR at 3.15-56 and -57 (Tables 3.15-14 and 3.15-15).¹⁹ This unexplained variation in estimated energy demand both illustrates and exacerbates the project description deficiencies previously discussed.

The DEIR concludes that electricity and natural gas usage will not result in a significant impact because new construction would replace “older, less energy efficient structures” and comply with energy-saving Title 24 and CALGreen standards. DEIR at 3.15-58. Even if the Project will replace older structures, it will still increase demand considerably; replacing older structures alone does not answer the question posed by Appendix F, namely, whether the *new* structures avoid wasteful, inefficient, and unnecessary use of energy. Nor may the DEIR rely on Title 24 and CALGreen standards a substitute for CEQA energy impacts analysis, especially in the absence of any explanation as to how those standards might apply to an airport development plan. *See California Clean Energy Committee*, 225 Cal.App.4th at 211. Nor may the DEIR support its conclusions by promising to “[a]lign the new T1 design with requirements defined” in the Authority’s Strategic Energy Plan (STEP). *See* DEIR at 3.15-58. The DEIR lists some examples of STEP requirements, but fails to explain how the Plan addresses Appendix F requirements or how measures like performing “commissioning,” designing for redundancy to service disruptions, providing “Life Cycle Cost” justifications, and designing for cyber security are expected to reduce energy demand. *Id.* A revised DEIR must instead address all applicable requirements of Appendix F.

Finally, the DEIR suggests that “projected future growth in aviation activity that would occur with or without the proposed project” would affect electricity and natural gas demand, DEIR at 3.15-56, giving the misleading impression that electricity and natural gas demand will grow regardless of the Project. Aviation activity by itself, however, will not drive electricity or natural gas demand. The expansion of the terminals, parking garage, and other energy-using facilities proposed by the Project will affect electricity and natural gas demand. The public and decision-makers deserve to know

¹⁹ The figures in the preceding sentence were calculated by dividing the “Estimated Total Demand” in each table for each component of the Project by the square footage in the “New Construction” and “Proposed Project Size” columns in each table for each component of the Project.

whether the Authority has done all it feasibly can to reduce that energy demand. This DEIR fails to provide the information CEQA requires.

C. The DEIR's Analysis of Project Alternatives Is Inadequate.

Under CEQA, a proper analysis of alternatives is essential to comply with the Act's mandate that significant environmental damage be avoided or substantially lessened where feasible. Pub. Resources Code § 21002; CEQA Guidelines §§ 15002(a)(3), 15021(a)(2), 15126(d); *Citizens for Quality Growth v. City of Mount Shasta* (1988) 198 Cal.App.3d 433, 443-45. As stated in *Laurel Heights I*, "[w]ithout meaningful analysis of alternatives in the DEIR, neither the courts nor the public can fulfill their proper roles in the CEQA process [Courts will not] countenance a result that would require blind trust by the public, especially in light of CEQA's fundamental goal that the public be fully informed as to the consequences of action by their public officials." 47 Cal.3d at 404.

1. The "No Project" Alternative Is Unsupported by Substantial Evidence.

The CEQA Guidelines make clear that the purpose of describing and analyzing a "no project" alternative is to allow decisionmakers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project. The "no project" alternative must discuss the existing conditions at the time the environmental analysis is commenced as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure. CEQA Guidelines § 15126.6 (e) (1) and (2).

Here, the DEIR's flawed "no project" alternative serves primarily to mislead readers by assuring them that significant impacts related to growth in aviation activity will occur with or without the Project, and that the Project will actually reduce rather than facilitate those impacts as compared to the "no project" alternative. The DEIR thereby deprives decisionmakers and the public of accurate information about the nature of the proposed Project's environmental impacts.

As discussed above, the DEIR relies on the faulty assumption that "unconstrained" growth in aviation activity, and associated environmental impacts, will occur with or without the Project. However, by failing to acknowledge that the Project will remove existing constraints on growth by, for example, increasing the number of aircraft gates and passenger processing areas and facilitating additional traffic, the DEIR artificially inflates the "no project" point of comparison. Unconstrained activity assumptions were

used in calculating the Project's traffic, greenhouse gas, and criteria air pollutant emissions, factoring in potential reductions from improved aircraft movements and traffic circulation that are not reflected in the "no project" alternative. The result of this faulty approach is that the DEIR repeatedly asserts that the Project will have no environmental impacts that would not occur anyway, or will even improve the environment, compared to existing and "no project" conditions. (*See, e.g.*, DEIR at 3.2-30, "[f]uture operations-related emissions at SDIA without implementation of the proposed project would be greater than with implementation of the project.")

It is evident that the existing airfield and terminal are constrained, in that they cannot accommodate projected growth without unacceptable delays and deterioration of passenger levels of service. The Project will remove many of those constraints. Accordingly, the Project is necessary to accommodate—and will directly facilitate—planned, unconstrained growth. Therefore, it is inaccurate to claim that growth in air travel and traffic at SDIA will occur with or without the Project. Consequently, the DEIR lacks evidentiary support for its assumptions that unconstrained growth would occur, or could be accommodated, under the "no project alternative."

The DEIR's discussion of the "no project" alternative suffers from additional deficiencies, further undermining its informative value and subverting CEQA's purposes. For example, the DEIR claims that mobile source greenhouse gas emissions will be lower under Project than "no project" conditions because on-airport roadway improvements will relieve congestion. (*See* DEIR at 3.3-26 to -27, 5-3.) Yet the DEIR also predicts dozens of significant, adverse impacts on off-airport roadway segments and intersections, where congestion-related emissions will presumably increase. The DEIR does not explain whether emissions estimates for mobile sources include the effects of increased off-airport congestion. Adding to the confusion, the DEIR further states that traffic around the airport will be "generally the same" with and without the Project, except where North Harbor Drive improvements facilitate better vehicle movement. DEIR at 5-7. This statement not only contradicts the DEIR's express conclusion that the Project will have significant traffic and transportation impacts, but also fails to account for the Project's role in facilitating—not just accommodating—additional aviation activity.²⁰

²⁰ The DEIR's misleading attempts to reassure readers that the Project will improve the environment are not limited to comparisons with an "unconstrained" no project alternative. For example, the DEIR also states that the "no project" alternative would forgo the "water and energy conservation benefits" of the Project. DEIR at 5-29. Yet the terminal renovations and other facilities proposed in the Project would substantially

The revised EIR must accurately identify constraints on the Airport's existing operations based on current infrastructure, i.e., its single runway, existing aircraft gates and passenger processing areas. Unless and until that exercise is complete, the EIR cannot accurately compare the environmental effects of the Airport remaining in its current state against environmental effects which would occur if the proposed Project is approved.

2. The DEIR Fails to Consider an Adequate Range of Alternatives.

An EIR must consider a "reasonable range" of alternatives "that will foster informed decision-making and public participation." CEQA Guidelines §15126.6(a) (emphasis added); *Laurel Heights I*, 47 Cal.3d at 404 ("An EIR's discussion of alternatives must contain analysis sufficient to allow informed decision-making.") While there is no "magic number" of alternatives an EIR should examine to present a "reasonable range," at a minimum CEQA requires an agency to examine at least one potentially feasible alternative that avoids or substantially lessens significant environmental impacts that are central to the Project. See *Watsonville Pilots Assn. v. City of Watsonville* (2010) 183 Cal.App.4th 1059, 1089-90 (EIR was deficient for failing to include reduced development alternative that would avoid or substantially lessen the project's primary growth-related significant impacts); *Habitat and Watershed Caretakers v. City of Santa Cruz* (2013) 213 Cal.App.4th 1277, 1285, 1305 (invalidating EIR that failed to discuss any feasible alternative addressing the project's primary water supply impact). Further, for a large project such as this one, the agency should evaluate more than one such alternative to help inform decisionmakers and the public of the potential ways to avoid the short and long-term consequences of the project.

Other than the fatally flawed "no project" alternative, the DEIR offers only two alternatives. One of these simply calls for different phasing of the Project. (DEIR at 5-15 (under Alternative 3, Terminal 2 would be developed before Terminal 1). Not surprisingly, the environmental impacts under this Alternative would be identical to those resulting from the proposed Project.

Other than reduced impacts to cultural resources, the second alternative, called the Reduced Scale of Development Alternative, offers no substantive improvement over the proposed Project. Like Alternative 3, Alternative 2 would result in significant and unavoidable impacts in the following resource categories: air quality, greenhouse

increase demand for water and energy. These increases in demand are not driven by anticipated growth in aviation activity, but rather by the expansion of Project facilities.

emissions, land use and planning, noise, and transportation. DEIR at 5-49; 5-50 (Table 5-14).

Because neither of the Project alternatives avoid or substantially lessen the impacts that are central to the Project, the DEIR does not meet CEQA's basic requirements. The revised EIR should identify and evaluate alternatives capable of reducing the Project's significant environmental impacts, including the transit alternative discussed below.

3. The Revised EIR Should Evaluate a Transit Alternative.

The proposed Project includes goals and objectives calling for environmentally sustainable planning and enhancing access to the Airport using public transit and other alternative transportation modes. DEIR at 2-12; 2-13. Despite these goals and objectives, the proposed Project includes neither public transit nor any other component intended to improve intermodal access to the Airport. Numerous public agencies have urged the Authority to explicitly plan for multimodal access to the Airport.²¹ Each of these agencies also expressed its commitment to working collaboratively with the Authority to enhance transit service to the Airport.

Furthermore, as discussed above, the Authority likely has sources of revenue that could be used to improve ground access, especially if those improvements are required to mitigate impacts from the proposed Project. As the California Coastal Commission explained in its March 1, 2017 letter to the Authority, the FAA is willing to consider the use of airport revenue for certain off-airport transportation mitigation measures that provide direct access to the airport. The Airport Authority also receives funding from non-FAA sources that may be eligible for off-airport mitigation. *See* "Collaborative Funding to Facilitate Ground Access," Mineta Transportation Institutes, June 2012, attached as Exhibit 2.

Approval of the Project without consideration of any alternative that would facilitate the transit and alternative transportation objectives outlined in the DEIR, and in

²¹ These agencies include the US.EPA, the California Coastal Commission, Caltrans, Port of San Diego, SANDAG, that the EIR identify and evaluate the environmental benefits of enhanced public transit access to the Airport. (*See* March 1, 2017 letter from U.S. EPA Letter re NOP; March 1, 2018 letter from the California Coastal Commission; February 28, 2017 letter from Caltrans; March 1, 2017 letter from United Port of San Diego; March 1, 2017 letter from SANDAG; March 1, 2017 Letter from City of San Diego).

the Authority's own prior transit plans for the Airport, would be an abuse of discretion. *See Cleveland II*, 17 Cal.App.5th at 436-37. The Authority therefore must consider—and, if feasible, adopt—a transit alternative that truly prioritizes transit access to the Airport. A plethora of studies have identified the transit improvements that are necessary to facilitate multi-modal access to the Airport and to generally increase transit mode share throughout the region. To date, however, there has been no analysis of the transportation and environmental benefits from these transit projects. Using the ample information from these studies, the revised EIR should identify an alternative that *substantially* improves the ability of passengers and employees to access the Airport via transit. It must then model the transit mode share and environmental benefits that would result from this Transit Alternative. At a minimum, the Transit Alternative should include the following components:

- **Intermodal Transit Center.** The Transit Alternative would assume the immediate implementation of the Intermodal Transit Center (ITC) (as opposed to the DEIR's current assumption that the ITC is constructed in 2050). Along with the ITC itself, the Transit Alternative must include all necessary infrastructure and services that will make the ITC a success. For example, the Transit Alternative must include planned access to and from the ITC, the remote Passenger Processing Center, and the terminals. *See* SANDAG Letter to Airport Authority, March 1, 2018. The DEIR itself admits that “development of the pedestrian bridge and remote passenger processing facility *could be accomplished by SDCRAA*” in conjunction with construction of the ITC. DEIR at 4-11 (emphasis added). Indeed, state law requires the Authority to provide for “mass transportation access in cooperation and coordination” with SANDAG and other agencies. Pub. Utilities Code § 170052(c). The Authority also must “analyz[e] and develop[] intercity bus and passenger rail access to terminals” in cooperation with other organizations and agencies, and if cost-effective service exists, must “endeavor to maximize the convenience of its patrons by incorporating the service into the design of its terminals.” Pub. Utilities Code § 170052(d). Given that the ITC area is already served by transit, there does not seem to be any reason to wait for development of high-speed rail or other future services before expanding facilities under the Authority's jurisdiction and control to accommodate passengers arriving by rail. The Authority must consider an alternative that includes the portions of the ITC over which the Authority has jurisdiction.
- **Key recommendations in the Lindbergh Plan.** In addition to the ITC, the Lindbergh Plan calls for improvements to the trolley, rail, and bus station platforms to better connect the Airport to regional transit infrastructure:

- allowing passengers to transfer among the various mass transit modes;
 - transit platforms connected to airline passenger processing facilities by a passenger walkway;
 - two rail lines and station platforms for Amtrak/Coaster;
 - three trolley lines and station platforms;
 - one rail line for freight trains to bypass the ITC;
 - ITC/terminal complex linked to concourses south of the runway via a secure automated people mover; and
 - potential for future high-speed rail connection to ITC.
- Key recommendations in the SDIA 2016 Airport Transit Plan. In addition to the ITC, the SDIA 2016 Airport Transit Plan calls for:
 - Bus service including (1) proposed Old Town Trolley Station shuttle and MTS 992 Rapid route and (2) airport express transit service as identified in the 2012 San Diego Airport Multimodal Accessibility Plan.
 - Bicycle connections – planned bicycle improvements on Pacific Highway and nearby arterials, identified in the City of San Diego Bicycle Master Plan
 - Pedestrian Connections – Direct pedestrian connections between Terminals 1 and 2 and the Harbor Drive path, along with pedestrian connections between the Palm Street Rental Car Center shuttle stop and Middletown Trolley Station.
 - All additional feasible additional recommendations in the 2012 San Diego Airport Multimodal Accessibility Plan and the McCormick Rankin Plan.
 - Elimination of the 7,500-space parking structure. As discussed above, abundant parking acts as an incentive to auto-based travel. With enhanced public transit, this additional parking will likely no longer be necessary.

Because the Transit Alternative could substantially reduce Project-related impacts including traffic congestion, greenhouse gas emissions, criteria air pollutant emissions and energy consumption, we urge the Authority to study this alternative in detail in the revised EIR.

D. The DEIR Must Be Revised and Recirculated.

Under California law, this DEIR cannot properly form the basis of a final EIR, support the findings required by CEQA, or justify the Authority's approval of the Project. CEQA and the CEQA Guidelines require recirculation of a draft EIR when: (1) the addition of significant new information to the EIR after public notice is given of the availability of the DEIR but before certification, or (2) the draft EIR is so "fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded." CEQA Guidelines § 15088.5.

Here, both circumstances apply. For example, the Trump Administration's proposal to roll back vehicle efficiency standards would substantially increase the severity of significant air quality and greenhouse gas impacts, and thus constitutes significant new information. Furthermore, decisionmakers and the public cannot possibly assess the Project's environmental impacts through the present DEIR, which is riddled with errors and omissions. Among other fundamental deficiencies, the DEIR repeatedly understates the Project's significant environmental impacts and fails to identify feasible mitigation measures or alternatives to effectively reduce these impacts. Moreover, because the DEIR's Project Description is inherently flawed and the "no project" alternative is both unsupported and misleading, the document repeatedly attempts to lull the reader into believing that the Project itself (as opposed to background growth in aviation activity) will not have any environmental impacts at all. To correct these issues, the Authority must prepare a revised EIR that will necessarily include substantial new information and analysis.

III. Conclusion

For the reasons set forth above, we respectfully request that no further consideration be given to the proposed Project until an EIR is prepared and circulated that fully complies with CEQA. In addition, the Authority must consider a Transit Alternative. Such an alternative would facilitate transit access to the Airport, would implement key Project objectives and goals, and would meaningfully reduce the Project's significant environmental impacts.

Sincerely,

SHUTE, MIHALY & WEINBERGER LLP



Kevin Bundy
Laurel L. Impett, AICP, Urban Planner

cc: Duncan McFetridge, Cleveland National Forest Foundation

List of Exhibits:

Exhibit 1: San Diego Airport Multimodal Accessibility Plan, SANDAG, 2012.

Exhibit 2: Collaborative Funding to Facilitate Ground Access, Mineta Transportation Institutes, 2012.

- Exhibit 3: Technical Advisory On Evaluating Transportation Impacts, Governor's Office of Planning and Research, 2018.
- Exhibit 4: Destination Lindbergh, SANDAG and San Diego County Regional Airport Authority, 2011.
- Exhibit 5: City of San Diego General Plan Mobility Element, City of San Diego, 2015.
- Exhibit 6: Independent Transit Planning Review Services, SANDAG, 2006.
- Exhibit 7: LOSSAN Corridor EIR/EIS, Caltrans and Federal Railroad Administration, 2004.
- Exhibit 8: San Diego International Airport Transit Plan, San Diego County Regional Airport Authority, June 2016.
- Exhibit 9: Downtown San Diego Complete Community Mobility, McCormick Rankin, 2007.
- Exhibit 10: *Build It and They'll Come*, Surface Transportation Policy Project.
- Exhibit 11: Impact of Highway Capacity and Induced Travel on Passenger Vehicle Use and Greenhouse Gas Emissions, California Air Resources Board.
- Exhibit 12: Effects of Parking Provision on Automobile Use in Cities: Inferring Causality; University of Connecticut.
- Exhibit 13: Regional Aviation Strategic Plan and Airport Multimodal Accessibility Plan, SANDAG, 2011.
- Exhibit 14: 2050 RTP/SCS Urban Area Transit Strategy, SANDAG, 2011.
- Exhibit 15: City of San Diego Climate Action Plan, 2016.
- Exhibit 16: City of San Diego Climate Action Plan Consistency Checklist, 2016.

- Exhibit 17: SDIA Airport Master Plan Section 2, San Diego County Regional Airport Authority.
- Exhibit 18: SDIA Airport Master Plan Section 7.1, San Diego County Regional Airport Authority.
- Exhibit 19: SDIA Airport Master Plan Section 7.2, San Diego County Regional Airport Authority.
- Exhibit 20: San Diego County Regional Airport Authority FY 2018-2019 Budget.
- Exhibit 21: Domestic Airline Fuel Efficiency Ranking, ICCT.
- Exhibit 22: Diesel-Powered Passenger Cars and Light Trucks Fact Sheet, Bureau of Transportation Statistics, 2015.
- Exhibit 23: Energy Information Administration's 2018 Annual Energy Outlook.
- Exhibit 24: California Attorney General/San Diego County Regional Airport Authority Memorandum of Understanding.
- Exhibit 25: Port of San Diego Climate Action Plan.
- Exhibit 26: Port of San Diego Climate Action Plan – Appendices.
- Exhibit 27: Newhall Ranch Final Additional Environmental Analysis Section 2.
- Exhibit 28: Newhall Ranch Draft Additional Environmental Analysis App. 1 (Greenhouse Gas Emissions Technical Report).

1025850.6

EXHIBIT

2

JURISDICTION VOTE TALLY

Carlsbad	Yes	1
Chula Vista	Yes	1
Coronado	Yes	1
County A	Yes	1
Del Mar	Yes	1
El Cajon	Yes	1
Encinitas	Yes	1
Escondido	Yes	1
Imperial Beach	Yes	1
La Mesa	Yes	1
Lemon Grove	Yes	1
National City	Yes	1
Oceanside	Yes	1
Poway	Yes	1
San Diego A	Yes	1
San Marcos	Yes	1
Santee	Yes	1
Solana Beach	Yes	1
Vista	Yes	1

Consent Agenda

Action: APPROVE

Pass

	TALLY
	19
% Yes	100%
% No	0%



JURISDICTION	VOTE	TALLY
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Carlsbad	No	
Chula Vista	Abs	
Coronado	Yes	1
County A	Yes	1
Del Mar	No	
El Cajon	Yes	1
Encinitas	No	
Escondido	Yes	1
Imperial Beach	No	
La Mesa	Yes	1
Lemon Grove	No	
National City	No	
Oceanside	Yes	1
Poway	Yes	1
San Diego A	Yes	1
San Marcos	Yes	1
Santee	Yes	1
Solana Beach	No	
Vista	Yes	1

Item 15
Substitute Motion
Made by Chair of the Board
for Revised Alternative Proposal

Action: APPROVE

Pass

	TALLY
	11
% Yes	57.89%
% No	36.84%



JURISDICTION	VOTE	TALLY
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Carlsbad	Yes	1
Chula Vista	Yes	1
Coronado	Yes	1
County A	Yes	1
Del Mar	Yes	1
El Cajon	Yes	1
Encinitas	Yes	1
Escondido	Yes	1
Imperial Beach	Yes	1
La Mesa		
Lemon Grove	Yes	1
National City	Yes	1
Oceanside	Yes	1
Poway	Yes	1
San Diego A	Yes	1
San Marcos	Yes	1
Santee	Yes	1
Solana Beach		
Vista	Yes	1

Item 16

Recommended Concepts for Improved Regional Connectivity

Action: APPROVE

Pass

	TALLY
	17
% Yes	100%
% No	0%



JURISDICTION	VOTE	TALLY
Carlsbad	Yes	1
Chula Vista	Yes	1
Coronado	Yes	1
County A	Yes	1
Del Mar	Yes	1
El Cajon	Yes	1
Encinitas	Yes	1
Escondido	Yes	1
Imperial Beach	Yes	1
La Mesa	Yes	1
Lemon Grove	Yes	1
National City	Yes	1
Oceanside	Yes	1
Poway	Yes	1
San Diego A	Yes	1
San Marcos	Yes	1
Santee	Yes	1
Solana Beach	Yes	1
Vista	Yes	1

Item 17

Proposed FY2020 Program Budget Amendment: 2021 Regional Plan, Modernization Program, and Independent Performance Auditor

Action: APPROVE

Pass

	TALLY
	19
% Yes	100%
% No	0%

EXHIBIT

3

Recommended Concepts for Improved Regional Connectivity

On September 25, 2019, the Airport Connectivity Subcommittee is being presented with the Airport Connectivity Analysis (Attachment 1). The Analysis provides a detailed description of each concept and evaluates the concepts against criteria developed by the Airport Connectivity Subcommittee. The Airport Connectivity Subcommittee will be asked to recommend that the Board of Directors approve the conceptual transportation solutions included in the Analysis for further study and environmental review.

Action: Approve

The Board of Directors is asked to approve the recommendation of the Airport Connectivity Subcommittee.

Next Steps

Should the Board of Directors approve the recommendation, staff would begin community outreach on the various concepts leading to the selection by the Board of Directors of a locally preferred alternative to be carried forward into the environmental review process, pursuant to both the California Environmental Quality Act and the National Environmental Policy Act.

Hasan Ikhata, Executive Director

Key Staff Contact: Coleen Clementson, (619) 699-1944, Coleen.Clementson@sandag.org

Attachment: 1. September 25, 2019: Airport Connectivity Subcommittee Agenda Item No. 3



Airport Connectivity Subcommittee

Item: **3**

September 25, 2019

Action: **Recommend**

Recommended Concepts for Improved Regional Airport Connectivity

Overview

On December 7, 2018, the SANDAG Board of Directors established the Airport Connectivity Subcommittee to lead discussions and explore options for how best to build consensus around transportation solutions for improved connectivity to the San Diego International Airport for generations to come. On December 21, 2018, the Board of Directors allocated \$1 million to develop and analyze conceptual transportation solutions including the potential for a Central Mobility Hub – a location where multiple modes of transportation options converge to provide convenient connections for people to access the San Diego International Airport and other regional destinations.

Action Requested: **Recommend**

The Subcommittee is asked to recommend that the SANDAG Board of Directors approve the conceptual transportation solutions included in the Airport Connectivity Analysis for further study and environmental analysis.

Key Considerations

Over the past nine months, the Subcommittee met to discuss conceptual transportation solutions. Four primary concepts were developed:

- **Concept 1** – A Central Mobility Hub at Naval Information Warfare Systems Command (NAVWAR), including a multimodal transportation center with a high-frequency automated people mover (APM) service to a transit-ready area located between San Diego International Airport Terminals 1 and 2. Concept 1 assumes a non-stop, high-speed service to the airport via a one-mile tunnel.
- **Concept 2** – A Central Mobility Hub as described in Concept 1, but instead of a tunnel, service to San Diego International Airport would be provided via a 3.6-mile surface/elevated APM route along Pacific Highway, Laurel Street, and Harbor Drive with intermediate stops at the airport Rental Car Center and the planned development at Harbor Island East Basin.
- **Concept 3** – A Central Mobility Hub at the planned Intermodal Transit Center, which includes a multimodal transportation center with numerous connections to regional transit lines, high-frequency APM service to San Diego International Airport, and an airport-like curb drop-off for auto-based travelers. An APM station would provide service to the airport via a 2.6-mile surface/elevated route along Pacific Highway, Laurel Street, and Harbor Drive, with intermediate stops at the airport Rental Car Center and planned development at Harbor Island East Basin.
- **Concepts 4a and 4b** include an extension of the Trolley system to the planned San Diego International Airport transit station with an intermediate stop at the planned development at Harbor Island East Basin.

The attached Airport Connectivity Analysis describes each concept in more detail and evaluates the concepts against evaluation criteria developed by the Airport Connectivity Subcommittee. The evaluation criteria are:

1. Passenger convenience and ridership
2. Reduced congestion related to San Diego International Airport access
3. Reduced greenhouse gas emissions and vehicle miles traveled
4. Feasibility
5. Cost
6. Economic benefit

Next Steps

Should the SANDAG Board of Directors approve moving forward with further study, staff would begin community outreach on the various concepts and continue work leading to the selection by the SANDAG Board of Directors of a locally preferred alternative to be carried forward into the environmental review process, pursuant to both the California Environmental Quality Act and the National Environmental Policy Act.

Hasan Ikhrata, Executive Director

Key Staff Contact: Coleen Clementson (619) 699-1944, coleen.clementson@sandag.org

Attachment: 1. Airport Connectivity Analysis



Airport Connectivity Analysis

EVALUATION OF CONCEPTS FOR IMPROVED TRANSIT AND ROADWAY
CONNECTIVITY TO SAN DIEGO INTERNATIONAL AIRPORT



RELEASE DATE: SEPTEMBER 19, 2019

Contents

1. Executive Summary.....	2
2. Background and Context.....	5
2.1 Travel Behavior in the Study Area.....	5
2.1.a Regional Travel Demand to San Diego International Airport.....	6
2.1.b Existing Transportation Mode Share to San Diego International Airport.....	6
2.1.c Transit Access to San Diego International Airport.....	8
2.1.d Key Airport Access Roadways.....	8
2.1.e Projected Growth and Travel Conditions	13
2.2 Regional Agency Development Proposals	15
2.2.a Airport Authority Proposed Airport Development Plan.....	15
2.2.b Port of San Diego Proposed Master Plan	16
2.2.c City of San Diego Downtown Mobility Plan	16
2.2.d Navy Region Southwest Old Town Campus.....	16
2.2.e San Diego Metropolitan Transit System	17
2.2.f Caltrans District 11.....	17
2.2.g SANDAG	17
2.3 SANDAG Airport Connectivity Subcommittee	17
3. Airport Connectivity Subcommittee Goals and Objectives.....	18
4. Airport Connection Concepts	19
4.1 Identification and Screening of Early Concepts.....	19
4.2 San Diego International Airport Connector Concepts.....	21
5. Evaluation Criteria	31
5.1 Passenger Convenience and Ridership.....	32
5.1.a Improved Access to Transit	32
5.1.b Passenger Convenience	33
5.1.c Transit Ridership	39
5.2 Reduce Congestion Related to the San Diego International Airport Access.....	42
5.2.a Transit Mode Share	42
5.2.b Congestion Reduction Around San Diego International Airport	42
5.3 Greenhouse Gas Emissions and Vehicle Miles Traveled.....	46
5.4 Feasibility	46
5.4.a Footprint Requirements and Space Constraints.....	47
5.4.b Transit Operations and Construction Risks.....	48
5.4.c Roadway and Freeway Operations.....	51
5.4.d Geotechnical, Seismic Conditions, Hazardous Materials, and Soils.....	53
5.4.e FAA and Navy Requirements, Protected Species, and Regulatory Agency Considerations.....	54
5.4.f Utility Conflicts.....	56
5.5 Cost.....	56
5.6 Economic Benefit	59
6. Summary of Key Findings	61
7. Recommendations and Next Steps.....	62
8. Appendices	62

1. Executive Summary

Many world-class cities have transportation systems that provide seamless, direct, and quality transit connections between their airports and their downtown metropolitan areas. These systems provide quick, convenient options to access the airport using mass transit. The systems could connect directly to multimodal hubs that supply passenger amenities such as baggage handling services, airport information and display boards, remote ticketing services, and even airport security should those facilities be available. For example, from John F. Kennedy International Airport, a passenger can easily take the AirTrain JFK elevated people mover to connect to the New York City subway system. Newark Liberty International Airport is connected directly to an AirTrain Newark monorail, which connects to the regional rail system. From the Miami International Airport, travelers can access the Metrorail Orange Line and connect to the Tri-Rail System at an airport intermodal facility. From the world's busiest airport in Atlanta, Georgia – Hartsfield-Jackson Atlanta International Airport travelers can access the Atlanta subway system and the Metro Atlanta Rapid Transit Authority. Such transit connections can also be found at Minneapolis – Saint Paul International Airport, Chicago's O'Hare International Airport, and Denver International Airport. Both San Francisco International Airport and Oakland International Airport connect directly to the Bay Area Rapid Transit. Finally, Los Angeles World Airports anticipates the completion of an automated people mover (APM) to connect Los Angeles International Airport to the LA Metro regional rail system by 2023.

As the San Diego County Regional Airport Authority (Airport Authority) is planning to modernize San Diego International Airport's Terminal 1, now is the time for the San Diego region to seize the opportunity to modernize the transportation system with a direct transit connection to its airport.

San Diego International Airport is the busiest single-runway airport in the nation and has established itself as a major economic engine for the region. The airport is preparing for the modernization of its facilities to accommodate an anticipated increase of 16 million annual passengers by 2050, which will total an estimated 40 million passengers annually. Improving connectivity to the airport has been one of the region's biggest challenges throughout the past several decades. The Airport Authority is poised to join the ranks of other forward-looking airports that offer passengers and visitors cleaner, environmentally-friendly ways to avoid traffic and connect to the regional transit system.

Today, the San Diego Association of Governments (SANDAG) is advancing the region's airport connectivity plans following months of collaboration with regional partners. SANDAG has long served as the forum for regional decision-making and is governed by a Board of Directors composed of mayors, councilmembers, and county supervisors from each of the region's 19 local governments. SANDAG works to build consensus; develop strategic transportation plans; obtain and allocate resources; plan, design, engineer, and construct public transportation; and provide information on a broad range of topics pertinent to the region's quality of life. As a key component of its regional transportation plans over the last decade, SANDAG has identified concepts for airport connectivity at an Intermodal Transportation Center (ITC) located near the airport. For several decades, local agencies have worked diligently—but often in a siloed or segmented way—to develop their own potential improvement plans. Without a regional effort, a comprehensive plan to connect the San Diego International Airport to the region's rail transit system has not been achieved.

Last year, San Diego Mayor Kevin Faulconer gathered the leaders of the Metropolitan Transit System (MTS), Port of San Diego, Airport Authority, and Caltrans to challenge them to solve the airport connectivity problem once and for all. Mayor Faulconer, stressing the urgency of this problem, asked SANDAG to lead the effort. SANDAG Chairman Steve Vaus established the Airport Connectivity Subcommittee shortly thereafter. Over the last nine months, SANDAG led a collaborative process with planners, engineers, data modelers, legal, government relations, and communication staffers from SANDAG, City of San Diego, County of San Diego, MTS, North County Transit District (NCTD), Port of San Diego, Airport Authority, and Caltrans District 11. The inter-agency teams discussed multiple scenarios, briefed agency leaders, conducted research, modeled transportation options, and presented findings to the Airport Connectivity Subcommittee, which resulted in the four concepts that are presented in this Airport Connectivity Analysis.

Through SANDAG's leadership, the effort has advanced, and the region has earned an unprecedented commitment from local agencies to work together to develop a world-class transportation connection to San Diego International Airport. On July 2, 2019, the Airport Authority announced it is preserving land for a future transit connection at San Diego International Airport. In addition, the Airport Authority announced that through its efforts, the airlines have agreed to allow the Airport Authority to spend over \$500 million to improve airport connectivity. The Airport Authority also pledged it will work with the Federal Aviation Administration (FAA) to obtain authorization to use these funds for both on and off-airport transportation improvements.

The Airport Connectivity Subcommittee has identified feasible concepts for a transit connection to the San Diego International Airport.

- Concepts 1 and 2 feature a Central Mobility Hub at Naval Information Warfare Systems Command (NAVWAR), which includes a multimodal transportation center with Amtrak and COASTER services, regional transit lines, and a high-frequency APM service. Concept 1 assumes a nonstop, high-speed APM service to San Diego International Airport via a one-mile-long tunnel route. Concept 2 assumes a high-speed APM service via a 3.6-mile-long surface level and elevated route along Pacific Highway, Laurel Street, and Harbor Drive with intermediate stops at the consolidated Rental Car Center and a future planned Port of San Diego development at Harbor Island East Basin.
- Concept 3 includes a Central Mobility Hub, which has a multimodal transportation center with connections to regional transit lines. Amtrak and COASTER operators have indicated reluctance to stop at the Concept 3 Central Mobility Hub given its proximity to Old Town Transit Center and Santa Fe Depot, which warrants further discussion and service planning. This Central Mobility Hub would include a high-frequency APM service and an airport-like curb experience for auto-based travelers. The APM would provide service to San Diego International Airport via a 2.6-mile-long surface level and elevated route along Pacific Highway, Laurel Street, and Harbor Drive, with intermediate stops at the consolidated Rental Car Center and planned Port of San Diego development at Harbor Island East Basin.
- Concepts 4a and 4b include an extension of the Trolley system to the planned San Diego International Airport transit station with an intermediate stop at the planned Port of San Diego development at Harbor Island East Basin.

The report is structured to describe the airport transit connection Concepts 1 through 4 in greater detail, as well as the goals and evaluation criteria agreed to by the Airport Connectivity Subcommittee, and the initial analysis and findings. While the preliminary analysis demonstrates that all proposed concepts would achieve the defined goals, the concepts vary in terms of performance, benefits, and risks. SANDAG has outlined the pros, cons, risks, and rewards associated with Concepts 1 through 4, and recognizes that additional public outreach should be conducted. Additional modeling, engineering analysis, concept development, and cost estimating are still required to help decision makers select the best concept for the San Diego region. Nevertheless, what is clear is that doing nothing is not an option. It is time to establish a robust airport transit connection to address anticipated growth and congestion, meet environmental mandates, and address the mobility needs of airport travelers for generations to come.

Initial analysis demonstrates that all concepts require complementary roadway improvements to key airport access roadways. Early analysis also shows that a Central Mobility Hub at NAVWAR has the greatest potential to provide increased transit access in the region and renders the greatest potential ridership. The mobility hub at NAVWAR can be designed to accommodate sufficient space for convenient pick-up and drop-off facilities and has the greatest potential to divert a significant amount of traffic away from key airport access roadways with complementary traffic management policies. Additionally, whether in a tunnel, elevated, or at-grade, a high-frequency APM appears to be a leading technology solution to connect people within and between airport facilities and the regional rail system. APM systems can be found in 46 airports around the world. They have the greatest ability to match passenger demand with greater efficiency and state-of-the-art technology. APM systems operate without drivers or station attendants, typically travel on guideways on narrower spans than traditional rail services. They use smaller vehicles, each capable of carrying standing passengers while also providing airport passenger amenities, such as level boarding, wide doors, and space for luggage. They also operate at high frequencies that allow passengers to arrive at their aircraft gates faster and with less stress. A Trolley connection to the airport also has potential to provide improved transit connectivity and is feasible to design and engineer. The Trolley system is familiar to regional travelers, yet frequency of service, passenger convenience, and curb space at existing stations may be limited.

This report details how Concepts 1 through 4 initially range in terms of passenger convenience and user experience, ridership, and ability to provide increased transit access, travel time to and from San Diego International Airport, and how congestion around the airport can be reduced. The report details how vehicle miles traveled (VMT) and greenhouse gas (GHG) emissions could be reduced through Concepts 1 through 4, and explores feasibility, cost, and secondary economic benefits for each concept. The evaluation of the analyzed airport connectivity concepts is shown in Figure 6-1 at the end of this report.

SANDAG and stakeholder partners are committed to continuing to work together to improve transit access to the San Diego International Airport and develop a world-class transportation system that enhances the passenger experience and addresses anticipated severe congestion on key airport access roads. This report outlines the next steps to providing the Board and other key decision makers with more refined analysis on project concepts so that a locally preferred alternative can be selected to move forward into the environmental review phase. SANDAG will work with all agency partners to coordinate and provide feedback on technical analyses and policy assumptions that involve airport connectivity and other's planning jurisdictions.

2. Background and Context

2.1 Travel Behavior in the Study Area

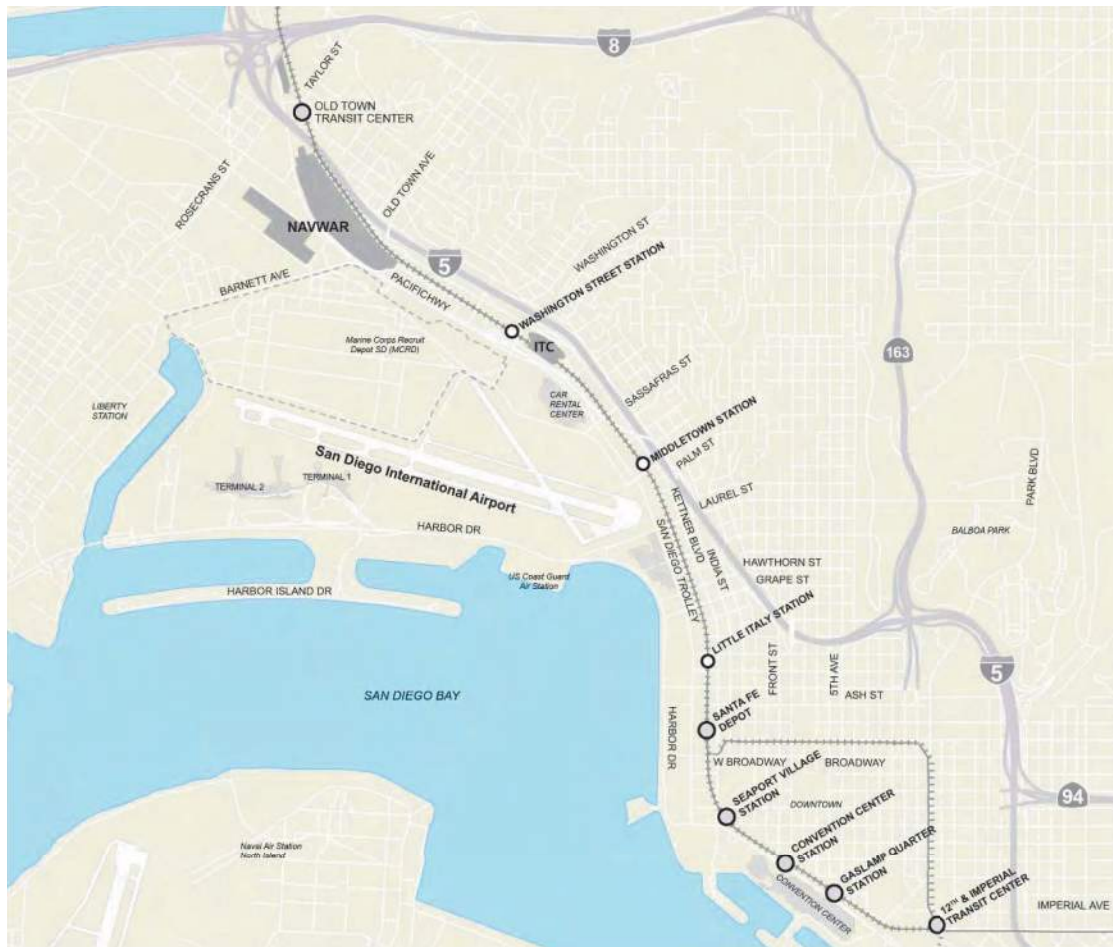
To help identify airport connector project options, SANDAG assessed overall project concept benefits based on both a macro and micro level, looking at both the regional context and the near-airport transportation system. This section is intended to describe the existing airport area context, transportation network, current roadway and freeway access routes, existing mode share, and provide an overview of other key considerations about travel behavior to and from San Diego International Airport.

The study area is located in the central portion of the region as shown in Figure 2-1. The study area itself is generally bound by I-8, I-5, Downtown San Diego, and San Diego Bay, as shown in Figure 2-2.

Figure 2-1: Study Area Location



Figure 2-2: Project Study Area



2.1.a Regional Travel Demand to San Diego International Airport

The San Diego region contains seven sub-regional areas, known as metropolitan statistical areas. Figure 2-3 shows these areas and the portion of regional trips to the San Diego International Airport that they represent.

2.1.b Existing Transportation Mode Share to San Diego International Airport

Today, the vast majority of trips to the San Diego International Airport (approximately 99%) occur via private auto-based modes that use the freeway and roadway system, similar to what is observed throughout the San Diego Region.

Table 2-1 shows the primary transportation modes used to access San Diego International Airport.

Figure 2-3: Regional Trips to San Diego International Airport by Metropolitan Statistical Areas

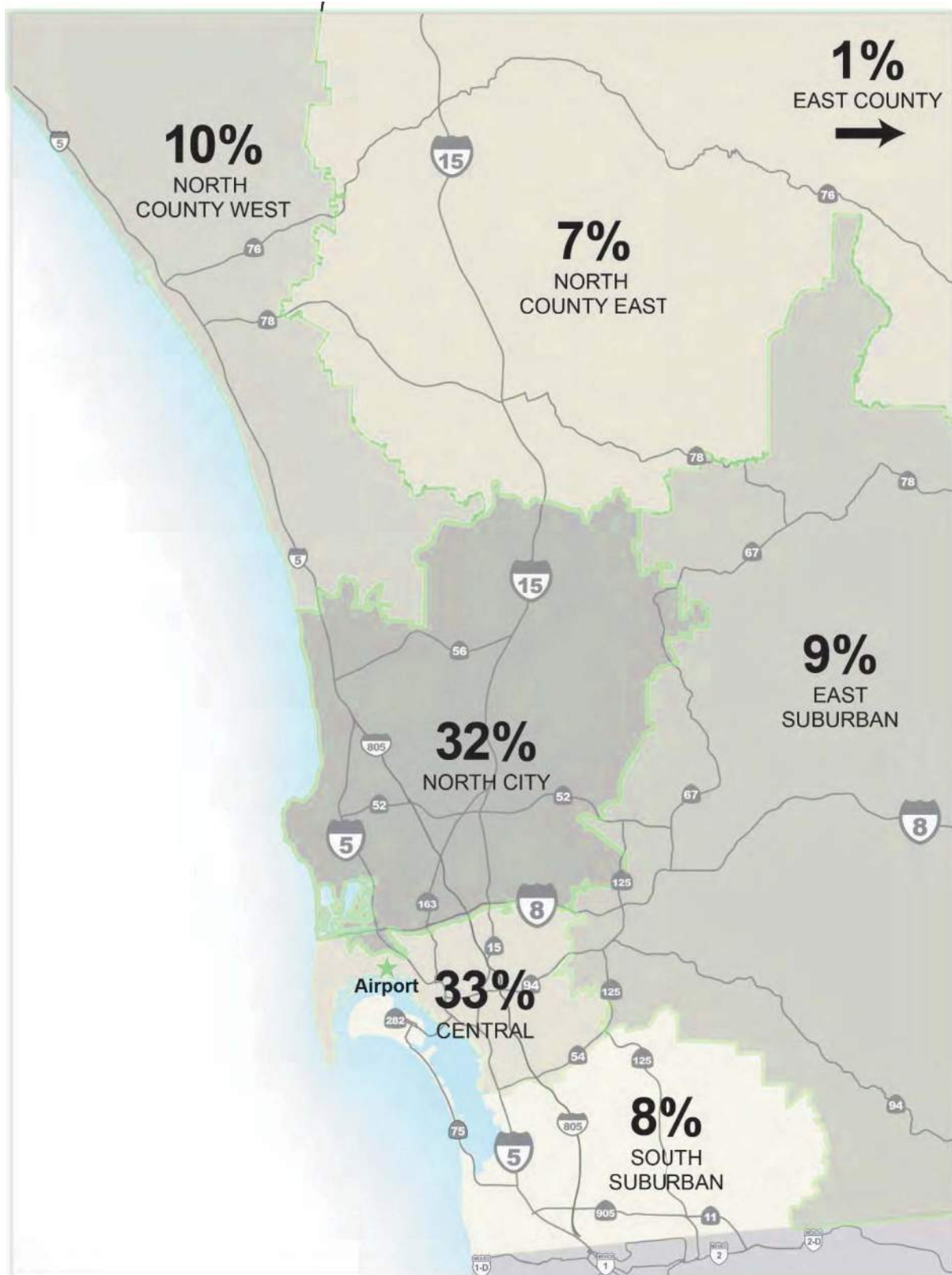


Table 2-1: Transportation Mode to San Diego International Airport, 2018

Access Mode	Mode Share	Access Mode	Total Mode Share
Private Autos and Rental Cars	59%	All Private Auto Modes	99%
Transportation Network Companies (TNCs) and Taxis	32%		
Private Shuttles	8%		
Transit	1%	Transit	1%
Total Mode Share	100%		100%

Source: Airport Authority

2.1.c Transit Access to San Diego International Airport

Current and planned transit services include:

- **Local Bus:** MTS Route 992 operates between Downtown San Diego and San Diego International Airport via Broadway, Santa Fe Depot, and Harbor Drive.
- **Trolley (Light Rail):** The MTS Green Line Trolley serves Middletown Station, which is a short but inconvenient walk to San Diego International Airport's free on-airport bus serving the terminals and consolidated Rental Car Center. The pedestrian facilities are not easily navigated given the steep grades and narrow sidewalks. By 2022, the MTS Blue Line Trolley is also planned to run on the same corridor and serve the Middletown Station.
- **Future Shuttle from Old Town Transit Center:** A new bus route connecting Old Town Transit Center to San Diego International Airport is currently under development by the Airport Authority in partnership with MTS. It is planned to open in 2020.

2.1.d Key Airport Access Roadways

Today, residents, airport employees, and visitors rely primarily on automobiles to reach the airport terminals. There are limited access routes to and from the airport for auto-based traffic. Key airport access roadways include:

- **Harbor Drive:** An arterial roadway with three lanes in each direction that provides the only access route to the San Diego International Airport terminals. Harbor Drive connects to Downtown San Diego to the east and Point Loma to the west.
- **Hawthorn Street/Grape Street:** These are one-way streets with three lanes in each direction that collect airport traffic to and from the south. Hawthorn and Grape streets connect to I-5 to the east and Harbor Drive to the west.
- **Kettner Boulevard/India Street:** These are one-way streets with three lanes in each direction that collect airport traffic to and from the north. Kettner Boulevard/India Street connect to I-5 to the north and Laurel Street to the south.

- **Laurel Street:** An east-west roadway with two lanes in each direction that collects airport traffic from the north via the Kettner Boulevard/India Street couplet and collects local traffic from the east. Laurel Street connects to Uptown to the east and Harbor Drive to the west.
- **Pacific Highway:** An arterial roadway with three lanes in each direction that provides connectivity between Downtown San Diego and neighborhoods to the north.

Additional details of the roadway and freeway system can be seen in Figure 2-2. As shown in Figure 2-4, 43% of traffic comes from the south via I-5. A total of 36% comes from the north via I-5. Local traffic makes up the remaining 21%. As shown in Figure 2-4, a total of 83% of trips to San Diego International Airport use the ten-lane (five inbound and five outbound lanes) system formed by Laurel Street, Hawthorn Street, and Grape Street. Another 8% of the trips come from Downtown San Diego via Harbor Drive, resulting in a total of 91% of all airport traffic converging at Harbor Drive near the U.S. Coast Guard Station as shown in Figure 2-6.

Figure 2-4: Traffic Patterns to and from Airport

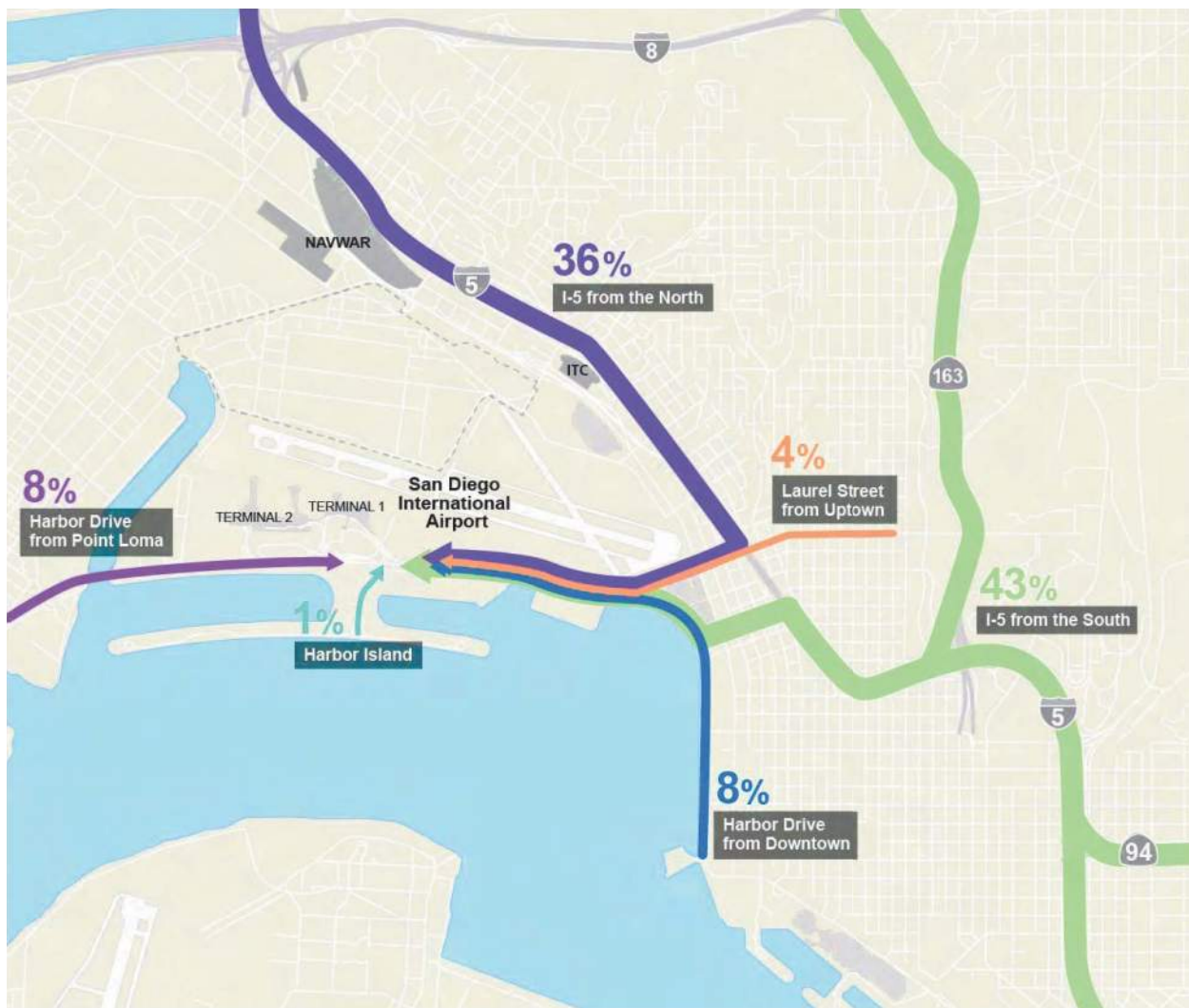
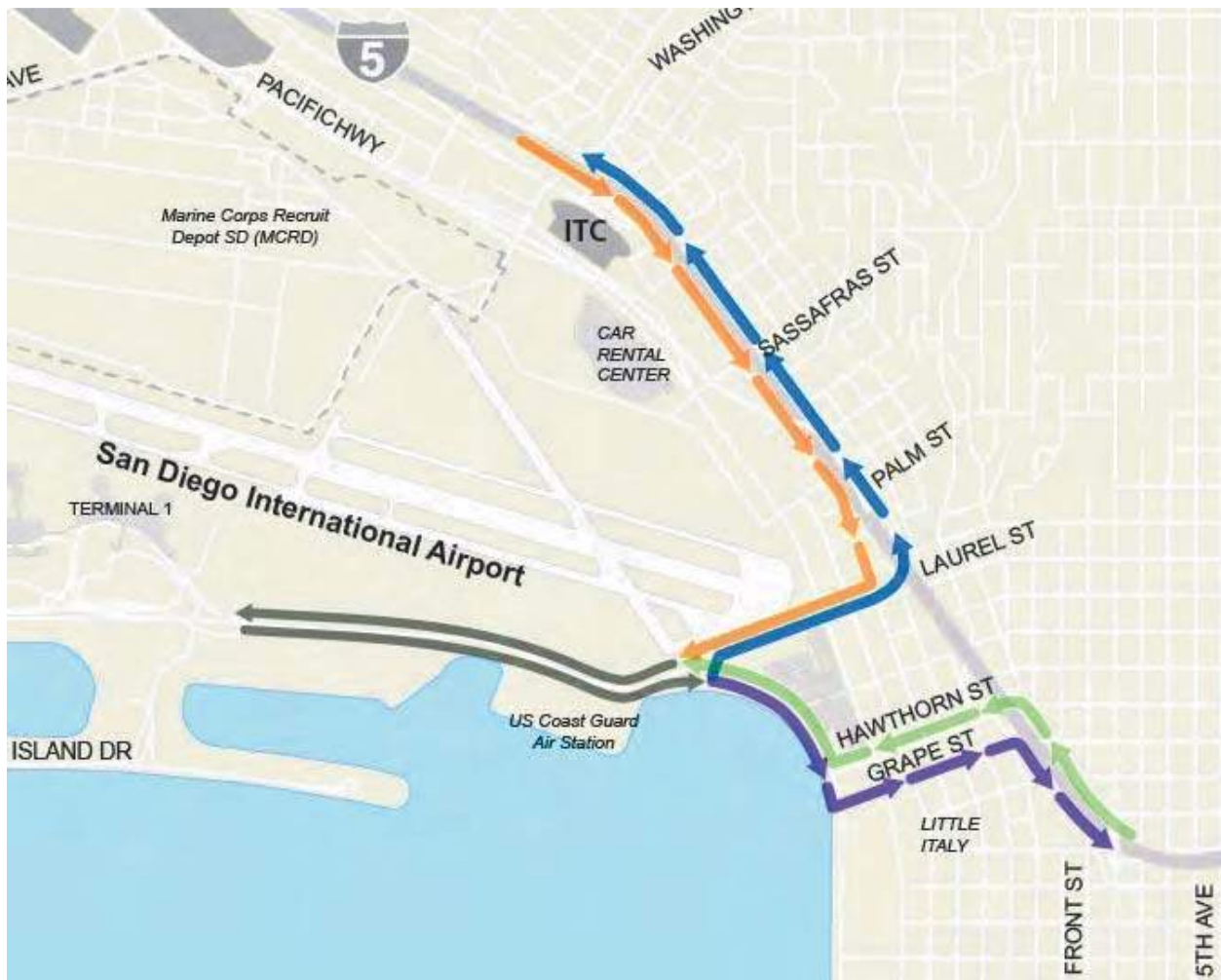


Figure 2-5: I-15 Corridor Access to Airport



While the majority of airport users reside north of the airport (see Figure 2-3) airport users along the I-15 corridor predominantly use the SR 163 connection to I-5 to access the airport. As shown in Figure 2-5, the SR 163 connection to I-5 is the most direct route to and from the airport for those who live along the I-15 corridor. This is why the highest percentage (43%) of traffic comes from the south via I-5.

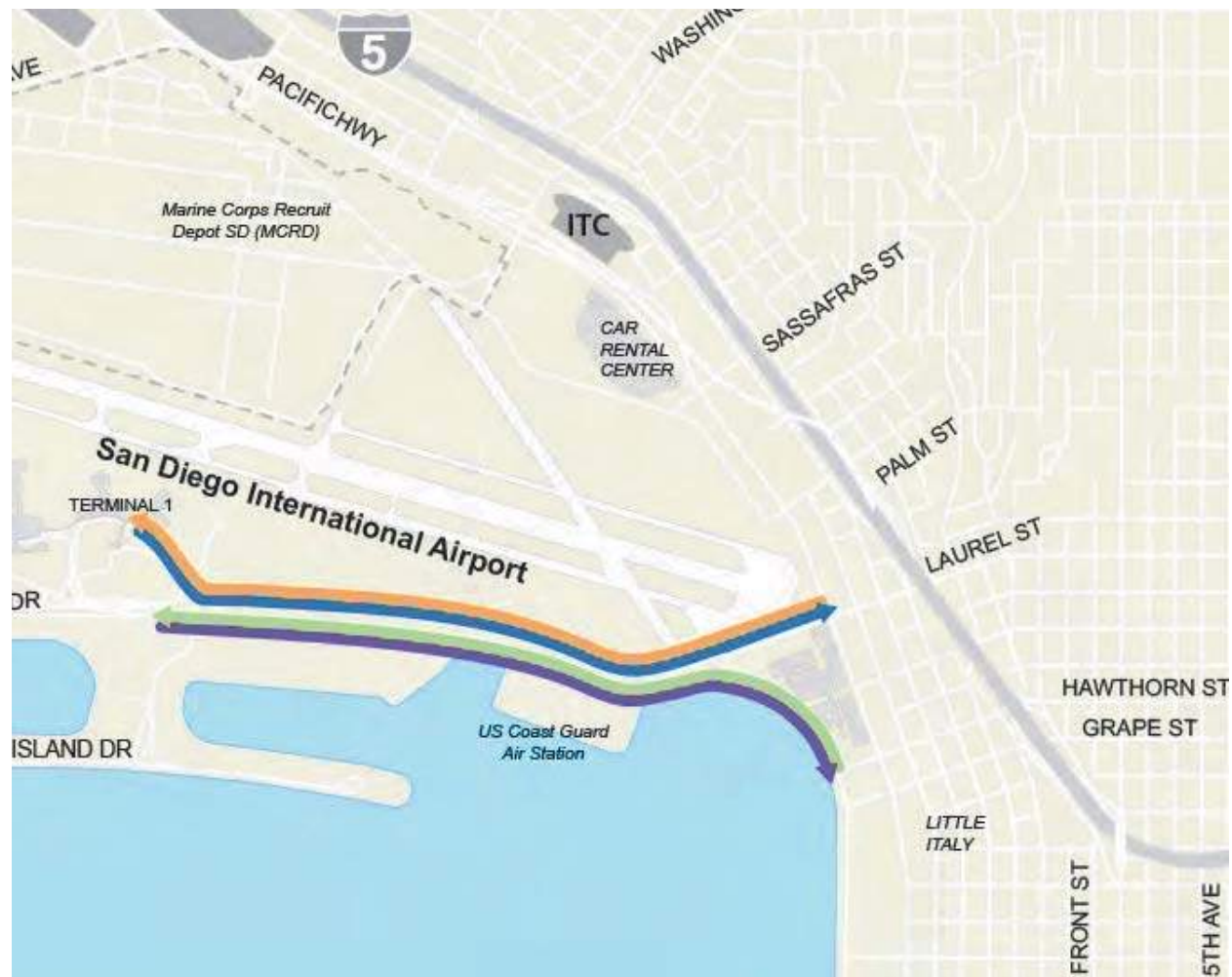
Figure 2-6: Roadway Access to and from Airport



Note: Colored lines and arrows represent traffic flow.

Given the relatively low current transit mode share, maintaining adequate roadway access to San Diego International Airport remains an important objective. In addition to a focus on airport access, the City of San Diego is working to reduce traffic in the Little Italy neighborhood by shifting airport traffic off the Grape/Hawthorn streets couplet (Figure 2-6). The Airport Authority is working alongside SANDAG and other partner agencies on long-term concepts to repurpose Laurel Street so it can serve as the airport's priority roadway between Pacific Highway and the airport (see Figure 2-7). This would be accomplished by providing a three-lane entry road from Laurel Street parallel to Harbor Drive to and from the airport. The entry road would be for airport use and Harbor Drive would serve all waterfront and other uses. It would focus airport traffic onto Laurel Street and away from Harbor Drive freeing up roadway capacity on Harbor Drive for the creation of a "the next great waterfront" as envisioned by the Port of San Diego, one concept of which is shown in Figure 2-8. Shifting traffic away from Harbor Drive would allow for space to be repurposed for pedestrian, bikeway, transit, and recreational uses for an improved waterfront experience. The challenge becomes how to get traffic from the Pacific Highway and Laurel Street intersection to I-5 as efficiently as possible. Developing an efficient roadway access plan in and around the airport is a complex challenge considering the many varied goals.

Figure 2-7: Airport Priority Roadway



Note: Colored lines and arrows represent traffic flow on both Harbor Drive and the on-airport roadway.

Figure 2-8: Harbor Drive Waterfront Vision



Source: Integrated Planning Port Master Plan Update, February 25, 2019, Port of San Diego

2.1.e Projected Growth and Travel Conditions

Growth in the region’s population and economy is projected to lead to major increases in travel demand at San Diego International Airport, with over 67% more passengers expected in 2050 than in 2018 (see Table 2-2). Without alternative options to reach the airport, the vast majority of passengers will continue to use auto-based modes, leading to heavy congestion on key airport access roadways. This level of traffic would overwhelm the roadway system at peak times, causing major congestion and delays. With the expected traffic increases and without alternative options to reach the airport, key airport access roadways would begin to experience gridlock conditions. This would result in significant delays during peak hours when most air travelers need to reach their flights.

Table 2-2: Existing and Projected Travel Demand at San Diego International Airport

	Annual Passengers	Daily Traffic on Harbor Drive
2018	24 million	95,000
2050	40 million	132,000 (No Build Scenario)
Growth, 2018–2050	67%	39%

Sources: SAN Air Traffic Reports, SAN Airport Development Plan Draft EIR, SANDAG Series 13 Regional Travel Model 2.2 Past Studies to Address Airport Access

San Diego has long desired to improve overall access to San Diego International Airport, to improve transit mode share, and connect the airport to the regional rail system. Yet, some key challenges must be addressed before these goals can be reached. First, MTS Bus Route 992, which is the main bus service to the airport's two terminals, is currently a local route that lacks any priority measures. Moreover, there is no direct pedestrian connection between an on-airport Rental Car Center shuttle and the MTS Middletown Trolley Station that stops a few hundred feet away. The sidewalks connecting the MTS Trolley station and Rental Car Center are not currently Americans with Disabilities Act accessible, have a significant grade change, and can be confusing for pedestrians even with wayfinding signage. Further, the existing transit options do not operate during all airport employee shifts to adequately support the airport employee population.

Given that multiple transit corridors are in proximity and can feasibly connect to San Diego International Airport, numerous planning studies regarding appropriate ground access projects have been initiated by various agencies, including the Airport Authority, Port of San Diego, Caltrans District 11, SANDAG, and the City of San Diego. Since 1982, these studies have been conducted in an effort to improve access conditions and transit connectivity at the airport:

- North Harbor Drive Multimodal Study (2018)
- Downtown to Airport Skyway Feasibility Study (2018)
- Airport Development Plan Draft EIR (2018)
- Uptown Community Plan (2016)
- Downtown San Diego Mobility Plan (2016)
- San Diego International Airport Transit Plan (2016)
- I-5 Ramps SANDAG (2016)
- San Diego Forward: The Regional Plan (2015)
- Mid-Coast Corridor Transportation Impacts and Mitigation Report (2014)
- City of San Diego Traffic Signal Communications Master Plan (2014)
- San Diego Airport Multimodal Accessibility Plan (AMAP) (2012)
- Airport Intermodal Transit Center Study Phase 1 Final Report (2010)
- Destination Lindbergh (2009)
- Airport Master Plan (2008)
- Central Interstate 5 Corridor Study (2003)
- Point Loma / Airport Trolley Extension Study (1982)

While many of these studies have focused on each individual agency's jurisdiction and have provided recommendations for segments of critical transportation corridors servicing San Diego International Airport, collectively they have not presented a fully integrated transit airport access strategy for the region. Moreover, among many reasons, these recommendations have not advanced due to lack of a shared vision by stakeholders, a lack of funding, and a lack of available right-of-way.

2.2 Regional Agency Development Proposals

2.2.a Airport Authority Proposed Airport Development Plan

Since 1928, the San Diego International Airport has served the region's commercial air travel and has grown into a major international airport now serving 22 million passengers each year. San Diego International Airport has established itself as a major regional economic engine and is the busiest single-runway airport in the nation. Notwithstanding past failed efforts to relocate, the airport has successfully accommodated the region's commercial air travel and has made significant investment to modernize and maximize airport facilities.

In 2018, the Airport Authority released the Airport Development Plan (ADP) defining the master plan for San Diego International Airport, as part of the continued commitment to deliver world-class passenger experience and to meet existing and anticipated future passenger activity. Future forecasts project that the airport's passenger activity will increase to 40 million annually by 2050. Now, the Airport Authority is preparing an Environmental Impact Report (EIR) pursuant to the California Environmental Quality Act to modernize Terminal 1 by 2026. The Airport Authority also proposes to develop a new on-airport entry roadway from westbound Laurel Street and North Harbor Drive for vehicles coming to the airport from the east in addition to developing a new multi-use bicycle and pedestrian path along the north side of North Harbor Drive to reduce traffic on North Harbor Drive. Buses to and from the airport Rental Car Center would be removed from Harbor Drive and routed exclusively through the new on-airport entry and link road. Separate arriving and departing passenger traffic, with an elevated departures roadway and curbside check-in would be expanded. Parking immediately adjacent to the redeveloped Terminal 1 would be expanded. Airfield improvements would include realignment of Taxiway B and a new Taxiway A to allow more efficient flow for aircraft taxiing operations.

As part of the ADP, the Airport Authority has announced a landmark pact on its transportation infrastructure investment. On July 2, 2019, the Airport Authority announced it reached a new ten-year agreement with its airline partners for a major investment in transportation infrastructure to help alleviate traffic congestion and improve access to the San Diego International Airport. This agreement outlines \$350 million for on- and potentially off-airport transportation infrastructure. These funds could potentially be used for an on-airport transit station and a transit connection to the existing regional transit system. The agreement also outlines an additional \$165 million for on- and off-airport access improvement plans, including an on-airport entry road connecting from Laurel Street and Harbor Drive and the construction of a bicycle path. Additionally, the airport is preserving right-of-way for a multimodal mobility corridor to serve *Rapid* Bus, Trolley, or an APM system that can also potentially serve Harbor Island redevelopment projects being considered by the Port of San Diego.

The agreement enables partnership with other regional agencies to improve access to the airport through transportation and transit projects.

2.2.b Port of San Diego Proposed Master Plan

For the past few years, the Port of San Diego has prepared a comprehensive integrated planning initiative to update their Port Master Plan, which is similar to a general plan for a city or county. The effort spans 6,000 acres of water and land on and around San Diego Bay in the cities of San Diego, National City, Chula Vista, Imperial Beach, and Coronado. As a blueprint for development, it is intended to create certainty for developers and community members by codifying a vision for how future projects will fulfill public goals. In the summer of 2019, the Port of San Diego released a discussion draft of the updated Port Master Plan for public review. In order to create the “next great waterfront,” it is anticipated that the updated Port Master Plan will result in additional development and changes to the roadway system. Harbor Drive is a key element of the “next great waterfront” vision. Both the Airport Authority and the Port of San Diego are working in collaboration to deliver access and circulation plans that are complementary and preserve the opportunity for future transit connections to the airport.

2.2.c City of San Diego Downtown Mobility Plan

In 2016, the City of San Diego adopted their Downtown Mobility Plan. The Downtown Mobility Plan emphasizes the development of active transportation networks and the improvement of the walking and biking environments, as these modes are not as advanced as transit and auto networks in terms of safe, quality facilities. The Downtown Mobility Plan provides for an integrated transportation network of greenways, sidewalks, bikeways, transit services, roadways, and freeways that provides for the safety of all travelers – including the elderly, youth, and disabled – both within Downtown and to surrounding communities. It is designed to encourage a transportation network that provides convenient access to valuable community resources such as employment centers, parks and the waterfront, cultural and entertainment attractions, and civic uses. It is a transportation network that supports community health and well-being, promotes a strong economy, and builds social capital.

2.2.d Navy Region Southwest Old Town Campus

Navy Region Southwest is dedicated to creating a more modern and efficient workspace on the Naval Base Point Loma Old Town Campus (OTC) to better meet the mission requirements of NAVWAR. Navy Region Southwest and NAVWAR desire to create modern facilities for the 5,000 engineers, scientists, and staff located at OTC. The 72-acre OTC site is located at I-5 and Old Town Avenue, a short distance from San Diego International Airport. On July 10, 2019, SANDAG and Navy Region Southwest signed a Memorandum of Understanding (MOU) enabling a collaborative process to explore concepts for the revitalization of the OTC property, including the possibility of a Central Mobility Hub with a direct connection to the airport. While the MOU does not commit either to a course of action, the agreement allows for collaboration and begins the planning process so both SANDAG and the Navy can work together with the community and stakeholder agencies to evaluate concepts.

2.2.e San Diego Metropolitan Transit System

Several of the previous studies which identified transportation connection improvements in and around the airport had recommended MTS Route 992 to the airport be converted into a high frequency, limited stop, bus *Rapid* service. In spring 2019, MTS kicked off Elevate SD 2020, an effort to develop new mobility solutions by engaging the community to help identify projects and priorities that can shape a potential funding measure being considered by the MTS Board of Directors for 2020. The Elevate SD 2020 values include providing better access to employment and educational opportunities, improving access for seniors and people with disabilities, and seeking out opportunities for long term high-investment infrastructure improvements. In early spring 2019, MTS released results of a poll in which more than two thirds of respondents identified a transit connection to the airport as a high priority for a potential funding measure to address. MTS has since studied concepts to extend the Trolley to San Diego International Airport and has collaborated with SANDAG to include their concepts and preliminary analysis in this report.

2.2.f Caltrans District 11

In 2016, Caltrans District 11 and SANDAG collaborated on a project study report evaluating connections via I-5 connector ramps to provide direct and convenient access to regional activity centers such as the San Diego International Airport. While such studies have not yet progressed beyond the initial concepts, Caltrans has worked in coordination with SANDAG, Airport Authority, Port of San Diego, and City of San Diego to continue to explore and develop feasible freeway access improvements that serve the airport and the region at large.

2.2.g SANDAG

On February 22, 2019, the Board approved an action plan to develop a bold new vision for San Diego Forward: The 2021 Regional Plan (2021 Regional Plan). The action plan seeks to transform the way people and goods move throughout the San Diego region by providing compelling alternatives to driving. This innovative plan for a transportation system strives to get people where they need to go quickly, meet or exceed state climate goals, and support local jurisdictions' achievements of climate action plan goals using proven and developing technologies. This new vision for the future will build on the significant public input received so far, as well as ensure social equity, sustainability, supporting land use and housing, and economic opportunities. Completion of the 2021 Regional Plan is anticipated in late 2021. As part of the 2021 Regional Plan, SANDAG plans to include transit connections to San Diego International Airport as outlined in this Airport Connectivity Analysis.

2.3 SANDAG Airport Connectivity Subcommittee

On December 21, 2018, the Board approved the draft charter and membership for the Airport Connectivity Subcommittee, a temporary subcommittee, advisory in nature, to identify future transportation solutions for improved transit and road connectivity to the San Diego International Airport. The purpose of the Airport Connectivity Subcommittee is to lead discussions and explore options for how best to build consensus around transportation solutions for improved connectivity to the airport for generations to come.

The work of the Airport Connectivity Subcommittee will conclude upon adoption of a preferred transportation solution by the Board. SANDAG Chair and Poway Mayor Steve Vaus serves as the Chair of the Airport Connectivity Subcommittee. Members of the subcommittee were appointed by the Chair and include Board members from the following organizations: SANDAG, City of San Diego, County of San Diego, MTS, NCTD, Port of San Diego, Airport Authority, and Caltrans District 11.

At its first meeting on January 3, 2019, the Subcommittee reviewed the schedules for the development of the 2021 Regional Plan, Airport Development Plan Environmental Impact Report, and Port Master Plan update. The subcommittee also discussed the need for interagency collaboration, reviewed airport connectivity studies completed to date, and discussed innovative solutions for improving airport connectivity. To provide technical input, an interagency project team was formed comprising agency staff and consultant experts in planning, engineering, transportation modeling, finance, government relations, communications, and law. The Board allocated \$1 million toward the expenses related to the study of concepts.

3. Airport Connectivity Subcommittee Goals and Objectives

The Board set the primary goal for the Airport Connectivity Subcommittee to identify future transportation solutions for improved transit and roadway connectivity to the airport. Based on the Board's definition of success, the following objectives were identified:

- 1. Create a Central Mobility Hub with regional connections to the airport.** The Central Mobility Hub should bring multiple modes of transportation to a central location where, with one transfer, intercity rail, commuter rail, Trolley, bus, and micro-mobility can connect to the airport. The Central Mobility Hub should have the ability to accommodate future mobility shifts for generations to come.
- 2. New direct transit connection to and from the airport.** San Diego International Airport should join other airports in the country that have a direct and efficient transit connection to their regional rail and transit systems.
- 3. More direct, convenient access for auto traffic to and from the airport.** A roadway modification plan should be developed to avoid future gridlock on key airport access roadways and accommodate safer, more complete streets inclusive of pedestrian and bike facilities.
- 4. Improving Laurel Street to serve as a primary access roadway.** A roadway modification plan should be developed to convert Laurel Street into the airport priority roadway. Given the space limitations, it is critical to identify ways to enhance Laurel Street to address congestion, improve the overall roadway network, and enhance the passenger experience.
- 5. Harbor Drive to be converted into the next great waterfront street with dedicated transit lanes.** A roadway modification plan should be developed to reduce traffic on Harbor Drive so space along Harbor Drive can be converted to waterfront uses. Plans include dedicated transit lanes, enhanced pedestrian and bicycle facilities, and improved curb amenities.
- 6. Reduce airport traffic on Grape and Hawthorn streets.** Grape and Hawthorn are two local constrained streets in the City of San Diego's Little Italy neighborhood that experience heavy traffic volumes, mostly due to airport traffic. To implement the City of San Diego's Downtown Mobility Plan elements, traffic on Grape and Hawthorn streets should be reduced to enable safer, more pedestrian- and bicycle-friendly amenities.
- 7. Maintain Pacific Highway for local auto traffic and active transportation solutions.** As a local roadway, included in the City of San Diego's Downtown Mobility Plan, Pacific Highway should include enhanced bicycle and pedestrian improvements.

The Airport Connectivity Analysis also should advance regional goals of reducing environmentally harmful emissions, increasing social equity, encouraging community engagement, and promoting economic development opportunities in the San Diego region.

4. Airport Connection Concepts

4.1 Identification and Screening of Early Concepts

On January 18, 2019, and on February 8, 2019, SANDAG issued Requests for Information to garner ideas from the marketplace for improved airport connectivity and ideas for a Central Mobility Hub. SANDAG received many ideas for APM systems, transportation systems management, demand management technologies, pricing strategies, operating systems, vehicle technologies, roadway and freeway modifications, land use, and Central Mobility Hub concepts.

SANDAG, with help from the interagency working group, evaluated this wide range of technologies and early concepts, seeking the best solutions for improved airport connectivity. The technologies and early concepts for improving airport connectivity can be categorized into four main areas:

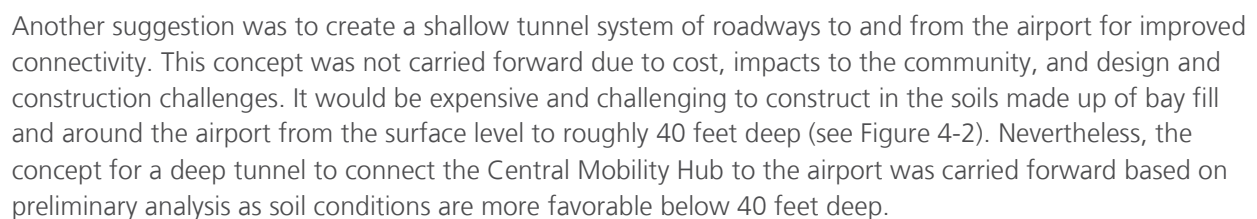
- APM or similar technologies
- Transportation Systems Management and Transportation Demand Management (TSM/TDM) and related technologies
- Central Mobility Hub and land use solutions
- Roadway, freeway, and transit routing options

APM technologies are similar to manually operated technologies, like the Trolley, except that they operate with an automated train control system. APM systems are centrally controlled with no in-vehicle drivers. For day-to-day operations, the APM systems can operate at shorter (more frequent) headways and can travel on steeper and narrower guideways than manually operated systems. For the purposes of this study, APM on fixed-guideway (track) with level-floor vehicles are assumed. These types of APM systems are used at many airports throughout the country and world. A Trolley connection to the airport was also evaluated.

Numerous TSM/TDM solutions and related technologies were evaluated including: information network architecture solutions, fleet monitoring and management technologies, data analytics solutions, train control systems, advanced transportation demand management technologies, dynamic pricing and tolling technologies, incentive-based mobile applications, traffic signal control and management systems, parking-management technologies, curb-management technologies, pedestrian safety technologies, and integrated payment systems. An Airport Connectivity Think Tank Workshop was held on March 6, 2019, focusing on the application of TSM/TDM and related technologies for improved airport connectivity. Assuming limitations for an expanded freeway and roadway network and the possibility of a Central Mobility Hub to provide an auxiliary location for passenger pick-up and drop-off, for the purpose of this study, future strategies to relieve congestion on key airport roads associated with airport-related traffic will be carried forth for further study.

Several Central Mobility Hub and land use concepts were evaluated including relocating the airport terminals from the south side of the airport to the north side to provide greater proximity to existing transit, roadway, and freeway infrastructure. The Airport Authority previously analyzed this concept and determined there is insufficient space on the north side of the airport to accommodate the terminals and critical airport operational infrastructure. Concepts for locating a Central Mobility Hub at the Old Town Transit Center or Santa Fe Depot have been screened out as there is insufficient space to accommodate Central Mobility Hub requirements at these locations. There is limited ability to expand the Old Town Transit Center as it is surrounded by state park lands and roadway infrastructure including overhead I-5 bridge structures. Santa Fe Depot is surrounded by high density land uses including residential high-rise towers. Concepts for repurposing land use from NAVWAR to Laurel Street and across tidelands are beyond the scope of this study. The two most promising sites for the location of a Central Mobility Hub are at the NAVWAR and ITC locations.

Figure 4-1: Freeway Connectors from Pacific Highway to I-5



Other suggestions for an APM connection around the west side of the airport to connect Point Loma/Liberty Station communities to the airport were not carried forward due to the expected low ridership potential due to the lower land use intensities in these areas. An APM connection around the east side of the airport would capture passengers from the Rental Car Center and the future planned

development at Harbor Island East Basin and is seen as more viable and cost-effective solution and does not prohibit the possibility of future extension around the west side of the airport.

Suggestions for connecting to the existing Trolley system were narrowed to two locations: the existing Trolley bridge over Laurel Street and connecting at the trench under Grape and Hawthorn streets.

4.2 San Diego International Airport Connector Concepts

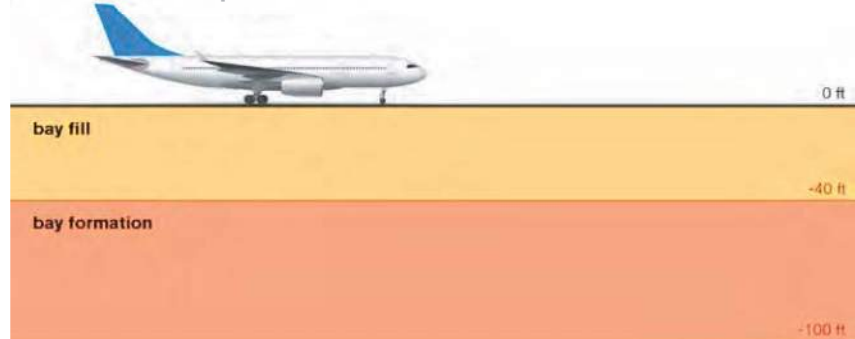
Working collaboratively with the Airport Connectivity Subcommittee, the interagency working group, and subject matter experts, four concepts were defined to achieve the following:

- Improve transit access to and from the airport
- Minimize travel time to and from the airport
- Reduce congestion related to airport access
- Reduce GHG emissions and VMT
- To be feasible, constructible, and cost effective
- Improve transit user experience and convenience

Over several months, these concepts and corresponding assumptions were developed and refined by SANDAG with input from the various agencies. In order to achieve the objectives of reducing traffic in Little Italy and to reduce traffic on Harbor Drive so Harbor Drive can be repurposed for waterfront uses, the following roadway and freeway elements common to each concept include:

- Convert Laurel Street to an airport-priority roadway between Pacific Highway and the airport as envisioned in the Airport Development Plan to remove airport traffic from Harbor Drive (see Figure 2-7).
- Repurpose Harbor Drive from six lanes to four lanes with dedicated transit lanes and bikeway lanes from Harbor Island Drive to the Convention Center in support of the Port Master Plan Update and waterfront vision (Figure 2-8).
- Widen Laurel Street between Pacific Highway and I-5, providing the most direct route from the airport-priority roadway to I-5.
- Construct new I-5 freeway ramp connections to Laurel Street, supporting a direct connection from I-5 to Laurel Street and the airport-priority roadway.
- Remove I-5 freeway ramp connections to Grape and Hawthorn streets to reduce traffic in Little Italy.

Figure 4-2: Soil Characteristics In and Around San Diego International Airport



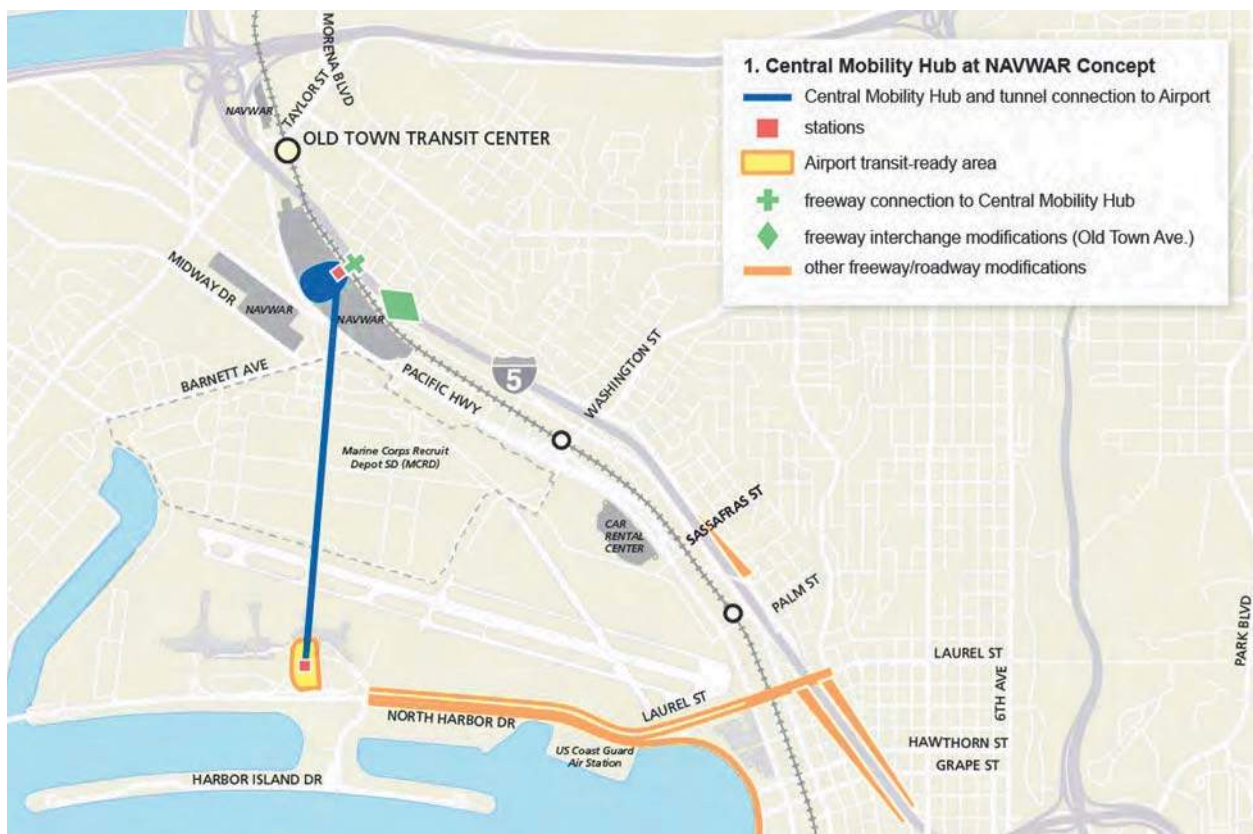
In addition to the common roadway and freeway elements for the concepts, the following redevelopment assumptions for the NAVWAR site were included:

- Approximately 3,500 residential units
- 250 hotel rooms
- 300,000 square feet of community-serving commercial
- 1.7 million square feet of office to accommodate Navy uses

Additionally, Concept 3 assumes redevelopment of the ITC site with approximately 1,400 residential units, 330 hotel rooms, and 460,000 square feet of office uses.

Concept 1 – Central Mobility Hub at NAVWAR with Tunnel APM Connection to Airport

Figure 4-3: Concept 1



Concept 1 features the Central Mobility Hub at NAVWAR, which would be a multimodal transportation center with high-frequency APM service to the airport, numerous connections to regional transit lines, and an airport-like curb experience for auto-based travelers (see Figures 4-4 and 4-5). The 72-acre NAVWAR site is located between Pacific Highway and I-5, just south of the Old Town Transit Center.

A central station “Great Room” with views of San Diego Bay would be the centerpiece of the Central Mobility Hub, see Figures 4-6 and 4-7. Transportation functions would be spread across multiple levels. Multi-level roadways—like those at the San Diego International Airport’s Terminal 2 and other major airports—would separate arrivals and departures (Figures 4-8 and 4-9). Auto access would be available from Pacific Highway or via a new direct access ramp on I-5. A new I-5 interchange at Hortensia Street would replace the existing Old Town Avenue interchange, providing additional auto access to the Central Mobility Hub (via Pacific Highway) and the Old Town community. Pedestrian and bike access between the Central Mobility Hub and Old Town would also be provided by a bridge and/or tunnel across I-5.

The Central Mobility Hub lower levels would provide ample curb space for ground transportation connections including private auto, TNC/taxi, airport shuttles, and other passenger pick-up and drop-off services. A wide array of transit services relocated from Old Town Transit Center would converge at the Central Mobility Hub to provide the region’s best access to local and *Rapid* buses, the San Diego Trolley, COASTER, and Amtrak.

Concept 1 assumes that approximately 80 feet below ground level would be an APM station with nonstop, high-speed service to the airport via a one-mile tunnel route. The APM vehicles would provide level boarding from the platform with wide doors and adequate room for passengers with luggage. The two-minute APM service frequency would offer an average wait time of just one minute on the platform, plus an in-vehicle travel time of two minutes between the Central Mobility Hub and the San Diego International Airport transit station located within walking distance between Terminals 1 and 2.

Figure 4-4: Central Mobility Hub Curb Experience Concept (View 1)



Figure 4-5: Central Mobility Hub Curb Experience Concept (View 2)



Figure 4-6: Central Mobility Hub Great Room Concept (looking west)



Figure 4-7: Central Mobility Hub Great Room Concept (looking east)



Figure 4-8: Central Mobility Hub Multi-Level Roadway System Concept (View 1)

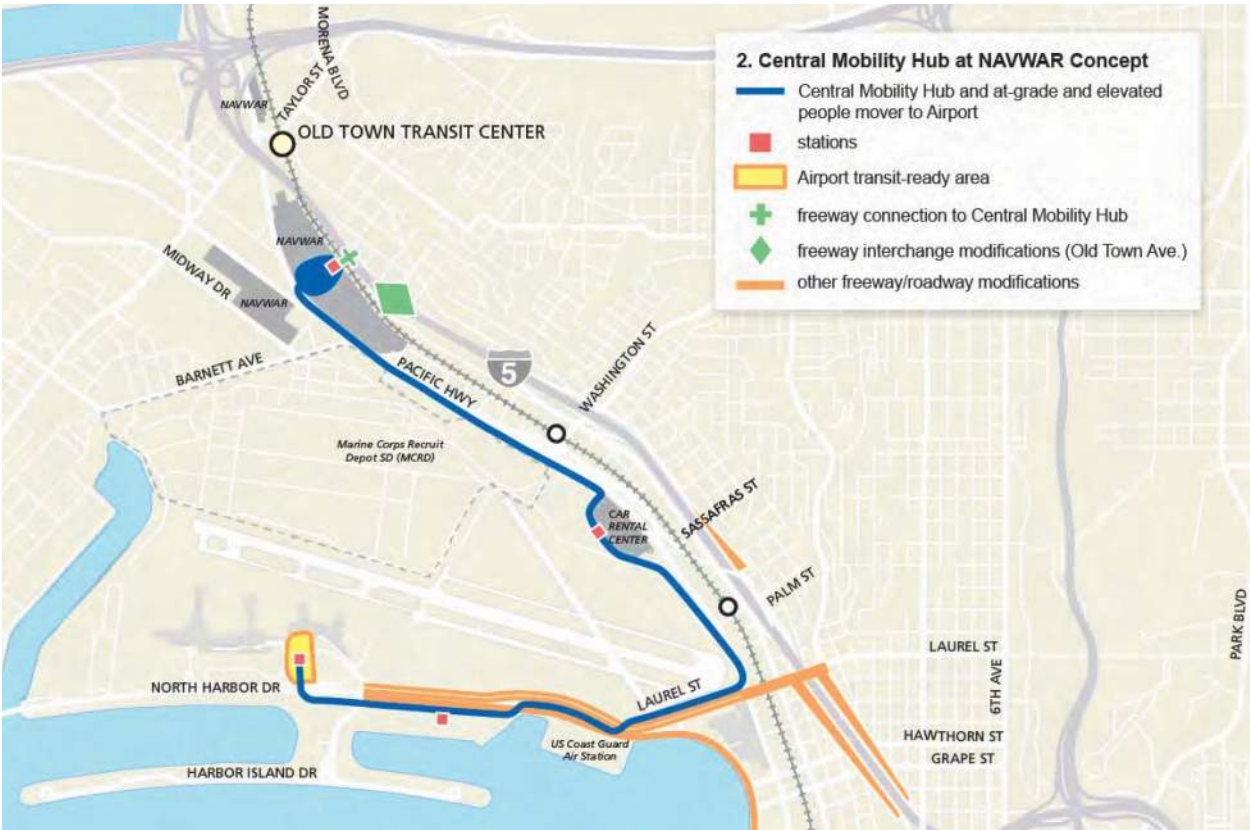


Figure 4-9: Central Mobility Hub Multi-Level Roadway System Concept (View 2)



Concept 2 – Central Mobility Hub at NAVWAR with At-Grade and Elevated APM Connection to Airport

Figure 4-10: Concept 2



Like Concept 1, Concept 2 features the Central Mobility Hub at NAVWAR as a multimodal transportation center with high-frequency APM service to the airport, numerous connections to regional transit lines, and an airport-like curb experience for auto-based travelers. The 72-acre NAVWAR site is located between Pacific Highway and I-5, just south of the Old Town Transit Center.

A central great room with views of San Diego Bay would be the centerpiece of the Central Mobility Hub, with transportation functions spread across multiple levels. Dual-level roadways—like those at the San Diego International Airport’s Terminal 2 and other major airports—would separate arrivals and departures, with auto access available from Pacific Highway or via a new direct access ramp (DAR) on I-5. A new I-5 interchange at Hortensia Street would replace the existing Old Town Avenue interchange, providing additional auto access to the Central Mobility Hub (via Pacific Highway) and the Old Town community. Pedestrian and bike access between the Central Mobility Hub and Old Town also would be provided by a bridge and/or tunnel across I-5.

The Central Mobility Hub lower levels would provide ample curb space for ground transportation connections including TNCs/taxis, airport shuttles, and passenger pick-up and drop-off. A wide array of transit services relocated from Old Town Transit Center would converge at the Central Mobility Hub to provide the region’s best access to local and *Rapid* buses, the San Diego Trolley, COASTER, and Amtrak. In Concept 2, a surface or elevated APM station would provide service to the airport via a 3.6-mile surface/elevated route roughly along Pacific Highway, Laurel Street, and Harbor Drive, with intermediate stops at the Rental Car Center and the planned development at Harbor Island East Basin. The APM vehicles would provide level boarding from the platform with wide doors and adequate room for passengers with luggage. The two-minute APM service frequency would offer an average wait time of just one minute on the platform, plus an in-vehicle travel time of eight minutes between the Central Mobility Hub and the San Diego International Airport transit station located walking distance between Terminals 1 and 2.

Concept 3 – Central Mobility Hub at ITC with At-Grade and Elevated APM Connection to Airport

Figure 4-11: Concept 3



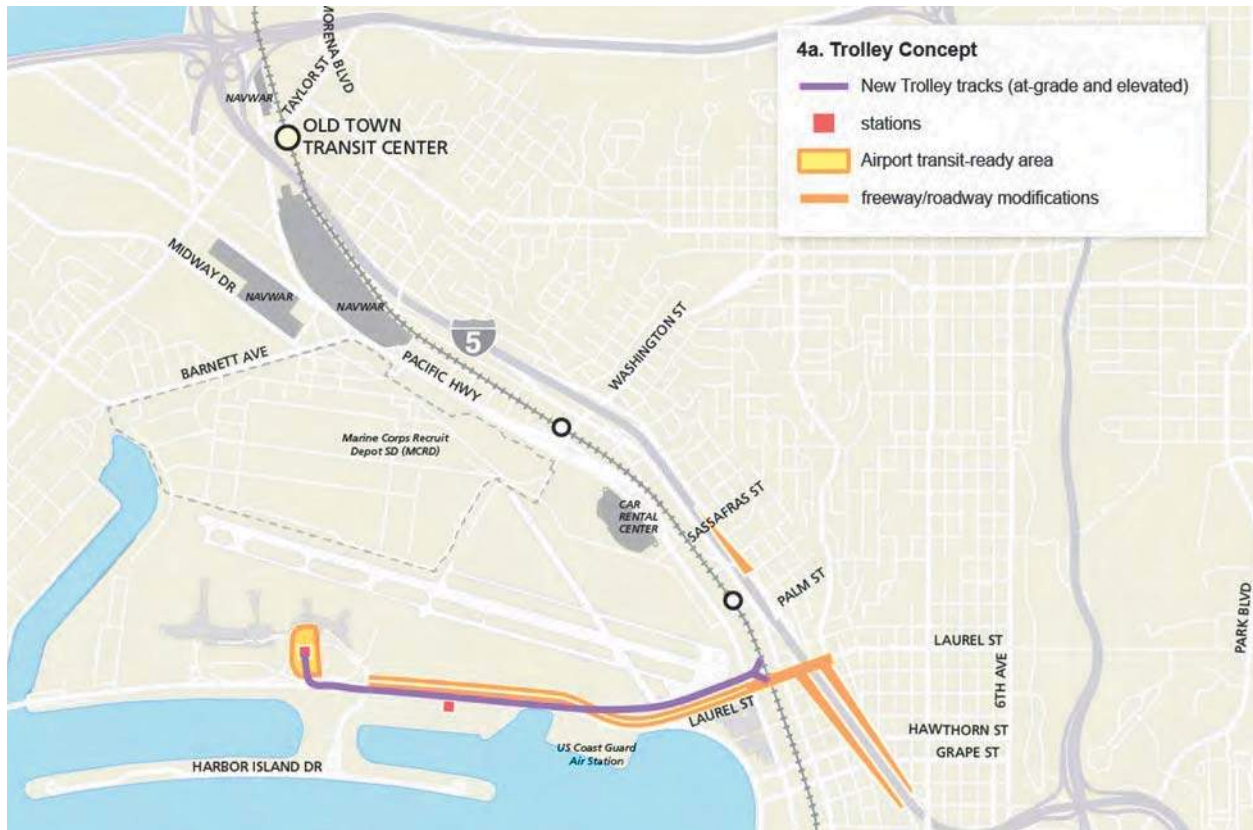
The Central Mobility Hub at the planned ITC site would be a multimodal transportation center with high-frequency APM service to the airport, numerous connections to regional transit lines, and an airport-like curb experience for auto-based travelers. The 13-acre ITC site is located across Pacific Highway from the Rental Car Center, just west of I-5 roughly between Washington and Vine streets.

The Central Mobility Hub lower levels would provide ample curb space for ground transportation connections including TNCs/taxis, airport shuttles, and passenger pick-up and drop-off. Transit services including the San Diego Trolley and local and *Rapid* buses would provide connections at the Central Mobility Hub, with the existing Washington Street and Middletown Trolley stations combined into one station at the Central Mobility Hub.

In Concept 3, COASTER and Amtrak trains are not expected to add an additional stop at the Central Mobility Hub. An APM station would provide service to the airport via a 2.6-mile surface/elevated route roughly along Pacific Highway, Laurel Street, and Harbor Drive, with intermediate stops at the San Diego International Airport Rental Car Center and the planned development at Harbor Island East Basin. The APM vehicles would provide level boarding from the platform with wide doors and adequate room for passengers with luggage. The two-minute APM service frequency would offer an average wait time of just one minute on the platform, plus an in-vehicle travel time of seven minutes between the Central Mobility Hub and the San Diego International Airport transit station located walking distance between Terminals 1 and 2.

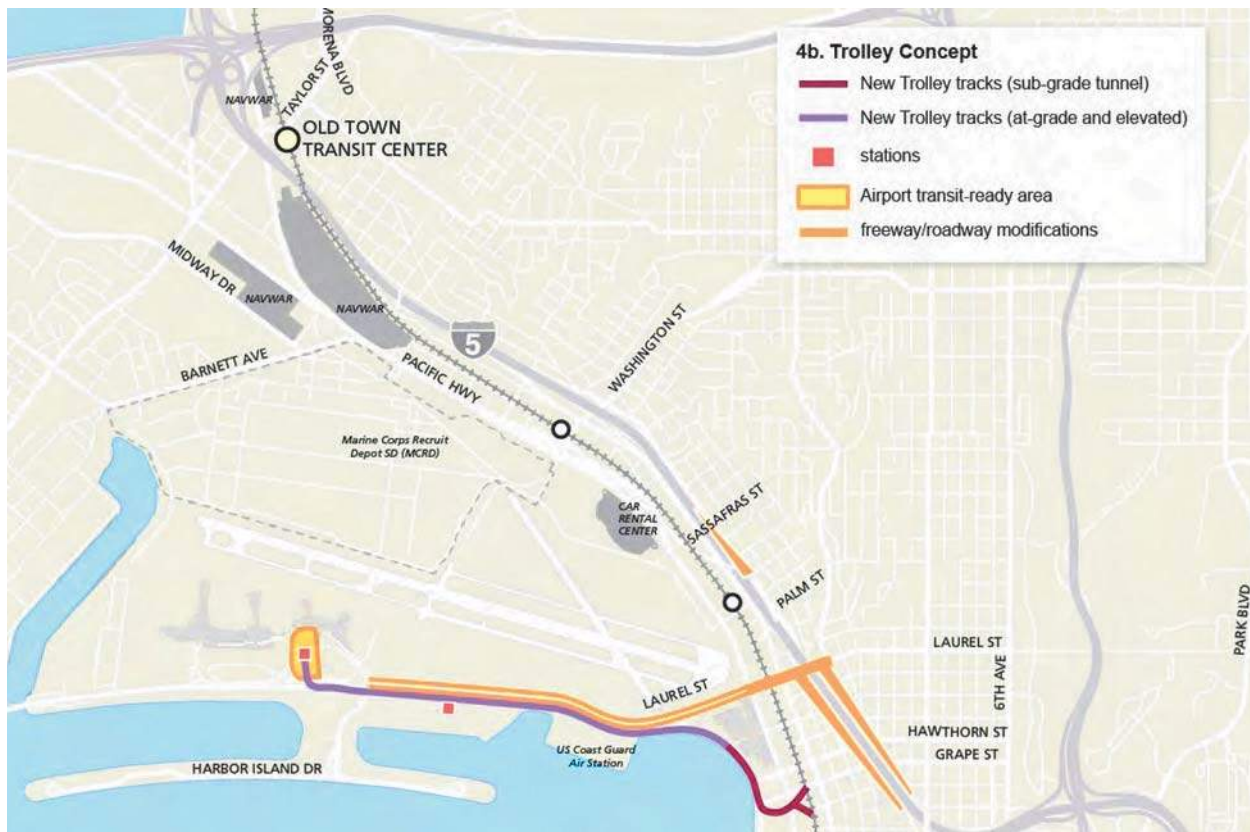
Concept 4a – Trolley Connection to Airport at Laurel Street

Figure 4-12: Concept 4a



Concept 4b – Trolley Connection to Grape Street - Hawthorn Street

Figure 4-13: Concept 4b



Concepts 4a and 4b both feature an extension of the Trolley light-rail system to the planned San Diego International Airport transit station located walking distance between Terminals 1 and 2. The new track would be a spur extending west from the existing Trolley corridor and would include an additional station at Harbor Island East Basin providing transit access to this planned development. Unlike Concepts 1 through 3, Concepts 4a and 4b would not include a new Central Mobility Hub nor sufficient curb space to accommodate the anticipated airport pick-up and drop-off traffic.

The new alignment would branch from the existing Trolley corridor either via aerial structure near Laurel Street (Concept 4a) or via trench/tunnel below Grape and Hawthorn streets (Concept 4b). In Concept 4a, the aerial structure would continue along the Laurel Street corridor and cross to the south side of Harbor Drive, transitioning to a surface alignment as it approaches the Harbor Island East Basin station. In Concept 4b, the tunnel alignment below Grape and Hawthorn streets would emerge via a portal on the south side of Harbor Drive.

Once on Harbor Drive, both alignments would utilize the planned space for enhanced transit service envisioned in the Port Master Plan Update, the result of a planned repurposing of the roadway from six traffic lanes to four. After serving Harbor Island East Basin, the Trolley alignment would then rise back to an elevated structure to cross Harbor Drive and terminate at the San Diego International Airport transit station.

To operate the service, MTS would create a new Trolley line extending north to Old Town Transit Center and south to Santa Fe Depot and the 12th & Imperial Transit Center, including all existing intermediate stops. This would provide numerous connections to regional and local transit, including the Trolley, *Rapid* and local buses, and COASTER and Amtrak rail services. Due to capacity constraints on the existing Trolley corridor, the service would operate on a 15-minute service frequency, resulting in an average platform wait time of 7.5 minutes. The in-vehicle travel time would be 5.5 minutes from Santa Fe Depot, 9.5 minutes from Old Town Transit Center, and 12.5 minutes from the 12th & Imperial Transit Center.

5. Evaluation Criteria

This evaluation of the concepts outlined in Section 4 uses seven key evaluation criteria:

- 1. Passenger Convenience and Ridership.** The benefit created in terms of increased transit ridership and overall passenger convenience is an important factor for determining ridership potential. Information on transit ridership is presented in terms of new daily riders and a shift from auto-based travel to transit. New daily riders are an important measure as this is the basis used for funding eligibility by the Federal Transit Administration. In general, the attractiveness of transit is directly influenced by passenger convenience factors, such as user experience, travel time, access to transit, and walk distance.
- 2. Reduce Congestion Related to Airport Access.** This is about improvements to regional transit and auto access to the airport. The focus is on identifying and creating transit options that are as or more competitive than driving a personal vehicle to the airport. It also looks to reduce congestion on local streets related to airport access.
- 3. Reduce GHG Emissions and VMT.** Goals in this criterion include reducing GHG emissions and congestion by encouraging energy efficient alternative transportation modes and meeting state emissions mandates and stakeholder climate action plans with a specific focus on airport travelers.
- 4. Feasibility.** This criterion focuses on constructability, regulatory agency permitting factors, geotechnical and seismic issues, the cooperation of the Navy for use of Naval Base Point Loma (NAVWAR) lands, the regulatory approval of the FAA for the construction of connectivity improvements within an active airport environment, and issues associated with construction activities within an active rail corridor, freeway, and urban roadway environment.
- 5. Cost.** Capital, right-of-way, project development, and operating costs are evaluated in this criterion. Capital costs include the construction of all connectivity improvement infrastructure and related facilities. Right-of-way costs include the acquisition, relocation, and goodwill costs for the private lands that would need to be acquired for the infrastructure improvements. Project development costs include all planning, engineering, construction-management, and related professional services necessary to advance the project to completion. Operating costs include the cost to operate and maintain the system for a 30-year period. At this early stage of the project development process, the cost estimates are rough-order-of-magnitude costs for purposes of comparing each concept to each other. The cost estimates are in 2019 dollars and should not be used for programming purposes.
- 6. Economic Benefit.** Economic benefits to the region measured in terms of the construction benefits associated with job creation.

The final evaluation of the airport connectivity concepts is shown at the end of this report in Figure 6-1.

The reader will note that the organization of the final evaluation is slightly different than presented here in Section 5. This is due to the desire to maintain the final evaluation as closely as possible to the evaluation criterion as previously presented to the Airport Connectivity Subcommittee. The evaluation criterion is organized in Section 5 for ease of reading.

5.1 Passenger Convenience and Ridership

This criterion assesses passenger convenience and ridership for each concept outlined in Section 4. In general, the attractiveness of transit is directly influenced by passenger convenience factors such as vehicle design, travel time, number of transfers, and walk distance. Airport-related transit attractiveness is additionally influenced by design features such as Central Mobility Hub to facilitate airport transit ridership, the pick-up and drop-off experience, ease of moving baggage, and walk distance to and from the terminals.

5.1.a Improved Access to Transit

The SANDAG Board approved an action plan on February 22, 2019, to develop a bold new vision for the 2021 Regional Plan with the goal to transform the way people and goods move throughout the San Diego region by providing compelling alternatives to driving. This innovative transportation system will strive to get people where they need to go quickly.

A focus of the new transportation vision will be on the creation of a complete network of high-capacity, high-speed, and high-frequency transit services that incorporates new transit modes and improves existing services. Another focus area will be on the creation of mobility hubs, places of connectivity where a variety of travel options come together to deliver a seamless travel experience in the heart of the communities where people live, work, and play. Supporting land uses that increase housing near transit and enhanced infrastructure for bikes and pedestrians will encourage more people to walk, bike, and use transit.

Due to its central location in the region and the regional priority to improve connectivity to San Diego International Airport, the opportunity presents itself to investigate the possibility of a Central Mobility Hub that can serve as the centerpiece of the new transportation vision while also solving one of the region's most vexing problems, how to improve transit connectivity to the airport. The concept of a Central Mobility Hub located near the airport for improved access to transit is shown in Figure 5-1.

Figure 5-1: Regional Transit Connectivity



Concepts 1 and 2 would locate the Central Mobility Hub at the NAVWAR site, see Figures 4-3 and 4-10. NAVWAR is a large site which can accommodate a revitalized NAVWAR campus as well as a Central Mobility Hub with roadway, Amtrak, COASTER, Trolley, bus, and future high-speed transit services. Concepts 1 and 2 would relocate the Old Town Transit Center, combining it with the Central Mobility Hub at NAVWAR. Concepts 1 and 2 at NAVWAR also could include access to a major economic commercial center that could provide new job, housing, retail, and hotel amenities. Concepts 1 and 2 would provide ample space for airport passenger pick-up and drop-off, an important design feature for diverting traffic away from key airport access roadways. The NAVWAR site offers the greatest flexibility for future expansion and modification to meet the mobility needs for generations to come.

Concept 3 would locate the Central Mobility Hub at the ITC site (Figure 4-11). The site can accommodate the program requirements for a Central Mobility Hub with roadway, Trolley, bus, and future high-speed transit services. However, based on previous discussions with stakeholders, Amtrak and COASTER rail services would not stop at the ITC site as these services would continue to use the Old Town Transit Center and Santa Fe Depot stations and would not add an intermediate stop at the ITC site. This limits access to transit as would the expected limited bus service at the ITC site as the majority of the bus service is expected to remain at the Old Town Transit Center. The ITC site offers some opportunity for job, housing, retail, and hotel amenities but to a much lesser extent as compared to the NAVWAR site. Concept 3 would provide space for airport passenger pick-up and drop-off. The ITC site is constrained by the existing roadway and freeway network and offers less ability for future expansion but does provide good flexibility to accommodate future modal shifts and future transportation needs.

Concept 4 would not provide a Central Mobility Hub. Instead, a new Trolley line would be connected to the existing Trolley system between the Old Town Transit Center and the 12th & Imperial Transit Center with a spur to San Diego International Airport (see Figures 2-2, 2-12, and 2-13). Concept 4 would provide connectivity to existing Amtrak, COASTER, and bus service but would not provide a location or facilities for connecting to future high-speed transit. Concept 4 would not provide opportunities for new job, housing, retail, and hotel amenities and there would be limited opportunity for airport passenger pick-up and drop-off. With future advancements in transportation technology, Concept 4 offers little ability to accommodate future modal shifts and future transportation needs.

The “No Build” scenario offers the fewest transit access improvements. Transit service to the airport would be limited to the existing MTS Bus Route 992 from Downtown/Santa Fe Depot plus the Airport Authority’s new shuttle service from Old Town Transit Center (currently in development and expected to open in 2020).

5.1.b Passenger Convenience

The following convenience-related factors have a strong influence on the relative attractiveness of various airport transit connection options:

- Modes and vehicle amenities
- Transit travel time, wait time, and service frequency
- Transfers

Modes and Vehicle Amenities

This study identified modes and vehicle amenities associated with the modes and vehicles in Concepts 1 through 4 that would be designed to enhance the airport-related transit users' experience and convenience.

Concept 1 (Tunnel APM) has the highest potential benefits, with a tunnel-based APM allowing for the fastest trips of any concept. APM vehicles are specifically designed and optimized for airport travel with level boarding, level floors, wide doors, and ample space for passengers with luggage (see Figures 5-2, 5-3, and 5-4).

Concepts 2 and 3 (Surface APM) have slightly lower potential benefits compared to Concept 1 because of the distance of the trip. The surface APM must travel around the end of the runway, whereas the tunnel APM can go directly through the tunnel. APM vehicles are optimized for airport travel with level boarding, level floors, wide doors, and ample space for passengers with luggage.

Concept 4 (Trolley) has much lower potential benefits. While use of the Trolley would be a positive given its strong familiarity to passengers, it is slower than the other three concepts. The current Trolley vehicles are not optimized for airport travel. Boarding is not fully level as the deployment of ramps is required leaving airport passengers to navigate a ramp between the platform and the vehicle (see Figure 5-5). The interior of the vehicle is not level, as climbing stairs is required to reach seating on each end of the Trolley vehicle (see Figure 5-6). The doors are narrower than APMs and the seating configuration is not suited for passengers with luggage (see Figure 5-7). This would be exacerbated during peak periods with full vehicles (see Figure 5-8).

Figure 5-2: Automated People Mover Vehicle Interior (Empty)



Source: SFO AirTrain – mliu92 from San Mateo [CC BY-SA 2.0]

Figure 5-3: Airport Passengers Boarding an APM Vehicle



Figure 5-4: APM Vehicle Interior (with passengers)



Figure 5-5: Trolley Vehicle Ramp



Figure 5-6: Trolley Vehicle Stairway



Figure 5-7: Trolley Vehicle Interior (Empty)



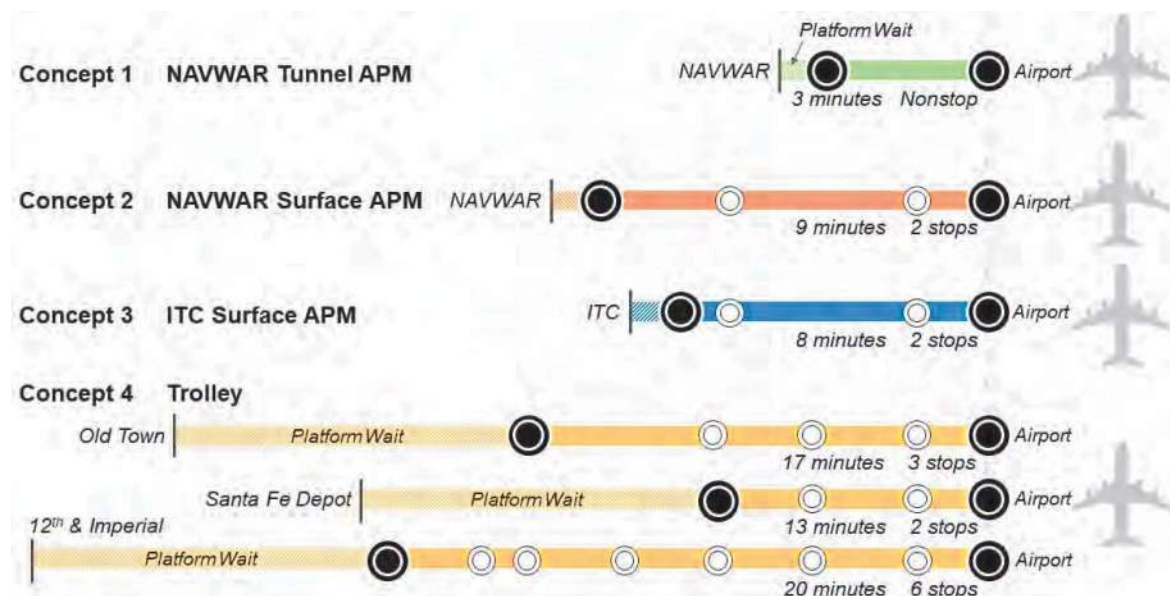
Figure 5-8: Trolley Vehicle Interior (with passengers)



Transit Travel Time, Wait Time, and Service Frequency

Figure 5-9 provides the average transit travel time to San Diego International Airport for each concept, including platform waiting time and in-vehicle time to the airport transit-ready area.

**Figure 5-9: Average Transit Travel Time to San Diego International Airport in 2050
(Platform Wait Time + In-Vehicle Time)**



A SANDAG goal is to develop transit options that are comparable in time to driving. Even with freeway and roadway modifications outlined in Section 4-2, average auto drive times are expected to increase as travel demand in and around San Diego International Airport increases. Concept 1 is expected to offer a superior transit travel time than driving. Concepts 2 and 3 are anticipated to offer a competitive travel time, while Concept 4 is not expected to offer a competitive travel time.

Service frequency, which determines wait time, is a significant contributor to total travel time. The lower the service frequency, the higher the average wait time at the station platform. The 2-minute APM service frequency in Concepts 1 through 3 results in lower overall travel times than the 15-minute Trolley service frequency in Concept 4. These differences have been accounted for in the travel time analysis and are factored into the travel times listed below in Table 5-2.

While Trolley service could be increased to 7.5-minute service frequency, as shown in Figure 5-10, the ridership potential may not justify this frequency. As outlined in Section 5.4.b, there are also technology and rail corridor capacity constraints that may limit the ability to provide 7.5-minute frequencies. For the purpose of this analysis, 15-minute Trolley frequencies are assumed.

Concept 1 has the highest potential benefits, as its service would be the best match for time-sensitive airport travelers. A two-minute service frequency means riders would not have to plan their airport travel around the APM schedule, with an average wait time of one minute on the platform. Concept 1 directly serves the airport and the Central Mobility Hub, with no stops in between. This results in the shortest trip length of all the concepts. Note that Concept 1 does not include time associated with potential FAA and Transportation Security Administration (TSA) security clearance process requirements. It is unclear at this point if a security check would be required.

Concept 3 has more circuitous routing than Concept 1 – along the north side of the airport and Laurel Street/Harbor Drive – and includes two intermediate stops. The longer routing and intermediate stops would result in a total average travel time of eight minutes, two and a half times greater than Concept 1.

Concept 2, with a similar path, but longer travel distance than Concept 3, has a total travel time of nine minutes. As with Concept 3, the intermediate stops at the Rental Car Center and Harbor Island East Basin would increase the total travel time for passengers.

Concept 4 offers the least time-competitive option, with an indirect route to the airport that includes numerous stops and a travel time range between 13 minutes (from Santa Fe Depot) and 20 minutes (from 12th & Imperial station).

Due to 15-minute headways, Concept 4 requires a longer station wait time—an average of 7.5 minutes on the platform given its 15-minute service frequencies—along with additional waiting time at intermediate stops including Harbor Island East Basin and several existing Trolley stations. The reduced service frequency would require users to plan their trips around the Trolley schedule, making it a less-attractive service to time-sensitive travelers.

A further breakdown of the specific travel times for each concept is summarized in Table 5-1.

Table 5-1 Transit Travel Time to San Diego International Airport, 2050

Concept/Mode	Concept 1 Tunnel APM	Concept 2 Surface APM	Concept 3 Surface APM	Concept 4 Trolley		
Origin	NAVWAR	NAVWAR	ITC	Old Town	Santa Fe Depot	12th & Imperial
Avg. Platform Wait (1/2 service frequency)	1 min	1 min	1 min	7.5 mins	7.5 mins	7.5 mins
In-Vehicle Time	2 mins	8 mins	7 mins	9.5 mins	5.5 mins	12.5 mins
Avg. Travel time to San Diego International Airport	3 mins	9 mins	8 mins	17 mins	13 mins	20 mins

Source: SANDAG Series 13 Regional Travel Model

Transfers

Concepts 1 and 2 offer one transfer for airport travelers utilizing existing bus, Trolley, COASTER, Amtrak, and future high-speed transit services. Once travelers reach the Central Mobility Hub, where all these transit services meet, travelers can reach San Diego International Airport with one transfer.

Concept 3 would require additional transfers as the Central Mobility Hub at the ITC site is not expected to be served by COASTER and Amtrak rail services. These riders would need to transfer from Old Town Transit Center or Santa Fe Depot to reach the ITC via Trolley and its follow-on APM service to the airport.

Concept 4 would require no transfers for airport passengers boarding the Trolley system between Old Town Transit Center and 12th & Imperial Transit Center (see Figure 2-2). Travelers boarding the Trolley somewhere else in the system, along with bus, COASTER, and Amtrak services, would make one transfer at the Old Town Transit Center, Santa Fe Depot, or 12th & Imperial Transit Center. Airport passengers on the future high-speed network would potentially need to make multiple transfers to reach the airport. A Central Mobility Hub is not provided with Concept 4.

5.1.c Transit Ridership

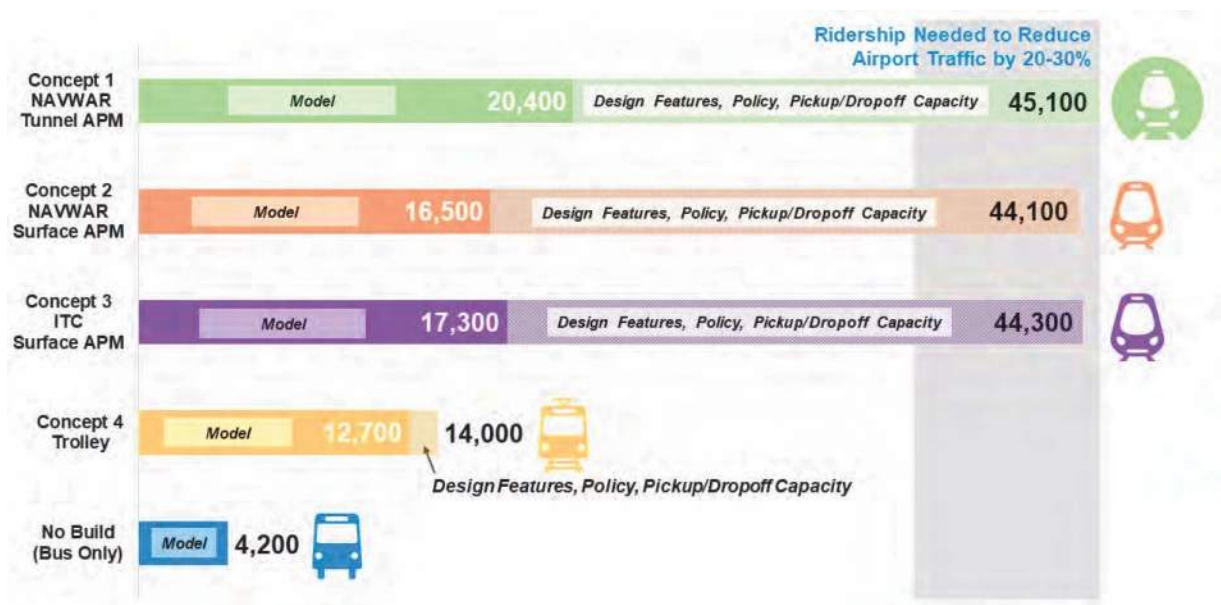
Table 5-2 and Figure 5-9 show the estimated ridership to and from the airport for each concept. The total net new ridership to and from the airport is the sum of three inputs:

- **Modeled Ridership:** The raw ridership from the SANDAG Series 13 Regional Travel Model.
- **Off-Model Adjustments:** As is typical in this situation, the model has some limitations that would be updated and improved through future efforts:
 - *Rental Car Center Shuttle Ridership* – Additions to account for the ridership from the San Diego International Airport Rental Car Center to the airport via shuttles. This existing service currently carries approximately 17,200 riders a day and is not modeled.
 - *Additions with Design Features, Policies, and Drop-off and Pick-up Capacity* – Additions to potential ridership that are possible through APM and Trolley design features, policies, and pick-up and drop-off capacity (discussed below).
- **Less Ridership Shifted from Existing Transit Services:** Concepts 2 and 3 assume ridership would be shifted from the existing Rental Car Center shuttle services to the proposed APM. Concept 4 assumes the new Trolley line replaces MTS Route 992, with its riders from Downtown San Diego and Santa Fe Depot shifting to the Trolley. These riders contribute to total ridership and allow for consolidating transit service. However, these trips are not new transit trips and therefore would not contribute to new ridership, change mode share, alleviate traffic congestion, or reduce VMT and GHG emissions.

Table 5-2: APM/Trolley Daily Ridership to San Diego International Airport, 2050

Concept	Modeled Ridership to/from San Diego International Airport	Rental Car Shuttle Ridership	Additions w/ Design Features, Policies & Drop-off/Pick-up Capacity	Less Ridership Shifted from Existing Transit Services	Total Potential New APM/Trolley Ridership to/from San Diego International Airport
Concept 1 NAVWAR Tunnel APM	20,400	N/A	24,700	N/A	45,100
Concept 2 NAVWAR Surface APM	16,500	17,200	27,600	-17,200	44,100
Concept 3 ITC Surface APM	17,300	17,200	27,100	-17,200	44,300
Concepts 4a/4b Trolley	12,700	N/A	5,500	-4,200	14,000
No Build	4,200	N/A	N/A	-4,200	0

Figure 5-10: APM/Trolley Daily Ridership to San Diego International Airport, 2050



Source: SANDAG Series 13 Regional Travel Model, WSP

The modeled APM ridership in Concepts 1 through 3 is consistent with similar APM systems in the United States that offer both transit connections and facilities to support auto pick-up and drop-off of airport passengers. The two most comparable existing systems are in Phoenix (approximately 16,000 daily riders) and Miami (approximately 33,000). Similar APM systems offering auto pick-up and drop-off facilities are under construction in Los Angeles, Boston, and Orlando.

Achieving Higher Ridership Through Policy and Design Features

While the ridership levels in Concepts 1 through 3 are in line with similar systems, reducing traffic on key airport access roadways will require higher ridership. Concepts 1 through 3 make this goal achievable with a combination of policy tools and design features to direct and incentivize airport traffic to the Central Mobility Hub. The traffic shift can be phased and implemented over time. The limiting factor in Concepts 1 through 3 is not the capacity of the APM system, but rather the capacity of the Central Mobility Hub, designed to accommodate up to 40,000 daily airport travelers and accompanying vehicle traffic flows. The Central Mobility Hub has been designed to accommodate approximately 30% of the projected airport drop-off and pick-up demand. Additionally, due to its size, the Central Mobility Hub at NAVWAR has good ability to accommodate future modal shifts. Due to its more constrained location, the ITC location has less ability to accommodate future modal shifts.

These potential additional policies and design features may include:

- Sufficient curb length to accommodate airport-related traffic flows from multiple vehicle types (private autos, TNC/taxi, shuttle buses, etc.).
- Airport-like pick-up and drop-off experience featuring dual-level roadways, curbside services, and direct connection to the APM station.
- Policies diverting commercial modes, including TNCs, taxis, rideshare vans, as well as private shuttles to Central Mobility Hub.
- Policies implementing variable tolling of San Diego International Airport driveways.

It is important to note that these potential policies are conceptual in nature and are not anticipated to be all-inclusive and/or implemented at one time. A phased approach that is consistent with travel demand and traffic congestion around the airport should be considered when implementing any of these additional policies and programs.

Concept 4 has limitations on potential ridership due to its inability to accommodate heavy airport-related traffic flows at Trolley stations, limiting the feasibility of the policy and design features contemplated for Concepts 1 through 3. Concept 4 can serve transit-based trips to and from San Diego International Airport, but its available curb and parking lot space cannot accommodate a sufficient number of auto drop-offs and pick-ups to achieve the project's traffic-reduction goals at the airport.

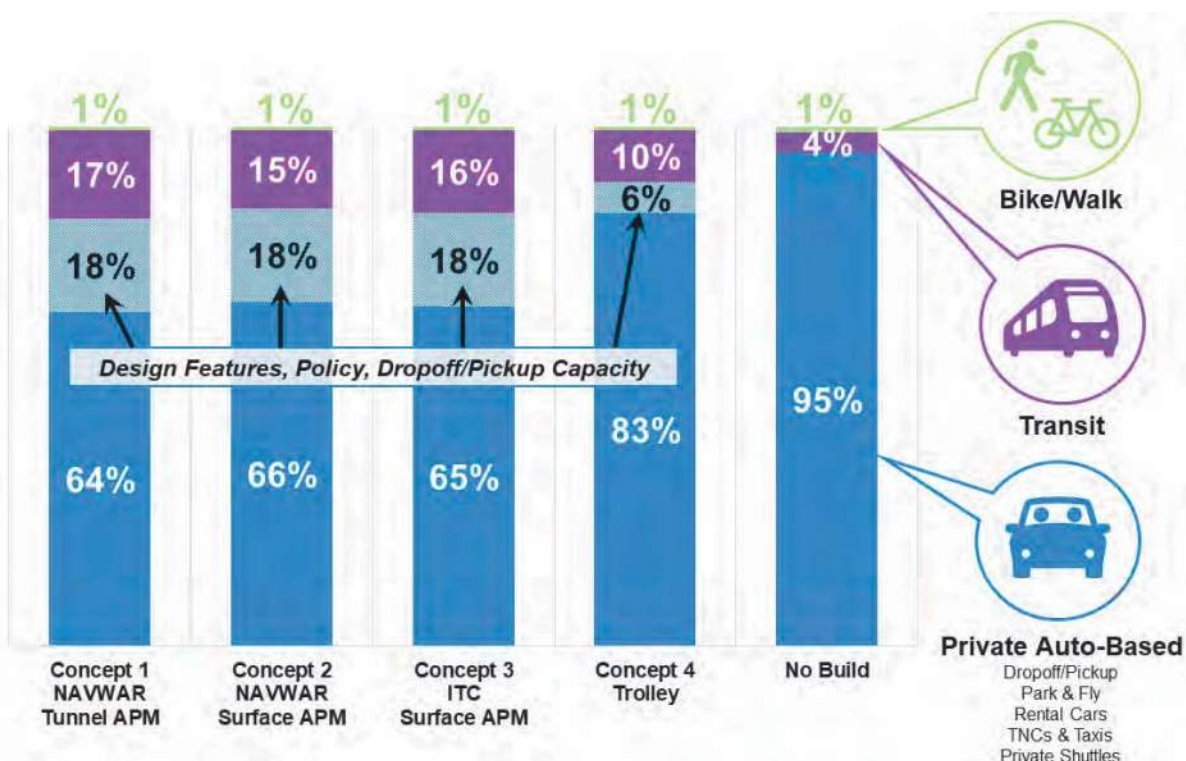
5.2 Reduce Congestion Related to the San Diego International Airport Access

This criterion measures improvements to transit mode share as well as auto access to the airport. The focus is on creating transit options that are more attractive than driving a personal vehicle to the airport. It also looks to reduce congestion on local streets related to airport access.

5.2.a Transit Mode Share

Transit mode share is highly correlated with transit ridership, with the fastest and best transit connections drawing the most riders as a share of overall trips. Concepts 1 through 3 offer the highest transit mode shares for airport travelers, clustered between 15 and 17%, with Concept 1 performing the best. Concept 4 has a transit mode share of 10%, which is consistent with its lower relative ridership. As with ridership, the transit mode share in Concepts 1 through 3 may be increased another 6 to 18% through a combination of policy and design features that reduce airport traffic and increase use of the Central Mobility Hub for auto drop-off and pick-up of airport passengers. Details of transit mode share are shown in Figure 5-11.

Figure 5-11: San Diego International Airport's Estimated Mode Share in 2050



5.2.b Congestion Reduction Around San Diego International Airport

Improving transit mode share to the airport will directly reduce vehicle trips and improve congestion levels on key airport access roads, allow for Harbor Drive to be repurposed for waterfront uses, and reduce traffic that currently bisects Little Italy. Improving transit mode share is a primary goal of the region. Today under existing conditions, the following priority airport access roadways have reached their daily capacities:

- Harbor Drive between San Diego International Airport and Grape Street
- Grape Street and Hawthorn Street between Harbor Drive and I-5
- Laurel Street between Harbor Drive and I-5

“No Build” Scenario Comparison

As shown in Figure 5-12, existing traffic on key airport access roadways exceeds capacity. As shown in Figure 5-12, forecasted growth of airport activity at San Diego International Airport and anticipated growth associated with regional development, traffic on key airport access roadways will further burden this already-exceeded capacity. According to the SANDAG regional model, preliminary modeling analysis for 2050 future conditions demonstrates that these roads will be further constrained and over capacity if mode share shift to transit, transit improvements, and roadway modifications are not implemented. As shown in Figure 5-14, based on 2050 modeling analysis of a future “No Build” scenario, without improvements, gridlock conditions are expected on key airport access roadways including Harbor Drive, Grape Street, and Hawthorn Street. This has the potential to create a scenario where airport passengers are unable to reach the airport terminals, resulting in missed flights and associated economic repercussions.

Figure 5-12: Average Daily Traffic on San Diego International Airport’s Key Access Roadways, 2018

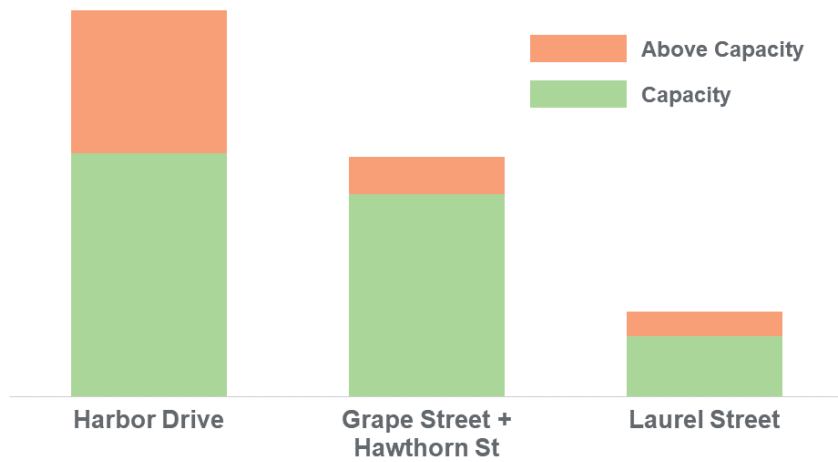
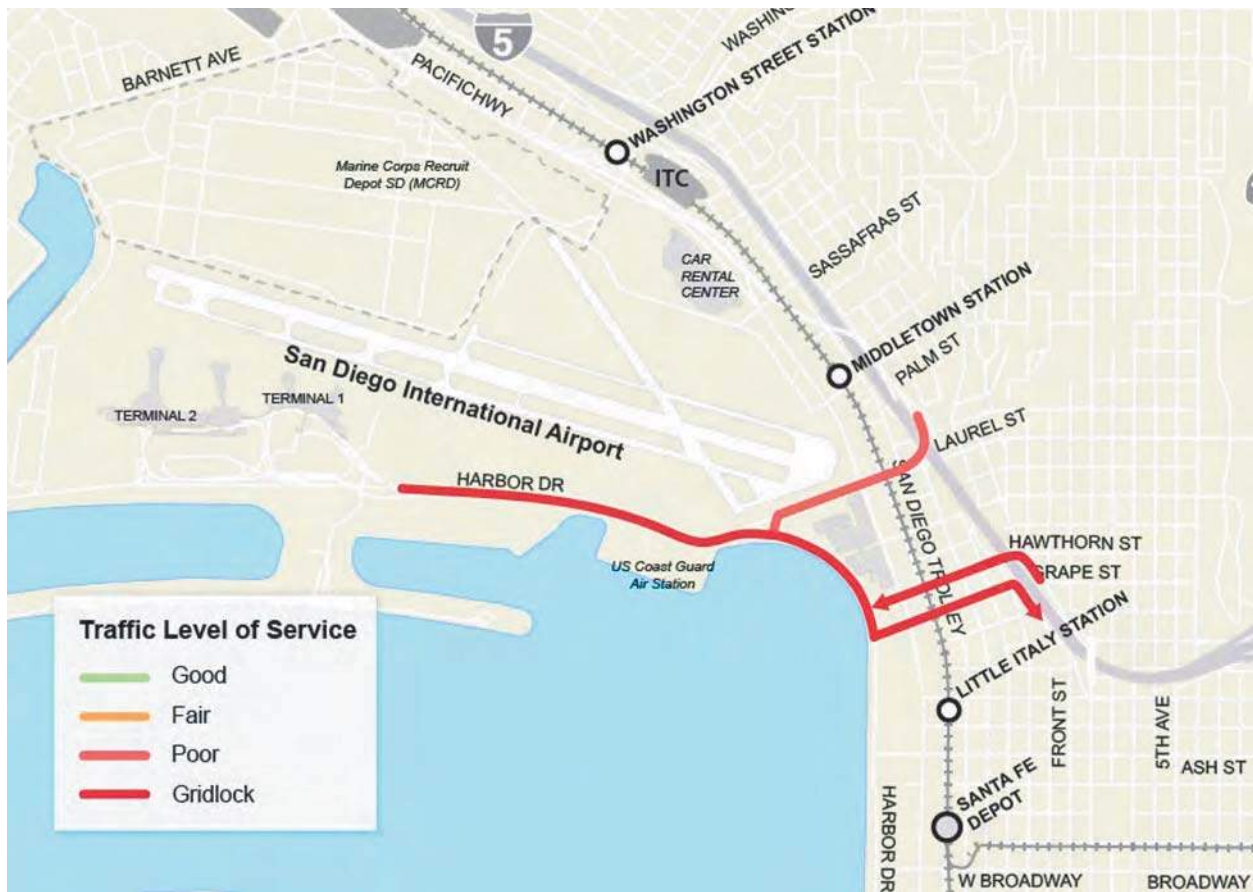


Figure 5-13: Average Daily Traffic on San Diego International Airport’s Key Access Roadways, 2050 “No Build” Scenario



Figure 5-14: Traffic on Airport Priority Roadways – Future “No Build”



Projected Future Traffic Conditions

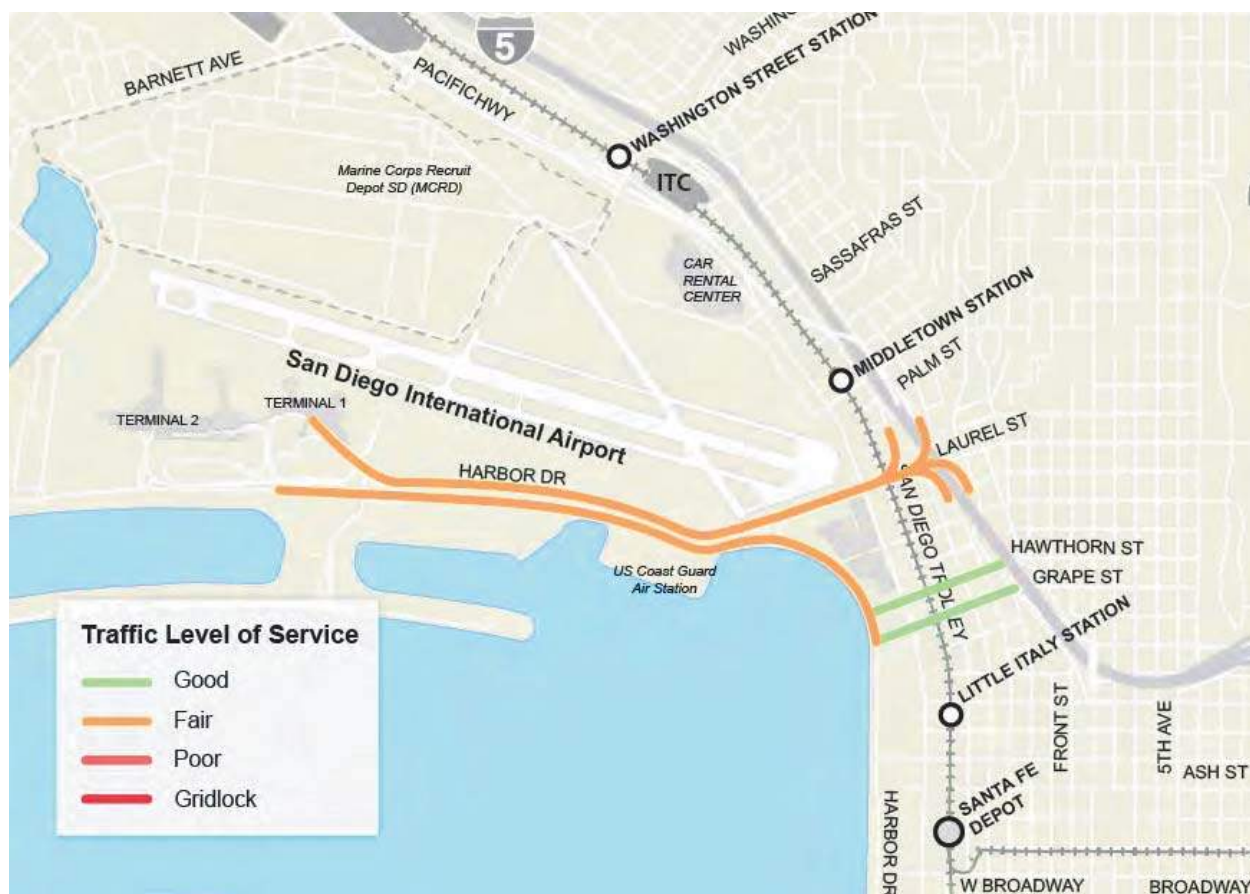
Harbor Drive

All concepts reduce traffic on Harbor Drive and would support the goal of redeveloping Harbor Drive for waterfront uses. Based on preliminary 2050 transit ridership results for Concepts 1 through 4, Concepts 1 through 3 have the potential to reduce San Diego International Airport Terminals 1 and 2 traffic by 9 to 12% and Concept 4 reduces the airport’s Terminal 1 and 2 traffic by 6%. Additional policy considerations associated with these concepts could further reduce traffic on Harbor Drive.

Grape, Hawthorn, and Laurel Streets

As stated above, all concepts commonly assume the relocation of the south-facing I-5 ramps to Laurel Street. As a result of this potential improvement, traffic modeling results show reduced traffic on Grape and Hawthorn streets by approximately 30,000 average daily traffic and, as shown in Figure 5-15, key airport access roadways would operate at an acceptable level of service and with sufficient capacity.

Figure 5-15: Traffic on Airport Priority Roadways – Future Modified (All Concepts)



Policy and Design Features to Advance and Support Congestion Relief Goals

Preliminary modeling suggests that future congestion on key access roads could be alleviated by shifting traffic to new pick-up and drop-off locations outside of the airport terminal area. This is accomplished through policies and design features and results in an increase in transit ridership. Preliminary modeling also demonstrates that the existing freeway ramp connections to Grape and Hawthorn streets would need to be removed in order to reduce traffic on Grape and Hawthorn streets. Transit vehicle, station limitations, vehicle access, and other capacity constraints would provide some limit on the ultimate capacity to accommodate a total diversion of airport traffic. To greatly improve overall system ridership, reduce congestion, and increase levels of services on key airport access roads, policies would have to be considered that include pricing such as tolling or fees on commercial shuttles, taxis, TNCs, and private mode shares.

Assuming such policies are implemented, Concepts 1 through 3 have the highest attractiveness of auto pick-up and drop-off, as the Central Mobility Hub would provide curb space to accommodate up to 40,000 daily pick-ups and drop-offs, with dual-level roadways and supporting facilities that emulate the airport experience (see Figures 4-4 to 4-9). These concepts would also offer direct connections to I-5 via direct access ramps and new or enhanced interchanges, providing a high level of convenience for pick-up and drop-off operations. The Central Mobility Hub with new airport pick-up and drop-off locations could accommodate the potential future implementation of such policies.

Concept 4 has limited curb capacity to accommodate pick-ups and drop-offs at Old Town Transit Center, Santa Fe Depot, and intermediate stations at Washington Street and Middletown. The acquisition of some additional property at existing trolley stations is assumed, but it would have limited ability to accommodate the pick-ups and drop-offs. Additionally, none of the stations have direct access from I-5 and the stations are dispersed. It is unclear how effective traffic diversion techniques would be without a centrally-located pick-up and drop-off location. Moreover, Concept 4 does not include the ability to provide an airport terminal experience and is less able to accommodate diverted traffic than Concepts 1 through 3.

Two comparable airport transit systems, in Phoenix and Miami, provide transit connections and facilities to support auto pick-up and drop-off of airport passengers. Daily ridership on these two systems ranges from 16,000 to 33,000 passengers.

5.3 Greenhouse Gas Emissions and Vehicle Miles Traveled

Goals in this criterion include reducing energy use by encouraging energy-efficient alternative transportation modes and meeting state emissions mandates and stakeholder climate action plans. For the purposes of this analysis, the focus is on airport travelers.

VMT and GHG emissions are closely correlated, with more miles traveled resulting in higher emissions. As such, both metrics will have the same relative trends. Airport travelers using the Central Mobility Hub for auto-based pick-up and drop-off will save approximately two to three VMT per trip for most travelers compared to drop-off and pick-up at the airport's terminals. As shown in Figure 5-10, Concepts 1 through 4 have the highest potential ridership and therefore the highest potential to reduce VMT and GHG.

Concept 1 provides the shortest trip length to San Diego International Airport, followed by Concept 3, then by Concept 4, with Concept 2 having the longest trip length. The longer the trip length the greater the energy consumption. Both VMT and GHG emissions are sensitive to the availability of transit as an alternate mobility option, with the highest-quality transit service (Concept 1) providing the greatest incentive to choose transit. For Concepts 1 through 3, the benefits resulting from the availability of high-quality transit and drop-off and pick-up options are partially offset by the effects of construction of the Central Mobility Hub and transit guideway. This would also be the case for the construction of new Trolley guideway infrastructure with Concept 4.

5.4 Feasibility

This section identifies the feasibility, regulatory agency permitting factors, and geotechnical and seismic issues. It also considers the cooperation of the Navy for use of Naval Base Point Loma Old Town Campus (NAVWAR) lands, the cooperation of the FAA for the construction of connectivity improvements within an active airport environment, and issues associated with construction activities within an active rail corridor, freeway, and urban roadway environment. SANDAG planners and engineers, Caltrans, Airport Authority, Port of San Diego, City of San Diego, Metropolitan Transit System, Los Angeles – San Diego – San Luis Obispo Rail Corridor (LOSSAN), and NCTD and their respective consultant and experts have provided substantial input for the feasibility of Concepts 1 through 4. However, it is important to note that only conceptual engineering analysis has been completed at this early stage of project definition. Additional engineering and environmental analysis will be required to further plan, design, scope, cost, and risk. Based on the analysis completed to date, the top feasibility risks are summarized in Figure 5-18.

Figure 5-16: Top Feasibility Risks

	Airport Height Limits: The construction of transportation infrastructure may be limited or require special approval by FAA if proposed within any restrictive overlays surrounding San Diego International Airport, including the Runway Protective Zone and Part 77 surfaces.
	Use of Navy Lands: Any proposed use of Navy land would require close coordination with and approval from the Navy.
	Permission to Tunnel: Transportation facilities under the airport and the Marine Corps Recruit Depot would require close cooperation and approval from FAA, the Airport, and the U.S. Marine Corps/Department of Defense.
	Acquisition of Private Property: The construction of transportation infrastructure would require the acquisition of private property.
	Construction Impacts to Existing Rail Service: Trolley construction along the existing rail corridor may result in suspension or disruption of Trolley and other rail services for several years during construction.

5.4.a Footprint Requirements and Space Constraints

Concepts 1 through 3 involve the development of a Central Mobility Hub, which includes enough space for multiple local, regional, and interregional transit, as well as facilities for airport passenger pick-up and drop-off activity. Considerable curb and roadway spaces are needed for airport passenger pick-up and drop-off activity. Program requirements for a Central Mobility Hub are shown in Table 5-3. While further analysis is necessary to refine program elements of the Central Mobility Hub, the following table demonstrates the extent of needed facilities and footprint requirements necessary to accommodate a fully functional facility.

Table 5-3: Central Mobility Hub Program Requirements

Trolley Platforms	2 each at 360 linear ft.
Commuter Rail Platforms	2 each at 1,000 linear ft.
Intercity Rail Platforms	2 each at 1,400 linear ft.
Airport APM Platforms	2 each at 500 linear ft.
Bus Bays	20 each and 2.5 acres total
Micro-mobility Staging	20,000 square ft.
Passenger Curb-side Pick-up/Drop-off	4,000 linear ft.
Cell Phone Lot	0.4 acres
Taxi/TNC Staging Area	0.5 acres

Based on preliminary layout analysis, approximately 18 to 25 acres at ground level are needed to meet Central Mobility Hub program requirements.

Concepts 1 and 2 have ample acreage necessary to meet program requirements. The Navy has begun efforts to revitalize the site for an improved NAVWAR campus. SANDAG and the Navy have entered into an MOU to explore the possibility of a Central Mobility Hub being located at the site. The DAR from I-5 to the Central Mobility Hub and a new Hortensia Street interchange would require the acquisition of private lands and have potential impacts to surrounding land uses and traffic during construction.

Concept 3, located at the ITC site, is more challenging as it is constrained by the local roadway network and is situated on a slope, bounded by Kettner Boulevard and Pacific Highway. Kettner Boulevard is roughly 30 feet higher than Pacific Highway at its lowest point. The acquisition of private lands would be needed for the Central Mobility Hub, the DARS from I-5 to the Central Mobility Hub, and improvements to Washington Street and Pacific Highway.

Concept 4 does not create a new Central Mobility Hub, relying on the existing trolley stations for passenger loading. The concept for Trolley operation would be from the Old Town Transit Center to the 12th & Imperial station via the airport. There are 11 Trolley stations along this airport route, including Old Town Transit Center, Washington Street, Middletown, Harbor Island East Basin, airport, Little Italy, Santa Fe Depot, Seaport Village, Convention Center, Gaslamp Quarter, and 12th & Imperial Transit Center. There is insufficient curb space to accommodate airport-level volumes of passenger pick-up and drop-off at these stations. Small properties have been identified at the Washington Street, Middletown, and 12th & Imperial stations that could potentially be acquired for some additional passenger pick-up and drop-off capacity. Even with addition of pick-up and drop-off curb space, Concept 4 would provide much less active curb space than Concepts 1 through 3. As the stations are dispersed throughout the area, it would also be difficult to sign and direct traffic in such a way that would not be confusing to drivers.

The Old Town Trolley Station is a good example of the space limitations at the existing stations. Currently, the Old Town Transit Center is fully utilized with Trolley, COASTER, Amtrak, bus, and Park & Ride facilities. It has limited potential to accommodate expansion due to street capacity, circulation constraints and the I-5 overhead viaduct, which reduces the opportunity for vertical expansion. Santa Fe Depot has limited curb space for additional pick-up and drop-off as it is already heavily utilized for auto drop-off and pick-up for Amtrak, COASTER, and Trolley passengers. The remaining stations are constrained by existing land uses and have limited or no curb space potential for airport passenger pick-up and drop-off.

5.4.b Transit Operations and Construction Risks

Concept 1 includes an APM route in a tunnel from a Central Mobility Hub at NAVWAR under the Marine Corps Recruit Depot (MCRD) and the San Diego International Airport runway to the airport transit-ready area, which could pose risks. Land subsidence (sinking or settling) would be the key risk, either during construction or operation. Impacts to San Diego International Airport's runway operations would have a ripple effect, impacting airport operations nationally. Impacts to MCRD could impact military operations and historic structures located at MCRD. However, initial analysis indicates a tunnel located at a depth of 80 feet is feasible and could be constructed in a manner to not pose significant risk to San Diego International Airport or MCRD operations. It should be noted that the FAA has raised concerns about potential impacts to runway operations at the airport. Concept 1 would be subject to FAA approval. Additional analysis is necessary to fully understand the potential negative and positive impacts of a direct tunnel connection.

Relocation of the Old Town Transit Center to the Central Mobility Hub located at the NAVWAR site may have impacts on ongoing transit operations, and the construction of a Central Mobility Hub at NAVWAR could have impacts on NAVWAR operations, if timing of the Navy's needs is not worked out beforehand. It is believed that sufficient land is available at the NAVWAR location to stage construction with minimal impact.

Concept 2 involves an at-grade and elevated APM route from a Central Mobility Hub at the NAVWAR site around the east side of the airport runway to the airport transit-ready area which could have risk. It is assumed the APM fixed guideway would be located within public right-of-way and along Pacific Highway, Laurel Street, and Harbor Drive. The space requirement may affect travel lane widths for auto, bike, and pedestrian travel. There would likely be temporary construction impacts to traffic for up to three years. Similar to Concept 1, relocation of the Old Town Transit Center to NAVWAR could have impacts to ongoing transit operations and the construction of a Central Mobility Hub at NAVWAR could have impacts on NAVWAR operations. Yet, it is believed that sufficient land is available at the NAVWAR location to stage construction with minimal impact.

Concept 3 involves an at-grade and/or elevated APM route from a Central Mobility Hub at ITC around the east side of the airport runway to the airport transit-ready area which has some identified risk. The APM fixed guideway would be located within the public right-of-way on and along Pacific Highway, Laurel Street, and Harbor Drive. The space requirement may affect travel lane widths for auto, bike, and pedestrian travel and potential existing utility impacts. There would likely be temporary construction impacts to traffic for up to two years. Relocation of the Washington Street and Middletown Trolley stations to the ITC location could have impacts to ongoing transit operations.

For Concepts 2 and 3, the APM fixed guideway would be located within the public right-of-way on and along Pacific Highway, Laurel Street, and Harbor Drive. The space requirement may affect travel lane widths for auto, bike, and pedestrian travel. There would likely be temporary construction impacts to traffic for up to two years.

Concept 4 would increase Trolley crossings on seven local roadway locations in the vicinity of the airport including: Noell, Washington, Sassafras, Palm, Cedar, Beech, and Ash streets. Increasing the number of Trolley crossings would result in more crossing gate down time resulting in increased delay to local traffic around the airport. Relying on the traffic impact analysis completed for the Mid-Coast Trolley Extension project, which is currently under construction, and the Trolley service frequencies that are defined in the Regional Plan, it is assumed that grade separations will be required at these seven local roadway locations. Due to the identified modifications to the local roadway network, it is also likely that grade separation of the LOSSAN heavy-rail (COASTER, Amtrak, and freight service) crossing at Laurel Street would be required, but this would be subject to future analysis and is not assumed in this study.

Grade separation at Sassafras Street may be problematic. The Trolley tracks currently traverse under the south-facing Pacific Highway to I-5 ramps. The ramps are constructed on spread footings, which eliminates the feasibility of trenching under the ramp foundations. The only feasible alternative is to fly the guideway over the ramps at approximately 60 feet above the existing track elevation. In order for the service to operate effectively due to the limitations on grade design for the Trolley (the maximum steepness of the tracks) and needing to cross Sassafras Street 60 feet above existing track elevation, grade design alone would require grade separations from Washington to Laurel streets. The Trolley station at Washington Street would need to be elevated. It is assumed that the Trolley station at Middletown would be replaced by a station at the NAVWAR site with Concept 4.

Due to the existing Trolley guideway being in an existing trench section under Grape and Hawthorn streets, the most feasible approach to grade separations at Cedar, Beech, and Ash is to continue the trench southerly and return to surface grade of the tracks at Santa Fe Depot before reaching the existing station platforms. This would also require creating a subgrade station at Little Italy.

The potential construction of grade separations at Noell, Washington, Sassafras, Palm, Cedar, Beech, and Ash streets will have impacts on Amtrak, COASTER, and the Trolley Blue and Green Lines level of service. The construction period could last as long as three years. This could require Trolley service in the corridor to be shut down. A shuttle service between the Old Town Transit Center and Santa Fe Depot would be required during much of the construction period. The COASTER may have to operate on a single track through the same period. If the Trolley service is maintained at some level during construction, the construction duration and costs would increase significantly.

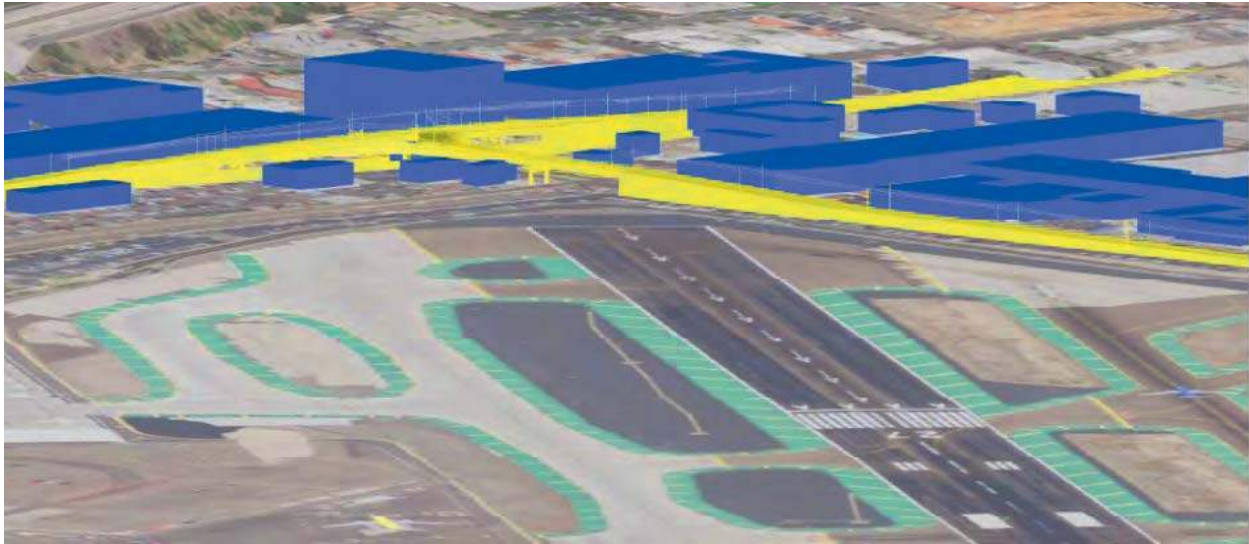
Concept 4a envisions connecting to the existing Trolley bridge structure over Laurel Street (see Figure 5-22). Heavy-rail tracks are at-grade and immediately to the west of the Trolley tracks. An elevated wye connection—a triangle of railroad track used to turn trains—would need to be constructed.

Figure 5-17: View of Laurel Street Trolley Bridge from Pacific Highway



Source: Google Maps

Figure 5-18: Airport Trolley Connection to Laurel Street Trolley Bridge – Conceptual Layout



The existing tracks used by the COASTER and Amtrak would require a shift to the west, which would necessitate the need to take California Street and other properties or rights-of-way along the length of the track relocation. A third Trolley track would diverge to the west and parallel the COASTER and Amtrak track. It would climb to the elevation required to reach 24 feet vertical clearance above the COASTER and Amtrak tracks and then curve to the west to complete the full double-track wye. This clearance requirement will cause the Trolley tracks to vertically fly over Pacific Highway, remain aerial along Laurel Street, continuing to the dedicated on-airport roadway to the entrance of Terminal 1 and 2.

The new Trolley connection to the Laurel Street bridge would be within the Runway Protective Zone, meaning it would require FAA approval.

Concept 4b involves a wye in the track at the existing Grape and Hawthorn streets trench. This concept would require undergrounding the County Center/Little Italy Station. Extension of the trench, grade separations, elevated and subterranean stations would be challenging. With a very constrained right-of-way and no availability of land to construct a shoofly (temporary track), construction of the Trolley infrastructure would require closure of the Trolley corridor between Little Italy and Middletown stations during construction. If grade separation is not required as anticipated, the existing trench would still require modification and would most likely require closing Trolley service but for a lesser time duration. Concept 4b is the only concept that would not require FAA approval.

5.4.c Roadway and Freeway Operations

All concepts include modification to the roadway and freeway network to reduce traffic on Harbor Drive and in Little Italy and to convert Laurel Street to an airport priority roadway. The freeway and roadway modifications are common to Concepts 1 through 4 but may present constructability challenges.

- Converting Laurel Street to the airport priority roadway would likely warrant the widening of Laurel Street from four lanes to a minimum of six lanes between Pacific Highway and I-5. This widening could likely be accomplished without having to rebuild the existing Laurel Street Trolley bridge. However, the widening would likely require the acquisition of residential and commercial property on both sides of Laurel Street. It is likely that modifications could be made to the existing parking structures on either side of Laurel Street to avoid full acquisition.

- Converting Laurel Street to the airport priority roadway may warrant grade separations at the intersection of Pacific Highway and Laurel Street; however, constructing a grade separation at this location would be challenging due to the proximity to the Runway Protective Zone, groundwater, geotechnical, and right-of-way challenges.
- Converting Laurel Street to the airport priority roadway may impact Solar Turbines, Inc. and its ability to use its driveway connection to Laurel Street. Solar Turbines is a manufacturer of energy products and a subsidiary of Caterpillar, Inc. Operating in that location since 1927, the company relies on this driveway for delivery shipments using semi-tractor trailers (18-wheelers). It is possible that special design features could be incorporated into Laurel Street to accommodate Solar Turbines shipment needs without significantly minimizing the efficiency of Laurel Street to serve as the airport priority roadway.
- New freeway ramp connections between Laurel Street and I-5 would provide direct access from the freeway to Laurel Street; however, the new freeway ramp connections would likely require residential and commercial property acquisition, including the relocation of City of San Diego Fire Station 3.
- Redesigning Harbor Drive from a six-lane roadway to a four-lane roadway with dedicated transit and bike lanes would require construction-related traffic impacts. These impacts would be temporary and could be minimized with traffic control and traffic advisory techniques.

Concepts 1 and 2 involve the construction of a DAR, which would provide access at the upper level (50-foot level) to a Central Mobility Hub and may pose impacts to frontage roads due to freeway expansion.

Construction of a new Hortensia Street interchange and demolition of the existing Old Town Avenue interchange would be a significant upgrade in circulation and capacity and would require well-planned staged construction with some short night-time freeway closures and detours to allow erection and demolition of bridge falsework. This concept also serves Barnett Avenue with a better connection to I-5.

Rights-of-way for the Hortensia Street freeway interchange and the pedestrian crossing from Old Town to the Central Mobility Hub would require the acquisition of property. The DAR from I-5 to the Central Mobility Hub, the Hortensia Street freeway interchange, and the pedestrian crossing from Old Town to the Central Mobility Hub would have potential impacts to surrounding land uses and traffic during construction.

Pacific Highway would be modified to provide a multi-level connection to the Central Mobility Hub, resulting in impacts to traffic during construction.

The at-grade/elevated APM would compete for limited space around the end of the airport runway at the Laurel Street and Pacific Highway intersection and at the Harbor Drive and Laurel Street merge point.

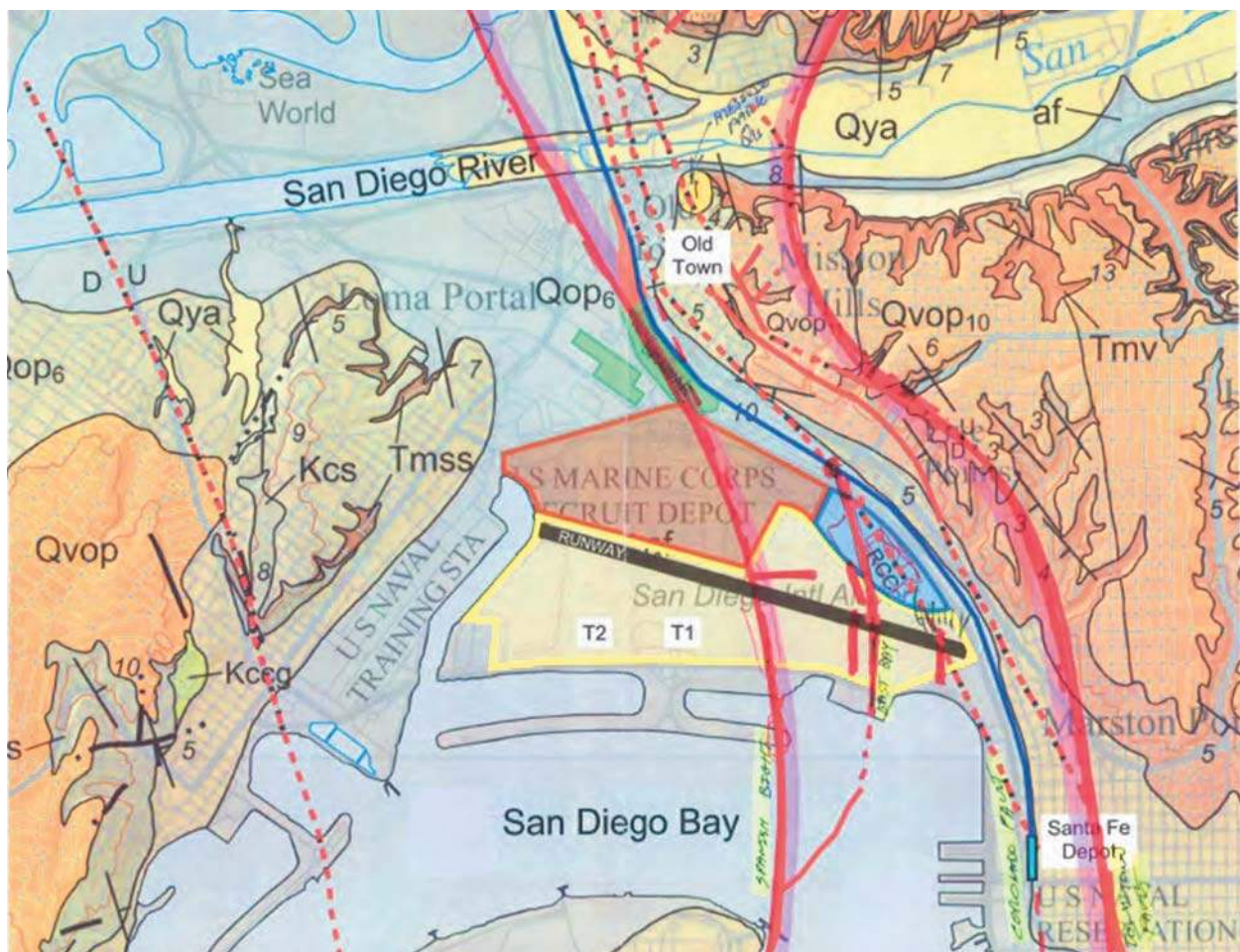
Concept 3 envisions removing the existing grade separation at Washington Street and Pacific Highway and constructing an at-grade signalized intersection. This is consistent with the City of San Diego's community plan. Also, a new intersection on Pacific Highway would be constructed to accommodate traffic access to the lower level of the Central Mobility Hub.

Access from Kettner Boulevard to the middle level (30-foot level) of the Central Mobility Hub would require some modifications on Kettner Boulevard, potentially a right-turn-only deceleration lane and a right-turn-only acceleration lane. This would generate minimal traffic impacts during construction.

5.4.d Geotechnical, Seismic Conditions, Hazardous Materials, and Soils

The project footprint falls in the active earthquake zone of the Rose Canyon Fault, see Figure 5-19 below. The active fault zone has experienced multiple past displacements, ground ruptures, and strong ground motion. The entire area has a shallow groundwater condition and near-surface soils with low to marginal strength. Some areas may have historically suffered liquefaction, lateral spreading, and seismically-induced settlement. The zone extends through the project footprint in a north-south orientation. The zone is considered wider in the east-west direction at Harbor Drive and then converges to a narrower zone to the north near the NAVWAR footprint. Potential fault rupture, seismic shaking, and induced deformations can have significant impact to design and require extensive mitigation measures. The design of fixed guideways, like an APM and the Trolley, require special attention. Comprehensive geotechnical, fault hazard, environmental, and hazardous materials studies should be performed during the preliminary design phase.

Figure 5-19: Rose Canyon Fault Zone (area between solid red lines)



For Concept 1, locating a twin-bore tunnel at a recommended depth of approximately 80 feet below the surface, measured from the bottom of the tunnel to the surface, is considered technically feasible and constructible. At a depth of 80 feet, the tunnel would reside in the more competent Bay Point Formation (old paralic deposits) (Figure 4-2). The earth pressure balanced Tunnel Boring Machine drilling method would be the probable method of construction. Subsurface stations and vehicle storage/maintenance facility would be constructed in deep shored caverns. The tunnel alignment provides flexibility in routing to avoid crossing known and mapped earthquake faults. However, other unknown active splays of the Rose Canyon Fault may exist. In addition, compared to Concepts 2 through 4, the tunnel alignment runs in a north-south direction that sub parallels the general trend of faults in the area rather than crossing them, which is preferable. Additional studies will be required to further evaluate the profile and tunnel alignment, engineering requirements, potential risks, and potential presence of faulting that may cross the proposed tunnel alignment.

National Fire Protection Association standards for fire protection and life safety in tunnels is stringent. Accommodating tunnel egress points below the MCRD and the San Diego International Airport airfield would be problematic. Tunnel ingress and egress is not anticipated to be needed as with twin bore tunnels and cross overs, safety requirements are expected to be met. The English Chunnel is 28 miles with no surface access, the investigated airport connectivity tunnel is 1.1 miles. Future analysis to evaluate fire protection and life safety issues will be needed.

Concept 1 will require boring under the runway and most likely under a portion of Terminal 1. Terminal 1 pile foundations are anticipated to be driven to a depth of 50 feet. The top of the tunnel is conceived to be plus or minus 60 feet deep and the tunnel liner can be designed to accommodate the building's load. The station will require deep shoring and excavation of a station cavern, which will be filled over at completion of construction. The FAA has raised concerns regarding the risk of subsidence of the runway during tunneling operations, especially since the airport only has a single main runway. FAA permission will need to be obtained for Concept 1.

Concept 1 would require the vertical transfer of passengers from the tunnel, at a depth of 80 feet, to the surface. The APM would disembark large numbers of passengers directly to a vertical transportation mode. Escalators can efficiently move large numbers of passengers. However, the footprint to construct the escalator system could be quite large. An assessment will need to be done to further assess the feasibility of escalator construction within the footprint of the transit-ready area at the airport terminals. Elevators provide another viable solution, but they would need to be carefully sized to accommodate large passenger flows.

For Concepts 2 through 4, active mapped earthquake faults are known to exist in the project corridor and the APM and Trolley alignments provide little or no flexibility to avoid crossing them. Aerial structures and cut-and-cover tunnel sections can be designed to accommodate crossing an active fault. Crossing an active fault will increase the cost of all structures. Late identification of a fault during construction may cause unknown cost and construction delays. Extensive geotechnical investigations and fault studies will be required.

5.4.e FAA and Navy Requirements, Protected Species, and Regulatory Agency Considerations

Compatibility with FAA and/or other Regulatory Constraints

The east side of San Diego International Airport, in the vicinity of the Pacific Highway and Laurel Street intersection, is subject to FAA restrictions due to its location near the end of the runway. This area is subject to two key FAA overlay zones:

- **Runway Protection Zone (RPZ):** A wedge-shaped zone covering all elevations, extending approximately 750 feet from the end of the runway and widening to approximately 1,000 feet, fully encompassing the Pacific Highway and Laurel Street intersection and the existing Trolley overcrossing of Laurel Street.

- **Part 77 Approach Surface:** An imaginary, sloped surface on the lower edge of the aircraft approach path that serves as a development height limit. In the project area, the limit ranges from approximately 10 feet above ground level near the Pacific Highway/Laurel Street intersection, to approximately 20 feet above ground level near the existing Trolley tracks at Laurel Street.

Concept 1 will require cooperation and approval from the Navy to tunnel under the MCRD and require cooperation by San Diego International Airport and from the FAA to tunnel under the airport's runway. There are concerns about the risks associated with tunneling under the runway due to vital airport operations of only one working runway. A non-secure transit system below or adjacent to secure airport facilities will require approval through multiple local, state, and federal agencies including local police, TSA, and Department of Homeland Security. Requirements for infrastructure hardening to protect existing critical facilities can drive costs well above what may be anticipated or is financially feasible. Accommodating the security needs for MCRD will have similar challenges. A threat assessment and safety/security requirements and mitigation plan should be developed for all concepts.

For Concepts 1 through 3, the NAVWAR and ITC sites are within another FAA overlay zone known as the Part 77 Horizontal Surface, an imaginary, flat surface 150 feet above the airport elevation that acts as a development height limit extending approximately 10,000 feet around the runway. Any development above this height would require discretionary approval from the FAA.

All concepts contain freeway/roadway improvements in the RPZ and Part 77 Approach Surface areas, as well as the APM and Trolley alignments featured in Concepts 2, 3, and 4a. If the FAA approves the APM and Trolley alignment in Concepts 2 or 3, it may require a depressed trench section around the end of the runway as a condition of approval to minimize vertical encroachment into these restricted areas. This would add cost and complicate construction of these concepts. Due to grade limitations, a trench section would not be feasible for concept 4a. Concept 4b is not expected to pose impacts to the RPZ or approach areas.

During the discretionary review process for any development with the RPZ or Part 77 overlays, the FAA — with input from the San Diego International Airport's operations team and major airlines — would determine whether the project would pose any impacts to the airport's airspace or operations. The Airport Authority, acting as the regional Airport Land Use Commission, will also review development for consistency with the Airport Land Use Compatibility Plan. FAA approval is based on a variety of specific factors including the development's purpose, need, alternatives, site conditions, and other considerations. To increase the likelihood of FAA approval, the Airport Authority must be consulted regarding any proposed development near San Diego International Airport.

Wildlife/Coastal Commission

Concept 1 is expected to pose the fewest potential impacts to coastal and wildlife regulations, as it has the smallest development footprint of any concept. The NAVWAR site is located outside the California Coastal Zone and does not include any protected habitat areas. The tunnel alignment to San Diego International Airport does not enter the coastal zone and would require analysis and approval by the California Coastal Commission (CCC).

Like the NAVWAR site, the ITC (Concept 3) is located outside the California Coastal Zone and does not include any protected habitat areas. CCC approval would be required for all improvements west of Pacific Highway, including the Laurel Street access road (in all concepts) as well as the APM and Trolley alignments in Concepts 2, 3, 4a, and 4b. Similarly, these same project elements may impact protected habitat areas used by the California least tern, a bird listed as endangered by both federal and state regulations. The southeast side of the airport's property, adjacent to Laurel Street and Harbor Drive, contains several of these protected areas, which are actively maintained by the Airport Authority. Any development impacting these protected areas may require mitigation and special coordination with the Airport Authority and resource agencies.

Compatibility with other Land Use Plans

The at-grade or elevated APM system would compete for limited space in the Harbor Drive and Laurel Street merge points where space is limited for planned roadway, bikeway, transit, and pedestrian uses. There also would be space and geometric challenges routing the people mover around the end of the runway at the Laurel Street and Pacific Highway intersection.

In Concept 2 and 3, communities along the at-grade and especially the aerial segments of the APM alignments may raise concerns of visual and view impacts.

5.4.f Utility Conflicts

This preliminary analysis does not include detailed analysis of utility conflicts. Additional analysis and more extensive utility research and mapping will be needed to help refine cost estimates and characterize risks associated with Concepts 1 through 4. Pacific Highway serves as a major utility corridor and Harbor Drive also contains some major utilities. For Concept 4b the cut-and-cover tunnel would sever all utilities in Pacific Highway and many of the utilities in Harbor Drive until the tunnel reaches grade at Harbor Drive. Concept 4b would have the greatest impact to existing utilities. For Concept 1 the APM tunnel would have the least impact on existing utilities. Concepts 2 and 3 at-grade aerial APM alignments are constrained to existing public right-of-way, which is where most major utilities are located. Foundation column placements may allow avoidance of numerous potential conflicts and relocations. Additional analysis is required to identify conflicts with large gravity/forced main sewers, jet fuel pipeline, water pipelines, communication lines, and other critical utility infrastructure.

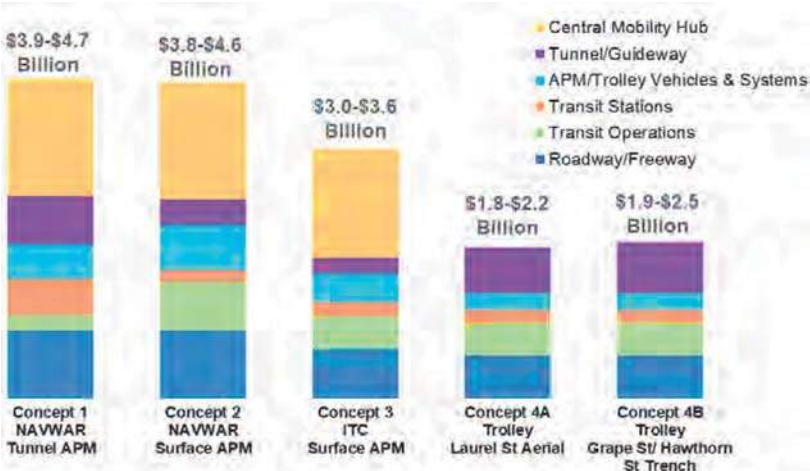
5.5 Cost

Cost and financial feasibility consider both capital and operating costs. Capital costs include construction and supporting facilities. Operating costs include the annual cost to operate and maintain the system. This information is used to assess potential fiscal impacts and the cost effectiveness of each concept.

Figure 5-20 and Tables 5-5 to 5-8 show high-level, rough-order-of-magnitude cost estimates for each concept, including 30 years of transit operations for the APM (Concepts 1 through 3) and the Trolley (Concepts 4a and 4b).

Concepts 1 and 2 have the highest estimated costs at \$3.8 to \$4.7 billion. This is because both concepts contain a Central Mobility Hub, as well as the two highest-cost APM options: a tunnel-based APM in Concept 1, and a 3.6 mile-surface/aerial APM in Concept 2, which also bears higher operating costs than Concept 1. However, the higher APM operating costs of Concept 2 are partially offset by the elimination of the current Rental Car Center shuttle buses, which would be replaced by the Concept 2 APM with its stop at the Rental Car Center.

Figure 5-20: Estimated Total Project Cost
(Capital Cost + 30 Years of Transit Operations)



Concept 3 has a moderate estimated cost at \$3 to \$3.6 billion. While this does contain a Central Mobility Hub, like Concepts 1 and 2, the Concept 3 surface/aerial APM is shorter than the Concept 2 APM (2.6 miles versus 3.6 miles) and carries lower operating costs. The Concept 3 APM operating costs are further offset by the elimination of the current Rental Car Center shuttle buses, which would be replaced by the APM with its stop at the Rental Car Center. Additionally, Concept 3 has lower freeway and roadway costs with no new I-5 interchange.

Concepts 4a and 4b have the lowest estimated costs at \$1.8 to \$2.5 billion. This is mainly because the costs do not contain a Central Mobility Hub, nor the freeway and roadway elements that support the Central Mobility Hub (new I-5 interchange and DARs). However, the cost to bring the Trolley across to the west side of the adjacent heavy rail corridor — either via aerial structure (Concept 4a) or tunnel (Concept 4b) — is roughly comparable to the tunneling costs of Concept 1.

Table 5-4: Estimated Total Project Cost (Capital Cost + 30 Years of Transit Operations)

	Concept 1	Concept 2	Concept 3	Concept 4a	Concept 4b
	Mobility Hub at NAVWAR with Tunnel APM	Mobility Hub at NAVWAR with APM At-Grade/Aerial	Mobility Hub at ITC with APM At-Grade/Aerial	Trolley Connection Via Aerial Wye at Laurel Street	Trolley Connection Via Tunnel at Grape and Hawthorn
Total	\$3.9 to \$4.7 billion	\$3.8 to \$4.6 billion	\$3.0 to \$3.6 billion	\$1.8 to \$2.2 billion	\$1.9 to \$2.5 billion

Table 5-5: Cost by Work Breakdown Structure (\$ millions)

	Concept 1	Concept 2	Concept 3	Concept 4a	Concept 4b
Project Development	\$1,099	\$955	\$673	\$357	\$405
Right-of-Way	\$172	\$172	\$480	\$239	\$144
Construction	\$2,747	\$2,388	\$1,683	\$892	\$1,012
Vehicles	\$63	\$95	\$79	\$119	\$119
30-Year Annual Transit Operations	\$213	\$640	\$427	\$427	\$427
Total	\$4,294	\$4,250	\$3,343	\$2,033	\$2,107

Table 5-6: Estimated Cost by Major Facility (Excludes 30 Years of Transit Operations, \$ millions)

	Concept 1	Concept 2	Concept 3	Concept 4a	Concept 4b
Central Mobility Hub	\$1,568	\$1,568	\$1,450	N/A	N/A
Tunnel/Guideway	\$659	\$344	\$223	\$608	\$682
AMP/Trolley Vehicles and Systems	\$450	\$610	\$387	\$237	\$236
Transit Stations	\$482	\$158	\$180	\$172	\$172
Roadway/Freeway	\$922	\$922	\$676	\$586	\$586
Total	\$4,081	\$3,603	\$2,916	\$1,602	\$1,676

Table 5-7 further details the estimated costs to acquire property to accommodate the required right-of-way for each concept.

All concepts contain approximately \$118 million in right-of-way costs for the common freeway and roadway improvements near Laurel Street.

In addition to the shared freeway and roadway costs, the additional right-of-way costs for Concepts 1 and 2 are relatively low at \$54 million and cover the freeway/roadway improvements that would serve the Central Mobility Hub at the NAVWAR site (new I-5 interchange and DARs). Concept 3 has the highest additional right-of-way costs at \$362 million, which is required to acquire numerous parcels at the planned ITC site for the Central Mobility Hub and I-5 direct access ramps. Concept 4a has moderate right-of-way costs at \$121 million for the required aerial infrastructure near Laurel Street. Finally, Concept 4b has the lowest additional right-of-way cost at \$26 million, requiring acquisition only at the short tunnel section near Grape and Hawthorn streets.

Table 5-7: Estimated Right-of-Way Cost (\$ millions)

	Concept 1	Concept 2	Concept 3	Concept 4a	Concept 4b
I-5 Ramps at Laurel Street	\$22	\$22	\$22	\$22	\$22
Laurel Street Widening from Pacific Highway to I-5	\$96	\$96	\$96	\$96	\$96
NAVWAR Hortensia Street Interchange and Direct Access Ramps	\$54	\$54			
ITC Site, Direct Access Ramps, and Washington Street/Pacific Highway			\$362		
LRT Aerial Wye Connection at Laurel Street				\$121	
LRT Cut-and-Cover Tunnel at Grape and Hawthorn Streets					\$26
Total	\$172	\$172	\$480	\$239	\$144

5.6 Economic Benefit

The creation of a transit connection to the airport, including a regional mobility hub with associated transit-oriented development, would have substantial economic benefits for the region. While the transit benefits are expected to be substantial, economic benefits also stem from the increase in population and jobs in the region that result from the development around a potential Central Mobility Hub. Additional land development allows the regional population and economy to grow. For example, the redevelopment of the 72-acre NAVWAR site into a mixed-used transit-oriented development would:

- Provide the Navy with upgraded office facilities that will improve their operational capabilities and keep a major employer in the region.
- Provide travelers a convenient multi-modal station with direct access to the airport, increasing the viability of transit for all San Diegans.
- Provide thousands of housing units close to regional jobs.
- Develop a large, centrally located, and currently underutilized parcel of valuable real estate into an urban village, consistent with local growth and development initiatives.

All concepts assume redevelopment of the NAVWAR site, Harbor Island East Basin, and other development programs outlined in the cities and County general plans. For modeling purposes, the same level of development is assumed in the analysis of each concept. However, Concepts 1 and 2, due to the size of the NAVWAR site, offer the greatest potential for new transit-oriented development, followed by Concept 2. Concept 3 offers the least opportunity for new transit-oriented development.

This preliminary economic analysis of the airport and Central Mobility Hub proposed projects only looks at two aspects of the proposed project concepts and estimates their potential economic effects. This analysis provides a rough overview of the economic benefits of the proposed projects and is designed to provide guidance for moving forward. As proposals are developed further, more detailed analyses will be conducted.

The analysis has two parts: (1) an economic impact analysis of the construction activity; and (2) an analysis of the impact of the redevelopment of the NAVWAR facility on the San Diego region.

Economic Impact of Construction

The economic impact analysis of the construction activity uses the IMPLAN input-output model, which is an economic model that traces the effect of an economic change, such as a major construction project, through the regional economy. It illustrates how the building of a multi-billion-dollar development would translate into jobs and income for construction workers, architects and engineers, and all associated businesses, and how this increased income would ripple through the local economy to a wide variety of businesses.

The economic activity resulting from constructing any one of the concepts is in the billions. For every billion in construction expenditure, almost 12,000 jobs are created in the construction, architecture and engineering, legal, and associated professions, as well as in the wider economy (such as wholesale and retail, restaurants, real estate, etc.). An accounting of the employment, output and income created for different development scenarios follows (in millions) and shows that the NAVWAR site with the tunnel APM has the greatest economic impact, as it is the most expensive option. On a per-dollar basis, all the concepts score the same.

Table 5-8: Economic Benefit – Construction Employment

Concept 1	HUB/NAVWAR/Tunnel APM Transit Facilities	Associated Development	Total Potential Benefit
Project Cost	\$3.9 to \$4.7 billion	\$7.6 to \$8.7 billion	\$11.5 to \$13.4 billion
Employment Effects	43,000 to 50,000 jobs	88,000 to 101,000 jobs	131,000 to 151,000 jobs
Output	\$6.1 to \$7.0 billion	\$12.4 to \$14.3 billion	\$18.6 to \$21.3 billion

Concept 2	HUB/NAVWAR/At-Grade APM Transit Facilities	Associated Development	Total Potential Benefit
Project Cost	\$3.8 to \$4.6 billion	\$7.6 to \$8.7 billion	\$11.4 to \$13.3 billion
Employment Effects	38,000 to 43,000 jobs	88,000 to 101,000 jobs	125,000 to 144,000 jobs
Output	\$5.3 to \$6.1 billion	\$12.4 to \$14.3 billion	\$17.8 to \$20.4 billion

Concept 3	ITC/At-Grade APM Transit Facilities	Associated Development	Total Potential Benefit
Project Cost	\$3.0 to \$3.6 billion	\$6.7 to \$7.8 billion	\$9.7 to \$11.4 billion
Employment Effects	29,000 to 33,000 jobs	78,000 to 90,000 jobs	107,000 to 123,000 jobs
Output	\$4.1 to \$4.7 billion	\$11.1 to \$12.8 billion	\$15.2 to \$17.5 billion

Concept 4a	Trolley – Laurel Street
Project Cost	\$1.8 to \$2.2 billion
Employment Effects	14,000 to 16,000 jobs
Output	\$2.0 to \$2.3 billion

Concept 4b	Trolley – Hawthorn/Grape
Project cost	\$1.9 to \$2.5 billion
Employment Effects	16,000 to 18,000 jobs
Output	\$2.3 to \$2.6 billion

Economic Impact of NAVWAR Relocation

NAVWAR has a significant impact on the San Diego economy. The possibility has been raised that the NAVWAR facility could be relocated outside of the region if the Navy is unable to find a willing development partner for the site. To understand this impact, this analysis looked at the effects of losing the 5,000 jobs currently at NAVWAR.

The economic impact of that possibility would be the loss not only of 5,000 Navy employees, but of roughly 7,000 additional permanent jobs in the region, and an annual \$2 billion loss to the regional economy. This would represent a decline of roughly 1% of regional economic activity.

6. Summary of Key Findings

It is imperative that SANDAG and stakeholder partners work to improve transit access to San Diego International Airport and develop a world-class transportation system that not only enhances the passenger and visitor experience, but also addresses anticipated severe congestion on key airport access roads. Given forecasted regional growth and anticipated increases in activity at San Diego International Airport, SANDAG strongly urges implementation of improved transit connectivity to the airport. The freeway and roadway modifications outlined should also be considered, but these measures alone may not prevent severe congestion on key airport access roadways.

A Central Mobility Hub has the potential to provide improved transit connectivity, efficient freeway access, ample room for convenient pick-up and drop-off facilities, a quick and comfortable ride directly to the airport terminals, and the potential to divert a significant amount of traffic away from key airport access roadways. Policies to divert traffic away from key airport access roadways to a Central Mobility Hub can be analyzed, considered, and implemented over time as traffic conditions warrant.

A Trolley connection to the airport also has the potential to provide improved transit connectivity. The Trolley system is familiar to regional travelers but is not well suited for airport travelers. The vehicles themselves are not designed for passengers with luggage, and there is concern that this may limit ridership. There is also limited capacity for passenger pick-up and drop-off at the trolley stations near the airport. Passenger pick-up and drop-off depends on available curb space, which is very limited at the trolley stations near the airport. It would also be challenging to divert traffic to Trolley stations using policies to encourage alternative drop-offs as the stations are dispersed throughout the area with no central location for pick-up and drop-off activity.

The freeway and roadway modifications outlined in this study have the potential to reduce traffic on Harbor Drive and reduce traffic in Little Italy. However, more traffic would be channeled onto Laurel Street. Even with the recommended widening of Laurel Street, traffic would likely need to be monitored and managed closely to prevent gridlock on this key airport access roadway.

All of the proposed concepts would meet the goals and objectives as stated herein. Yet, as summarized below and in Figure 6-1, the concepts vary in terms of performance and the ability to address program goals. Initial analysis shows the following key findings:

- APM vehicles (Concept 1 through 3) are optimized for airport travel, with level boarding, wide doors, and ample space for passengers with luggage.
- A Central Mobility Hub (Concept 1 through 3) has the highest potential for auto pick-up and drop-off, as the Central Mobility Hub would provide curb space to accommodate up to 40,000 daily pick-ups and drop-offs, with dual-level roadways and supporting facilities that emulate the airport pick-up and drop-off experience.
- A Trolley connection to the airport (Concept 4) would provide a direct connection to the existing Trolley system and provide a service that is familiar to regional travelers.
- Central Mobility Hub at NAVWAR with APM in tunnel to the airport (Concept 1) provides the fastest trip to the airport.

- Central Mobility Hub at NAVWAR with APM at-grade/elevated to the airport (Concept 2) and Central Mobility Hub at ITC with APM at-grade/elevated to the airport (Concept 3) provide connectivity to the Rental Car Center.
- Concept 1 through 3 have roughly twice the transit ridership potential of Concept 4.
- Concept 4 is roughly half the estimated cost of Concepts 1 through 3.
- Concepts 1 through 3 provide a Central Mobility Hub that provides the greatest flexibility to connect future regional transit services.
- Concepts 1 and 2 provide the greatest flexibility for program requirements due to the size of potentially available land.
- Concepts 1 and 2 provide the greatest flexibility for program requirements due to the size of potentially available land.
- Concepts 1, 2, and 4 would provide the greatest amount of transit connectivity (Concept 3 would likely not connect to COASTER commuter rail or Amtrak Surfliner intercity rail).
- All concepts would require the acquisition of privately-owned land with Concept 3 requiring the most.
- Concept 1 through 3 would likely not require the closure of existing Trolley service during construction. Concept 4 would likely require periodic and possibly even permanent closure of existing Trolley service between Old Town Transit Center and Santa Fe Depot for a period up to three years requiring temporary bus service between Old Town Transit Center and Santa Fe Depot.

7. Recommendations and Next Steps

SANDAG staff has completed a comprehensive analysis of the challenges toward realizing improved transit connectivity to the San Diego International Airport and maintaining roadway capacity, but recognizes that much additional work is required, including: additional modeling analysis, planning, preliminary engineering, environmental analysis including a social equity evaluation, community outreach, and stakeholder coordination. To achieve a better understanding of potential travel demand, additional modeling work is required. While helpful as a preliminary assessment, the SANDAG Regional Travel Model, which is designed to—a regional macro model large scale projects—that impact the entire region, is not necessarily sufficiently sensitive to capture distinctions at the micro scale and the nuances of airport travel. Additional planning, preliminary engineering, environmental analysis, community outreach, and stakeholder coordination is needed to better understand the costs, risks, and benefits that the various airport connectivity solutions provide. SANDAG will work with all agency partners to coordinate and provide feedback on technical analyses and policy assumptions that involve airport connectivity and planning jurisdictions.

SANDAG staff recommends the following next steps:

- Initiating community outreach to begin the discussion on the various concepts presented in this analysis
- Continuing studies leading to the selection of a locally preferred alternative by the SANDAG Board of Directors to be carried forward into the environmental review process, pursuant to both the California Environmental Quality Act and the National Environmental Policy Act

8. Appendices

This report is a summary of numerous individual studies, work products, and technical memos. As they become available, the appendices will be posted to the project's website: sandag.org/airport.

Figure 6-1 - Evaluation of Airport Connectivity Concepts

Criterion	Concept 1: NAVWAR Tunnel APM	Concept 2: NAVWAR Surface APM	Concept 3: ITC Surface APM	Concept 4: Trolley
1. Improve Transit Access to/from San Diego International Airport	- High ridership (20k-40k) & transit mode share (17-35%) - Ample capacity to accommodate pick-up/drop-off - Capacity to accommodate future modal shifts	- High ridership (17k-40k) & transit mode share (15-33%) - Ample capacity to accommodate pick-up/drop-off - Capacity to accommodate future modal shifts	- High ridership (17k-40k) & transit mode share (16-34%) - Ample capacity to accommodate pick-up/drop-off - Less capacity to accommodate future modal shifts	- Moderate ridership (13k-14k) & transit mode share (10-16%) - Minimal capacity to accommodate pick-up/drop-off - Minimal capacity to accommodate future modal shifts
2. Minimize Travel Time to/from San Diego International Airport	- Shortest total travel time (3 mins) - Shortest avg. wait time (1 min) - Nonstop - Many existing & future connecting transit services at Old Town	- Moderate total travel time (9 mins) - Shortest avg. wait time (1 min) 2 intermediate stops - Many connecting transit services at Old Town, ITC, ConRAC	- Moderate total travel time (8 mins) - Shortest avg. wait time (1 min) 2 intermediate stops - Fewer connecting transit services at ITC, ConRAC	- Longest total travel time (13-20 mins) - Longest avg. wait time (7.5 mins) 2-6 intermediate stops - Many connecting to other transit services at Old Town, Santa Fe Depot, 12th & Imperial
3. Reduce Congestion Related to San Diego International Airport Access	- High reduction in San Diego International Airport traffic (12%-30%) through transit - Ability to manage traffic through policy	- High reduction in San Diego International Airport traffic (9%-30%) through transit - Ability to manage traffic through policy	- High reduction in San Diego International Airport traffic (11%-30%) through transit - Ability to manage traffic through policy	- Moderate reduction in San Diego International Airport traffic (6%-15%) through transit - Minimal ability to manage traffic through policy
4. Reduce VMT & GHG Emissions	Greatest reduction in VMT/GHG compared to No Build	Good reduction in VMT/GHG compared to No Build	Good reduction in VMT/GHG compared to No Build	Moderate reduction in VMT/GHG compared to No Build
5. Feasibility & Constructability	- Acquisition of private property - Tunneling challenges - Use of Navy lands	- Acquisition of private property - Runway protective zone - Use of Navy lands	- Acquisition of private property - Runway protective zone	- Impacts to existing rail service - Acquisition of private property - Runway protective zone (4a) - Utility corridor bisected (4b)
6. Cost	\$3.9-\$4.7 billion	\$3.8-\$4.6 billion	\$3.0-\$3.6 billion	\$1.8-\$2.5 billion
7. Economic Benefit	Largest economic benefit of construction (130-150k jobs)	Largest economic benefit of construction (120-140k jobs)	Largest economic benefit of construction (100-120k jobs)	Modest economic benefit of construction (14-18k jobs)
8. User Experience & Convenience	- Airport-like pick-up/drop-off experience - APM vehicles optimized for airport travelers - Most frequent service - Most direct route	- Airport-like pick-up/drop-off experience - APM vehicles optimized for airport travelers - Most frequent service - Less direct route, more stops	- Airport-like pick-up/drop-off experience - APM vehicles optimized for airport travelers - Most frequent service - Less direct route, more stops	- Familiar mode - No airport-like pick-up/drop-off experience - Trolley vehicles not optimized for airport travelers - Least frequent service - Less direct route, many stops

Symbols represent the potential to fulfill each evaluation criterion, using the following scale:



EXHIBIT

4

Contact: Rebecca Bloomfield
(619) 400-2880 / Mobile: (619) 890-8279 / rbloomfi@san.org

Airport Authority, Airlines Reach Landmark Pact on Transportation Infrastructure Investment

SAN DIEGO – July 2, 2019 – In an ongoing effort to improve the customer experience, the San Diego County Regional Airport Authority has reached a new 10-year agreement with its airline partners that will give the Airport Authority the ability to contribute over a half-billion dollars to help alleviate traffic congestion and make it easier for everyone to access San Diego International Airport.

The Airport Authority is currently working with its regional partners, including SANDAG, the City of San Diego, Port of San Diego, the Military, MTS, Caltrans and NCTD on potential transportation and transit connection improvements to the airport. The agreement with the airlines will help provide key funding for those projects, if approved.

“This agreement ensures that the Airport Authority will have the means to effectively partner with other regional agencies to improve access to the airport through transportation and transit projects,” said April Boling, Airport Authority Board Chairman. “It also supports the Airport Development Plan, which envisions the replacement of Terminal 1 and related improvements.”

While the specific improvements are being studied and not yet approved, the agreement ensures there will be substantial funding for those improvements should the Airport Authority and partner agencies decide to go forward with them.

The contribution of over a half-billion dollars includes:

- \$350 million for on- and potential off-airport public transportation projects in conjunction with regional partner agencies. The agreement allows the Airport Authority to contribute up to this amount when third-parties (such as regional partner agencies) contribute funds for off-airport transportation and transit projects.
- This funding could also help pay for a new transit station on airport property that could connect to the regional system. Space for a station is included in the current Airport Development Plan.
- An additional \$165 million – funded 100 percent by the Airport Authority and the Airlines - could be used for multimodal mobility corridor improvements also contemplated in the Airport Development Plan and, if approved, might include an inbound, on-airport access roadway adjacent to Harbor Drive and a bicycle path.
- If approved, the roadway would connect Laurel Street directly to the airport, with no traffic lights. This would remove an estimated 45,000 cars per day from Harbor Drive. It also includes a right-of-way for future outbound lanes.
- Additionally, the multimodal mobility corridor improvements could free up space on Harbor Drive for potential Rapid Bus or light rail transit opportunities that could serve not only the airport, but also Harbor Island redevelopment projects being considered by the Port of San Diego.

-CONTINUED-

“The airport and the airlines provide significant economic impact for the region, and this is just the latest example of that commitment,” said Kim Becker, Airport Authority President and CEO. “I sincerely appreciate the airlines’ willingness to participate in this agreement and pre-approve a significant investment in transportation and transit infrastructure.”

The Airport Development Plan includes projects that provide better connections for transit users, bicyclists and pedestrians, including:

- New all-electric shuttle service to and from the Old Town Transit Center
- Upgraded transit amenities at the new Terminal 1 curbside, such as bus shelters, info kiosks, and electronic next-arrival signs
- A new multi-use walking and biking path along North Harbor Drive

As with all off-airport projects, the Airport Authority will seek FAA approval for possible off-airport transportation and transit projects, similar to previous and current off-airport projects undertaken by the Airport Authority to improve Harbor Drive and Sassafras Street.

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ABOUT THE AIRPORT

San Diego International Airport (SAN) offers nonstop service to 70 destinations in the continental U.S., Europe, Asia, Mexico and Canada. In operation since 1928, the airport is celebrating more than 90 years of service to the San Diego region. The airport has been managed by the San Diego County Regional Airport Authority since 2003. The Airport Authority plans for and provides air transportation services to the region with safe, effective facilities that exceed customer expectations.

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EXHIBIT

5

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 85 and 86

DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

49 CFR Parts 531 and 533

[NHTSA–2018–0067; EPA–HQ–OAR–2018–0283; FRL 10000–45–OAR]

RIN 2127–AL76; 2060–AU09

The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program

AGENCY: Environmental Protection Agency and National Highway Traffic Safety Administration, Department of Transportation.

ACTION: Withdrawal of waiver; final rule.

SUMMARY: On August 24, 2018, the Environmental Protection Agency (EPA) and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) jointly published in the **Federal Register** a notice of proposed rulemaking entitled, "The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks." In the NPRM, the agencies proposed new and amended greenhouse gas (GHG) and Corporate Average Fuel Economy (CAFE) standards for model year 2021 to 2026 light duty vehicles. EPA also proposed to withdraw the waiver it had previously provided to California for that State's GHG and ZEV programs under section 209 of the Clean Air Act. NHTSA also proposed regulatory text implementing its statutory authority to set nationally applicable fuel economy standards that made explicit that those State programs would also be preempted under NHTSA's authorities. In this action, the agencies finalize the two actions related to the waiver and preemption. Accordingly, in this document: EPA announces its decision to withdraw the waiver; and NHTSA finalizes regulatory text related to preemption. The agencies anticipate issuing a final rule on standards proposed in the NPRM in the near future.

DATES: This joint action is effective November 26, 2019.

Judicial Review: Pursuant to Clean Air Act section 307(b), any petitions for judicial review of this action must be filed in the United States Court of Appeals for the D.C. Circuit by

November 26, 2019. Given the inherent relationship between the agencies' actions, any challenges to NHTSA's regulation should also be filed in the United States Court of Appeals for the D.C. Circuit. *See also* Sections III.G and IV.Q of this preamble.

ADDRESSES: EPA and NHTSA have established dockets for this action under Docket ID No. EPA–HQ–OAR–2018–0283 and NHTSA 2018–0067, respectively. All documents in the docket are listed in the <http://www.regulations.gov> index. Although listed in the index, some information is not publicly available, *e.g.*, confidential business information (CBI) or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, will be publicly available in hard copy in EPA's docket, and electronically in NHTSA's online docket. Publicly available docket materials can be found either electronically in www.regulations.gov by searching for the dockets using the Docket ID numbers above, or in hard copy at the following locations: EPA: EPA Docket Center, EPA/DC, EPA West, Room 3334, 1301 Constitution Ave. NW, Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566–1744. NHTSA: Docket Management Facility, M–30, U.S. Department of Transportation (DOT), West Building, Ground Floor, Rm. W12–140, 1200 New Jersey Avenue SE, Washington, DC 20590. The DOT Docket Management Facility is open between 9 a.m. and 5 p.m. Eastern Time, Monday through Friday, except Federal holidays.

FOR FURTHER INFORMATION CONTACT:

EPA: Christopher Lieske, Office of Transportation and Air Quality, Assessment and Standards Division, Environmental Protection Agency, 2000 Traverwood Drive, Ann Arbor, MI 48105; telephone number: (734) 214–4584; fax number: (734) 214–4816; email address: lieske.christopher@epa.gov, or contact the Assessment and Standards Division, email address: otaqpublicweb@epa.gov.

NHTSA: James Tamm, Office of Rulemaking, Fuel Economy Division, National Highway Traffic Safety Administration, 1200 New Jersey Avenue SE, Washington, DC 20590; telephone number: (202) 493–0515.

SUPPLEMENTARY INFORMATION:

- I. Overview
- II. Preemption Under the Energy Policy and Conservation Act

- III. EPA's Withdrawal of Aspects of the January 2013 Waiver of CAA section 209(b) Preemption of the State of California's Advanced Clean Car Program

- IV. Regulatory Notices and Analyses

I. Overview

On August 24, 2018, the Environmental Protection Agency (EPA) and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) (collectively, "the agencies") jointly published in the **Federal Register** a notice of proposed rulemaking entitled, "The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks" (the SAFE Vehicles rule).¹ In the NPRM, EPA proposed new greenhouse gas (GHG) standards and NHTSA proposed new Corporate Average Fuel Economy (CAFE) standards for model years (MY) 2021 to 2026 light duty vehicles. The agencies also proposed to take two actions, separate from the proposed standards, needed to ensure the existence of one Federal program for light vehicles. First, EPA proposed to withdraw the waiver it had previously provided to California for that State's GHG program and Zero Emissions Vehicle (ZEV) mandate. Second, NHTSA proposed regulatory text that made explicit that State programs to limit or prohibit tailpipe GHG emissions or establish ZEV mandates are preempted, to carry out its statutory authority to set nationally applicable fuel economy standards and consistent with the express preemption provisions of the Energy Policy and Conservation Act (EPCA).

The SAFE Vehicles Rule received several hundred thousand public comments, which discussed in great detail all aspects of the proposal. The nature of the comments received related to the proposed standards and the proposed actions on preemption, though, were considerably different. That is, the vast majority of comments, whether one considers the number of commenters, the number of issues raised by commenters, or the length and level of detail of those comments, focused primarily on the agencies' proposed standards. In contrast, the comments to the preemption issues, though substantive and thorough, were fewer in number and length, and raised primarily legal issues, rather than the technical or economic issues that were the focus of many comments to the standards. Both the proposed waiver withdrawal and discussion of EPCA

¹ 83 FR 42986.

preemption are legal matters that are independent of the technical details of the proposed standards and, as such, took up a relatively small part of the NPRM.

Recent actions by the State of California taken after the publication of the NPRM have confirmed the need for final decision from the agencies that States do not have the authority to set GHG standards or establish ZEV mandates. First, on December 12, 2018, California unilaterally amended its “deemed to comply” provision, such that CARB’s GHG standards can be satisfied only by complying with EPA’s standards as those standards were promulgated in 2012.² More recently, on July 25, 2019, California announced a so-called “voluntary framework” with four automakers, which purported, without analysis of the terms of the existing waiver, California law, or how this “framework” is permissible under Federal law, to allow those automakers to meet reduced standards on a national basis if they promise not to challenge California’s authority to establish GHG standards or the ZEV mandate.³ These two actions, both of which conflict with the maintenance of a harmonized national fuel economy and tailpipe GHG emissions program and the terms of the agreement reached in 2012 and 2013, confirm that the only way to create one actual, durable national program is for GHG and fuel economy standards to be set by the Federal government, as was intended by Congress in including express preemption provisions in both the Clean Air Act (for new motor vehicle emissions standards) and EPCA (for fuel economy).⁴

In light of the divergence in the type of comments received to the proposal (i.e., between the standards-related proposal and the waiver and

preemption proposals), and in light of the recent actions taken by California, the agencies have determined it is appropriate to move forward with the two actions related to preemption now, while continuing work on a final rule to establish the CAFE and GHG standards that were within the scope of the NPRM. This decision is appropriate, as agencies have authority to finalize different parts of proposed actions at different times. Further, the agencies previewed this possibility in the NPRM by emphasizing the severability of the standards from the actions being finalized in this document. EPA’s action in this document does not add or amend regulatory text pursuant to the Clean Air Act and, thus, issuing this decision on the waiver and the later rulemaking on the standard makes clear the difference between EPA’s two actions and their independence from one another. NHTSA’s action in this document is not to set standards for particular model years, but rather is an exercise of its authority under 49 U.S.C. 32901 through 32903, necessary to maintain the integrity of the corporate average fuel economy program and compliance regime established by Congress as a nationwide program, and consistent with Congress’ statement of express preemption in 49 U.S.C. 32919. These two general aspects of the SAFE Vehicles Rule are independent of the CAFE and GHG standards for Model Years 2021–2026.⁵ For that reason, the decision in this document to finalize the waiver and preemption issues does not require the agencies to reopen the comment period for the standards, as it does not have any effect on either agency’s standards.

The agencies note that several comments claimed that the comment period of 63 days was inadequate or that the agencies did not hold a sufficient number of public meetings. Although the agencies will address this comment more directly in the forthcoming final rulemaking to establish standards, for purposes of this action, it is clear to the agencies that commenters had adequate time to respond to the issue of the waiver and EPCA preemption. Courts give broad discretion to agencies in determining whether the length of a comment period is reasonable and, in assessing the sufficiency of a comment

period, look to whether the public had a meaningful opportunity to comment on a proposed action. *See, e.g., Rural Cellular Ass’n v. FCC*, 588 F.3d 1095, 1101 (D.C. Cir. 2009); *Connecticut Light & Power Co. v. Nuclear Regulatory Comm’n*, 673 F.2d 525, 534 (D.C. Cir. 1982). There was unquestionably a meaningful opportunity to comment here. The agencies received several hundred thousand comments, which included highly detailed and technical comments on all aspects of the proposal from seemingly all relevant stakeholders, including numerous comments related to EPA’s action on the waiver and NHTSA’s proposal on preemption. The agencies also note that the NPRM was initially issued and made public on August 2, 2018, over three weeks prior to publication in the **Federal Register**, and received extensive media coverage immediately thereafter, and giving a total of 86 days to review and comment. Furthermore, the agencies held three public hearings during the comment period, including one in Fresno, California on September 24, 2018, where the agencies heard from several hundred commenters in person.

II. Preemption Under the Energy Policy and Conservation Act

A. NHTSA Is Finalizing Its Preemption Proposal

NHTSA is finalizing its proposal concerning preemption of State and local laws and regulations related to fuel economy standards. Congress passed EPCA to help achieve the important national objective of protecting the United States against petroleum price shocks through improvements in fuel efficiency for the light duty vehicle fleet. But Congress did not seek to do so at any cost—instead directing the Secretary of Transportation to balance statutory factors, such as the need of the nation to conserve energy, technological feasibility, and economic practicability, to arrive at stringent, but feasible, standards on a Federal basis.

Increasing fuel economy is an expensive undertaking for automakers, the costs of which are necessarily passed on to consumers, thereby discouraging new vehicle purchases and slowing the renewal of the nation’s light duty fleet. That is why fuel economy standards must be set considering other critical factors.

This is also why the notion of national applicability and preemption of State or local laws or regulations related to fuel economy standards is so critical. Allowing State or local governments to establish their own fuel economy standards, or standards related to fuel

² See *In re: Air Resources Board*, Notice of Approval of Regulatory Action, No. 2018–1114–03 (State of California, Office of Administrative Law Dec. 12, 2018), available at https://ww3.arb.ca.gov/regact/2018/leviii2018/form400dtc.pdf?_ga=2.183723951.866759811.1568583699-1441462912.1552677736 (last visited Sept. 15, 2019).

³ See California and Major Automakers Reach Groundbreaking Framework Agreement on Clean Emission Standards, Office of Gov. Gavin Newsome (July 25, 2019), available at <https://www.gov.ca.gov/2019/07/25/california-and-major-automakers-reach-groundbreaking-framework-agreement-on-clean-emission-standards/> (last visited Sept. 14, 2019); Terms for Light-Duty Greenhouse Gas Emissions Standards, available at <https://ww2.arb.ca.gov/sites/default/files/2019-07/Auto%20Terms%20Signed.pdf> (last visited Sept. 14, 2019).

⁴ At the time this joint action was signed, California had not submitted or demonstrated any intention to submit an application for a waiver for either its December 2018 amendment to its regulations or its July 2019 “framework.”

⁵ The agencies note that the South Coast Air Quality Management District commented that EPA should not take an action on the waiver in the same notice as a rule that would change EPA’s GHG standards. See South Coast Air Quality Management District, Docket No. NHTSA–2018–0067–11813. Although the agencies do not acknowledge the validity of this argument, any such concern is rendered moot by this action.

economy, would provide for a universe in which automakers are placed in the untenable situation of having to expend resources to comply not only with Federal standards, but also meet separate State requirements. If State or local governments are allowed to require—directly or indirectly—automakers to develop and implement additional technologies to improve fuel economy (or reduce or eliminate tailpipe greenhouse gas emissions for all or a portion of a fleet), the fuel economy-related expenses of automakers increase beyond those considered in establishing federal standards. This would render the critical balancing required by EPCA devoid of meaning.

Uniform national fuel economy standards are essential to accomplishing the goals of EPCA. To ensure that the fuel economy standards NHTSA adopts constitute the uniform national requirements that Congress intended, NHTSA must address the extent to which State and local laws and regulations are preempted by EPCA.

Furthermore, EPCA states: “When an average fuel economy standard prescribed under this chapter is in effect, a State or a political subdivision of a State may not adopt or enforce a law or regulation related to fuel economy standards or average fuel economy standards for automobiles covered by an average fuel economy standard under this chapter.” 49 U.S.C. 32919(a). As a limited exception, a State or local government “may prescribe requirements for fuel economy for automobiles obtained for its own use.” 49 U.S.C. 32919(c). In addition, when a Federal fuel economy labeling or information requirement is in effect, pursuant to 49 U.S.C. 32908, a State or local government may adopt or enforce an identical requirement on “disclosure of fuel economy or fuel operating costs.” 49 U.S.C. 32919(b). Absent this limited circumstance, a State or local government cannot even have laws in place that are identical to the Federal standards.

NHTSA will first summarize its discussion of preemption in the proposal before turning to discussion of issues raised by the comments. In this final rule, NHTSA fully reaffirms the discussion of preemption set forth in the proposal, which provides additional detail regarding NHTSA’s views.⁶

In the proposal, NHTSA described its preemption discussions in prior rulemakings, which are consistent with the views on preemption that NHTSA is

finalizing in this document.⁷ NHTSA has asserted preemption of certain State emissions standards under EPCA on multiple occasions since 2002. The United States explained in a 2002 amicus brief that EPCA preempted California’s then-existing zero-emissions vehicle (ZEV) regulations.⁸ NHTSA continued the discussion of preemption later that year in a notice of proposed rulemaking setting CAFE standards for model year 2005 through 2007 light trucks, and reiterated its position in the 2003 final rule.⁹ NHTSA’s 2005 notice of proposed rulemaking setting standards for model year 2008 through 2011 light trucks also discussed preemption and the 2006 final rule elaborated on the issue at length, including in a specific discussion finding California’s then-existing tailpipe greenhouse gas emissions regulations were preempted.¹⁰ NHTSA’s 2008 proposed rule for model year 2011 through 2015 passenger cars and light trucks also addressed preemption and proposed adding a summary of NHTSA’s position on the issue to the Code of Federal Regulations.¹¹ That proposed rule also addressed recent developments, specifically the Supreme Court’s decision in *Massachusetts v. EPA*, the enactment of EISA, and two district court decisions finding that State tailpipe greenhouse gas emissions standards were not preempted by

EPCA.¹² NHTSA explained that those developments did not change its view of preemption and it reaffirmed the detailed analysis and conclusions from the 2006 final rule.¹³ Subsequent CAFE rulemaking documents, prior to the August 2018 proposal, did not discuss EPCA preemption.¹⁴ Thus, this final rule is consistent with NHTSA’s longstanding position on EPCA preemption over the course of nearly two decades.

In the proposal, NHTSA also described certain developments, including the Supreme Court’s decision in *Massachusetts v. EPA*, that preceded EPA’s regulation of tailpipe greenhouse gas emissions through joint rulemaking with NHTSA.¹⁵ In addition, NHTSA described the Obama Administration’s creation of a framework that was intended to allow a manufacturer to “meet all standards with a single national fleet.”¹⁶ Appeals of the two district court decisions holding that the California regulation and Federal regulation could co-exist were withdrawn as part of the negotiated agreement for the National Program.¹⁷ The announcement of the framework was followed by EPA’s decision less than two months later to grant a waiver to California for its own greenhouse gas emissions standards, without taking any substantive position on EPCA preemption.¹⁸ The national framework was a negotiated agreement between the Federal government, California, and the automotive industry.¹⁹

NHTSA confirms its view, stated in the proposal on preemption, that the agencies’ consideration in 2012 of California’s “deemed to comply”

⁷ *Id.* at 43232. As NHTSA noted in the proposal, it had not previously directly addressed preemption of California’s ZEV program. *Id.* at 43233.

⁸ Brief for the United States as Amicus Curiae in Support of Affirmance, *Cent. Valley Chrysler-Plymouth Inc., et al. v. Kenny*, No. 02–16395 (9th Cir. 2002).

⁹ 68 FR 16868, 16895 (Apr. 7, 2003); 67 FR 77015, 77025 (Dec. 16, 2002). In the notice of proposed rulemaking, NHTSA specifically rejected the argument made by California in litigation that NHTSA had not treated EPCA as preempting State efforts to engage in CAFE-related regulation, explaining that States may not “issue a regulation that relates to fuel economy and which addresses the same public policy concern as the CAFE statute. Our statute contains a broad preemption provision making clear the need for a uniform, federal system. . . . The fact that NHTSA had not expressly addressed this particular aspect of California’s requirements should not have been interpreted as tacit acceptance.” 67 FR 77015, 77025 (Dec. 16, 2002).

¹⁰ 71 FR 17566, 17654–70 (Apr. 6, 2006); 70 FR 51414, 51457 (Aug. 30, 2005).

¹¹ 73 FR 24352, 24478–79 (May 2, 2008). NHTSA finalized only standards for model year 2011 through that rulemaking action, and subsequently began a new rulemaking for model year 2012 and later passenger cars and light trucks. In the final rule for model year 2011, NHTSA stated: “NHTSA has decided not to include any provisions addressing preemption in the Code of Federal Regulations at this time. The agency will re-examine the issue of preemption in the content of its forthcoming rulemaking to establish Corporate Average Fuel Economy standards for 2012 and later model years.” 74 FR 14196, 14200 (Mar. 30, 2009).

¹² 73 FR 24352, 24478 (May 2, 2008).

¹³ *Id.*

¹⁴ As noted above, in NHTSA’s final rule for model year 2011, it stated that “[t]he agency will re-examine the issue of preemption in the content of its forthcoming rulemaking to establish Corporate Average Fuel Economy standards for 2012 and later model years.” 74 FR 14196, 14200 (Mar. 30, 2009). However, in the NHTSA’s 2009 proposal and 2010 final rule setting standards for model year 2012 through 2016 automobiles, NHTSA stated that it was “deferring further consideration of the preemption issue.” 75 FR 25324, 25546 (May 7, 2010); 74 FR 49454, 49635 (Sept. 28, 2009).

¹⁵ 83 FR 42986, 43232–33 (Aug. 24, 2018).

¹⁶ *Id.* at 43233; 76 FR 74854, 74863 (Dec. 1, 2011).

¹⁷ See 83 FR 42986, 43233 (Aug. 24, 2018); Association of Global Automakers, Docket No. NHTSA–2018–0067–12032.

¹⁸ In other words, the National Program included State requirements not nationally applicable. 83 FR 42986, 43233 (Aug. 24, 2018); see also 74 FR 32744, 32783 (July 8, 2009) (“EPA takes no position regarding whether or not California’s GHG standards are preempted under EPCA.”).

¹⁹ After President Obama announced the agreement, NHTSA and EPA subsequently adopted CAFE and greenhouse gas emissions standards through rulemaking. See 75 FR 25324 (May 7, 2010).

⁶ See 83 FR 42986, 43232–39 (Aug. 24, 2018).

regulatory provision as obviating NHTSA's consideration of preemption was erroneous.²⁰ This, too, was part of the negotiated agreement described above.²¹ Under California's regulatory provision, California deemed manufacturers to be in compliance with certain of California's requirements if they complied with EPA's standards.²² However, EPCA explicitly provides that all State requirements "related to" fuel economy standards, even those that may be identical or equivalent to Federal requirements are preempted by EPCA.²³ Moreover, as discussed in additional detail below, California recently changed its regulations so that it has no such "deemed to comply" provision should the forthcoming SAFE final rule adopt any regulatory alternative other than the no action alternative.²⁴ This change sets up a direct conflict between Federal and State requirements, exacerbating the conflict that exists even now.

Congress's intent to provide for uniform national fuel economy standards is frustrated when State and local actors regulate in this area. In the proposal, NHTSA explained that the need for regulatory certainty, along with the clear prospect of disharmony, required it to address preemption.²⁵ NHTSA also explained its desire to seek comments on this important issue from State and local officials, along with other interested members of the public.²⁶ NHTSA in fact received many comments from State and local governments, NGOs, industry, and others concerning preemption.²⁷ This comment process helped ensure that the agency considered all facets of this significant issue before reaching a final determination in this rule.

NHTSA also discussed the broad and clear text of EPCA's express preemption provision.²⁸ As NHTSA explained in the

proposal, unlike the Clean Air Act, there is no set of circumstances under EPCA in which it would be appropriate or permissible for NHTSA to waive preemption or allow States or local governments to adopt or enforce identical or equivalent requirements.²⁹ EPCA does not provide NHTSA with any waiver authority whatsoever. To ensure Federal primacy over this area, EPCA broadly preempts all State and local laws "related to" fuel economy standards or average fuel economy standards.³⁰ NHTSA reiterates, consistent with the proposal, that in this rulemaking NHTSA is concluding that State and local requirements that relate to fuel economy standards by directly or substantially affecting corporate average fuel economy levels are preempted.³¹

NHTSA also described Supreme Court precedent interpreting the meaning of "related to."³² In addition to the plain language of the statute, NHTSA applied to EPCA the guidance from Supreme Court case law to consider both the objectives of the statute and the effect of the State laws on the Federal standards.³³ As NHTSA explained, the primacy of a single national fuel economy standard, set by the Federal government, was an important objective of Congress in enacting EPCA.

In adopting EISA, Congress did not repeal or amend EPCA's express preemption provision.³⁴ While Congress included in EISA a savings provision preventing EISA from limiting preexisting authority or responsibility conferred by any law, or from authorizing violation of any law,³⁵ the savings clause did not purport to expand either EPA's or NHTSA's preexisting authority or responsibility.³⁶ NHTSA recognized that during debate on the floor, some Members of Congress made statements about the savings provision's impact on California's ability to set tailpipe greenhouse gas emissions standards.³⁷ NHTSA affirms its view, consistent with Supreme Court precedent, that such legislative history does not alter the plain text of the statute.³⁸ In the end, Congress did not

change EPCA's preemption provision when it adopted EISA, despite clearly having the opportunity to do so.³⁹ Because States lacked preexisting authority to set tailpipe greenhouse gas emissions standards, as a result of EPCA's preemption provision, EISA's savings clause did not give them that authority.

In the proposal, NHTSA also described in detail the reasons that tailpipe carbon dioxide emissions regulations or prohibitions are "related to" fuel economy standards.⁴⁰ NHTSA explained that carbon dioxide emissions are a necessary and inevitable byproduct of burning gasoline: The more fuel a vehicle burns or consumes, the more carbon dioxide it emits.⁴¹ Based on the physical and mathematically measurable relationship between carbon dioxide emissions and fuel economy, EPCA has always specified that compliance with fuel economy standards is determined through tests and calculation procedures established by EPA.⁴² Specifically, compliance with fuel economy standards is based almost entirely on carbon dioxide emission rates.⁴³ As NHTSA noted, it is significant that in enacting EPCA, Congress both adopted test procedures reliant on the direct relationship between carbon dioxide emissions and fuel economy, and preempted State and local governments from adopting requirements related to fuel economy standards in the same law.⁴⁴

NHTSA affirms in this final rule that a State or local requirement limiting tailpipe carbon dioxide emissions from automobiles has the direct and substantial effect of regulating fuel consumption and, thus, is "related to" fuel economy standards. Likewise, since carbon dioxide emissions constitute the overwhelming majority of tailpipe carbon emissions, a State regulation of all tailpipe greenhouse gas emissions from automobiles or prohibiting all tailpipe emissions is also "related to" fuel economy standards and preempted by EPCA.

NHTSA is also finalizing its conclusion that EPCA does not preempt all potential State or local regulation of greenhouse gas emissions from vehicles. As NHTSA explained in the proposal,

legislative history will never allow it to be used to 'muddy' the meaning of 'clear statutory language.' (internal citations omitted).

³⁹ See EISA, Public Law 110–140 (2007); 83 FR 42986, 43234 (Aug. 24, 2018).

⁴⁰ 83 FR 42986, 43234 (Aug. 24, 2018).

⁴¹ *Id.*

⁴² 49 U.S.C. 32904(c).

⁴³ See 83 FR 42986, 43234 (Aug. 24, 2018).

⁴⁴ *Id.*

²⁰ See *id.*; 77 FR 62624, 62637 (Oct. 15, 2012).

²¹ See 75 FR 25324, 25328 (May 7, 2010).

²² 83 FR 42986, 43233 (Aug. 24, 2018).

²³ See *id.* at 43233–34.

²⁴ See 83 FR 42986, 42990 tbl. I–4 (Aug. 24, 2018); Cal. Code Regs. tit. 13, sec. 1961.3(c). California changed its regulation following issuance of NHTSA and EPA's proposed rule. See State of Cal., Office of Admin. Law, Notice of Approval of Regulatory Action (Dec. 12, 2018), <https://www.arb.ca.gov/regact/2018/leviii2018/form400dtc.pdf>. NHTSA recognized the potential for such a change in the proposal. 83 FR 42986, 43233 n.495 (Aug. 24, 2018).

²⁵ 83 FR 42986, 43233 (Aug. 24, 2018).

²⁶ *Id.*

²⁷ See, e.g., California Air Resources Board (CARB), Docket No. NHTSA–2018–0067–11873; Alliance of Automobile Manufacturers, Docket No. NHTSA–2018–0067–12073; Joint Submission from the States of California et al. and the Cities of Oakland et al., Docket No. NHTSA–2018–0067–11735.

²⁸ 83 FR 42986, 43233–34 (Aug. 24, 2018).

²⁹ *Id.* at 43233.

³⁰ 49 U.S.C. 32919(a).

³¹ 83 FR 42986, 43233 (Aug. 24, 2018).

³² *Id.*

³³ *Id.* at 43233–34.

³⁴ See EISA, Public Law 110–140 (2007).

³⁵ 42 U.S.C. 17002.

³⁶ See *id.*

³⁷ 83 FR 42986, 43234 (Aug. 24, 2018).

³⁸ See *Food Mktg. Inst. v. Argus Leader Media*, 139 S. Ct. 2356, 2364 (2019) ("In statutory interpretation disputes, a court's proper starting point lies in a careful examination of the ordinary meaning and structure of the law itself. Where, as here, that examination yields a clear answer, judges must stop. Even those of us who sometimes consult

some greenhouse gas emissions from vehicles are not related to fuel economy because they have either no effect on fuel economy, or only an insignificant effect on fuel economy.⁴⁵ NHTSA provided an example of a requirement with no bearing on fuel economy: a State regulation of vehicular refrigerant leakage.⁴⁶ NHTSA also explained that State safety requirements that have only an incidental impact on fuel economy, such as a requirement to use child seats, is not preempted because it does not sufficiently relate to fuel economy standards.⁴⁷ NHTSA also confirms its view that, if preempted requirements are combined with requirements not related to fuel economy, EPCA would void only the preempted portion of the law.

In addition, NHTSA and EPA are confirming their determination, in this joint final action, that a Clean Air Act waiver does not waive EPCA preemption. As explained in the proposal, a State or local law or regulation related to automobile fuel economy standards is void *ab initio* under the preemptive force of EPCA.⁴⁸ As support, the proposal cited longstanding Supreme Court case law concerning the Supremacy Clause and action in violation of a statutory prohibition.⁴⁹ In sum, “[i]t is basic to this constitutional command [in the Supremacy Clause] that all conflicting state provisions be without effect.”⁵⁰

As explained in the proposal, avoiding preemption under one Federal law has no necessary bearing on another Federal law’s preemptive effect.⁵¹ For purposes of the present rule, this conclusion is confirmed by Section 209 of the Clean Air Act, which explicitly states that a waiver of preemption pursuant to that provision of the Clean Air Act only relieves “application of this section.”⁵² NHTSA also confirms its view that a Clean Air Act waiver does not “federalize” State or local requirements preempted by EPCA.

NHTSA and EPA also explained in the proposal their disagreement with decisions from district courts in California and Vermont that held that EPCA did not preempt State tailpipe greenhouse gas emissions standards.⁵³

The agencies particularly disagree with those district courts’ characterization of the “related to” language in EPCA’s preemption provision as narrow, their reliance on California’s application for a Clean Air Act waiver, and the courts’ implied preemption analyses.⁵⁴ As the proposal explained, these decisions are legally flawed, and NHTSA is not barred from proceeding with its preemption determination here.⁵⁵

NHTSA also reaffirms its views on implied preemption, as described in the proposal.⁵⁶ State or local limitations or prohibitions on tailpipe carbon dioxide emissions from automobiles directly conflict with the objectives of EPCA. NHTSA balances statutory factors in setting CAFE standards at “the maximum feasible average fuel economy level that the Secretary decides the manufacturers can achieve in that model year” (49 U.S.C. 32902(a)).⁵⁷ State requirements, made based on State-specific determinations unbound by the considerations in EPCA, frustrate NHTSA’s statutory role. If one or more States may issue competing or overlapping requirements affecting fuel economy standards, industry must also apply resources and effort at meeting standards applicable only to discrete parts of the country in addition to those spent to comply with the Federal standards. In accordance with EPCA, manufacturers’ “average fuel economy” is calculated based on specific statutory requirements. 49 U.S.C. 32901(a)(5), 32904. Manufacturers earn credits for exceeding average fuel economy standards. 49 U.S.C. 32903. This statutory compliance structure is impeded when States or local governments attempt to set or enforce their own requirements, which necessarily apply to manufacturers at a State or local level. This interferes with the national “average fuel economy” program. The broad preemption provision adopted by Congress in EPCA clearly demonstrates the intention for a single national set of standards that consider, among other things, economic feasibility and consumer choice. Indeed, the entire purpose of a balanced standard is defeated if a State can place its thumb on the scale. Likewise, separate State or local requirements interfere with the compliance regime under EPCA of performance determined based on nationwide fleet averages,

which determine manufacturers’ credits or shortfalls. *See* 49 U.S.C. 32903.

NHTSA also finalizes the view, as discussed in the proposal, that ZEV mandates are preempted by EPCA.⁵⁸ Such laws, which require that a certain number or percentage of vehicles sold or delivered in a State by a manufacturer meet ZEV requirements, directly and substantially affect fuel economy standards by requiring manufacturers to eliminate fossil fuel use in a portion of their fleet. Like State or local tailpipe GHG emissions standards, ZEV mandates require the application of additional efforts and resources beyond those needed to comply with Federal standards. ZEV mandates also directly conflict with the goals of EPCA as they apply irrespective of the Federal statutory factors the Secretary of Transportation (through NHTSA) is required to consider in setting fuel economy standards, including technological feasibility and economic practicability. In the proposal, NHTSA described, as an example, California’s ZEV mandate, which manufacturers must comply with individually for each State adopting California’s mandate.⁵⁹ This regime of State mandates forces manufacturers to expend scarce resources on specific technology regardless of consumer demand, and regardless of what the Secretary has determined in her judgment to be the appropriate expenditure of resources necessary to comply with fuel economy standards set in accordance with the balancing required by EPCA.

NHTSA also confirms its view that the preemption portion of this joint final action is a statement of what Federal law requires and is effective without regard to any particular model year of vehicles and without regard to the details of the fuel economy and greenhouse gas emissions standards the agencies have set previously or set in the future.⁶⁰ In other words, NHTSA’s regulation concerning EPCA preemption is independent of and severable from the specific standards it ultimately adopts for model year 2021 through 2026 automobiles. Given the need for clarity on this issue, NHTSA has decided to issue this as a separate final rule and will later finalize the standards for model year 2021 through 2026 automobiles. NHTSA’s preemption regulation formalizes its longstanding position on preemption and incorporates that position into the Code of Federal Regulations provisions concerning passenger automobile

⁴⁵ *Id.* at 43234–35.

⁴⁶ *Id.* at 43235.

⁴⁷ *Id.*

⁴⁸ *Id.*

⁴⁹ *Id.*

⁵⁰ *Maryland v. Louisiana*, 451 U.S. 725, 746 (1981) (citing *McCulloch v. Maryland*, 4 Wheat. 316, 427 (1819)).

⁵¹ 83 FR 42986, 43235 (Aug. 24, 2018).

⁵² 42 U.S.C. 7543(b)(1).

⁵³ 83 FR 42986, 43232–38 (Aug. 24, 2018); *see Green Mountain Chrysler v. Crombie*, 508 F. Supp.

2d 295 (D. Vt. 2007); *Cent. Valley Chrysler-Jeep, Inc. v. Goldstene*, 529 F. Supp. 2d 1151 (E.D. Cal. 2007), as corrected (Mar. 26, 2008).

⁵⁴ 83 FR 42986, 43232–38 (Aug. 24, 2018).

⁵⁵ *See id.* at 43235.

⁵⁶ *See id.* at 43237–38.

⁵⁷ 49 U.S.C. 32902(f).

⁵⁸ *See id.* at 43238–39.

⁵⁹ *Id.*

⁶⁰ *See id.* at 43239.

average fuel economy standards at 49 CFR 531.7 and 49 CFR part 531, appendix B, and light truck fuel economy standards at 49 CFR 533.7 and 49 CFR part 533, appendix B. These portions of the regulations are operable without regard to any specific Federal standards and requirements in 49 CFR parts 531 and 533 or other parts of the Code of Federal Regulations. Likewise, NHTSA's determination that a State or local law or regulation of tailpipe greenhouse gas emissions from automobiles is related to fuel economy standards is severable from NHTSA's determination that State or local ZEV mandates are related to fuel economy standards.

B. Scientific Relationship Between Tailpipe Carbon Dioxide Emissions and Fuel Economy Standards

NHTSA is finalizing its conclusion that State requirements regulating tailpipe carbon dioxide emissions from automobiles are related to fuel economy standards. The relationship between fuel economy standards and regulations that limit or prohibit tailpipe carbon dioxide emissions from automobiles is a matter of science and mathematics. Commenters did not and cannot dispute the direct scientific link between tailpipe carbon dioxide emissions from automobiles and fuel economy. Thus, State and local laws and regulations that regulate such tailpipe emissions are preempted under EPCA.

The relationship between carbon dioxide and fuel economy is described in several statements in an appendix to parts 531 and 533 that NHTSA is finalizing in this document.

First, “[a]utomobile fuel economy is directly and substantially related to automobile tailpipe emissions of carbon dioxide.” 49 CFR part 531, appx. B, section (a)(1)(A); 49 CFR part 533, appx. B, section (a)(1)(A).⁶¹ No commenters disputed or otherwise specifically commented on this statement.

Second, “[c]arbon dioxide is the natural byproduct of automobile fuel consumption.” 49 CFR part 531, appx. B, section (a)(1)(B); 49 CFR part 533, appx. B, section (a)(1)(B).⁶² One comment identified this as a correct statement,⁶³ and another highlighted this fact in noting NHTSA's longstanding and consistent view on preemption.⁶⁴ No commenters disagreed with this factual statement.

Third, “[t]he most significant and controlling factor in making the measurements necessary to determine the compliance of automobiles with the fuel economy standards in this part [531 and 533] is their rate of tailpipe carbon dioxide emissions.” 49 CFR part 531, appx. B, section (a)(1)(C); 49 CFR part 533, appx. B, section (a)(1)(C).⁶⁵ The Alliance of Automobile Manufacturers similarly stated that the measurements for CAFE compliance involved “the same tests, vehicles, sales data, and emissions measurements that the EPA uses to measure carbon dioxide and tailpipe GHG emissions.”⁶⁶ Fiat Chrysler Automobiles (FCA) also reiterated this point from the Alliance's comments,⁶⁷ and the Competitive Enterprise Institute highlighted NHTSA's discussion of compliance measurement in agreeing that fuel economy standards and greenhouse gas emissions standards are inherently related.⁶⁸ CARB did not dispute this factual statement, but pointed out that carbon dioxide emissions are only one part of the compliance testing regime Congress approved—a fact that NHTSA had already recognized in its proposal.⁶⁹ As NHTSA explained in the proposal, as specified by EPCA, compliance with the CAFE standards is and has always been based on the rates of emission of carbon dioxide, carbon monoxide, and hydrocarbons from covered vehicles, but primarily on the emission rates of carbon dioxide.⁷⁰ The role of carbon dioxide is approximately 100 times greater than the combined role of the other two relevant carbon exhaust gases.⁷¹

Fourth, “[a]lmost all technologically feasible reduction of tailpipe emissions of carbon dioxide is achievable through improving fuel economy, thereby reducing both the consumption of fuel and the creation and emission of carbon dioxide.” 49 CFR part 531, appx. B, section (a)(1)(D); 49 CFR part 533, appx. B, section (a)(1)(D).⁷² The South Coast Air Quality Management District (South Coast) commented that NHTSA previously proposed, in 2008, adopting similar regulatory text that used the

word “most” instead of “almost all.”⁷³ South Coast asserts that the 2008 proposal shows that NHTSA “strains to exaggerate” the overlap between greenhouse gas emissions standards and fuel economy standards.⁷⁴ NHTSA disagrees. While South Coast points to hybrid electric vehicles and ZEVs, it offers no evidence to refute the fact that almost all technologically feasible reduction of tailpipe emissions of carbon dioxide is achievable through improving the fuel economy levels of the vehicles in question.

Fifth, “as a practical matter, regulating fuel economy controls the amount of tailpipe emissions of carbon dioxide, and regulating the tailpipe emissions of carbon dioxide controls fuel economy.” 49 CFR part 531, appx. B, section (a)(1)(E); 49 CFR part 533, appx. B, section (a)(1)(E).⁷⁵ No commenter disputed this statement. The National Automobile Dealers Association agreed, putting it this way: “the physics and chemistry involved with fuel economy and GHG emissions standards are such that controlling fuel economy controls GHGs and controlling GHGs controls fuel economy.”⁷⁶ It is also worth noting that technology cannot reduce the amount of carbon dioxide produced by combusting one gallon of gas. Instead, only technology that reduces the amount of gas needed to drive one mile (fuel economy) will reduce the amount of carbon dioxide generated per mile.

These statements in the regulatory appendix concerning the scientific relationship between automobile carbon dioxide emissions and fuel economy provide the foundation for NHTSA's preemption analysis. Due to this scientific relationship, which no commenter refuted, a regulation of tailpipe carbon dioxide emissions from automobiles that does not explicitly state that it is regulating fuel economy nevertheless has the effect of doing so. The label a State chooses to put on its regulations certainly is not dispositive in a preemption analysis. *See, e.g., Nat'l Meat Ass'n. v. Harris*, 565 U.S. 452, 464 (2012). One comment, from the Northeast States for Coordinated Air Use Management (NESCAUM), asserted that “California's GHG standards do not mention fuel economy or attempt to

⁶¹ 83 FR 42986, 43489 (Aug. 24, 2018).

⁶² *Id.*

⁶³ Walter Kreucher, Docket No. NHTSA–2018–0067–0444.

⁶⁴ Association of Global Automakers, Docket No. NHTSA–2018–0067–12032.

⁶⁵ 83 FR 42986, 43489 (Aug. 24, 2018).

⁶⁶ Alliance of Automobile Manufacturers, Docket No. NHTSA–2018–0067–12073.

⁶⁷ Fiat Chrysler Automobiles (FCA), Docket No. NHTSA–2018–0067–11943.

⁶⁸ Competitive Enterprise Institute, Docket No. NHTSA–2018–0067–12015.

⁶⁹ *See* California Air Resources Board (CARB), Docket No. NHTSA–2018–0067–11873; 83 FR 42986, 43234 (Aug. 24, 2018).

⁷⁰ *See* 83 FR 42986, 43234 (Aug. 24, 2018).

⁷¹ 71 FR 17566, 17655–56 (Apr. 6, 2006); 83 FR 42986, 43234 (Aug. 24, 2018).

⁷² 83 FR 42986, 43489 (Aug. 24, 2018).

⁷³ South Coast Air Quality Management District, Docket No. NHTSA–2018–0067–11813.

⁷⁴ *Id.*

⁷⁵ 83 FR 42986, 43489 (Aug. 24, 2018).

⁷⁶ National Automobile Dealers Association, Docket No. NHTSA–2018–0067–12064.

regulate fuel economy.”⁷⁷ To such comments, the agencies must ask ourselves the age-old question: “What’s in a name?” and conclude “[t]hat which we call a rose by any other name would smell as sweet.”⁷⁸ Arguments focused on form, or worse—labels—over substance are not persuasive. Moreover, it is indisputable that EPCA preemption reaches beyond explicit regulations of fuel economy and into regulations “related to” fuel economy. The words “related to” cannot be read out of the statute or narrowed in a way that undermines Congress’s broad preemption intent.

It is a matter of undisputed fact that the more fuel a vehicle burns or consumes, the more carbon dioxide it emits. There is a necessary relation between the regulation of one side of this equation and the regulation of the other. In other words, improving fuel economy has two inherently related benefits: Reducing fuel consumption and reducing carbon dioxide emissions. State and local governments cannot evade the preemptive sweep of EPCA by emphasizing only one side of these benefits and downplaying or ignoring the other when describing their regulations.

To further illustrate the situation, consider types of regulations for a swimming pool. If the pool has a hose on one side that is filling the pool and a hose on the other side that is draining the pool, you can regulate the water level in the pool by controlling either hose. Limiting the amount of water released by the inflow hose, is not itself a regulation of the outflow hose. But it is nonsensical to say that regulating the pool’s inflow is not related to regulating its outflow. A regulation of either hose necessarily affects the level of water in the same pool. The Supreme Court has recognized preemption should appropriately apply in such contexts. See *Rowe v. N.H. Motor Transp. Ass’n*, 552 U.S. 364, 368, 72 (2008) (looking at effect of regulation to determine it was preempted even though “it tells shippers what to choose rather than carriers what to do” where Federal law preempted State laws “related to a price, route, or service of any motor carrier . . . with respect to the transportation of property”); *Engine Mfrs. Ass’n v. South Coast Air Quality Mgmt. Dist.*, 541 U.S. 246, 255 (2004) (explaining that it “would make no sense” to allow a State regulation to

evade preemption simply because it addressed the purchase, rather than manufacture, of a federally regulated product).

C. Importance of One National Standard

To ensure uniform national fuel economy standards, Congress determined that it was appropriate to preempt States and local governments from adopting or enforcing laws or regulations related to the Federal standards. Effectuating Congress’s goal requires NHTSA to address preemption. Preemption is necessary to the effectiveness of NHTSA’s existing and forthcoming fuel economy standards and regulatory certainty into the future, specifically, one set of national standards. Congress made clear, through the required comprehensive balancing of factors and underlined by its inclusion of an express preemption provision, that State and local requirements impede the national fuel economy program. Thus, NHTSA is exercising its authority in this document, under 49 U.S.C. 32901 through 32903, to promulgate regulations to protect the integrity of the national program. This confirms the clear preemptive nature of NHTSA’s standards, as stated in 49 U.S.C. 329219 and provides additional clarity on the scope of preemption, to carry out NHTSA’s statutory authority to set nationally applicable standards.

A consistent refrain throughout many of the comments NHTSA received on its preemption proposal was the need for one national standard.⁷⁹ Preemption provides for just that uniformity. Indeed, that was the very purpose for Congress’s including the express preemption provision in EPCA.

In enacting EPCA’s preemption provision, Congress explicitly recognized the need to avoid a patchwork of requirements related to fuel economy standards, and gave NHTSA the exclusive authority to set and enforce fuel economy standards with discrete and limited exceptions as set forth in 49 U.S.C. 32919. NHTSA’s exclusive authority is exercised through joint rulemaking with EPA for the very reason that tailpipe carbon dioxide emissions standards are directly and substantially related to fuel economy standards and apply concurrently to the same fleet of vehicles. This joint action enables the Federal government to administer its overlapping obligations while avoiding inconsistency. See

Massachusetts v. EPA, 549 U.S. 497, 532 (2007).

Recent developments in California provide good examples of the need for a national standard and the problem that Congress sought to address in enacting EPCA’s preemption provision. After the agencies published the proposal, California amended its regulations such that manufacturers are bound to comply with requirements consistent with the no action alternative for model years 2021 through 2026,⁸⁰ regardless of what the Federal standards are ultimately adopted. Moreover, even as to the existing Federal standard, California’s regulations are impermissible under EPCA because only a Federal standard can apply nationally. State or local standards necessarily apply at the State and local level, and therefore are inherently inconsistent with the nationwide average standards pursuant to EPCA. See 49 U.S.C. 32901(a)(5)–(6), (13). Likewise, State and local compliance regimes interfere with the national program of credits and shortfalls for nationwide fleet performance by making compliance across the country inordinately complicated, inefficient, and expensive. See *id.* 32903.

Despite a widespread shared belief in the importance of one national standard, NHTSA’s proposal on preemption received a mix of support and opposition in comments. Some commenters weighed in on preemption largely only to emphasize the importance of having a national standard.⁸¹ Other commenters that supported the substance of the proposal agreed with NHTSA’s analysis of both express and implied preemption, as well as the conclusion that both State laws that limit and State laws that prohibit carbon dioxide tailpipe emissions from automobiles, or have the direct or substantial effect of doing so, are preempted.⁸² On the other hand, those commenters that opposed the substance of the proposal asked NHTSA to withdraw and not finalize any regulatory text concerning preemption.⁸³ Doing so would ignore the very purpose of EPCA’s fuel economy provisions and NHTSA’s statutory obligation under EPCA: To balance statutory factors in order to

⁸⁰ 83 FR 42986, 42990 tbl. I–4 (Aug. 24, 2018).

⁸¹ See, e.g., Toyota Motor North America, Docket No. NHTSA–2018–0067–12150.

⁸² See, e.g., Alliance of Automobile Manufacturers, Docket No. NHTSA–2018–0067–12073; Competitive Enterprise Institute, Docket No. NHTSA–2018–0067–12015.

⁸³ See, e.g., Joint Submission from the States of California et al. and the Cities of Oakland et al., Docket No. NHTSA–2018–0067–11735.

⁷⁷ Northeast States for Coordinated Air Use Management (NESCAUM), Docket No. NHTSA–2018–0067–11691.

⁷⁸ W. Shakespeare, *Romeo & Juliet*, II, ii (47–48) (1597).

⁷⁹ See, e.g., Alliance of Automobile Manufacturers, Docket No. NHTSA–2018–0067–12073; Association of Global Automakers, Docket No. NHTSA–2018–0067–12032.

establish standards that are “the maximum feasible average fuel economy level that the Secretary decides the manufacturers can achieve in that model year.”⁸⁴ NHTSA disagrees with the comments that ask it to withdraw its proposal and not finalize any regulatory text on preemption. Given the present circumstances, failing to address this issue amounts to ignoring the existence of EPCA’s preemption provision, and allowing for State and local requirements that interfere with NHTSA’s statutory duty to set nationally consistent fuel economy standards.

The rule NHTSA is adopting in this document, under its authority to implement a national automobile fuel economy program in 49 U.S.C. 32901 through 32903, will ultimately provide needed certainty concerning preemption into the future. While EPCA’s preemption provision has been in place for decades, the present circumstances demonstrate the need for greater clarity on this issue.

NHTSA’s statutory role is to set nationwide standards based on a reasoned balancing of statutory factors. State and local requirements—unbound by these considerations—undermine NHTSA’s ability to set standards applicable across the entire country. NHTSA is obliged to set standards at “the maximum feasible average fuel economy level that the Secretary decides the manufacturers can achieve in that model year.” 49 U.S.C. 32902(a). The regulation NHTSA is finalizing in this document implements that authority in 49 U.S.C. 32902 by clarifying the State requirements that impermissibly interfere with its statutory role to set nationally applicable standards. As explained in the proposal, as a practical matter, State and local actors would generally only set requirements that have the effect of requiring a *higher* level of average fuel economy (lest their standards lack impact).⁸⁵ That supposition has now been demonstrated by California’s preemptive action to effectively set higher standards than the Federal standards, should the forthcoming final SAFE rule finalize anything lower than the no action alternative described in the NPRM for model years 2021 through 2026. This state of regulatory inconsistency—and even the potential for such inconsistency—is anathema to the express terms and purposes of EPCA, which does not even permit States to set fuel economy standards identical to those set by NHTSA in

accordance with the statutory requirements.⁸⁶ Even identical standards interfere with the national program by imposing requirements not applicable to nationwide fleets and impose compliance regimes inconsistent with EPCA. *See, e.g.*, 49 U.S.C. 32903 (establishing specific requirements for earning and using credits based on nationwide average fuel economy performance).

California’s recent action also demonstrates disregard for NHTSA’s mandate to set standards in no more than 5 model year increments.⁸⁷ To avoid inconsistent State standards, California’s regulatory change would require NHTSA to adopt the most stringent of nine regulatory alternatives it considered in the proposal.⁸⁸ NHTSA did not bind itself in any way to that regulatory alternative in its 2012 final rule, and to do so would have been contrary to law.⁸⁹

Automakers must comply with the Federal fuel economy and GHG emissions requirements, and do so at significant cost. States like California that do not abide by the constraints of Federal law, and instead set inconsistent or even duplicative requirements related to fuel economy standards unjustifiably increase manufacturers’ compliance costs, which must be either passed along to consumers or absorbed by the industry. Clarity on preemption is therefore essential to ensure the industry has the ability to efficiently expend its resources to comply with the nationally applicable standards determined by the Federal government in light of the Federal statutory factors that must be balanced, without the need to separately account for or comply with State or local requirements.

While it is of course ideal for States to independently abide by the constraints of Federal law, this does not reflect the current state of affairs. NHTSA’s awareness of laws and regulations already in place, as well as the public comments it received in response to its proposal, confirm the need for additional clarity on the boundaries of EPCA preemption. Wrongly decided decisions by district courts in California and Vermont (appeals of which were abandoned as a condition of the negotiated agreement

prior to the 2012 rulemaking), as well as NHTSA’s own silence on this issue in recent years, are sowing confusion, emphasizing the need for the clarity provided by this final rule affirmatively establishing One National Program.⁹⁰

D. NHTSA’s Final Rule Provides Clarity and Certainty on EPCA Preemption

This final rule provides needed clarity on the scope of EPCA preemption. NHTSA is adopting regulatory text, including a detailed appendix, in addition to discussing this issue in the preamble to the rule, specifically to provide clarity on EPCA’s preemption provision.

NHTSA rejects the assertion advanced in one comment that NHTSA did not provide notice and a fair opportunity to comment on its interpretation of EPCA preemption.⁹¹ Any such suggestion is negated by the host of commenters that addressed the issue of preemption in response to the proposal. NHTSA proposed codifying its preemption interpretation in parts 531 and 533, and all commenters were explicitly asked to comment on the specific proposed regulatory text as well as on the explanation of NHTSA’s interpretation set out in the preamble to the NPRM.

NHTSA also disagrees with a comment from the California Air Resources Board (CARB) that asserted the proposal was not clear on the scope of preemption.⁹² The regulatory text articulates the boundaries of both express and implied preemption, with appropriate limitation to State or local laws or regulations that: (1) Regulate or prohibit tailpipe carbon dioxide emissions from automobiles, or (2) have the direct or substantial effect of regulating or prohibiting tailpipe carbon

⁹⁰ As described in the proposal, NHTSA’s views on preemption are longstanding. However, NHTSA has not directly addressed preemption in its most recent CAFE rulemakings. South Coast disputes that NHTSA’s views on preemption are longstanding, pointing to legal and factual developments since. South Coast Air Quality Management District, Docket No. NHTSA–2018–0067–11813. That NHTSA has not opined on developments does not mean that its views have changed. South Coast also points to some wording changes to argue that NHTSA has shifted positions. NHTSA disagrees. It has consistently held the position that State regulation of tailpipe greenhouse gas emissions from automobiles is preempted, and South Coast has not identified any statements to the contrary. In any event, the fact that NHTSA has not addressed EPCA preemption in its most recent rulemakings highlights the need to address the issue without further delay.

⁹¹ Joint Submission from the States of California et al. and the Cities of Oakland et al., Docket No. NHTSA–2018–0067–11735.

⁹² California Air Resources Board (CARB), Docket No. NHTSA–2018–0067–11873; Joint Submission from the States of California et al. and the Cities of Oakland et al., Docket No. NHTSA–2018–0067–11735.

⁸⁴ 49 U.S.C. 32902(a), (f).

⁸⁵ 83 FR 42986, 43238 (Aug. 24, 2018).

⁸⁶ *See* 49 U.S.C. 32902(a), 32919(a).

⁸⁷ *See id.* 32902(a), (b)(3)(B).

⁸⁸ *See* Cal. Code Regs. tit. 13, section 1961.3(c); *see* 83 FR 42986, 42990 tbl. I–4 (Aug. 24, 2018) (listing augural standards as baseline/no action alternative, and eight other alternatives under consideration).

⁸⁹ *See* 49 U.S.C. 32902(b)(3)(B); 77 FR 62624, 62627 (Oct. 15, 2012).

dioxide emissions from automobiles or automobile fuel economy. In the proposal, NHTSA provided examples of laws that would not be preempted.⁹³ CARB did not identify any examples of laws where additional clarity was needed.

It should not be difficult for States or local governments to ascertain whether their laws or regulations regulate or prohibit tailpipe carbon dioxide emissions. As NHTSA explained in the proposal and reiterates in this document, both requirements specific to tailpipe carbon dioxide emissions from automobiles and those that address all tailpipe greenhouse gas emissions from automobiles are preempted, given that carbon dioxide emissions constitute the overwhelming majority of those emissions.⁹⁴ Likewise, ZEV mandates are also preempted.⁹⁵

NHTSA also does not believe it should be difficult for States or local governments to determine if their laws or regulations have the direct or substantial effect of regulating or prohibiting tailpipe carbon dioxide emissions from automobiles or automobile fuel economy.⁹⁶ To aid in this effort, in the proposal, NHTSA described requirements that would not be preempted because they have only incidental impact on fuel economy or carbon dioxide emissions.⁹⁷ The examples NHTSA provided were child seat mandates and laws governing vehicular refrigerant leakage.⁹⁸

Moreover, contrary to assertions in some comments, NHTSA's adoption of regulatory text does provide a limiting principle⁹⁹ and is not overbroad.¹⁰⁰ Congress set the extraordinarily broad boundaries of preemption in EPCA, where it specified that State and local laws "related to fuel economy

standards" are preempted. The words "related to" have meaning and cannot be read out of the statute. To the extent that questions of interpretation remain about the scope of preemption, that is a consequence of the statute, and is far from unique—particularly with respect to the "related to" language, which Congress has used in multiple contexts.¹⁰¹ The Supreme Court has opined on the meaning of similar terms. However, NHTSA recognizes the concerns about the appropriate limitations of preemption.

Notwithstanding the broad sweep of EPCA preemption, NHTSA intends to assert preemption only over State or local requirements that directly or substantially affect corporate average fuel economy standards.

Through its adoption of specific regulatory text in this document, NHTSA is providing guidance on the boundary set by Congress, as well as under principles of implied preemption. Notably, NHTSA has not concluded that implied preemption broadens the scope of preemption established by Congress. As NHTSA recognized in its proposal, some greenhouse gas emissions from automobiles have no relation to fuel economy and therefore may be regulated by States or local governments without running afoul of EPCA preemption. NHTSA provided examples of State or local requirements that are not preempted. It also specifically invited comment on the extent to which State or local requirements can have some incidental impact on fuel economy or carbon dioxide emissions without being related to fuel economy standards, and thus are not preempted. NHTSA did not receive any directly responsive comments regarding this issue, including from State and local government commenters, suggesting that they do not currently have questions about how preemption would apply to their laws or regulations.¹⁰²

As an additional limiting principle, NHTSA reiterates the statement in its

proposal that only a portion of a law or regulation would be preempted, where possible. This would be the case if the law or regulation combined multiple severable elements that were allowable and not allowable, such as with a regulation of both vehicular refrigerant leakage and tailpipe carbon dioxide emissions—refrigerant leakage requirements could remain in place while tailpipe carbon dioxide emissions regulations would necessarily be preempted.

NHTSA rejects the argument made by certain commenters that the presumption against preemption applies in this context.¹⁰³ The presumption is not appropriate given EPCA's express statutory preemption provision. See *Puerto Rico v. Franklin Cal. Tax-Free Trust*, 136 S. Ct. 1938, 1946 (2016) (explaining that "because the statute 'contains an express pre-emption clause,' we do not invoke any presumption against pre-emption but instead 'focus on the plain wording of the clause, which necessarily contains the best evidence of Congress' preemptive intent.'") (quoting *Chamber of Commerce of United States of Am. v. Whiting*, 563 U.S. 582, 594 (2011)).

NHTSA reaffirms the view that EPCA's express preemption provision is broad and clear. NHTSA's review and assessment of comments has not changed its view. Some comments noted that the statute specifically preempts laws or regulations related to fuel economy standards.¹⁰⁴ They assert that States and local governments are unconstrained by EPCA preemption in regulating future model year vehicles, before they are covered by a fuel economy standard issued by NHTSA. NHTSA disagrees.

EPCA preempts State and local laws and regulations that relate to: (1) Fuel economy standards, or (2) average fuel economy standards for automobiles covered by an average fuel economy standard under 49 U.S.C. Chapter 329. Currently, automobiles through model year 2021 are covered by an average fuel economy standard under Chapter 329.¹⁰⁵ NHTSA will continue setting standards for future model years, pursuant to the mandate in 49 U.S.C. 32902(a) that "[a]t least 18 months

⁹³ 83 FR 42986, 43235 (Aug. 24, 2018).

⁹⁴ *Id.* at 43234.

⁹⁵ See *id.* at 43238–39.

⁹⁶ South Coast argued that EPCA preemption would not reach possible State and local requirements concerning lease arrangements or requirements for used vehicles. South Coast Air Quality Management District, Docket No. NHTSA–2018–0067–11813. NHTSA does not agree. EPCA preempts requirements related to fuel economy standards or average fuel economy standards for automobiles covered by an average fuel economy standard under EPCA. If a State requirement falls within this scope, it is preempted. For example, a State could not prohibit dealers from leasing automobiles or selling used automobiles unless they meet a fuel economy standard.

⁹⁷ 83 FR 42986, 43235 (Aug. 24, 2018).

⁹⁸ *Id.*

⁹⁹ Joint Submission from the States of California et al. and the Cities of Oakland et al., Docket No. NHTSA–2018–0067–11735.

¹⁰⁰ *Id.*; California Air Resources Board (CARB), Docket No. NHTSA–2018–0067–11873; South Coast Air Quality Management District, Docket No. NHTSA–2018–0067–11813.

¹⁰¹ See *Rowe v. N.H. Motor Transp. Ass'n*, 552 U.S. 364, 370–73 (2008); *Am. Airlines v. Wolens*, 513 U.S. 219, 226–27 (1995); *Shaw v. Delta Airlines, Inc.*, 463 U.S. 85, 97 (1983).

¹⁰² Some commenters did assert that California's greenhouse gas emissions standards or ZEV mandates have only an incidental impact on fuel economy, or that NHTSA was not clear why those requirements have more than an incidental impact on fuel economy. California Air Resources Board (CARB), Docket No. NHTSA–2018–0067–11873; Northeast States for Coordinated Air Use Management (NESCAUM), Docket No. NHTSA–2018–0067–11691; South Coast Air Quality Management District, Docket No. NHTSA–2018–0067–11813. NHTSA disagrees. It discussed these issues in detail in parts b, f, and g of the preemption discussion of the proposed rule and incorporates those discussions here. 83 FR 42986, 43234, 37–39 (Aug. 24, 2018).

¹⁰³ See California Air Resources Board (CARB), Docket No. NHTSA–2018–0067–11873; Center for Biological Diversity et al., Docket No. NHTSA–2018–0067–12000; South Coast Air Quality Management District, Docket No. NHTSA–2018–0067–11813.

¹⁰⁴ South Coast Air Quality Management District, Docket No. NHTSA–2018–0067–11813; see also Joint Submission from the States of California et al. and the Cities of Oakland et al., Docket No. NHTSA–2018–0067–11735.

¹⁰⁵ See 77 FR 62624, 62637 (Oct. 15, 2012).

before the beginning of *each* model year, the Secretary of Transportation shall prescribe by regulation average fuel economy standards for automobiles manufactured by a manufacturer in that model year.”¹⁰⁶ NHTSA prescribes “average fuel economy standards for at least 1, but not more than 5, model years.” 49 U.S.C. 32902(b)(3)(B). State and local requirements that address automobiles beyond model year 2026 are therefore preempted if they relate to “fuel economy standards” that NHTSA is required to establish in the future. To conclude otherwise would be to make the impermissible assumption that NHTSA will not carry out Congress’s command.

The regulation NHTSA is finalizing in this document implements that authority in 49 U.S.C. 32902 by making clear that State and local requirements that relate to fuel economy standards for future model year vehicles conflict with NHTSA’s ability to set nationally applicable standards for those vehicles in the future and thus are impliedly preempted. Manufacturers make design decisions well in advance of production, as Congress recognized by adding “lead time” provisions to the statute. State and local requirements for automobiles not yet covered by a NHTSA standard could force manufacturers into plans that are not economically practical or otherwise inconsistent with EPCA’s statutory factors—since States and local governments are not bound by those considerations. By the time future model year vehicles are produced, they will be covered by a NHTSA standard. If States or local governments were permitted to issue regulations related to fuel economy for future model year vehicles, manufacturers would at least act at risk of running afoul of those non-Federal regulations. At least some manufacturers would undoubtedly feel compelled to conform with such non-Federal regulations until the Federal government sets its own standards. Even if non-Federal regulations are not ultimately enforceable as to produced vehicles (since a Federal fuel economy standard will be adopted, in time), they clearly conflict with the congressionally imposed constraint of issuing standards for not more than 5 model years. Such far-reaching regulations are based on predictions about the future that are inevitably less reliable the further in time they reach. Manufacturers are therefore put in an untenable position of either planning towards State and local regulations based on potentially outdated or unrealistic expectations

about the future, or ignoring them before knowing the Federal standards that will eventually apply and acting at risk of enforcement by non-Federal actors. Moreover, different States could impose different and conflicting fuel economy requirements on manufacturers for future model years, a result directly at odds with the single national standard established by EPCA. Any of these scenarios demonstrates that the position that EPCA preemption does not reach regulation of model year vehicles not currently covered by a NHTSA standard is flawed. State or local requirements related to fuel economy standards for any model year automobiles are preempted.

The regulatory text and preamble discussion clearly articulates NHTSA’s views on the meaning of “related to” in EPCA’s express preemption provision, which are confirmed following NHTSA’s review and assessment of comments. As discussed in the proposal, EPCA is not unique in using the phrase “related to” to set the scope of preemption.¹⁰⁷ NHTSA described prior Supreme Court case law interpreting this phrase as broad and including such conceptual relationships as having an “association with” or “connection to.” In its comments, South Coast asserted that NHTSA’s discussion was “legally erroneous” because it did not include “discussion and analysis” of a line of Supreme Court cases that began with *New York State Conference of Blue Cross v. Travelers Ins. Co.*, 514 U.S. 645 (1995).¹⁰⁸ South Coast’s criticism is unfounded; NHTSA directly recognized the *Travelers* line of cases which look to the objectives of the statute as a guide to the scope of preemption. *See Travelers*, 514 U.S. at 656. In the proposal, NHTSA specifically applied this analysis to the CAFE context and cited a 1997 case quoting *Travelers*.¹⁰⁹ The *Travelers* line of cases supports NHTSA’s position on preemption. As NHTSA explained in the proposal, EPCA’s preemption provision demonstrates that one of Congress’s objectives was to create a single set of national fuel economy standards. The language Congress enacted preempts all State and local laws and regulations that relate to fuel economy standards, and does not exempt even State requirements that are identical to Federal requirements. Moreover, NHTSA’s proposal was not intended as a comprehensive recitation of all case law addressing the use of

“related to” in statutory preemption provisions. There are many Supreme Court decisions that support the breadth of that language beyond those specifically cited in the proposal.¹¹⁰ For example, in *Rowe*, the Court recognized that a State statute that forbid certain retailers from employing a delivery service unless it followed certain delivery procedures was preempted by the Federal Aviation Administration Authorization Act, which preempted States from enacting or enforcing laws “related to a price, route, or service of any motor carrier.” *Rowe*, 552 U.S. at 368, 71–73. The Court recognized that the State law was directed at shippers rather than carriers, but found that the *effect* of the requirements impacted carriers. *Id.* at 372. The Court explained that State laws “whose ‘effect’ is ‘forbidden’ under federal law are those with a ‘significant impact’ on carrier rates, routes or services.” *Id.* at 375 (emphasis in original). Likewise, here, regulation of tailpipe carbon dioxide emissions has a direct and undeniably substantial effect on fuel economy.

However, NHTSA, of course, agrees that “related to” is not unlimited.¹¹¹ NHTSA specifically discussed the limitations of preemption in its proposal, which only seeks to preempt State or local requirements that directly or substantially affect corporate average fuel economy. NHTSA also provided specific examples of State laws and regulations that would not be preempted, as well as clearly articulating some that are preempted. As discussed above, the regulatory text NHTSA is adopting in this document is appropriately limited and consistent with the scope of preemption established by Congress.

With respect to implied preemption, NHTSA agrees with comments that assert it is a fact-driven analysis.¹¹² However, NHTSA disagrees that there was an insufficient factual record for it to evaluate the conflict either at the time of the proposal or now.¹¹³ NHTSA is well aware of State regulations of tailpipe greenhouse gas emissions (including carbon dioxide) and ZEV mandates, and described several of these in the proposal. The foundational

¹¹⁰ See, e.g., *Rowe v. N.H. Motor Transp. Ass’n*, 552 U.S. 364, 367–72 (2008).

¹¹¹ As the Supreme Court has stated, “the breadth of the words ‘related to’ does not mean the sky is the limit.” *Dan’s City Used Cars, Inc. v. Pelkey*, 569 U.S. 251, 260 (2013).

¹¹² California Air Resources Board (CARB), Docket No. NHTSA–2018–0067–11873; Joint Submission from the States of California et al. and the Cities of Oakland et al., Docket No. NHTSA–2018–0067–11735.

¹¹³ California Air Resources Board (CARB), Docket No. NHTSA–2018–0067–11873.

¹⁰⁶ 49 U.S.C. 32902(a) (emphasis added).

¹⁰⁷ 83 FR 42986, 43233 (Aug. 24, 2018).

¹⁰⁸ South Coast Air Quality Management District, Docket No. NHTSA–2018–0067–11813.

¹⁰⁹ 83 FR 42986, 43233 (Aug. 24, 2018).

factual analysis involves the scientific relationship between automobile fuel economy and automobile tailpipe emissions of carbon dioxide. NHTSA discussed this scientific relationship in detail. No commenter contested the scientific and mathematical relationship between them.

Contrary to CARB's contention in its comments, the fact that NHTSA acknowledged that some State requirements that incidentally affect greenhouse gas emissions are not preempted does not demonstrate that there is an insufficient record for finding that other laws do pose a conflict to NHTSA's statutory role to set nationwide fuel economy standards for automobiles.¹¹⁴ To the contrary, NHTSA carefully considered and acknowledged the limitations of EPCA preemption by discussing a variety of types of laws, and providing specific examples.

NHTSA also disagrees with the claim made in some comments that it does not have delegated authority to issue a regulation on this topic, and is not owed deference or weight for its regulation implementing EPCA's express preemption provision or the conflict resulting from State or local laws or regulations.¹¹⁵ Congress gave the Secretary of Transportation express authorization to prescribe regulations to carry out her duties and powers. 49 U.S.C. 322(a).¹¹⁶ NHTSA has delegated authority to carry out the Secretary's authority under Chapter 329 of Title 49, which encompasses EPCA's preemption provision, as well as EISA.¹¹⁷ NHTSA therefore has clear authority to issue this regulation under 49 U.S.C. 32901 through 32903 to effectuate a national automobile fuel economy program unimpeded by prohibited State and local requirements. As explained here, the statute is clear on the question of preemption, and NHTSA must carry it out. *See Coventry Health Care of Missouri, Inc. v. Nevils*, 137 S. Ct. 1190, 1193 n.3 (2017) (holding that preemption applies and "the statute alone resolves this dispute"). However, to the extent there is any ambiguity, NHTSA is the expert agency and its

regulation adopted in this document is entitled to deference.¹¹⁸ As explained in the proposal, NHTSA is the expert agency given authority to administer the Federal fuel economy program and has expert authority to interpret and apply the requirements of EPCA, including preemption. *See Medtronic, Inc. v. Lohr*, 518 U.S. 470 (1996) ("Because the FDA is the federal agency to which Congress has delegated its authority to implement the provisions of the Act, the agency is uniquely qualified to determine whether a particular form of state law 'stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress,' *Hines v. Davidowitz*, 312 U.S. 52, 67, 61 S. Ct. 399, 404, 85 L. Ed. 581 (1941), and, therefore, whether it should be preempted."); *see also Nat'l Rifle Ass'n v. Reno*, 216 F.3d 122 (D.C. Cir. 2000) (rejecting argument that Attorney General lacked authority to issue regulation that she described as clarifying that certain State requirements were not preempted by Federal law). This is particularly true given the scientific nature of the relationship between fuel economy and greenhouse gas emissions. *See Geier v. Am. Honda Motor Co., Inc.*, 529 U.S. 861 (2000) ("Congress has delegated to DOT authority to implement the statute; the subject matter is technical; and the relevant history and background are complex and extensive. The agency is likely to have a thorough understanding of its own regulation and its objectives and is 'uniquely qualified' to comprehend the likely impact of state requirements.").

NHTSA is also finalizing its view that its regulation concerning EPCA preemption is independent and severable from any particular CAFE standards adopted by NHTSA. NHTSA's implementation of its authority to set nationally applicable fuel economy standards under 49 U.S.C. 32902, by clarifying the scope of preemption, is separate from its decision on the appropriate standards for any given model years. No commenter disagreed that this portion of the proposed rule is severable. The Alliance of Automobile Manufacturers agreed, noting case law stating that whether a regulation is severable depends on the agency's intent and whether the remainder of the regulation may still function sensibly.¹¹⁹ Both these considerations support severability here. Given the lack of any comments to the contrary,

NHTSA is finalizing its conclusion that the standards for model year 2021 through 2026 automobiles are independent of and severable from the decision NHTSA is finalizing in this document on EPCA preemption. Moreover, given the need for clarity on preemption, and in order to give effect to existing standards established pursuant to 49 U.S.C. 32902, NHTSA is issuing this final rule now before making a final determination on the standards portion of the proposal.

E. Direct and Substantial Relationship Between ZEV Mandates and Fuel Economy Standards

NHTSA is also finalizing its conclusion that a State law or regulation that either explicitly prohibits tailpipe carbon dioxide emissions from automobiles or has the direct or substantial effect of doing so is preempted, both pursuant to the express preemption provision in 49 U.S.C. 32919 and implied preemption, as an obstacle to NHTSA's national program pursuant to 49 U.S.C. 32901–32903.

As explained in greater detail in the proposal, carbon dioxide emissions constitute the overwhelming majority of tailpipe carbon emissions.¹²⁰ The only feasible way of eliminating tailpipe carbon dioxide emissions altogether is to eliminate the use of fossil fuel. Thus, regulations that require a certain number or percentage of a manufacturer's fleet of vehicles sold in a State to be ZEVs that produce no carbon dioxide tailpipe emissions necessarily affect the fuel economy achieved by the manufacturer's fleet as well as the manufacturer's strategy to comply with applicable standards, and are therefore preempted under EPCA. These regulations therefore have just as a direct and substantial impact on corporate average fuel economy as regulations that explicitly eliminate carbon dioxide emissions, and are therefore preempted. NHTSA described types of ZEV mandates in detail in its proposal, including California's ZEV mandate, which has been adopted by ten other States.¹²¹

ZEV mandates force the development and commercial deployment of ZEVs, irrespective of the technological feasibility or economic practicability of doing so. The Alliance of Automobile Manufacturers commented that this interference with NHTSA's balancing of

¹¹⁴ *Id.*

¹¹⁵ *Id.*; *Center for Biological Diversity et al.*, Docket No. NHTSA–2018–0067–12000; Joint Submission from the States of California et al. and the Cities of Oakland et al., Docket No. NHTSA–2018–0067–11735; South Coast Air Quality Management District, Docket No. NHTSA–2018–0067–11813.

¹¹⁶ 49 U.S.C. 322(a) specifically states: "The Secretary of Transportation may prescribe regulations to carry out the duties and powers of the Secretary. An officer of the Department of Transportation may prescribe regulations to carry out the duties and powers of the officer."

¹¹⁷ 49 CFR 1.95(a), (j).

¹¹⁸ *See, e.g., Chevron USA, Inc. v. Nat'l Res.*

Defense Council, Inc., 467 U.S. 837, 843–45 (1984).

¹¹⁹ Alliance of Automobile Manufacturers, Docket No. NHTSA–2018–0067–12073.

¹²⁰ 83 FR 42986, 43234 (Aug. 24, 2018).

¹²¹ *See id.* at 43239. At the time of the proposal, nine States had adopted California's ZEV mandate. Since that time, a tenth State—Colorado—has also done so. <https://www.colorado.gov/pacific/cdphe/aqcc> (indicating that ZEV standards were adopted on August 16, 2019).

statutory factors and forced adoption of specific design approaches are grounds for finding ZEV mandates preempted.¹²² NHTSA agrees.

In setting fuel economy standards, among the factors that NHTSA must consider are technological feasibility and economic practicability. 49 U.S.C. 32902(f). NHTSA is also required to set performance-based standards, and not design mandates.¹²³ See 49 U.S.C. 32902(b)(2). These considerations are at odds with ZEV mandates.

NHTSA disagrees with comments that expressed the view that ZEV mandates are not related to fuel economy standards because ZEVs emit no criteria pollutants or greenhouse gases.¹²⁴ Just as a State may not require a specific level of tailpipe carbon dioxide emissions from automobiles, since doing so effectively sets a specific level of fuel economy, a State may not prohibit tailpipe carbon dioxide emissions from automobiles. That is the equivalent of setting a specific emissions level—zero, which also prohibits the use of fossil fuel. In fuel economy terms, that is akin to requiring a vehicle to having the maximum conceivable level of fuel economy. A prohibition on ozone-forming emissions has the same effect, since the only vehicles capable of emitting no ozone-forming emissions are vehicles that do not use fossil fuels. As NHTSA explained, this type of regulation poses a direct conflict with EPCA, particularly as it relates to requiring a percentage of technological fleet penetration—represented by credits or actual vehicles—that an automaker must distribute into a State. ZEV mandates force investment in specific technology (battery electric and fuel cell technology) rather than allowing manufacturers to improve fuel economy by whatever technological path they choose, allowing them to pursue more cost-effective technologies that better reflect consumer demand, as is the case under the CAFE program. ZEV mandates also create an even more fractured regulatory regime. As NHTSA explained in the proposal,

manufacturers must satisfy ZEV mandates in *each* State individually.¹²⁵

NHTSA also disagrees with a comment that argued ZEV mandates are not preempted because the definition of fuel economy in EPCA is in reference to gasoline or equivalent fuel.¹²⁶ EPCA preempts State and local requirements related to fuel economy standards. That ZEV mandates are not themselves expressed as mile-per-gallon standards for fossil-fuel powered vehicles is not dispositive. NHTSA explained the relationship between ZEV mandates and fuel economy standards in detail in the proposal and reiterates that discussion here.¹²⁷

Many commenters expressed support for ZEV mandates as matter of policy.¹²⁸ NHTSA does not take issue with those policy objectives to the extent they do not conflict with EPCA or otherwise impermissibly interfere with the Federal regulation of fuel economy. NHTSA notes that States and local governments are able to continue to encourage ZEVs in many different ways, such as through investments in infrastructure and appropriately tailored incentives.¹²⁹ States and local governments cannot adopt or enforce regulations related to fuel economy standards, which include ZEV mandates, but they are able to pursue their policy preferences, as long as the manner in which they do so does not conflict with Federal law.

F. EISA Did Not Narrow or Otherwise Alter EPCA Preemption

NHTSA reiterates, as it discussed in the proposal, that EISA did not narrow the express preemption clause in 49 U.S.C. 32919. In fact, EISA did not alter EPCA's express preemption clause in any way. As a factual matter, Congress neither amended or nor repealed EPCA's preemption clause with the enactment of EISA. EISA's savings clause did not amend EPCA. The savings clause, codified at 42 U.S.C. 17002, states: "Except to the extent expressly provided in this Act or an

amendment made by this Act, nothing in this Act or an amendment made by this Act supersedes, limits the authority provided or responsibility conferred by, or authorizes any violation of any provision of law (including a regulation), including any energy or environmental law or regulation."¹³⁰

As described in the proposal, EISA's savings clause does not expand any pre-existing authority. Instead, the clause expressly states that it did not impose a new limitation on such authority. By its plain text, EISA also does not authorize any violation of any provision of law. This includes EPCA's express preemption clause. Thus, activities prohibited by the express preemption clause before EISA, such as State laws related to fuel economy standards, continued to be prohibited after EISA.

The text of the savings clause is what controls its meaning, not statements by individual Members of Congress. South Coast claims that NHTSA did not discuss such statements in detail, including statements by Senator Feinstein.¹³¹ NHTSA did recognize in the proposal that the Congressional Record contains statements by certain Members of Congress about their individual views, but explained that such statements lack authority. As NHTSA explained in the proposal, such statements cannot expand the scope of the savings clause or clarify it. Individual Members, even those who may have played a lead role in drafting a particular bill, cannot speak for the body of Congress as a whole.¹³² NHTSA interprets the statutory language based on the words actually adopted by both Houses and signed by the President.

NHTSA likewise does not find persuasive the argument that Congress did not enact additional statutory language in EISA preempting California from regulating tailpipe greenhouse gas

¹²² Alliance of Automobile Manufacturers, Docket No. NHTSA-2018-0067-12073.

¹²³ South Coast asserts that ZEV mandates are performance based because any vehicle meeting the requirements can be certified as a ZEV. South Coast Air Quality Management District, Docket No. NHTSA-2018-0067-11813. But, it is inherent that the requirements—ZEV means zero-emissions vehicle—dictate a particular design. In any event, for the reasons described above, ZEV mandates are related to fuel economy standards however framed.

¹²⁴ South Coast Air Quality Management District, Docket No. NHTSA-2018-0067-11813.

¹²⁵ 83 FR 42986, 43239 (Aug. 24, 2018); see Competitive Enterprise Institute, Docket No. NHTSA-2018-0067-12015.

¹²⁶ California Air Resources Board (CARB), Docket No. NHTSA-2018-0067-11873.

¹²⁷ See 83 FR 42986, 43238-39 (Aug. 24, 2018).

¹²⁸ National Coalition for Advanced Transportation (NCAT), Docket No. NHTSA-2018-0067-11969; Union of Concerned Scientists, Docket No. NHTSA-2018-0067-12039.

¹²⁹ Certain incentives are preempted by EPCA. See *Metro. Taxicab Bd. of Trade v. City of New York*, 615 F.3d 152 (2d Cir. 2010) (holding that New York City rule that incentivized hybrid taxis by allowing taxi owners to charge more for the lease of hybrid vehicles were "based expressly on the fuel economy of a leased vehicle, [and] plainly fall within the scope of the EPCA preemption provision.").

¹³⁰ One commenter pointed out that the proposal did not include the clause before the first comma when it quoted the language of the savings provision. South Coast Air Quality Management District, Docket No. NHTSA-2018-0067-11813. However, NHTSA disagrees with the commenter that the introductory clause has a substantive impact on this issue. That clause states: "Except to the extent expressly provided in this Act or an amendment made by this Act . . ." But, EISA did not expressly authorize States to regulate or prohibit tailpipe greenhouse gas emissions from automobiles.

¹³¹ South Coast Air Quality Management District, Docket No. NHTSA-2018-0067-11813.

¹³² *N.L.R.B. v. SW Gen., Inc.*, 137 S. Ct. 929, 942-43 (2017) ("Passing a law often requires compromise, where even the most firm public demands bend to competing interests. What Congress ultimately agrees on is the text that it enacts, not the preferences expressed by certain legislators. . . . [F]loor statements by individual legislators rank among the least illuminating forms of legislative history." (citations omitted)).

emissions from automobiles. A comment from three Senators provides documents related to potential proposals to do so.¹³³ There are many reasons for Congress not to adopt proposals set forward by one interest group or another, including, of course, because they were unnecessary. That is the case here where EPCA's preemption provision already prevented States from adopting and enforcing requirements related to fuel economy standards.

Given the words of the savings clause, NHTSA rejects the argument made by South Coast that the "EISA saving provision designedly narrows EPCA's express preemption provision, and Congress intended this result."¹³⁴ The savings clause did not amend the preemption provision in EPCA.

Moreover, what the savings clause actually says is that it does *not* limit authority. If a regulation is preempted by EPCA, a State has no authority to enforce it, and EISA did not change that status quo. If Congress wanted to amend the broad and clear express preemption provision in EPCA, it could have and would have done so. It did not.

Because NHTSA disagrees that States could permissibly regulate tailpipe greenhouse gas emissions from automobiles prior to EISA, it also disagrees with comments that argue that Congress "preserved" the ability of States to do so through the savings clause (or, alternatively, that efforts to "revoke" such preexisting authority failed).¹³⁵

NHTSA also disagrees with a comment by South Coast that argues that EISA's savings provision forecloses implied preemption.¹³⁶ The specific words that South Coast points to are the opening clause: "Except to the extent expressly provided in this Act or an amendment made by this Act." This language does not address preemption under EPCA. That introductory clause merely modifies the remainder of the savings provision, which goes on to say that "nothing in this Act or an amendment made by this Act . . . limits the authority provided . . . or authorizes any violation of any provision of law . . ." This statutory language prevents EISA from limiting preexisting authority or responsibility conferred by any law or from

authorizing violation of any law. States and local governments had no preexisting authority or responsibility to set requirements related to fuel economy standards. Such requirements are void *ab initio*. The savings provision also does not purport to expand preexisting authority or responsibility, nor did Congress amend in any way the broad express preemption provision in EPCA when it enacted EISA. Moreover, implied preemption as applied here is not a limitation based in EISA or the Clean Air Act. Implied preemption is instead based on the Secretary of Transportation's preexisting responsibility under EPCA to balance statutory factors in setting nationwide fuel economy standards for automobiles.

The provision in EISA concerning minimum requirements for Federal government vehicles also does not change NHTSA's view. Several comments referenced this provision, which states that the EPA "Administrator shall take into account the most stringent standards for vehicle greenhouse gas emissions applicable to and enforceable against motor vehicle manufacturers for vehicles sold anywhere in the United States" in identifying vehicles for the Federal government fleet. 42 U.S.C. 13212(f)(3)(B).¹³⁷ Commenters argued that the phrase "the most stringent standards" would be superfluous if only EPA were allowed to set standards and, in addition, if EPA had not set any such standards at the time EISA was enacted. On the contrary, this provision is fully consistent with NHTSA's view of preemption, based on the plain text of EPCA's express preemption provision. The language in the EISA provision specifically indicates that it applies only to "the most stringent standards . . . enforceable against motor vehicle manufacturers."¹³⁸ This means that EPA could consider only otherwise lawful standards. States and local governments are not permitted to enforce standards preempted by EPCA. 49 U.S.C. 32919(a).

However, EPCA *does* specifically permit a State or local government to "prescribe requirements for fuel economy for automobiles obtained for its own use." 49 U.S.C. 32919(c). It is logical that the Federal government would consider the requirements for States and local government vehicle fleets in evaluating vehicles for its own Federal government fleet. Such

requirements would be applicable to and could be enforced against manufacturers in contractual procurement relationships with States or local governments. In any event, this provision concerning a limited set of vehicles (Federal government vehicles) is not grounds for undoing the uniform national fuel economy standards applicable to all light vehicles as prescribed by Congress in EPCA.

In enacting this provision in EISA, Congress required the EPA Administrator to "issue guidance identifying the makes and model number of vehicles that are low greenhouse gas emitting vehicles" to aid in identifying vehicles for the Federal government's own fleet. 42 U.S.C. 13212(f)(3)(A). The provision requiring the Administrator to "take into account the most stringent standards for vehicles greenhouse gas emissions" provides a consideration for that guidance. *Id.* 13212(f)(3)(B). It is not plausible that Congress intended this limited provision concerning guidance on Federal government procurement to disrupt the longstanding express preemption provision in EPCA.

Further, to read this procurement-related provision as somehow showing that Congress intended to allow California to establish laws related to fuel economy standards is unreasonable, as doing so would put California in an unequal setting vis-a-vis other states, and that would not make sense in this context. "The Act also differentiates between the States, despite our historic tradition that all the States enjoy 'equal sovereignty.'" *Northwest Austin Municipal Utility District Number One v. Holder*, 557 U.S. 193, 203 (2009). A "departure from the fundamental principal of equal sovereignty requires a showing that a statute's disparate geographic coverage is sufficiently related to the problem that it targets." *Id.* Congress rejected any such prospect in the area of fuel economy by adding an unwaivable preemption clause in EPCA. NHTSA does not presume that Congress, when adopting EISA, impliedly discarded the equal application of EPCA to the States without a clear statement of intent to do so and a recitation of the "extraordinary conditions" permitting California special authority related to fuel economy. *Id.* at 211. "Congress . . . does not alter the fundamental details of a regulatory scheme in vague terms or ancillary provisions—it does not, one might say, hide elephants in mouseholes." ¹³⁹

¹³³ U.S. Senators Tom Carper, Diane Feinstein and Edward J. Markey, Docket No. NHTSA–2018–0067–11938

¹³⁴ South Coast Air Quality Management District, Docket No. NHTSA–2018–0067–11813.

¹³⁵ Joint Submission from the States of California et al. and the Cities of Oakland et al., Docket No. NHTSA–2018–0067–11735.

¹³⁶ South Coast Air Quality Management District, Docket No. NHTSA–2018–0067–11813.

¹³⁷ California Air Resources Board (CARB), Docket No. NHTSA–2018–0067–11873; Joint Submission from the States of California et al. and the Cities of Oakland et al., Docket No. NHTSA–2018–0067–11735.

¹³⁸ 42 U.S.C. 13212(f)(3)(B) (emphasis added).

¹³⁹ *Whitman v. Am. Trucking Ass'n*, 531 U.S. 457, 468 (2001).

G. Prior Case Law Does Not Preclude Preemption

Certain comments opposed to NHTSA's proposal rely upon the Supreme Court's decision in *Massachusetts v. EPA* to argue that regulation of tailpipe emissions is separate and distinct from regulation of fuel economy.¹⁴⁰ NHTSA disagrees with attempts to stretch the holding of this decision well beyond the issues addressed by the Court. The Court did not address EPCA preemption in *Massachusetts v. EPA*, or State regulations pursuant to a Clean Air Act waiver. The Court addressed only EPA's own statutory obligations, which have no bearing on EPCA preemption.

Moreover, as discussed above, NHTSA and EPA conduct joint rulemaking consistent with the Supreme Court's decision. The Court acknowledged that NHTSA and EPA's statutory obligations may overlap, but that the agencies may both administer those obligations while avoiding inconsistency.¹⁴¹ NHTSA therefore disagrees with the comment's assertion that regulations of tailpipe greenhouse gas emissions and fuel economy are truly separate and distinct. The agencies issue joint rules precisely because of the unavoidable scientific relationship between the two.

A number of comments also rely on the prior district court decisions in California and Vermont in opposing NHTSA's proposal on preemption.¹⁴² As NHTSA discussed in the proposal, those courts previously concluded that State tailpipe greenhouse gas emissions standards were not preempted by EPCA.¹⁴³ NHTSA continues to disagree with both of these district court decisions, as described in detail in the proposal.¹⁴⁴ This includes the California district court's erroneous view of the requirement in EPCA for NHTSA to consider "other standards" in setting fuel economy standards.¹⁴⁵ In reaching its conclusion, the court misconstrued a separate provision of EPCA that, by its explicit terms, has had no effect for decades. Importantly, neither district court considered NHTSA's views on

preemption in construing the statute NHTSA administers.¹⁴⁶ Although the United States filed an amicus brief opposing the Vermont court's decision in the Second Circuit, that appeal was not decided on the merits due to the automotive industry's withdrawal of the appeal as a part of a negotiated agreement connected to the national framework. In its brief, the United States specifically raised the district court's failure to consider NHTSA's views concerning preemption, let alone give them weight.¹⁴⁷ Withdrawal of appeals was expressly part of the agreement to establish the national framework.

The Vermont district court also attempted to reconcile EPCA and the Clean Air Act by asserting that a Clean Air Act waiver converts State requirements to "other motor vehicle standards" that NHTSA must consider in setting fuel economy standards. As NHTSA noted in the proposal, even the California district court found that there was no legal foundation for the view that a State regulation pursuant to a Clean Air Act waiver becomes the equivalent of a Federal regulation.¹⁴⁸ This is an erroneous finding not based on precedent and is unsupported by applicable law.

As described in the proposal, NHTSA also disagrees with the California and Vermont district courts' implied preemption analyses.¹⁴⁹ NHTSA does not believe those courts fully considered the conflict posed by State regulations and, in one case, even went so far as to assert erroneously that NHTSA could simply defer to California in revising its standards.¹⁵⁰ Those decisions are not binding on NHTSA.

Given NHTSA's previously stated views on those decisions, arguments that rely on the decisions are not

persuasive. Commenters did not provide any new information or analysis of those district court decisions that caused the agency to change its view on the decisions.¹⁵¹ NHTSA incorporates the prior discussion of those decisions from the proposal here.

While NHTSA need not belabor its views again here, it is worth emphasizing, as did commenters, that both district courts ignored NHTSA's published prior statements on preemption in rendering their decisions.¹⁵² Some comments seem to suggest that this failure to address NHTSA's views represents a substantive rejection of those views.¹⁵³ NHTSA disagrees. The district courts simply entirely failed to consider the agency's views; they did not consider and reject them or even find that they were not due any weight. This is among the reasons that NHTSA is formalizing its views in a regulation. As the expert agency charged with administering EPCA, NHTSA is tasked with balancing the four statutory factors in determining the "maximum feasible average fuel economy standards" for each model year.¹⁵⁴ In doing so, NHTSA has the unique ability to determine whether State or local regulations would undermine this balancing.¹⁵⁵ NHTSA's views on preemption certainly should be considered by any court evaluating this issue. This is particularly true given that the relationship between fuel economy standards and greenhouse gas emissions is a matter of science.

One commenter also erroneously asserts that collateral estoppel will bar the Department of Justice from defending a final rule that asserts State greenhouse gas emissions regulations are preempted by EPCA.¹⁵⁶ Nonmutual offensive collateral estoppel does not apply to the United States. *United States v. Mendoza*, 464 U.S. 154, 162 (1984). Moreover, the Federal government was not even a party to the prior litigation involving EPCA preemption. The assertion that the Department of Justice would be barred from defending this final rule lacks merit.

¹⁴⁰ California Air Resources Board (CARB), Docket No. NHTSA-2018-0067-11873; see Northeast States for Coordinated Air Use Management (NesCAUM), Docket No. NHTSA-2018-0067-11691.

¹⁴¹ *Massachusetts v. EPA*, 549 U.S. 497, 532 (2007).

¹⁴² Joint Submission from the States of California et al. and the Cities of Oakland et al., Docket No. NHTSA-2018-0067-11735; South Coast Air Quality Management District, Docket No. NHTSA-2018-0067-11813.

¹⁴³ 83 FR 42986, 43235 (Aug. 24, 2018).

¹⁴⁴ *Id.* at 43235-38.

¹⁴⁵ *Id.* at 43236-37.

¹⁴⁶ *Id.* at 43236; Proof Brief for the United States as Amicus Curiae, 07-4342-cv (2d Cir. filed Apr. 16, 2008).

¹⁴⁷ See Proof Brief for the United States as Amicus Curiae, 07-4342-cv (2d Cir. filed Apr. 16, 2008). NHTSA also was not a litigant in the district court cases and, therefore, did not have a full opportunity to raise its views.

¹⁴⁸ 83 FR 42986, 43236 (Aug. 24, 2018).

¹⁴⁹ *Id.* at 43238.

¹⁵⁰ *Cent. Valley Chrysler-Jeep, Inc.*, 529 F. Supp. 2d at 1179. NHTSA has a statutory obligation to set standards at "the maximum feasible average fuel economy level that the Secretary decides the manufacturers can achieve in that model year," in accordance with the statutory considerations. 49 U.S.C. 32902(a), (f). Thus, NHTSA cannot simply defer to a State. For example, the only standards that California would permit to satisfy California requirements for model years 2021 through 2025 are the augural standards. See Cal. Code Regs. tit. 13, § 1961.3(c). If NHTSA finalizes a determination that the augural standards are not "maximum feasible," as discussed in the proposal, then it would be contrary to law for NHTSA to nevertheless adopt them in deference to California.

¹⁵¹ As noted by a commenter, the appeals were dismissed before decision as a practical matter, and despite strong arguments on the merits. Fiat Chrysler Automobiles (FCA), Docket No. NHTSA-2018-0067-11943.

¹⁵² 83 FR 42986, 43236 (Aug. 24, 2018).

¹⁵³ See California Air Resources Board (CARB), Docket No. NHTSA-2018-0067-11873.

¹⁵⁴ 49 U.S.C. 32902(f).

¹⁵⁵ See *id.*

¹⁵⁶ See South Coast Air Quality Management District, Docket No. NHTSA-2018-0067-11813.

H. A Clean Air Act Waiver and SIP Approvals Do Not Foreclose EPCA Preemption

Both agencies are finalizing their tentative conclusion from the proposal that a Clean Air Act waiver does not also foreclose EPCA preemption. EPCA does not provide for a waiver of preemption, either by NHTSA or by another Federal agency. EPA, like NHTSA, does not have the authority to waive EPCA preemption. Therefore, its grant of a Clean Air Act waiver cannot operate to waive EPCA preemption. NHTSA discussed the basis for its view that a Clean Air Act waiver does not “federalize” EPCA-preempted State requirements in detail in its proposal. NHTSA reaffirms that discussion.

Several comments recited the district court’s holding in *Green Mountain Chrysler* that it need not consider EPCA preemption due to the EPA waiver.¹⁵⁷ NHTSA discussed in detail in the proposal its reasons for disagreeing with that decision and commenters did not identify any new information that caused NHTSA to change its view. NHTSA agrees with commenters that reject the flawed reasoning of the district court.¹⁵⁸ As one commenter explained, the argument that an EPA waiver federalizes State requirements renders the EPCA preemption provision a nullity.¹⁵⁹ As the commenter noted, this incorrect interpretation would enable States to even issue explicit fuel economy requirements so long as they were under cover of a waiver from EPA. EPA does not have authority to waive any aspect of EPCA preemption, nor does NHTSA.

NHTSA also finalizes its view that preempted standards are void *ab initio*. No commenters presented information that altered NHTSA’s view, which is based on longstanding Supreme Court case law, as cited by the proposal.

NHTSA agrees with South Coast, which suggested in its comments that EPCA does not outweigh the Clean Air Act.¹⁶⁰ Likewise, the Clean Air Act does not outweigh EPCA. Just as manufacturers must comply with requirements under both statutes, both statutes apply to State and local

governments as well. Moreover, EPCA’s preemption provision is fully consistent with the Clean Air Act. EPCA’s preemption provision does not implicitly repeal parts of Section 209(b), contrary to the assertion in one comment.¹⁶¹ States must simply act in accordance with both statutes. *Cf. Massachusetts v. EPA*, 549 U.S. 497, 532 (2007) (finding no inconsistency between obligations of EPA under Clean Air Act and NHTSA under EPCA).

NHTSA has rejected the argument that a Clean Air Act waiver renders EPCA preemption inapplicable, and likewise rejects the even more attenuated argument concerning EPA’s approval of preempted State requirements as a part of a State Implementation Plan (SIP) submission for areas that do not meet National Ambient Air Quality Standards (NAAQS). A State has no authority to adopt or enforce a requirement that falls within the scope of EPCA preemption. 49 U.S.C. 32919(a). This is true even if adopting the unlawfully enacted requirement would assist the State in coming into compliance with the NAAQS. The inclusion of an invalid fuel economy requirement in an air quality SIP does not render the requirement suddenly valid.¹⁶² NHTSA therefore disagrees with comments that suggest that EPCA preemption no longer applies simply because an unauthorized requirement is included in a SIP that is subsequently approved.¹⁶³ It is inappropriate for a State to take action unauthorized and rendered void by one statutory scheme to meet the requirements of a different statutory scheme.

Moreover, EPCA preemption applies directly to States and local governments which are obliged to adhere to the constraints of the Supremacy Clause. EPCA explicitly prohibits States and local governments from adopting or enforcing a law or regulation related to fuel economy standards. It is unreasonable for States to expect a Federal agency (EPA) acting under one statutory scheme (the Clean Air Act) to analyze whether the State has adopted preempted regulations in contravention of an entirely separate statute (EPCA) administered by a different Federal agency (NHTSA). In fact, as noted above, historically EPA has declined to

address questions unrelated to CAA section 209, such as preemption analysis, in its waiver decisions. NHTSA strongly disagrees with the assertion that EPA’s approval of a SIP silently acts as an implied waiver of EPCA preemption. This suggestion is particularly hollow given that neither EPA nor NHTSA has the authority to waive EPCA preemption.

NHTSA agrees with the general principle that an approved SIP is enforceable as a matter of Federal law.¹⁶⁴ However, the case law does not support the argument made by CARB and South Coast’s comments. The case law explains that a SIP approved by EPA creates binding obligations, pursuant to the Clean Air Act.¹⁶⁵ There is no indication that Congress intended to permit one agency to legitimize an otherwise EPCA-preempted State provision by “federalizing” it. As an analogy, the IRS requires individuals to report and pay taxes on money earned from illegal activity, such as dealing drugs.¹⁶⁶ A drug dealer who complies with Federal tax law is not relieved of the prohibitions on possessing and selling drugs that apply under other Federal laws.

Since SIPs are binding on States, the agencies recognize that certain States may need to work with EPA to revise their SIPs in light of this final action.¹⁶⁷ As stated in the proposal, EPA may subsequently consider whether to employ the appropriate provisions of the Clean Air Act to identify provisions of States’ SIPs that may need review because they include preempted ZEV mandates or greenhouse gas emissions standards.¹⁶⁸ However, this practical consideration is not grounds for ignoring EPCA’s limitations on State action. SIPs are not written in stone. They are subject to revision, including based on changed circumstances. The Clean Air Act allows SIPs to be revised for various reasons, including that part of the plan was approved in error, that the plan is “substantially inadequate,” or that the State is suspending or

¹⁵⁷ See, e.g., California Air Resources Board (CARB), Docket No. NHTSA–2018–0067–11873; Class of 85 Regulatory Response Group, Docket No. NHTSA–2018–0067–12070; Joint Submission from the States of California et al. and the Cities of Oakland et al., Docket No. NHTSA–2018–0067–11735.

¹⁵⁸ See, e.g., American Fuel & Petrochemical Manufacturers, Docket No. NHTSA–2018–0067–12078.

¹⁵⁹ Competitive Enterprise Institute, Docket No. NHTSA–2018–0067–12015.

¹⁶⁰ See South Coast Air Quality Management District, Docket No. NHTSA–2018–0067–11813.

¹⁶¹ Joint Submission from the States of California et al. and the Cities of Oakland et al., Docket No. NHTSA–2018–0067–11735.

¹⁶² SIPs must include “enforceable emission limitations.” 42 U.S.C. 7410(a)(2)(A). An EPCA preempted requirement is not enforceable. 49 U.S.C. 32919(a).

¹⁶³ See South Coast Air Quality Management District, Docket No. NHTSA–2018–0067–11813.

¹⁶⁴ See California Air Resources Board (CARB), Docket No. NHTSA–2018–0067–11873; South Coast Air Quality Management District, Docket No. NHTSA–2018–0067–11813.

¹⁶⁵ See, e.g., *Safe Air for Everyone v. United States Env’t Prot. Agency*, 488 F.3d 1088, 1091 (9th Cir. 2007).

¹⁶⁶ Internal Revenue Service, Publication 525: Taxable and Nontaxable Income 32 (Mar. 8, 2019), <https://www.irs.gov/pub/irs-pdf/p525.pdf>.

¹⁶⁷ EPA explains below that it will consider whether and how to address SIP implications of this action, to the extent that they exist, in separate actions; EPA believes that it is not necessary to resolve those implications in the course of this action.

¹⁶⁸ 83 FR 42986, 43244 (Aug. 24, 2018).

revoking a program included in a plan. 42 U.S.C. 7410(a)(5)(iii), (k)(5)–(6).

I. NHTSA Has Appropriately Considered the Views of States and Local Governments Consistent With Law

NHTSA considers the views of all interested stakeholders—including States and local governments—in carrying out its statutory obligation to set nationally applicable fuel economy standards. However, EPCA does not permit States or local governments to act as co-regulators with NHTSA in the process of setting fuel economy standards. Indeed, EPCA precludes them from doing so, with the sole exception of information disclosure requirements identical to Federal requirements, and for requirements for fuel economy for automobiles obtained for a State or local governments' own use. A number of commenters urged NHTSA to work cooperatively with California, and to negotiate with and reach a compromise with California.¹⁶⁹ NHTSA appreciates such comments, and seeks to foster a collaborative regulatory approach to the extent possible. That said, California is not permitted by Federal law to have its own separate laws or regulations relating to fuel economy standards. 49 U.S.C. 32902 makes clear that NHTSA sets nationally applicable fuel economy standards, and NHTSA is implementing its authority to do so through this regulation clarifying the preemptive effect of its standards consistent with the express preemption provision in 49 U.S.C. 32919.

The very limited exceptions to preemption set forth in EPCA—covering vehicles for a government's own use, and for disclosure requirements that are identical to Federal requirements—only confirm the breadth of preemption. See 49 U.S.C. 32919(b)–(c). States or localities cannot adopt or enforce requirements related to fuel economy standards unless they fall into one of these two discrete exceptions. This means requirements related to fuel economy standards for automobiles for use by a State's citizens, and not merely the State itself, are not permitted. Since States are not permitted to adopt or enforce requirements related to fuel

economy standards for vehicles sold or delivered to the public, Federal law does not allow California (or any other State or local government) to regulate in this area.

For California, or any other State or local government, to regulate in this area would require NHTSA to waive EPCA preemption, but commenters did not and cannot identify any statutory authorization for NHTSA to do so and no such authority exists, either expressly or impliedly. The Clean Air Act requires EPA to waive Clean Air Act preemption under a specific section of that statute unless it makes certain findings. But because EPCA does not enable NHTSA to issue a waiver of preemption, it also does not set forth terms upon which a waiver would be appropriate.¹⁷⁰ Thus, NHTSA lacks a legal basis for approving of or consenting to State or local requirements related to fuel economy standards.

Absent the affirmative authority to approve of or consent to State or locality's requirements related to fuel economy standards, commenters appear to ask NHTSA to simply to look aside. That is inconsistent with NHTSA's legal responsibility to set nationally applicable standards. It is also inconsistent with the self-executing nature of EPCA preemption, meaning that State or local requirements related to fuel economy standards are void *ab initio*. Even if NHTSA wanted to do so, it cannot breathe life into an expressly preempted State law. And doing so would effectively result in NHTSA's purporting to rewrite a statute, which is beyond the power of a regulatory agency.

NHTSA also disagrees that it is appropriate to ignore EPCA preemption as a strategy to avoid litigation over this issue, a strategy strongly suggested by a large number of commenters. NHTSA understands the concerns of such commenters who hope to avoid prolonged litigation.¹⁷¹ However, NHTSA believes that long-term certainty is best achieved by applying the law as written. NHTSA agrees with commenters who acknowledge the disruption to the automotive marketplace that would come if preempted standards remained in place.¹⁷² Addressing preemption directly, as NHTSA has done through its

adoption of regulatory text in this document, will ultimately provide the needed regulatory certainty into the future.

Those commenters that ask NHTSA to negotiate with California demonstrate the nature of the problem.¹⁷³ The underlying reason commenters are concerned about the absence of a compromise resolution is because of the conflict that will result if States proceed with regulations that are inconsistent with Federal requirements.¹⁷⁴ Such commenters, appropriately, have recognized the disruptive effect of continuing to tolerate multiple regulators in this area. Moreover, as discussed in additional detail below, a negotiated resolution is inconsistent with the APA's notice and comment rulemaking process. NHTSA has no basis in law to ignore the substantive comments received on its proposal from many stakeholders and instead determine an outcome through negotiation with a regulatory agency in California. NHTSA is a safety agency with different priorities than CARB, with a different set of factors to balance, including safety implications.

As discussed above, many comments emphasized a desire for maintaining a National Program. Neither California nor any other State, of course, has the authority to set national standards in any area. If California were to adopt and enforce requirements related to fuel economy standards, there could only be uniform standards applicable throughout the country if California agrees with the standards set by NHTSA or vice versa. But EPCA requires that “[e]ach standard shall be the maximum feasible average fuel economy level that the Secretary”—not a regulatory agency in the State of California—“decides that the manufacturers can achieve in that model year.”¹⁷⁵ 49 U.S.C. 32902(a).

¹⁷³ See, e.g., American Honda Motor Company, Inc., Docket No. NHTSA–2018–0067–11818; Sen. T. Carper, United States Senate, Docket No. NHTSA–2018–0067–11910; Manufacturers of Emission Controls Association, Docket No. NHTSA–2018–0067–11994.

¹⁷⁴ See Cal. Code Regs. tit. 13, section 1961.3(c).

¹⁷⁵ As NHTSA explained in the proposal, it disagrees with the implication of the district court's statement in *Central Valley* that “NHTSA is empowered to revise its standards” to take into account California's regulations. 83 FR 42986, 43238 (Aug. 24, 2018); see *Cent. Valley Chrysler-Jeep, Inc.*, 529 F. Supp. 2d at 1179. NHTSA's duty under EPCA is to balance the statutory factors, not to acquiesce to the views of one State (which by its own assertion is attempting to address State-specific concerns, including the geography of its population centers). See, e.g., California Air Resources Board (CARB), Docket No. NHTSA–2018–0067–11873 (stating that California's “population continues to live predominantly in basins bounded by mountains, in which air quality is poor”).

¹⁶⁹ See, e.g., American Honda Motor Company, Inc., Docket No. NHTSA–2018–0067–11818; Sen. T. Carper, United States Senate, Docket No. NHTSA–2018–0067–11910; Maryland Department of the Environment, Docket No. NHTSA–2018–0067–12044; Joint Submission from the States of California et al. and the Cities of Oakland et al., Docket No. NHTSA–2018–0067–11735; Manufacturers of Emission Controls Association, Docket No. NHTSA–2018–0067–11994; North Carolina Department of Environmental Quality, Docket No. NHTSA–2018–0067–12025.

¹⁷⁰ EPA also does not have authority to waive EPCA preemption, under the Clean Air Act or otherwise.

¹⁷¹ American Honda Motor Company, Inc., Docket No. NHTSA–2018–0067–11818; Ford Motor Company, Docket No. NHTSA–2018–0067–11928.

¹⁷² Fiat Chrysler Automobiles (FCA), Docket No. NHTSA–2018–0067–11943.

Moreover, a faithful application of EPCA requires more than just avoiding inconsistency. For that reason, it is unavailing that CARB has previously implemented its program purportedly consistent with the Federal government.¹⁷⁶ EPCA requires NHTSA to set nationally applicable standards. EPCA does not permit States or local governments to adopt or enforce even identical or equivalent standards.¹⁷⁷ EPCA allows for only a single regulator—NHTSA—to set fuel economy standards. Moreover, it is now clear it does not intend to do so for model year 2021 through 2026 vehicles, should the forthcoming final SAFE rule finalize standards other than the no action alternative as described in the NPRM.¹⁷⁸ And even consistent programs subject manufacturers to duplicative enforcement regimes, in conflict with EPCA.¹⁷⁹ State standards that are identical or equivalent standards to the Federal standards manufacturers nevertheless obligate manufacturers to meet more onerous requirements. That is because States, of course, lack authority to set nationwide requirements. Therefore, manufacturers must meet State standards within *each* State that has adopted them. Since fuel economy standards are *fleetwide average* standards, it is more difficult to achieve a standard in a particular State, averaged across a smaller pool of vehicles, than it is to achieve the Federal standard, averaged across the pool of vehicles for all States.

In addition, there is no legal basis in EPCA or the APA for California or any other State to receive preferential treatment for their views in this statutory scheme or rulemaking process.¹⁸⁰ Nor is California, or any other State, entitled to negotiate the

appropriate standards with NHTSA. Commenters appear to suggest closed-door negotiations, and not an alternative rulemaking process (such as negotiated rulemaking), that would ensure procedural fairness.¹⁸¹ NHTSA disagrees that negotiation is the appropriate mechanism to set nationally applicable policy with billions of dollars of impacts. The notice-and-comment rulemaking process used by the agencies is the appropriate mechanism for setting standards under EPCA and the Clean Air Act, with due consideration to the views of all interested parties and transparency. NHTSA certainly would prefer a result that is satisfactory to all interested stakeholders, but it may not set aside its own considered views on the appropriate standards to reach a negotiated resolution, nor may it set aside Congress's commands in EPCA.

While States or local governments may not adopt or enforce requirements related to fuel economy standards, NHTSA, of course, is considering their views in setting appropriate standards. Many State and local governments commented at great length on both the preemption and standard setting portions of NHTSA's proposal.¹⁸² NHTSA has taken their views into account in finalizing this rule, along with those of other commenters. States and local governments have had and will continue to have a say in the adoption of fuel economy standards, consistent with the APA. Indeed, many of the technical comments provided by California and other State and local governments and agencies are being considered to improve the analysis regarding the appropriate standards. In an area with express preemption, this APA process is the appropriate means by which the Federal government

should consider the views of States and local governments.

NHTSA also disagrees with the view expressed by some commenters that there is not a direct conflict between State regulation of tailpipe carbon dioxide emissions from automobiles issued pursuant to a Clean Air Act waiver and NHTSA's ability to set fuel economy standards under EPCA. South Coast argues that when there are inconsistent standards, automakers can avoid a conflict by complying with the more stringent standard.¹⁸³

NHTSA disagrees that this situation does not pose a conflict. Higher standards than those NHTSA has determined are "maximum feasible" after balancing the statutory factors negates the agency's judgment in setting national standards, including traffic safety. NHTSA addressed this conflict in detail in the proposal and reiterates that discussion here.¹⁸⁴ NHTSA also disagrees that all manufacturers should simply comply with a higher standard than the standards set by the Federal government based on statutory considerations. It may not be technically feasible for manufacturers to comply with higher standards or the higher standards may not be economically practicable. These are factors that NHTSA must carefully assess and balance in setting standards under EPCA, and the notion that a State has the unilateral ability to veto or undermine NHTSA's determination by setting higher standards directly conflicts with EPCA.

South Coast also asserted in its comments that there is no direct conflict between the purpose of EPCA to reduce fuel consumption by increasing fuel economy and the purpose of the Clean Air Act to protect public health from air pollution, including by allowing California to establish motor vehicle standards if it meets the criteria for a waiver.¹⁸⁵ While it is true that there need not be a conflict between EPCA and the Clean Air Act, this statement is irrelevant to the determination of whether State standards are preempted by EPCA. NHTSA and EPA conduct joint rulemaking in this area *because* EPA's greenhouse gas emissions standards are inherently related to NHTSA's fuel economy standards. This inherent linkage was recognized by the Supreme Court in *Massachusetts v.*

¹⁷⁶ California Air Resources Board (CARB), Docket No. NHTSA–2018–0067–11873.

¹⁷⁷ EPCA does allow States or local governments to adopt identical requirements for disclosure of fuel economy or fuel operating costs, but did not allow identical requirements in other areas related to fuel economy. See 49 U.S.C. 32919(b).

¹⁷⁸ See Cal. Code Regs. tit. 13, section 1961.3(c).

¹⁷⁹ EPCA has an unusual civil penalty provision for violations of fuel economy standards that enables various compliance flexibilities, including use of banked credits, credit plans, credit transfers, and credit trades. See 49 U.S.C. 32912. EPCA also requires specific procedures and findings before the Secretary of Transportation may increase the civil penalty rate applicable to violations of fuel economy standards. 49 U.S.C. 32912(c). State and local enforcement of even identical or equivalent requirements interferes with this enforcement structure.

¹⁸⁰ See *Nw. Austin Mun. Util. Dist. No. One v. Holder*, 557 U.S. 193, 203 (2009) (stating that "a departure from the fundamental principle of equal sovereignty requires a showing that a statute's disparate geographic coverage is sufficiently related to the problem that it targets").

¹⁸¹ One comment noted that prior negotiations were "closed-door, 'put nothing in writing, ever' negotiations." Competitive Enterprise Institute, Docket No. NHTSA–2018–0067–12015; see also Sen. Phil Berger & Rep. Tim Moore, North Carolina General Assembly, Docket No. NHTSA–2018–0067–11961.

¹⁸² See, e.g., California Air Resources Board (CARB), Docket No. NHTSA–2018–0067–11873; Joint Submission from Governors of Texas, et al., Docket No. NHTSA–2018–0067–11935; Joint Submission from the States of California et al. and the Cities of Oakland et al., Docket No. NHTSA–2018–0067–11735; Maryland Department of the Environment, Docket No. NHTSA–2018–0067–12044; Minnesota Pollution Control Agency (MPCA), the Minnesota Department of Transportation (MnDOT), and the Minnesota Department of Health (MDH), Docket No. NHTSA–2018–0067–11706; North Carolina Department of Environmental Quality, Docket No. NHTSA–2018–0067–12025; Pennsylvania Department of Environmental Protection, Docket No. NHTSA–2018–0067–11956; Washington State Department of Ecology, Docket No. NHTSA–2018–0067–11926.

¹⁸³ South Coast Air Quality Management District, Docket No. NHTSA–2018–0067–11813.

¹⁸⁴ See section f of the proposal's preemption discussion. 83 FR 42986, 43237–38 (Aug. 24, 2018).

¹⁸⁵ South Coast Air Quality Management District, Docket No. NHTSA–2018–0067–11813.

EPA.¹⁸⁶ California and other States have, for many years, regulated ozone-forming emissions from vehicles pursuant to a Clean Air Act waiver without posing a conflict with NHTSA's regulation of fuel economy. It is when States regulate the emission of greenhouse gases, especially carbon dioxide, that the conflict arises because of the direct and substantial relationship between tailpipe emissions of carbon dioxide and fuel economy. Regulation in this area is related to NHTSA's fuel economy standards and impedes NHTSA's ability to set nationally applicable fuel economy standards.

NHTSA also disagrees with comments that assert it did not properly consider federalism concerns. Specifically, South Coast claimed that NHTSA violated the executive order on federalism, Executive Order 13132, although South Coast acknowledges the Executive Order does not create an enforceable right or benefit.¹⁸⁷ Setting aside the Executive Order's non-justiciability for the moment, NHTSA's action complies with Executive Order 13132. Contrary to South Coast's assertion, the executive order recognizes both express preemption and conflict preemption, and it does not bar the application of conflict preemption where a statute contains an express preemption provision.¹⁸⁸ The provisions concerning express preemption and conflict preemption are in separate paragraphs, which are not mutually exclusive. See E.O. 13132 section 4(a)–(b).

Moreover, the executive order supports NHTSA's action in construing preemption through rulemaking. See *id.* The executive order explicitly supports the process NHTSA used here to consider the views of States and local governments, stating that: "When an agency proposes to act through adjudication or rulemaking to preempt State law, the agency shall provide all affected State and local officials notice and an opportunity for appropriate participation in the proceedings." E.O. 13132 section 4(e). NHTSA cited to Executive Order 13132 in the preemption portion of its proposal,¹⁸⁹

and specifically solicited comments from State and local officials, as well as other members of the public. As discussed above, NHTSA has considered the extensive comments from State and local governments.

EPCA preemption also does not improperly impinge on the rights of States. Several commenters argued for allowing States to regulate in this area due to asserted benefits of State regulation.¹⁹⁰ CARB's comments went into extensive detail on its history of regulating vehicles.¹⁹¹ It also asserted that there is industry support for its regulation in this area,¹⁹² and argued that it has reliance interests in its regulations.¹⁹³ CARB also argued that NHTSA's proposal would adversely impact its police power and ability to protect its citizens.¹⁹⁴ In addition, it claimed that NHTSA's proposal would impact its State-imposed mandate for emissions reductions by 2030, given the transportation sector's contributions to California's greenhouse gas emissions.¹⁹⁵

Notwithstanding these asserted interests of policy, Congress determined that NHTSA should have exclusive authority to set fuel economy standards and that States are not authorized to adopt or enforce regulations related to those standards, with limited exceptions described above. No commenter argued that EPCA's preemption provision is unconstitutional. Some commenters, however, have argued that special treatment afforded to the California is problematic.¹⁹⁶ Just as States have no valid police power to set fuel economy standards directly, neither are they permitted under EPCA and the Supremacy Clause to set standards related to fuel economy standards. States do have input into the Federal fuel economy standards established by NHTSA (as well as EPA's related greenhouse gas emissions standards) through the notice-and-comment process, and the interests of California's citizens as well as the citizens of the

other 49 States are protected by the standards set by the Federal agencies.

NHTSA recognizes that California may have different policy views, as do many interested parties, including both those who expressed views in favor of and in opposition to the proposal. However, Congress gave NHTSA the duty to balance competing considerations. NHTSA also rejects the notion that California has valid reliance interests in regulations that are void *ab initio*. Indeed, even in the run-up to the 2012 rulemaking, California itself reserved its rights to go in a different direction and recognized that the Federal Government may assert preemption at a later date.¹⁹⁷ The extent to which all or part of industry does or does not support California's ability to regulate in this area is also not a relevant consideration to whether California is legally authorized to do so. NHTSA also notes that industry has expressed a strong preference for one national standard, which is the purpose of EPCA's preemption provision.¹⁹⁸ California has now made clear that it will not accept manufacturers' compliance with Federal standards, unless the agencies adopt the no action alternative from the proposal.¹⁹⁹ EPCA preemption ensures that such State regulations are unenforceable and that one set of national standards (the Federal standards) will control. Not even identical standards are permissible.

J. Clarifying Changes to Final Rule Text

No commenter offered alternative regulatory text for consideration by the

¹⁹⁷ See Letter from M. Nichols, CARB to R. LaHood, DOT & L. Jackson, EPA (July 28, 2011), available at <https://www.epa.gov/sites/production/files/2016-10/documents/carb-commitment-ltr.pdf> (last visited Sept. 15, 2019) (making certain commitments for a National Program, conditioned on certain events including EPA's grant of a waiver of Clean Air Act preemption, vehicle manufacturers not challenging California's standards on the basis of EPCA preemption, and indicating that "California reserves all rights to contest final actions taken or not taken by EPA or NHTSA as part of or in response to the mid-term evaluation").

¹⁹⁸ See Alliance of Automobile Manufacturers, Docket No. NHTSA–2018–0067–12073; American Honda Motor Company, Inc., Docket No. NHTSA–2018–0067–11818; Association of Global Automakers, Docket No. NHTSA–2018–0067–12032; Fiat Chrysler Automobiles (FCA), Docket No. NHTSA–2018–0067–11943; Ford Motor Company, Docket No. NHTSA–2018–0067–11928; General Motors LLC, Docket No. NHTSA–2018–0067–11858; Jaguar Land Rover, Docket No. NHTSA–2018–0067–11916; Mazda Motor Company, Docket No. NHTSA–2018–0067–11727; Mitsubishi Motors RD of America, Inc. (MRDA), Docket No. NHTSA–2018–0067–12056; Subaru, Docket No. NHTSA–2018–0067–12020; Toyota Motor North America, Docket No. NHTSA–2018–0067–12150; Volkswagen Group of America, Docket No. NHTSA–2017–0069–0583.

¹⁹⁹ See Cal. Code Regs. tit. 13, section 1961.3(c).

¹⁸⁶ See *Massachusetts v. EPA*, 549 U.S. 497, 532 (2007).

¹⁸⁷ E.O. 13132 section 11; South Coast Air Quality Management District, Docket No. NHTSA–2018–0067–11813. South Coast also states that NHTSA did not mention the Tenth Amendment in its proposal. South Coast Air Quality Management District, Docket No. NHTSA–2018–0067–11813. However, South Coast does not assert that this action violates the Tenth Amendment, which is fully consistent with Federal preemption. See Constitution, Article VI.

¹⁸⁸ South Coast Air Quality Management District, Docket No. NHTSA–2018–0067–11813.

¹⁸⁹ 83 FR 42986, 43233 n.496 (Aug. 24, 2018).

¹⁹⁰ See, e.g., California Air Resources Board (CARB), Docket No. NHTSA–2018–0067–11873.

¹⁹¹ California Air Resources Board (CARB), Docket No. NHTSA–2018–0067–11873.

¹⁹² *Id.*

¹⁹³ *Id.*

¹⁹⁴ *Id.*; see also Joint Submission from the States of California et al. and the Cities of Oakland et al., Docket No. NHTSA–2018–0067–11735.

¹⁹⁵ California Air Resources Board (CARB), Docket No. NHTSA–2018–0067–11873.

¹⁹⁶ E.g., Sen. Phil Berger & Rep. Tim Moore, North Carolina General Assembly, Docket No. NHTSA–2018–0067–11961; Rep. M. Turzai, Pennsylvania House of Representatives, Docket No. NHTSA–2018–0067–11839.

agency on preemption. Because NHTSA is finalizing its views on preemption, it is adopting the proposed regulatory text, including an appendix. However, based on its review of comments, NHTSA is adopting a few minor, clarifying changes.

While not advocating for a change to the regulatory text, comments from South Coast and CARB persuaded us to make changes to ensure consistency with EPCA's express preemption provision, as was NHTSA's intention.²⁰⁰ South Coast specifically pointed out that two provisions of the proposed regulatory text (appendix B, sections (a)(3) and (b)(3)) did not include the word "automobiles."²⁰¹ Contrary to South Coast's suggestion, NHTSA's intention was not to reach beyond the statutory text. Most of the proposed regulatory text explicitly addressed automobiles. In the two provisions identified by South Coast as omitting that term, NHTSA addressed tailpipe carbon dioxide emissions and fuel economy. In context, these references address automobile emissions and automobile fuel economy. However, for clarity and consistency, NHTSA has added explicit reference to automobiles to these two provisions.

CARB also pointed out in its comments that the statute preempts laws or regulations "related to fuel economy standards," not simply those related to fuel economy.²⁰² While other provisions of the proposed rule used the phrases "relates to fuel economy standards" or "related to fuel economy standards," the word "standards" was inadvertently omitted from section (a)(3) of the appendix. In the final rule, NHTSA has added that word for clarity.

In addition, to ensure consistency throughout the regulatory text and with the preamble discussion, NHTSA is clarifying that a State law or regulations having either a direct or substantial effect of regulating or prohibiting tailpipe carbon dioxide emissions or fuel economy is a law or regulation related to fuel economy. The proposal included this statement in the proposed regulatory text: "Automobile fuel

economy is directly and substantially related to automobile tailpipe emissions of carbon dioxide." This provides the foundation for NHTSA's express and implied preemption analysis. NHTSA is therefore clarifying that requirements directly or substantially related to fuel economy are preempted by adding "or substantially" to two places in the regulatory text. This is consistent with the proposal, which explained that requirements with no bearing on fuel economy or those with only an incidental impact on fuel economy are not preempted.²⁰³ Requirements with more than an incidental impact, *i.e.* those requirements that directly or substantially affect fuel economy are related to fuel economy and thus preempted. Therefore, this change in the regulatory text of the final rule provides additional clarity on the scope of preemption.

In addition, several references throughout the proposed regulatory text addressed a "state law or regulation." Consistent with EPCA and the discussion in the notice of proposed rulemaking, NHTSA intended to address laws and regulations of States and their political subdivisions. For clarity, NHTSA revised all references in its regulatory text to cover States and their political subdivisions.

Specifically, in the rule NHTSA is finalizing in this document, appendix B, section (a)(3) reads: "A law or regulation of a State or political subdivision of a State having the direct or substantial effect of regulating or prohibiting tailpipe carbon dioxide emissions from automobiles or automobile fuel economy is a law or regulation related to fuel economy standards and expressly preempted under 49 U.S.C. 32919." ²⁰⁴ Appendix B, section (b)(3) reads: "A law or regulation of a State or political subdivision of a State having the direct or substantial effect of regulating or prohibiting tailpipe carbon dioxide emissions from automobiles or automobile fuel economy is impliedly preempted under 49 U.S.C. Chapter 329." ²⁰⁵

Finally, NHTSA also added clarifying language to 49 CFR 531.7(b) and 533.7(b) to indicate that the references to "section 32908" are to section 32908 of title 49 of the United States Code.

These clarifying changes are consistent with the discussion in the preamble to NHTSA's proposed rule.

III. EPA's Withdrawal of Aspects of the January 2013 Waiver of CAA section 209(b) Preemption of the State of California's Advanced Clean Car Program

In this section of this joint action, EPA is finalizing its August 2018 proposal to withdraw aspects of its January 2013 waiver of Clean Air Act (CAA) section 209 preemption of the State of California's Advanced Clean Car (ACC) program. *First*, subsection A provides background regarding the ACC program. *Second*, subsection B finalizes EPA's proposed determination that it has the authority to reconsider and withdraw previously granted waivers. *Third*, subsection C finalizes EPA's proposed determination that, in light of NHTSA's determinations finalized elsewhere in this joint action regarding the preemptive effect of EPCA on state GHG and ZEV programs, EPA's January 2013 grant of a waiver of CAA preemption for those provisions of California's program was invalid, null, and void; that waiver is hereby withdrawn on that basis, effective on the effective date of this joint action. *Fourth*, subsection D, separate and apart from the determinations in subsection C with regard to the effect of EPCA preemption on the January 2013 waiver, finalizes EPA's reconsideration of, and its proposed determination that it is appropriate to withdraw, its January 2013 grant of a waiver of CAA preemption for the GHG and ZEV standards in California's ACC program for model years 2021 through 2025, based on a determination that California "does not need [those] standards to meet compelling and extraordinary conditions" within the meaning of CAA section 209(b)(1)(B). *Fifth*, subsection E sets forth and specifies the terms of the waiver withdrawal. *Sixth*, subsection F finalizes EPA's proposed determination that, separate and apart from the findings and determinations described above, states other than California cannot use CAA section 177 to adopt California's GHG standards. *Seventh and finally*, subsection G sets forth EPA's understanding and intention with regard to severability of, and the appropriate venue for judicial review of, this action.

A. Background

On January 9, 2013, EPA granted California's request for a waiver of preemption to enforce its Advanced Clean Car (ACC) program regulations under CAA section 209(b)(1).²⁰⁶ 78 FR

²⁰⁰ South Coast and CARB asked NHTSA to withdraw its proposal on preemption, rather than to change the text of the proposed rule. California Air Resources Board (CARB), Docket No. NHTSA-2018-0067-11873; South Coast Air Quality Management District, Docket No. NHTSA-2018-0067-11813. NHTSA declines to do so for the reasons discussed in this final rule.

²⁰¹ South Coast Air Quality Management District, Docket No. NHTSA-2018-0067-11813.

²⁰² California Air Resources Board (CARB), Docket No. NHTSA-2018-0067-11873; *see also* Joint Submission from the States of California et al. and the Cities of Oakland et al., Docket No. NHTSA-2018-0067-11735.

²⁰³ 83 FR 42986, 43235 (Aug. 24, 2018). It is also consistent with the Supreme Court case law interpreting "related to" in preemption provisions, as discussed both in the proposal and this final rule. *See, e.g., Rowe*, 552 U.S. at 375.

²⁰⁴ Emphases added.

²⁰⁵ Emphases added.

²⁰⁶ As in the proposal, this final action uses "California" and "California Air Resources Board" (or "CARB") interchangeably.

2112. On August 24, 2018, EPA proposed to withdraw this waiver of preemption with regard to the GHG and ZEV standards of its Advanced Clean Car (ACC) program for MY 2021–2025. 83 FR 43240. In the SAFE proposal, EPA provided extensive background on the history of CAA section 209 and waivers granted thereunder, as well as on the specific waiver which California sought for the ACC program which is at issue here, in the SAFE proposal.²⁰⁷ 83 FR 43240–43242.

Since publication of the SAFE proposal, California has clarified its “deemed to comply” provision, under which manufacturers are afforded the option of complying with CARB’s GHG standards by showing that they comply with the applicable federal GHG standards. As amended, CARB’s “deemed to comply” provision now provides that compliance with CARB’s GHG standards can be satisfied only by complying with the federal standards as those standards were promulgated in 2012. In other words, while the content of CARB’s GHG standards has never been identical to the corresponding Federal standards, the “deemed to comply” provision as originally designed, and as it existed when EPA issued the January 2013 waiver, would have shielded automobile manufacturers from having to comply with two conflicting sets of standards unless they chose to do so. After the December 2018 amendment, however, CARB’s regulations now contain within them a mechanism which will automatically impose that state of affairs the moment that the Federal government should exercise its authority to revise its standards. California has further recently announced a “voluntary agreement” with four automobile manufacturers that, among other things, requires the automobile manufacturers to refrain from challenging California’s GHG and ZEV programs. This “voluntary agreement” further provides that California will accept automobile manufacturer compliance with a less stringent standard (and one that extends the phase-in of the GHG standard from 2025 to 2026) than either the California program that was the subject of the 2013 waiver or the Federal standards as promulgated in 2012. Neither California’s amendment of its “deemed to comply” provision, nor its more recent announcement of the new

“voluntary agreement,” constitute a necessary part of the basis for the waiver withdrawal and other actions that EPA finalizes in this document, and EPA would be taking the same actions that it takes in this document even in their absence. Nevertheless, EPA does not believe it appropriate to ignore these recent actions and announcements on the State’s part, and, as discussed below, believes that they confirm that this action is appropriate.²⁰⁸

On January 9, 2013, EPA granted CARB’s request for a waiver of preemption to enforce its ACC program regulations pursuant to CAA section 209(b). 78 FR 2112. The ACC program comprises regulations for ZEV, tailpipe GHG emissions standards, and low-emission vehicles (LEV) regulations²⁰⁹ for new passenger cars, light-duty trucks, medium-duty passenger vehicles, and certain heavy-duty vehicles, for MY 2015 through 2025. Thus, in terms of the scope of coverage of the respective state and federal programs, the ACC program is comparable to the combined Federal Tier 3 Motor Vehicle Emissions Standards and the 2017 and later MY Light-duty Vehicle GHG Standards, with an additional mandate to force the development and deployment of non-internal-combustion-engine technology. According to CARB, the ACC program was intended to address California’s near and long-term ozone issues as well as certain specific GHG emission reduction goals.²¹⁰ 78 FR 2114. See also 78 FR 2122, 2130–2131. The ACC

²⁰⁸ EPA does not take any position at this point on what effect California’s December 2018 amendment to its “deemed to comply” provision, or its July 2019 “framework” announcement, may of their own force have had on the continued validity of the January 2013 waiver. EPA may address that issue in a separate, future action.

²⁰⁹ The LEV regulations in question include standards for both GHG and criteria pollutants (including ozone and PM).

²¹⁰ “The Advanced Clean Cars program . . . will reduce criteria pollutants . . . and . . . help achieve attainment of air quality standards; The Advanced Clean Cars Program will also reduce greenhouse gases emissions as follows: by 2025, CO₂ equivalent emissions will be reduced by 13 million metric tons (MMT) per year, which is 12 percent from base line levels; the reduction increases in 2035 to 31 MMT/year, a 27 percent reduction from baseline levels; by 2050, the proposed regulation would reduce emissions by more than 40 MMT/year, a reduction of 33 percent from baseline levels; and viewed cumulatively over the life of the regulation (2017–2050), the proposed Advanced Clean Cars regulation will reduce by more than 850 MMT CO₂-equivalent, which will help achieve the State’s climate change goals to reduce the threat that climate change poses to California’s public health, water resources, agriculture industry, ecology and economy.” 78 FR 2114. CARB Resolution 12–11, at 19, (January 26, 2012), available in the docket for the January 2013 waiver action, Docket No. EPA–HQ–OAR–2012–0562, the docket for the ACC program waiver.

program regulations impose multiple and varying complex compliance obligations that have simultaneous, and sometimes overlapping, deadlines with each standard. These deadlines began in 2015 and are scheduled to be phased in through 2025. For example, compliance with the GHG requirements began in 2017 and will be phased in through 2025.²¹¹ The implementation schedule and the interrelationship of regulatory provisions with each of the three standards together demonstrates that CARB intended that at least the GHG and ZEV standards, if not also the LEV standards, would be implemented as a cohesive program. For example, in its ACC waiver request, CARB stated that the “ZEV regulation must be considered in conjunction with the proposed LEV III amendments. Vehicles produced as a result of the ZEV regulation are part of a manufacturer’s light-duty fleet and are therefore included when calculating fleet averages for compliance with the LEV III GHG amendments.” CARB’s Initial Statement of Reasons at 62–63.²¹² CARB also noted “[b]ecause the ZEVs have ultra-low GHG emission levels that are far lower than non-ZEV technology, they are a critical component of automakers’ LEV III GHG standard compliance strategies.” *Id.* CARB further explained that “the ultra-low GHG ZEV technology is a major component of compliance with the LEV III GHG fleet standards for the overall light duty fleet.” *Id.* CARB’s request also repeatedly touted the GHG emissions benefits of the ACC program. Up until the ACC program waiver request, CARB had relied on the ZEV requirements as a compliance option for reducing criteria pollutants. Specifically, California first included the ZEV requirement as part of its first LEV program, which was then known as LEV I, that mandated a ZEV sales requirement that phased-in starting with the 1998 MY through 2003 MY. EPA issued a waiver of preemption for these regulations on January 13, 1993 (58 FR 4166 (January 13, 1993)). Since this initial waiver of preemption, California has amended the ZEV requirements multiple times and EPA has

²¹¹ As discussed above, California has further entered into a voluntary agreement with four automobile manufacturers that amongst other things, purports to allow compliance with a less stringent program than either the program that was the subject of the 2013 waiver or the Federal standards promulgated in 2012. See <https://www.gov.ca.gov/2019/07/25/california-and-major-automakers-reach-groundbreaking-framework-agreement-on-clean-emission-standards/> (last visited Aug. 30, 2019).

²¹² Available in the docket for the January 2013 waiver decision, Docket No. EPA–HQ–OAR–2012–0562.

²⁰⁷ A complete description of the ACC program, as it existed at the time that CARB applied for the 2013 waiver, can be found in CARB’s waiver request, located in the docket for the January 2013 waiver action, Docket No. EPA–HQ–OAR–2012–0562.

subsequently granted waivers for those amendments. Notably, however, in the ACC program waiver request, California also included a waiver of preemption request for ZEV amendments that related to 2012 MY through 2017 MY and new requirements for 2018 MY through 2025 MY (78 FR 2118–9). Regarding the ACC program ZEV requirements, CARB's waiver request noted that there was no criteria emissions benefit in terms of vehicle (tank-to-wheel—TTW) emissions because its LEV III criteria pollutant fleet standard was responsible for those emission reductions.²¹³ CARB further noted that its ZEV regulation was intended to focus primarily on zero emission drive—that is, battery electric (BEVs), plug-in hybrid electric vehicles (PHEVs), and hydrogen fuel cell vehicles (FCVs)—in order to move advanced, low GHG vehicles from demonstration phase to commercialization (78 FR 2122, 2130–31). Specifically, for 2018 MY through 2025 MY, the ACC program ZEV requirements mandate use of technologies such as BEVs, PHEVs and FCVs, in up to 15% of a manufacturer's California fleet by MY 2025 (78 FR 2114). Additionally, the ACC program regulations provide various compliance flexibilities allowing for substitution of compliance with one program requirement for another. For instance, manufacturers may opt to over-comply with the GHG fleet standard in order to offset a portion of their ZEV compliance requirement for MY 2018 through 2021. Further, until MY 2018, sales of BEVs (since MY 2018, limited to FCVs)²¹⁴ in California count toward a manufacturer's ZEV credit requirement in CAA section 177 States. This is known as the “travel provision” (78 FR 2120).²¹⁵ For their part, the GHG

emission regulations include an optional compliance provision that allows manufacturers to demonstrate compliance with CARB's GHG standards by complying with applicable Federal GHG standards. This is known as the “deemed to comply” provision. Since proposal, California has amended its regulations to provide that the “deemed to comply” provision only applies to the standards originally agreed to by California, the federal government, and automakers in 2012. In other words, automobile manufacturers would not be able to rely on the “deemed to comply” provision for any revision to those 2012 standards. California has further entered into a voluntary agreement with four automobile manufacturers that amongst other things, requires the automobile manufacturers to refrain from challenging California's GHG and ZEV programs, and provides that California will accept automobile manufacturer compliance with a less stringent standard than either the California program that was the subject of the 2013 waiver or the Federal standards as promulgated in 2012.

As explained in the SAFE proposal (83 FR 83 FR 23245–46), up until the 2008 GHG waiver denial, EPA had interpreted CAA section 209(b)(1)(B) as requiring a consideration of California's need for a separate motor vehicle program designed to address local or regional air pollution problems and not whether the specific standard that is the subject of the waiver request is necessary to meet such conditions (73 FR 12156; March 6, 2008). We also explained that California would typically seek a waiver of particular aspects of its new motor vehicle program up until the ACC program waiver request. We further explained that in the 2008 GHG waiver denial, which was a waiver request for only GHG emissions standards, EPA had determined that its interpretation of CAA section 209(b)(1)(B) as calling for a consideration of California's need for a separate motor vehicle program was not appropriate for GHG standards because such standards are designed to address global air pollution problems in contrast to local or regional air pollution problems specific to and caused by conditions specific to California (73 FR 12156–60). In the 2008 GHG waiver

denial, EPA further explained that its previous reviews of California's waiver request under CAA section 209(b)(1)(B) had usually been cursory and undisputed, as the fundamental factors leading to California's air pollution problems—geography, local climate conditions (like thermal inversions), significance of the motor vehicle population—had not changed over time and over different local and regional air pollutants. These fundamental factors applied similarly for all of California's air pollution problems that are local or regional in nature. In the 2008 GHG waiver denial, EPA noted that atmospheric concentrations of GHG are substantially uniform across the globe, based on their long atmospheric life and the resulting mixing in the atmosphere. EPA therefore posited that with regard to atmospheric GHG concentrations and their environmental effects, the California specific causal factors that EPA had considered when reviewing previous waiver applications under CAA section 209(b)(1)(B)—the geography and climate of California, and the large motor vehicle population in California, which were considered the fundamental causes of the air pollution in California—do not have the same relevance to the question at hand. EPA explained that the atmospheric concentration of GHG in California is not affected by the geography and climate of California. The long duration of these gases in the atmosphere means they are well-mixed throughout the global atmosphere, such that their concentrations over California and the U.S. are substantially the same as the global average. The number of motor vehicles in California, while still a notable percentage of the national total and still a notable source of GHG emissions in the State, is not a significant percentage of the global vehicle fleet and bears no closer relation to the levels of GHG in the atmosphere over California than any other comparable source or group of sources of GHG anywhere in the world. Emissions of greenhouse gases from California cars do not generally remain confined within California's local environment but instead become one part of the global pool of GHG emissions, with this global pool of emissions leading to a relatively homogenous concentration of GHG over the globe. Thus, the emissions of motor vehicles in California do not affect California's air pollution problem in any way that is different from how emissions from vehicles and other pollution sources all around the U.S. (and, for that matter, the world) do.

²¹³ “There is no criteria emissions benefit from including the ZEV proposal in terms of vehicle (tank-to-wheel or TTW) emissions.” CARB ACC waiver request at 15 (May 2012), EPA–HQ–OAR–2012–0562–0004.

²¹⁴ This kind of ZEV technology continues to present technological challenges and in 2006, for instance, EPA granted California a waiver of its ZEV standards through the 2011MY but due to feasibility challenges declined to grant a waiver for MY 2012 and subsequent model years. See 71 FR 78190; EPA, EPA ZEV Waiver Decision Document, EPA–HQ–OAR–2004–0437 (Dec. 21, 2006).

²¹⁵ On March 11, 2013, the Association of Global Automakers and Alliance of Automobile Manufacturers filed a petition for reconsideration of the January 2013 waiver grant, requesting that EPA reconsider the decision to grant a waiver for MYs 2018 through 2025 ZEV standards on technological feasibility grounds. Petitioners also asked for consideration of the impact of the travel provision, which they argue raise technological feasibility issues in CAA section 177 States, as part of the agency's review under the third waiver prong, CAA section 209(b)(1)(C). EPA continues to evaluate the

petition. As explained below, in this action EPA is not taking final action with regard to the proposed determinations under the third waiver prong. Whether and how EPA will respond to the March 2013 petition will be considered in connection with a potential future final action with respect to the proposed third prong determinations set forth in the SAFE proposal.

Similarly, the emissions from California's cars do not only affect the atmosphere in California but in fact become one part of the global pool of GHG emissions that affect the atmosphere globally and are distributed throughout the world, resulting in basically a uniform global atmospheric concentration. EPA then applied this reasoning to the GHG standards at issue in the 2008 GHG waiver denial. Having limited the meaning of this provision to situations where the air pollution problem was local or regional in nature, EPA found that California's GHG standards did not meet this criterion. Additionally, in the 2008 GHG waiver denial, EPA also applied an alternative interpretation where EPA would consider effects of the global air pollution problem in California in comparison to the effects on the rest of the country and again addressed the GHG standards separately from the rest of California's motor vehicle program. Under this alternative interpretation, EPA considered whether impacts of global climate change in California were sufficiently different from impacts on the rest of the country such that California could be considered to need its GHG standards to meet compelling and extraordinary conditions. EPA determined that the waiver should be denied under this alternative interpretation as well. 83 FR 23245–46.

In 2009, EPA reversed its previous denial and granted California's preemption waiver request for its GHG emission standards “for 2009 and later model years.” 74 FR 32744. EPA announced that it was returning to what it styled as the traditional interpretation of CAA section 209(b)(1)(B), under which it would only consider whether California had a “need for its new motor vehicle emissions program as a whole,” *id.* at 32761. It determined that California did, based on ongoing NAAQS attainment issues. *Id.* at 32762–32763. In the alternative, while not adopting either of the 2008 waiver denial's alternative approaches, EPA also determined that California needed its GHG standards as part of its NAAQS attainment strategy due to the indirect effects of climate change on ground-level ozone formation, *id.* at 32763, and that waiver opponents had not met their burden of proof to demonstrate that California climate impacts “are not sufficiently different” to nationwide impacts, *id.* at 32765. EPA also determined that there were no grounds to deny the waiver under CAA section 209(b)(1)(A) (whether the State's determination that its standards in the aggregate are at least as protective as

federal standards) or CAA section 209(b)(1)(C) (whether “such state standards” and accompanying enforcement procedures are inconsistent with CAA section 202(a)). *Id.* at 32759, 32780.

B. EPA's Authority To Reconsider and Withdraw a Previously Granted Waiver Under CAA Section 209(b)

In this action, EPA finalizes its proposed determination that it has the authority to withdraw a waiver in appropriate circumstances. EPA explains below (in this subsection, III.B) the basis for its conclusions that it has authority to withdraw a waiver in appropriate circumstances, and (in subsections III.C and III.D) that it is appropriate for EPA to exercise that authority at this time.²¹⁶

Agencies generally have inherent authority to reconsider their prior actions. Nothing in CAA section 209(b) indicates Congressional intent to remove that authority with respect to waivers that it has previously granted. The text, structure, and context of CAA section 209(b) support EPA's interpretation that it has this authority. And no cognizable reliance interests have accrued sufficient to foreclose EPA's ability to exercise this authority here.

In considering EPA's authority to withdraw a waiver, it is clear that EPA has authority to review and grant California's applications for a waiver based on its evaluation of the enumerated criteria in CAA section 209(b). In this action, we affirm the Agency's proposed view that the absence of explicit language with regard to withdrawal of a waiver does not foreclose agency reconsideration and withdrawal of a waiver.

As explained at proposal, California's ability to obtain a waiver under CAA section 209(b)(1) in the first instance is not unlimited. Specifically, CAA section

²¹⁶ As a general matter, for purposes of determining if withdrawal is appropriate, EPA may initiate reconsideration *sua sponte* where CARB amends either a previously waived standard or accompanying enforcement procedure. 47 FR 7306, 7309 (Feb. 18, 1982). See also 43 FR 998 (January 5, 1978) (Grant of reconsideration to address portions of waived California's motorcycle program that California substantially amended). Additionally, if California acts to amend either a previously waived standard or accompanying enforcement procedure, the amendment may be considered to be within-the-scope of a previously granted waiver provided that it does not undermine California's determination that its standards, in the aggregate, are as at least as protective of public health and welfare as applicable Federal standards, does not affect its consistency with section 202(a) of the Act, and raises no new issues affecting EPA's previous waiver decisions. See, e.g., 51 FR 12391 (April 10, 1986) and 65 FR 69673, 69674 (November 20, 2000).

209(b)(1) provides that “no such waiver will be granted” if the Administrator finds *any* of the following: “(A) [California's] determination [that its standards in the aggregate will be at least as protective] is arbitrary and capricious, (B) [California] does not need such State standards to meet compelling and extraordinary conditions, or (C) such State standards and accompanying enforcement procedures are not consistent with section [202(a)].” CAA section 209(b)(1)(A)–(C), 42 U.S.C. 7543(b)(1)(A)–(C) (emphasis added). CAA Section 209(b)(1) is therefore, premised on EPA review and grant of a waiver prior to California's enforcement of vehicle and engine standards unless certain enumerated criteria are met.

Congress could have simply carved out an exemption from preemption under CAA section 209(b)(1), similar to the exemption it created in CAA section 211(c)(4)(B) for California fuel controls and prohibitions. Under CAA section 211(c)(4)(A), states and political subdivisions are preempted from prescribing or attempting “to enforce, for purposes of motor vehicle emission control, any control or prohibition, respecting any characteristic or component of a fuel or fuel additive in a motor vehicle or motor vehicle engine” if EPA has prescribed a control or prohibition applicable to such characteristic or component of the fuel or fuel additive under CAA section 211(c)(1). EPA may waive preemption for states other than California to prescribe and enforce nonidentical fuel controls or prohibitions subject to certain conditions. Further, waivers are not required where states adopt state fuel controls or prohibitions that are identical to federal controls or for California to adopt fuel controls and prohibitions. CAA sections 211(c)(4)(A)(ii) and 211(c)(4)(B). This stands in stark contrast to CAA section 209(b), which requires EPA to make a judgment about California's request for a waiver of preemption.²¹⁷ Notably, CAA section 211(c)(4)(B) also cross-references CAA section 209(b)(1): “(B) Any State for which application of section 7543(a) of this title has at any time been waived under section 7543(b) ²¹⁸ of this title may at any time

²¹⁷ “Noteworthy is the fact that under the terms of the Act, EPA approval of California fuel regulations is not required. See Act section 211(c)(4)(B), 42 U.S.C. 7545(c)(4)(B).” (Emphasis in original.) *Motor Vehicle Mfrs. Ass'n v. NYS Dep. of Env't'l Conservation*, 17 F.3d 521, 527 (2d Cir. 1994).

²¹⁸ CAA section 211(c)(4)(B), 42 U.S.C. 7545(c)(4)(B). This provision does not identify California by name. Rather, it references CAA

prescribe and enforce, for the purpose of motor vehicle emission control, a control or prohibition respecting any fuel or fuel additive.” CAA section 211(c)(4)(B).

Under the third waiver prong, CAA section 209(b)(1)(C), for example, EPA is to review the consistency of California’s standards with CAA section 202(a), a provision of the Clean Air Act that EPA solely implements.²¹⁹ CAA Section 202(a) provides in relevant part that standards promulgated under this section “shall take effect after such period as the Administrator finds necessary to permit the development and application of the requisite technology, giving appropriate consideration to the cost of compliance within such period.”

In tying the third waiver prong to CAA section 202(a), Congress gave a clear indication that, in determining whether to grant a waiver request, EPA is to engage in a review that involves a considerable degree of future prediction, due to the expressly future-oriented terms and function of CAA section 202(a).²²⁰ In turn, where circumstances

section 209(b), which applies on its face to “any State which has adopted standards (other than crankcase emission standards) for the control of emissions from new motor vehicles or new motor vehicle engines prior to March 30, 1966.” California is the only State that meets this requirement. See S. Rep. No. 90–403 at 632 (1967).

²¹⁹ EPA has explained that California’s standards are not consistent with CAA section 202(a) if there is inadequate lead time to permit the development of technology necessary to meet those requirements, given appropriate consideration to the cost of compliance within that time. California’s accompanying enforcement procedures would also be inconsistent with CAA section 202(a) if the Federal and California test procedures were inconsistent. Legislative history indicates that under CAA section 209(b)(1)(C), EPA is not to grant a waiver if it finds that there is: “Inadequate time to permit the development of the necessary technology given the cost of compliance within that time period.” H. Rep. No. 728, 90th Cong., 1st Sess. 21 (1967); “That California standards are not consistent with the intent of section 202(a) of the Act, including economic practicability and technological feasibility.” S. Rep. No. 403, 90th Cong. 1st Sess. 32 (1967).

²²⁰ There is another textual indication that EPA’s grant of a waiver is not limited to a snapshot in time, with the Agency having no authority to ever revisit, reconsider, and, where appropriate, modify or withdraw waivers that it has previously granted. CAA section 209(b) provides authority to waive the preemptive provision of CAA section 209(a). CAA section 209(a) forbids states from “adopt[ing] or attempt[ing] to enforce” vehicle emission standards; so states cannot do so without or beyond the scope of a waiver. EPA must presume that “attempt to enforce” is not surplusage; it must mean something, and its potential meanings all suggest some ability on EPA’s part to consider actions on the state’s part separate from the state’s “adopt[ion]” of statutory or regulatory provisions and submission to EPA of a waiver request for those provisions. An “attempt to enforce” could potentially mean either a state’s attempt to *de facto* control emissions without having *de jure* codified emissions control requirements, or it could refer to a state’s

arise that suggest that such predictions may have been inaccurate, it necessarily follows that EPA has authority to revisit those predictions with regard to rules promulgated under CAA section 202(a), the requirements of that section, and their relation to the California standards at issue in a waiver request, and, on review, withdraw a previously granted waiver where those predictions proved to be inaccurate.

Under CAA section 202(a), standards are often technology-forcing and thus involve predictions on the part of EPA with regard to future trends in technological and economic factors. This calls for “substantial room for deference to the EPA’s expertise in projecting the likely course of development.” *Natural Resources Defense Council v. EPA (NRDC)*, 655 F.2d 318, 331 (D.C. Cir. 1981) (upholding EPA’s lead time projections for emerging technologies as reasonable). The D.C. Circuit has recognized that EPA might modify standards “if the actual future course of technology diverges from expectation.” *Id.* at 329. It cannot be that EPA has the inherent authority to revisit and revise its own determinations under CAA section 202(a), but it lacks authority to revisit those same determinations under CAA section 209(b).²²¹

Thus, the structure of the statute—where State standards may only be granted a waiver under CAA section 209(b) to the extent that they are consistent with CAA section 202(a)—confirms that EPA has inherent authority to reconsider its prior determination that a request for a waiver for California standards met the criteria of CAA section 209(b). This renders untenable the stance taken by some commenters that EPA is somehow precluded from conducting a subsequent review and withdrawing a waiver even when it becomes aware that its initial predictions in this regard have proven inaccurate.

enforcement actions under a program that it has already “adopt[ed].” Under either scenario, the prohibition on “attempt[ing] to enforce” envisions state activity outside the scope of what can be determined by EPA from the face of a waiver submission. The prohibited activity is not limited to that which can be subject to a snapshot, one-time-only waiver application, which is further support for the conclusion that EPA has authority to reconsider its action on such applications in light of activity later in time than or outside the authorized scope of a waiver once granted.

²²¹ According to one commenter, “it would be very odd if § 209(b) waivers were a one-way ratchet that could be granted but never rescinded. . . . For example, it would run contrary to the statutory scheme to require EPA to leave a waiver in place even after the compelling and extraordinary conditions that justified the waiver are fully addressed.” Comments of the Alliance of Automobile Manufacturers at 182. EPA agrees.

Further, as discussed in the SAFE proposal, the legislative history of CAA section 209(b) confirms that Congress intended EPA’s authority under CAA section 209(b) to include the authority to withdraw a previously granted waiver under appropriate circumstances. 83 FR 43242–43243. See S. Rep. No. 50–403, at 34 (1967) (“Implicit in this provision is the right of the [Administrator] to withdraw the waiver at any time [if] after notice and an opportunity for public hearing he finds that the State of California no longer complies with the conditions of the waiver.”).

Some commenters that oppose the proposed withdrawal of the waiver concede that the agency may review California’s waiver applications under the third waiver prong but then argue that such agency review is a “narrow one.”²²² Under CAA Section 209, they contend, grants California “maximum authority” to set engine and vehicle standards. Commenters’ objection to the instant withdrawal therefore appears to be grounded in some belief that CAA section 209(b) calls for complete deference to California. This view is erroneous. EPA has in fact previously initiated reconsideration under the third waiver prong, CAA section 209(b)(1)(C), in order to “vacate that portion of the waiver previously granted under section 209(b)” in response to CARB’s post waiver modification for previously waived standards. 47 FR 7309. In that reconsideration action, EPA affirmed the grant of a waiver in the absence of “findings necessary to revoke California’s waiver of Federal preemption for its motorcycle fill-pipe and fuel tank opening regulations.” 43 FR 7310. Additionally, EPA has explained that reconsideration will be initiated where leadtime concerns arise after the grant of an initial waiver. “If California’s leadtime projections later prove to have been overly optimistic, the manufacturer can ask that California reconsider its standard, if they are unsuccessful in securing such relief, the

²²² According to several commenters, CAA section 209(b) contains no express delegation of authority to EPA to withdraw a waiver, and in proposing to revoke a previous waiver “EPA has arrogated to itself power only Congress can exercise.” Comments of the Center for Biological Diversity, Conservation Law Foundation, EarthJustice, Environmental Defense Fund, Environmental Law and Policy Center, Natural Resources Defense Council, Public Citizen, Inc., Sierra Club, and Union of Concerned Scientists at 68. One commenter also argued that either EPA lacks authority to revoke a previously granted waiver or that any authority to do so is “limited.” “The unique text and structure of this section *limits* EPA’s authority, contrary to EPA’s assertion of open-ended revocation authority in the proposal.” Comments of the California Air Resources Board at 340.

manufacturers could petition EPA to reconsider the waiver.” 49 FR 18895, 18896 n.104. Further, EPA has in the past repeatedly denied portions of several waiver requests.²²³ EPA has also historically deferred or limited the terms of its grant of aspects of some waiver requests as a means of ensuring consistency with CAA section 202(a).²²⁴ It is precisely these kinds of EPA actions that have forestalled withdrawal of any waiver to date—not any lack of authority on EPA’s part to withdraw. None of the commenters, however, provided explanations as to why their apparent view of maximum deference to California is not implicated by EPA’s authority to either deny a waiver request or to modify the terms of a waiver request in the course of granting one. And EPA’s 2009 reversal of its 2008 denial supports, and demonstrates the long-held nature of, its position that EPA has authority to reconsider and reverse its actions on waiver applications.²²⁵

At least one commenter argued that this legislative history did not support the position that EPA has authority to withdraw a previously granted waiver because the legislative history relates to the original creation of the waiver provision in the Air Quality Act of 1967, whereas the Clean Air Act Amendments of 1977 revised language in the root text of CAA section 209(b)(1). Specifically, Congress in 1977 amended CAA section 209(b)(1) to establish as a prerequisite for the grant of a waiver that the State determine that its standards “will be, in the aggregate, at least as protective of public health and welfare as applicable Federal standards” for EPA to issue a waiver, rather than the original requirement that State standards be “more stringent” than corresponding federal standards.²²⁶ EPA disagrees that

this amendment was either intended to deprive EPA of authority to withdraw a previously granted waiver when the Administrator finds applicable one or more of the three criteria in CAA section 209(b)(1) under which a waiver is inappropriate, or that the amendment can be reasonably construed to have had such effect. There is no indication that the amendment was intended to alter EPA’s authority under the original provision. Nor did the amendment alter the language of the criteria enumerated in CAA section 209(b). In any event, as previously discussed above, EPA has initiated reconsideration for purposes of revoking a waiver since the 1977 CAA amendments. See for example, 47 FR 7306 (Feb. 18, 1982) (Agency reconsideration of grant of waiver for purposes of withdrawal in response to CARB’s post waiver modification for previously waived standards).

Some commenters question whether EPA has any authority at all to reconsider a previously granted waiver. It is well-settled, however, that EPA has inherent authority to reconsider, revise, or repeal past decisions to the extent permitted by law. At proposal, EPA explained that, although CAA section 209(b)(1) may not expressly communicate that EPA has authority to reconsider and withdraw a waiver, both the legislative history of the waiver provision and fundamental principles of administrative law establish that EPA necessarily possesses that authority. The authority to reconsider prior agency decisions need not be rooted in any particular “magic words” in statutory text. Subject to certain limitations, administrative agencies possess inherent authority to reconsider their decisions. See *ConocoPhillips Co. v. EPA*, 612 F.3d 822, 832 (5th Cir. 2010) (“Embedded in an agency’s power to make a decision is its power to reconsider that decision.”); *Dun & Bradstreet Corp. Found. v. U.S. Postal Serv.*, 946 F.2d 189, 193 (2d Cir. 1991) (“It is widely accepted that an agency may, on its own initiative, reconsider its interim or even its final decisions, regardless of whether the applicable statute and agency regulations expressly

provide for such review.”); *Mazaleski v. Treusdell*, 562 F.2d 701, 720 (D.C. Cir. 1977) (“[A]n agency has the inherent power to reconsider and change a decision if it does so within a reasonable period of time.”); *Belville Min. Co. v. United States*, 999 F.2d 989, 997 (6th Cir. 1993) (“Even where there is no express reconsideration authority for an agency, however, the general rule is that an agency has inherent authority to reconsider its decision, provided that reconsideration occurs within a reasonable time after the first decision.”).

The commenters’ position that EPA does not have any authority to reconsider either a grant or a denial of a waiver founders in light of these principles. As explained in the SAFE proposal, 83 FR 43242–43243, EPA does have that authority, in part because its interpretations of the statutes it administers “are not carved in stone.” *Chevron U.S.A. v. NRDC*, 467 U.S. 837, 863 (1984). An agency “must consider varying interpretations and the wisdom of its policy on a continuing basis.” *Id.* at 863–64. Notably, in response to CARB’s request, EPA has previously reconsidered and reversed a previous waiver denial.²²⁷ Similarly, in keeping with agency CAA section 209(b)(1) practice, EPA has reconsidered its previous decision to grant a waiver for portions of California’s motorcycle program in response to a petition for reconsideration from the motorcycle industry.²²⁸

Other commenters assert that EPA’s proposal to withdraw the waiver is solely based on a change in Presidential administration. There is no basis for this claim. While EPA noted in the SAFE proposal that the agency can review and reconsider a prior decision “in response to . . . a change in administration,” *National Cable & Telecommunications Ass’n v. Brand X Internet Services*, 545 U.S. 967, 981 (2005), we further acknowledged that “the EPA must also be cognizant where it is changing a prior position and articulate a reasoned basis for the change.” *FCC v. Fox Television Stations, Inc.*, 556 U.S. 502, 515 (2009). 83 FR 43242–43243, 43248. In keeping with the proposed waiver withdrawal, under the second waiver prong, CAA section 209(b)(1)(B), as discussed below, EPA in this document finalizes a determination that California does not

²²³ 38 FR 30136 (November 1, 1973) (denial of waiver for MY 1975 HC and CO standards “because costs of compliance within the lead time remaining is excessive.”); 43 FR 998 (January 5, 1978) (denial of waiver for MY 1978 test procedures due to insufficient lead time); 40 FR 30311 (July 18, 1975) (denial of waiver due to insufficient lead time for MY 1977).

²²⁴ 58 FR 4166 (January 13, 1993) (deferring consideration of portions of waiver request); 67 FR 54180, 81 n.1 (August 21, 2002) (granting waiver with certain exceptions).

²²⁵ In seeking reconsideration of the March 8, 2008 waiver denial, CARB also noted that “EPA has the inherent authority to reconsider its previous waiver denial” 74 FR 32747.

²²⁶ The intent of the 1977 amendment was to accommodate California’s particular concern with NO_x, which the State regarded as a more serious threat to public health and welfare than carbon monoxide. California was eager to establish oxides of nitrogen standards considerably more stringent than applicable Federal standards, but technological developments posed the possibility that emission control devices could not be

constructed to meet both the stringent California oxides of nitrogen standard and the stringent federal carbon monoxide standard. *Motor & Equip. Mfrs. Ass’n, Inc. v. EPA*, 627 F.2d at 1110 n.32. EPA has explained that the phrase “in the aggregate” was specifically aimed at allowing California to adopt CO standards less stringent than the corresponding federal standards, while at the same time adopting more stringent NO_x standards, as part of California’s strategy to address ozone problems. California reasoned that a relaxed CO standard would facilitate the technological feasibility of more stringent NO_x standards. 78 FR 43247.

²²⁷ EPA reconsidered the 2008 GHG waiver denial in response to CARB’s request and granted it upon reconsideration. 72 FR 32744 (July 9, 2009). See also 43 FR 998 (January 5, 1978) (Grant of reconsideration to address portions of waived California’s motorcycle program that California substantially amended).

²²⁸ 43 FR 998 (January 5, 1978).

need its GHG and ZEV standards to meet compelling and extraordinary conditions, within the meaning of those terms as they are used in the statute, that differs from its determination on the same question made in the course of granting the ACC program waiver. Additionally, the agency, in response to a request by automobile manufacturers, who have consistently expressed reservations over their ability to comply with MY 2022–2025 GHG standards, is reconsidering standards that are the compliance mechanism for CARB’s MY 2022–2025 GHG standards. This is the compliance mechanism that California had provided in response to automobile manufacturers request and support for the waiver of preemption.

At proposal, EPA noted that California had given public notice that it was considering amending its “deemed to comply” provision to provide that that provision would be applicable only to vehicles that meet the standards originally agreed to by California, the federal government, and automakers in 2012. *See* 83 FR 43252 n.589. California finalized that amendment to its regulations after the close of the SAFE comment period, in late 2018. California more recently, in July 2019, announced a “framework” agreement with certain automakers that purported to establish a “nationwide” standards program different from *both* the 2012 Federal standards *and* from the California program for which EPA granted the January 2013 waiver. These actions on California’s part, while not proposed as bases for waiver withdrawal in the August 2018 SAFE proposal, as those actions had not yet transpired at the time of proposal, and while not necessary for the finalization of this action, do provide further support for this action (although EPA does not view them as necessary predicates for this action and would be taking this action even in their absence).

Thus, contrary to some commenters’ assertions, reconsideration of the grant of the waiver, and EPA’s proposal to withdraw the waiver, was not solely motivated by a change in Presidential administration. The policy, technical, and legal considerations discussed in the proposal and in this final action provide the rationale for EPA’s actions here. It is therefore distinguishable from the instance where, for example, an agency undertook reconsideration subsequent to a change in administration because “the withdrawn decision was doubtful in light of changing policies.” *Coteau Properties Co. v. DOI*, 53 F.3d 1466, 1479 (8th Cir. 1995).

Further, as earlier noted, California has now entered into a voluntary agreement with at least four automobile manufacturers that amongst other things, requires the automobile manufacturers to refrain from challenging California’s GHG and ZEV programs, and provides that California will accept automobile manufacturer compliance with a less stringent standard than either the California program that was the subject of the 2013 waiver or the Federal standards as promulgated in 2012.²²⁹ This agreement appears to materially depart from the existing grant of waiver for MY 2021–2025 GHG standards, is in tension with California’s above-mentioned amendment of the “deemed to comply” provision, and raises an additional reason to question whether California “needs” their existing standards within the meaning of CAA section 209(b)(1)(B), given that California has announced it is proceeding to create a new “voluntary” program that would relax the stringency of some aspects of those standards. That is to say, California’s apparent weakening of its program as it was originally submitted for waiver calls into question whether it needs that program. EPA believes that this provides additional support for its conclusion, as set forth in subsections III.B and III.D, both that it has authority to withdraw its grant of the waiver and that California does not in fact need these waived standards to meet “compelling and extraordinary conditions,” CAA section 209(b)(1)(B), if the State is itself already proceeding to allow departures from those waived standards.²³⁰ EPA further believes that California cannot claim reliance interests when it is undertaking steps to alter the *status quo*.

In short, the text, structure, and history of CAA section 209(b)(1) support EPA’s authority to withdraw previously granted waivers.²³¹ At the same time, nothing in CAA section 209(b)(1) can reasonably be read to preclude the agency from withdrawing a previously issued waiver under appropriate

circumstances. EPA is not persuaded by commenters’ assertions to the contrary. In this action, EPA affirms the position that the scope of review for California waivers under CAA section 209(b)(1) includes both a pre-grant review and, where appropriate, post-grant review of an approved waiver; that post-grant review may, in appropriate circumstances, result in a withdrawal of a prior waiver. A withdrawal action could be premised on any one of the three findings in CAA section 209(b)(1)(A)–(C) that render a waiver unavailable.

EPA also disagrees with some commenters’ assertions that ostensible reliance interests foreclose withdrawal of the waiver for MY 2021–2025 GHG and ZEV standards. According to these commenters, “California, and the section 177 states that have elected to adopt those standards as their own have incurred reliance interests ultimately flowing from those standards. For instance, California has incurred reliance interests because it is mandated to achieve an aggressive GHG emissions reduction target for 2030.”²³² They further state: “[b]ut EPA provides no justification for applying that change in policy *retroactively* to upend a five-year-old decision to which substantial reliance interests have attached.” (Emphasis in original).²³³

The federal GHG standards that EPA promulgated in 2012 included a commitment to conduct and complete a Mid-Term Evaluation (MTE) of the GHG standards for MY 2022–2025, given the lengthy phase-in compliance period, EPA projections of control technology availability or feasibility for MY 2021–2025, and the fact that EPA promulgated those standards in a joint action with NHTSA, where NHTSA was acting under a statute which limited its promulgation of fuel economy standards to periods of five years.²³⁴ *See NRDC*,

²²⁹ Comments of CARB at 83.

²³³ Comments of States of California, Connecticut, Delaware, Hawaii, Iowa, Illinois, Maine, Maryland, Minnesota, New Jersey, New Mexico, New York, North Carolina, Oregon, Rhode Island, Vermont and Washington, the Commonwealth of Massachusetts, Pennsylvania and Virginia, the District of Columbia, and the Cities of Los Angeles, New York, Oakland, San Francisco and San Jose at 123; Comments of CARB at 352.

²³⁴ 40 CFR 86.1818–12(h). 77 FR 62624 (October 15, 2012). EPA notes in this regard that the Supreme Court in *Massachusetts v. EPA*, in rejecting the position that greenhouse gases are not air pollutants under the general definition of that term in CAA section 302 because, if they were, EPA’s regulations of GHG emissions from the motor vehicle fleet could intrude on DOT’s fuel economy authority, opined that “[t]he two obligations may overlap, but there is no reason to think the two agencies cannot both administer their obligations and yet avoid inconsistency.” 549 U.S. 497, 532 (2007). In order for the two agencies to do so, they

²²⁹ <https://www.gov.ca.gov/2019/07/25/california-and-major-automakers-reach-groundbreaking-framework-agreement-on-clean-emission-standards/>.

²³⁰ Again, neither California’s late 2018 amendment to its “deemed to comply” provision, nor its July 2019 announcement of a new “framework,” are necessary bases for the action EPA takes in this document; instead, they provide further support for that action.

²³¹ In 2009, EPA reconsidered the 2008 GHG waiver denial at CARB’s request and granted it upon reconsideration. 74 FR 32744. EPA noted the authority to “withdraw a waiver in the future if circumstances make such action appropriate.” *See* 74 FR 32780 n.222; *see also id.* at 32752–32753 n.50 (citing 50 S. Rep. No. 403, at 33–34).

655 F.2d at 329 (upholding EPA's lead time projections for emerging technologies as reasonable, noting a longer lead time tends to "give[] the agency greater leeway to modify its standards if the actual future course of technology diverges from expectation."). The 2012 rulemaking also established the GHG standards for MY 2021–2025 that are the subject of the "deemed to comply" provision. (*i.e.*, California allowed automobile manufacturers to demonstrate compliance with California's GHG standards by complying with EPA's GHG standards). The MTE construct required EPA to issue a Final Determination by April 1, 2018 regarding whether the GHG standards for MY 2022–2025 remained appropriate under CAA section 202(a).²³⁵ Specifically, the MTE would, amongst other things, assess the relevant factors pertinent to setting standards under CAA section 202(a), such as the feasibility and practicability of the standards, costs to vehicle manufacturers and consumers, impacts on the automobile industry, emissions impacts, and safety impacts. In comments during the 2012 national GHG rulemaking, automakers supported the MTE, and several expressly predicated their support of the GHG standards for MY 2022–2025 on the MTE.²³⁶ In the waiver action, EPA reiterated its commitment to the MTE in light of these considerations.²³⁷

In these circumstances, where GHG standards were being set far into the future with an explicit commitment to revisit them, where California agreed to deem compliance with certain federal GHG standards to constitute compliance with California standards, and where all parties were provided ample notice that

needed to take account of the fact that DOT's fuel-economy authority faces temporal constraints that EPA's emissions authority does not. They did so through the MTE, and the MTE mechanism provided notice to all interested parties that EPA's 2012 federal standards under CAA section 202(a), and EPA's January 2013 waiver grounded in part on a finding that the State provisions subject to the waiver were compatible with CAA section 202(a), would be subject to review and possibly revision within a few years of the waiver grant. Under these circumstances, no reliance interests accrued sufficient to foreclose EPA's authority to reconsider and withdraw the waiver.

²³⁵ The MTE process also called for a "draft Technical Assessment Report" (to be prepared no later than November 15, 2017), public comments on that draft report, and public comments on whether the model year 2022–2025 standards are "appropriate" under CAA section 202(a).

²³⁶ 77 FR at 62636, 62652, 62785.

²³⁷ "EPA is committed to conducting a mid-term evaluation for MYs 2022–2025 in close coordination with NHTSA and CARB given the long-time frame in implementing standards out to MY 2025 and given NHTSA's obligation to conduct a separate rulemaking in order to establish final standards for vehicles for those years." 78 FR 2137.

EPA would be revisiting federal standards and, accordingly, the waiver granted for a program that acceded to those standards through the "deemed to comply" provision, neither the State of California nor other parties (such as automakers) have reasonable reliance interests sufficient to foreclose the extension of federal standards to California. Likewise, under CAA section 177, even though States other than California, under certain circumstances and conditions, may "adopt and enforce" standards that are "identical to the California standards for which EPA has granted a waiver for such model year," given that Title I²³⁸ does not call for NAAQs attainment planning as it relates to GHG standards, those States that may have adopted California's GHG standards and ZEV standards for certain MYs would also not have any reliance interests as a result of the grant of the ACC program waiver. As previously noted, CAA section 177 States also lack reliance interests sufficient to preclude reconsideration and withdrawal of the waiver both because they were on notice of the commitment to review the federal standards, as discussed above.²³⁹ Relatedly, with the revocation of these standards in this action there will be no "standards identical to the California standards for which a waiver has been granted" that any state may adopt and enforce, under CAA section 177(1).²⁴⁰ (States may not "tak[e] any action that has the effect of creating a car different from those produced to meet either federal or California emission standards, a so-called 'third vehicle.'") *Motor Vehicle Mfrs. Ass'n of U.S., Inc. v. New York State Dep't of Env'tl. Conservation*, 17 F.3d 521, 528 (2d Cir. 1994)). California also did not seek approval for MY 2021–2025 GHG standards in its 2016 SIP approval request. 81 FR 39424, 27–28 (June 16, 2016).

As a general matter, "[w]henver a question concerning administrative, or judicial, reconsideration arises, two opposing policies immediately demand recognition: The desirability of finality, on the one hand, and the public interest

²³⁸ Under title I of the Clean Air Act, EPA establishes national ambient air quality standards (NAAQS) to protect public health and welfare, and has established such ambient standards for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, lead, and particulate matter.

²³⁹ "This new State authority should not place an undue burden on vehicle manufacturers who will be required, in any event, to produce vehicles meeting the California standards for sale in California." H.R. Conf. Rep. No. 95–294, 95th Cong., 1st Sess. 337 (1977).

²⁴⁰ A State may not "make attempt[s] to enforce" California standards for which EPA has not waived preemption. *Motor Vehicle Mfrs. Ass'n v. NYS Dep. of Env'tl Conservation*, 17 F.3d 521, 534 (2d Cir. 1994).

in reaching what, ultimately, appears to be the right result on the other." *Civil Aeronautics Bd. v. Delta Air Lines, Inc.*, 367 U.S. 316, 321–22 (1961). *See also ConocoPhillips*, 612 F.3d at 832 (5th Cir. 2010) ("Furthermore, reconsideration also must occur within a reasonable time after the decision being reconsidered was made, and notice of the agency's intent to reconsider must be given to the parties."); *Belville Min. Co. v. United States*, 999 F.2d 989, 997 (6th Cir. 1993) ("Even where there is no express reconsideration authority for an agency, however, the general rule is that an agency has inherent authority to reconsider its decision, provided that reconsideration occurs within a reasonable time after the first decision."); *Bookman v. United States*, 453 F.2d 1263, 1265 (Fed. Cir. 1972) ("[A]bsent contrary legislative intent or other affirmative evidence, this court will sustain the reconsidered decision of an agency, as long as the administrative action is conducted within a short and reasonable time period.").

For the reasons stated above, there was no "finality" in the federal MY 2021–2025 GHG standards that EPA promulgated in 2012 in the sense required for cognizable reliance to accrue sufficient to foreclose EPA's exercise of authority to reconsider and, if appropriate, withdraw the waiver. Nor is such "finality" to be found in the January 2013 grant of the waiver for California's MY 2021–2025 GHG and ZEV standards. As explained at proposal, in granting the waiver for the ACC program GHG and ZEV standards, EPA had evaluated certain compliance flexibilities allowed by California under the third waiver prong, CAA section 209(b)(1)(C) (consistency with CAA section 202(a)). Specifically, EPA evaluated California regulations that included an optional compliance provision (the "deemed to comply" provision) that would allow automobile and engine manufacturers to demonstrate compliance with CARB's GHG standards for MY 2017–2025 by complying with applicable national or federal GHG standards. 78 FR 2136. During the waiver proceedings, most automobile manufacturers either opposed the grant of the waiver for MY 2021–2025 GHG and ZEV standards as not consistent with CAA section 202(a)²⁴¹ or premised their support for

²⁴¹ 78 FR 2132 (manufacturers suggested that EPA should grant California's waiver request after CARB finalized its regulatory amendments to allow for a national compliance option; manufacturers oppose granting the waiver for the ZEV program past the 2017 MY, asserting that those standards will not be feasible either in California or in the individual

Continued

those standards on California's permitting compliance through the "deemed to comply" provision.²⁴² In comments on the proposed withdrawal, California did not contest this aspect of the waiver proceedings. For example, California in its comments on the SAFE proposal, at page 57, states "[b]ecause the federal program was expected to achieve GHG emission reductions that are equivalent to the California program, CARB modified its LEV III GHG regulation to continue to allow the 'deemed to comply' option beyond model year 2016, by accepting federal compliance with the EPA standards as sufficient to demonstrate compliance with California's standards for the 2017 through 2025 model years." Additionally, most automobile manufacturers indicated that they would comply with California's GHG standards through the "deemed to comply" provision. Both California and some automobile manufacturers also alluded to their expectations that standards would be revised in the future in light of technological feasibility and cost considerations surrounding MY 2022–2025 GHG standards.^{243 244}

CAA section 177 States given the status of the infrastructure and the level of consumer demand for ZEVs; dealers suggest that EPA should not grant California a waiver for its ZEV and GHG emission standards past MY 2018 and 2021, respectively, asserting that technical capabilities after that time are uncertain.).

²⁴² "[T]his national compliance option is integral to the commitment letters the industry and California signed in July 2011 and to the single national GHG/fuel economy program all stakeholders sought to achieve." 78 FR 2138.

²⁴³ 78 FR 2128. A waiver "will remain an important backstop in the event the national program is weakened or terminated;" manufacturers note that both the federal and the California GHG emission standards provide for a comprehensive mid-term evaluation of the MYs 2022–2025; manufacturers clearly state that "[a]ny amendments to California's GHG emission standards made as a result of the mid-term evaluation will require analysis to determine whether the amendments fall within the scope of this waiver, or, if not, whether they qualify for a separate waiver under Section 209(b) of the Clean Air Act." 78 FR 2132. *See also*, e.g., comments of the National Automobile Dealers Association, n.43. On March 11, 2013, the Association of Global Automakers and Alliance of Automobile Manufacturers filed a petition for reconsideration of the January 2013 waiver grant, requesting that EPA reconsider the decision to grant a waiver for MYs 2018 through 2025 ZEV standards on technological feasibility grounds. Petitioners also asked for consideration of the impact of the travel provision, which they argue raise technological feasibility issues in CAA section 177 States, as part of the agency's review under the third waiver prong, CAA section 209(b)(1)(C). EPA continues to evaluate the petition. As explained below, in this action EPA is not taking final action with regard to the proposed determinations under the third waiver prong. Whether and how EPA will respond to the March 2013 petition will be considered in connection with a potential future final action with respect to the proposed third prong determinations set forth in the SAFE proposal.

Regarding whether EPA is foreclosed from reconsidering its January 2013 waiver grant due to the passage of time, on January 12, 2017, well in advance of the April 2018 deadline that it had set for itself, EPA completed the Mid-Term Evaluation called for under the 2012 national GHG standards, determining that the MY 2017–2025 GHG standards promulgated in that rulemaking were appropriate. Automobile manufacturers, however, petitioned EPA for reconsideration of that January 2017 determination. In March 2017, EPA granted this petition for reconsideration. 82 FR 14671 (Mar. 22, 2017). In March 2017 California completed its own Mid-Term Evaluation review, in which it arrived at different conclusions on technological feasibility and costs for these standards than those that EPA would later reach. Subsequently, in April 2018, consistent with the timing specified in its regulations, EPA revised its finding on the appropriateness of the federal MY 2022–2025 GHG standards, concluding that those standards "are not appropriate and, therefore, should be revised."²⁴⁵ This finding provided notice of a reasonable possibility that these federal GHG standards would likely be changing.²⁴⁶ In the April 2018 action, EPA also withdrew the January 2017 finding. 83 FR at 16077. Since then California has challenged this revised finding; that challenge is pending in the United States Court of Appeals for the District of Columbia. *California v. EPA*, No. 18–1114 (D.C. Cir. argued Sept. 6, 2019). Moreover, California in December 2018 amended the "deemed to comply" provision in its regulations after the publication of the SAFE proposal, and in July 2019 announced a putative nationwide framework for vehicle standards, as discussed above.

These procedural aspects of the federal GHG standards and the grant of a waiver for California's ACC program are indicative of the absence of the possibility of reasonable reliance in the "finality" of the waiver, contrary to commenters' assertion of reliance interests. For instance, as shown above, the engine and vehicle manufacturers have not only complained about the

stringency of MY 2021–2025 GHG and ZEV standards, but also requested reconsideration of both the waiver as it relates to the ZEV standards, and the 2017 Mid-Term Evaluation that addresses the "deemed to comply" provision, which California provided in response to their request. EPA has also initiated joint rulemaking with NHTSA that proposes amended EPA GHG standards and fuel economy standards for MY 2021–2026. *See*, the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks. 83 FR 42986 (Aug. 24, 2018). As also previously noted, automobile and engine manufacturers operated under the assumption that both California and national standards would, or at least could, be revised.²⁴⁷ These circumstances are sufficient to put California and others on notice that standards were in flux such that they could not give rise to reasonable reliance interests. Further, CAA section 177 States do not have any reliance interests that are engendered by the withdrawal of the waiver for the MY 2021–2025 GHG and ZEV standards. As previously explained, although CAA section 177 allows States other than California to adopt standards that are promulgated by California and for which a waiver of preemption is granted by EPA pursuant to CAA section 209, CAA section 177 States may do so only subject to certain conditions and circumstances. None of these conditions and circumstances, however, are at issue in this waiver decision, in light of EPA's determination that CAA section 177 does not apply to states seeking to adopt and enforce CARB's GHG standards. As also previously noted, with the revocation of these standards in this action, there will be no "standards identical to the California standards for which a waiver has been granted" that any state may adopt and enforce, under CAA section 177(1).²⁴⁸ States may not "tak[e] any action that has the effect of creating a car different from those produced to meet either federal or California emission standards, a so-called 'third vehicle.'" *Motor*

²⁴⁴ Since the grant of the ACC waiver program, engine and vehicle manufacturers who voiced concerns about the stringency of MY 2021–2025 GHG and ZEV standards during the waiver proceedings have requested both reconsideration of the grant of the waiver for the ZEV standards (which is a compliance mechanism for the GHG standards) and aspects of the national GHG program.

²⁴⁵ Mid-Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022–2025 Light-Duty Vehicles: Notice; Withdrawal. 83 FR 16077 (Apr. 13, 2018).

²⁴⁶ 82 FR 14671 (Mar. 22, 2017).

²⁴⁷ "The manufacture of automobiles is a complex matter, requiring decisions to be made far in advance of their actual execution. The ability of those engaged in the manufacture of automobiles to obtain clear and consistent answers concerning emission controls and standards is of considerable importance so as to permit economies in production." S. Rep. No. 403, 90th Cong., at 730 1st Sess. (1967).

²⁴⁸ A State may not "make attempt[s] to enforce" California standards for which EPA has not waived preemption. *Motor Vehicle Mfrs. Ass'n v. NYS Dep. of Envtl Conservation*, 17 F.3d 521, 534 (2d Cir. 1994).

Vehicle Mfrs. Ass'n of U.S., Inc. v. New York State Dep't of Env'tl Conservation, 17 F.3d 521, 528 (2d Cir. 1994).

California's comments argue that EPA cannot revisit its waiver with respect to the ZEV standards in particular because EPA, in a SIP approval action, approved ZEV provisions into the State's SIP. Final CARB Detailed Comments, at 351. But in so doing, EPA noted that California's GHG provisions were *not* part of California's SIP submission.²⁴⁹ At the time, EPA explained that "CARB has expressly excluded from the August 14, 2015 SIP submittal certain sections or subsections of California code that have been authorized or waived by EPA under CAA section 209."²⁵⁰ Further, in the SAFE proposal, EPA explained that the proposed withdrawal of the waiver for MY 2021–2025 ZEV standards was premised in part on California's explicit indications that compliance with those standards formed part of the compliance mechanism for MY 2021–2025 GHG standards. For instance, at proposal, we explained "because the ZEV and GHG standards are closely interrelated, as demonstrated by the description above of their complex, overlapping compliance regimes, EPA is proposing to withdraw the waiver of preemption for ZEV standards under the second and third prongs of section 209(b)(1)." 83 FR 43243. California's responses to the SAFE proposal do not rebut the Agency's views that the ZEV standards for MY 2021–2025 are inextricably interconnected with the design and purpose of California's overall GHG reduction strategy.²⁵¹ According to California, for example, CARB's GHG standards for the 2017 through 2025 MYs are designed to respond to California's identified goals of reducing GHG emissions to 80 percent below 1990 levels by 2050 and in the near term

to reduce GHG levels to 1990 levels by 2020;" "In 2009, CARB staff analyzed pathways to meeting California's long-term 2050 GHG reduction goals in the light duty vehicle subsector and determined that ZEVs would need to comprise nearly 100 percent of new vehicle sales between 2040 and 2050, and commercial markets for ZEVs would need to launch in the 2015 to 2020 time frame." Analysis in support of comments of the California Air Resources Board on the SAFE proposal, pg. 54, 59 & 83. EPA reviewed California's SIP submission, including ZEV measures, as a matter of NAAQS compliance strategy. But in the 2012–2013 CAA section 209(b) waiver proceeding, CARB presented its ZEV program to EPA solely as a GHG compliance strategy—indeed, CARB expressly stated that the ZEV program *did not confer NAAQS pollutant benefits*. "There is no criteria emissions benefit from including the ZEV proposal in terms of vehicle (tank-to-wheel or TTW) emissions." CARB ACC waiver request at 15, EPA–HQ–OAR– 2012–0562–0004.²⁵²

Similarly, some commenters argued that EPA reconsideration would constitute impermissible retroactive action, citing *Bowen v. Georgetown Univ. Hosp.*, 488 U.S. 204 (1988). However, the rulemaking which the Supreme Court held was impermissibly retroactive in that case had been proposed in February 1984 and had purported to establish reimbursement rates effective July 1, 1981. By contrast, here EPA is reconsidering a previous grant of a waiver of preemption for future model years 2021–2025.²⁵³

²⁵² CARB in its SAFE proposal comments refers to this as an "alleged[]" statement, Final Carb Detailed Comments at 351. The SAFE proposal cited the Waiver Support Document in which CARB made this statement, 83 FR at 43248 n.580. The statement is directly quoted above. California's comments on the SAFE proposal do not contest that California's ACC waiver request expressly disclaimed criteria pollutant benefits from the ZEV program, nor do they establish that EPA is foreclosed from revisiting the grant of the waiver in light of the interpretation of 209(b)(1)(B) adopted below. EPA notes in this regard that California's approach in its ACC waiver request differed from the state's approach in its waiver request for MY 2011 and subsequent heavy-duty tractor-trailer GHG standards, where California quantified NO_x emissions reductions attributed to GHG standards and explained that they would contribute to PM and ozone NAAQS attainment. 79 FR 46256, 46257 n.15, 46261, 46262 n.75 (August 7, 2014).

²⁵³ As explained above, to the extent that NHTSA's final determination that EPCA preempts State GHG and ZEV programs, the implications of that determination for prior EPA waivers of such programs are effective upon the effective date of this joint action. Separate and apart from that analysis, to the extent that EPA is withdrawing the waiver based on its determination that the waiver does not meet the CAA section 209(b)(1)(B)

Reconsideration of aspects of a prior adjudication whose effects have not yet ripened is not barred by *Bowen's* proscription on retroactive rulemaking—otherwise any reconsideration of agency action would likewise be barred.

For all these reasons, EPA concludes it has authority under CAA section 209 to reconsider its prior grant of the ACC waiver and to withdraw the waiver for MY 2021–2025 GHG and ZEV standards, consistent with the SAFE proposal.

C. The Effect of Preemption Under the Energy Policy and Conservation Act (EPCA) on EPA's Previously Granted Waiver Under CAA Section 209(b) With Regard to California's GHG and ZEV Standards

In the SAFE proposal, EPA explained its historical practice of reviewing waiver requests under the prism of CAA section 209. Specifically, EPA has "historically declined to consider as part of the waiver process whether California standards are constitutional or otherwise legal under other Federal statutes apart from the Clean Air Act." 83 FR 42340. *See also Motor & Equip. Mfrs. Ass'n, Inc. v. EPA*, 627 F.2d 1095, 1115 (D.C. Cir. 1979) (*MEMA I*) "[T]he Administrator operates in a narrowly circumscribed proceeding requiring no broad policy judgments on constitutionally sensitive matters. Nothing in CAA section 209 requires him to consider the constitutional ramifications of the regulations for which California requests a waiver." This historic position was reflected in granting the initial ACC program waiver where EPA explained: "Evaluation of whether California's GHG standards are preempted, either explicitly or implicitly, under [the Energy Policy and Conservation Act] EPCA, is not among the criteria listed under section 209(b). EPA may only deny waiver requests based on the criteria in section 209(b), and inconsistency with EPCA is not one of those criteria." 78 FR 2145. But EPA, in the past, has also solicited comments on "whether the Energy Policy and Conservation Act (EPCA) fuel economy provisions are relevant to EPA's consideration of the request and to California's authority to implement its vehicle GHG regulations" and in response to comments opted to "take[] no position regarding whether or not California's GHG standards are preempted under EPCA." 74 FR 32744, 32782–83 (July 8, 2008).

criticism, that withdrawal is for model years 2021–2025, as proposed in the SAFE proposal.

²⁴⁹ 81 FR 39424, 27–28 (June 16, 2016).

²⁵⁰ 81 FR 29427–28. "The excluded provisions pertain to: Greenhouse Gas (GHG) exhaust emission standards 2009 through 2016 Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles, and 2017 and subsequent Model Passenger Cars, Light-Duty Trucks, and Medium Duty Vehicles."

²⁵¹ Analysis in support of comments of the California Air Resources Board on the SAFE proposal, at 342. "For example, and relevant here, California's Legislature has established an aggressive GHG emissions reduction target for 2030." "The ZEV mandate is a crucial part of this strategy; it 'act[s] as the technology forcing piece of the 2016 Draft TAR program' which is necessary because 'the new vehicle fleet [in California] will need to be primarily composed of advanced technology vehicles . . . by 2035' in order to meet the State's 2050 GHG goal." *Id.* at 369–70 (Internal citations omitted). "This increasing ZEV deployment is critical to achieving the statewide 2030 and 2045 GHG requirements and 2031 South Coast SIP commitments (the 2016 State SIP Strategy identified the need for light-duty vehicles to reduce NO_x emissions by over 85 percent by 2031 to meet federal standards)." *Id.* at 373.

In the January 2013 waiver, EPA stated: “Evaluation of whether California’s GHG standards are preempted, either explicitly or implicitly, under EPCA, is not among the criteria listed under section 209(b). EPA may only deny waiver requests based on the criteria in section 209(b), and inconsistency with EPCA is not one of those criteria. In considering California’s request for a waiver, [EPA] therefore [has] not considered whether California’s standards are preempted under EPCA.” 78 FR at 2145.

EPA believes that this January 2013 statement was inappropriately broad, to the extent it suggested that EPA is categorically *forbidden* from ever determining that a waiver is inappropriate due to consideration of anything other than the “criteria” or “prongs” at CAA section 209(b)(1)(B)(A)–(C). The statements quoted above, and EPA’s historical practice of disregarding issues of “[c]onsistency with EPCA” in the context of evaluating California’s waiver applications, were made in the context of EPA acting on its own to administer CAA section 209(b) in considering such applications. The context here is different: EPA is undertaking a joint action with NHTSA. In the SAFE proposal, EPA noted that NHTSA had proposed and could well finalize a determination that California’s GHG and ZEV standards are both explicitly and implicitly preempted under EPCA.²⁵⁴ EPA explained that such a determination would present a threshold question as to California’s ability to enforce these standards and proposed to conclude that standards preempted under EPCA cannot be afforded a waiver of preemption under CAA section 209(b). Unlike the Clean Air Act, EPCA does not allow for any waiver of its express preemption provision. EPCA contains no language that can be read to allow States to either prescribe or enforce regulations related to fuel economy standards. Consistent with this view, at SAFE proposal, NHTSA explained that, “when a State establishes a standard related to fuel economy, it does so in violation of EPCA’s preemption statute(sic) and the standard is therefore void *ab initio*.” 83 FR 43235. At the same time, NHTSA explained that certain other GHG requirements that do not relate to fuel economy, such as regulations addressing leaking refrigerants, would likely not be preempted under EPCA. 83 FR 4324–35.

EPA does not intend in future waiver proceedings concerning submissions of

California programs in other subject areas to consider factors outside the statutory criteria in CAA section 209(b)(1)(A)–(C). But the unique situation in which EPA and NHTSA, coordinating their actions to avoid inconsistency between their administration of their respective statutory tasks, address in a joint administrative action the issues of the preemptive effect of EPCA and its implications for EPA’s waivers, has no readily evident analogue.²⁵⁵ EPA will not dodge this question here.

Consistent with the SAFE proposal, NHTSA is finalizing a determination that EPCA preempts State GHG and ZEV standards. EPA agrees with commenters that EPA is not the agency that Congress has tasked with administering and interpreting EPCA. This is especially so because “[t]he waiver proceeding produces a forum ill-suited to the resolution of constitutional claims.” *MEMA I*, 627 F.2d at 1115. In the SAFE proposal, EPA took the position that it is, at a minimum, reasonable to consider NHTSA’s conclusions about the preemptive effect of EPCA. To the extent that NHTSA has determined that these standards are void *ab initio* because EPCA preempts standards that relate to fuel economy, that determination presents an independent basis for EPA to consider the validity of the initial grant of a waiver for these standards, separate and apart from EPA’s analysis under the criteria that invalidate a waiver request. In the context of a joint action in which our sister agency is determining, and codifying regulatory text to reflect, that a statute Congress has entrusted it to administer preempts certain State law, EPA will not disregard that conclusion, which would place the United States Government in the untenable position of arguing that one federal agency can resurrect a State provision that, as another federal agency has concluded and codified, Congress has expressly preempted and therefore rendered void *ab initio*.

This conclusion is consistent with the Supreme Court’s holding in *Massachusetts v. EPA*, 549 U.S. 497 (2007). While this case did not address EPCA preemption, the Supreme Court anticipated that EPA and NHTSA would administer their respective authorities in a consistent manner. (“The two obligations [for NHTSA to set fuel economy standards under EPCA and for EPA to regulate motor vehicle GHG emissions under CAA section 202] may overlap, but there is no reason to think the two agencies cannot both administer

their obligations and yet avoid inconsistency.” *Id.* at 532.) Considering that California cannot enforce standards that are void *ab initio*, even assuming *arguendo* that there existed a valid grant of waiver under CAA section 209(b), NHTSA’s determination renders EPA’s prior grant of a waiver for those aspects of California’s regulations that EPCA preempts invalid, null, and void, and, to the extent that administrative action is necessary on EPA’s part to reflect that state of affairs, EPA hereby withdraws that prior grant of a waiver on this basis.

EPA’s finding that California’s GHG and ZEV standards are preempted as a result of NHTSA’s finalized determinations, issued in this joint action, with respect to EPCA’s preemptive effect on State GHG and ZEV standards, is effective upon the effective date of this joint action. This finding is separate and apart from findings with respect to EPA’s 2013 waiver for CARB’s Advanced Clean Car Program as it pertains to its 2021 through 2025 MY relating to GHG and ZEV standards and accompanying withdrawal of the waiver, pursuant to CAA section 209(b)(1), as set forth in subsection D below; as a matter of EPA’s administration of CAA section 209(b), without reference to EPCA’s preemptive effect as determined by NHTSA, that withdrawal applies to 2021 through 2025 MY GHG and ZEV standards, as proposed in the SAFE proposal.^{256 257}

²⁵⁶ EPA acknowledges that its action in this document may have implications for certain prior and potential future EPA reviews of and actions on state SIPs that may incorporate certain aspects of California’s state program, either California’s own SIPs or SIPs from states that have adopted one or more aspects of California’s state program pursuant to CAA section 177. EPA will consider whether and how to address those implications, to the extent that they exist, in separate actions. But EPA believes that it is not necessary to resolve those implications in the course of this action because the effects of EPCA preemption, as set forth in subsection III.C, and the proper interpretation and application of CAA section 209(b)(1)(B) to California’s GHG and ZEV program, as set forth in subsection III.D, provide sufficient reason to take this final action and that the potential implications for prior and future SIP actions are not a sufficient basis to alter the rationale for or terms of this final action. The questions of what EPCA means and what its preemptive effect on certain state regulations is, and what CAA section 209(b)(1)(B) means and what its limitations on California’s ability to obtain a waiver for its state programs are, do not depend on whether one or more SIP actions pertaining to NAAQS attainment and maintenance strategies may directly or indirectly be affected by the agencies’ resolution of those questions.

²⁵⁷ In the August 2018 SAFE proposal, EPA solicited comment on whether one or more of the grounds supporting the proposed withdrawal of this waiver would also support withdrawing other waivers that it has previously granted. 83 FR at 43240 n.550. At this time, EPA does not intend to take action with respect to any prior waiver grants other than those specified above.

²⁵⁴ 49 U.S.C. 32919(a). See 83 FR 43233.

²⁵⁵ See *Massachusetts v. EPA*.

D. Reconsideration of January 2013 Waiver and Determination That It Is Appropriate To Withdraw EPA's January 2013 Waiver of CAA Section 209 Preemption for California's GHG and ZEV Standards for Model Years 2021–2025, Pursuant to CAA Section 209(b)(1)(B)

1. Interpretation of CAA Section 209(b)(1)(B)

Under CAA section 209(b)(1)(B), EPA cannot grant a waiver request if EPA finds that California “does not need such State standards to meet compelling and extraordinary conditions.”²⁵⁸ In the August 2018 SAFE Proposal, EPA proposed to determine: (1) That it was reasonable and appropriate to interpret the scope of “such State standards” to authorize a consideration of whether California needs to have its own GHG vehicle emissions program *specifically*, rather than whether California needs any separate vehicle emissions program *at all*; and (2) that California did not “need” its own GHG and ZEV programs “to meet compelling and extraordinary conditions” within the meaning of the statute. EPA finalizes those determinations in this document.

EPA notes in this regard that regulation of emissions from new motor vehicles and new motor vehicle engines under CAA section 202(a) is triggered by a determination that “the emission of any air pollutant from any class or classes of new motor vehicles or new motor vehicle engines . . . cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare.” This “endangerment finding,” which triggers EPA’s ability to use the CAA section 202(a) regulatory authority which CAA section 209(a) preempts the states from exercising (subject to the availability of a CAA section 209(b) preemption waiver), links (1) emission of pollutants from sources; to (2) air pollution; and (3) resulting endangerment to health and welfare.²⁵⁹

Congress enacted waiver authority for California under CAA section 209(b)

against the backdrop of traditional, criteria pollutant environmental problems, under which all three links in this chain bear a particularized nexus to specific local California features: (1) Criteria pollutants are emitted from the tailpipes of the California motor vehicle fleet; (2) those emissions of criteria pollutants contribute to air pollution by concentrating locally in elevated ambient levels, which concentration, in turn; (3) results in health and welfare effects (e.g., from ozone) that are extraordinarily aggravated in California as compared to other parts of the country, with this extraordinary situation being attributable to a confluence of California’s peculiar characteristics, e.g., population density, transportation patterns, wind and ocean currents, temperature inversions, and topography. In the case of GHG emissions from motor vehicles, however, this particularized nexus to California’s specific characteristics is missing: (1) The GHG emissions from California cars are no more relevant to the pollution problem at issue (*i.e.*, climate change) as it impacts California than are the GHG emissions from cars being driven in New York, London, Johannesburg, or Tokyo; (2) the resulting air pollution, *i.e.*, elevated concentrations of GHG in the upper atmosphere, is globally mixed; (3) the health and welfare effects of climate change impacts on California are not extraordinary to that state and to its particular characteristics. Although EPA concludes that all three of these aspects are lacking in the case of GHG, EPA further concludes that it is the *connection* between all the three which is the original motivation for Congress’s creation of the waiver. It is that original motivation that informs the proper understanding of what CAA section 209(b)(1)(B) requires.

It is important to note that, while this interpretation of CAA section 209(b)(1)(B) departs in major respects from the interpretation applied in the 2009 waiver denial reversal (74 FR 32744) and the 2013 waiver grant (78 FR 2112), it does not simply constitute a re-adoption of the interpretation applied in the 2008 waiver denial (73 FR 12156). The 2008 waiver denial applied what it styled as two alternative approaches to determining whether California “need[ed]” its own vehicle GHG emissions program to address global climate change “to meet compelling and extraordinary conditions”: One that looked at the *causal* link between California emissions and elevated GHG concentrations, 73 FR at 12160 (styled as “the distinct nature of global

pollution as it relates to section 209(b)(1)(B)”), and an “alternative” approach that looked at the magnitude of California climate *effects* compared to the rest of the nation, 73 FR at 12163–12164 (“whether the potential impact of climate change resulting from these emissions and concentrations will differ across geographic areas and if so whether the likely effects in California amount to compelling and extraordinary conditions”). The 2009 waiver denial reversal, and the 2013 waiver grant, in contrast, applied an interpretation which EPA styled as a return to the “traditional” interpretation. Under that approach, EPA determined that California “needs” its own vehicle GHG emissions program “to meet compelling and extraordinary conditions,” a determination that was predicated on what was then EPA’s view that, in the case of such later-adopted programs, satisfaction of the “need” criterion of CAA section 209(b)(1)(B) was effectively automatic, being derivative as it were of the State’s having long ago established a “need” to have *some form* of its own vehicle emissions program (*i.e.*, its criteria pollutant program for which it had already received many waivers). In conjunction with this, EPA also pointed to the effects of climate change on certain criteria pollutant impacts. *See* 74 FR at 32746; 78 FR at 2125 *et seq.*

In this action, EPA adopts an interpretation of CAA section 209(b)(1)(B) that it concludes is more in accord with the text, structure, purpose, and legislative history of that provision than were either the position in the 2008 denial (because it does not separate causal issues and effects issues into alternatives) or the position the 2009 and 2013 grants (because it considers application of CAA section 209(b)(1)(B) to California’s need for a GHG/climate program, rather than subordinating that consideration to California’s need for a criteria pollutant program). Under this interpretation, EPA begins by noting that only one state, California, is entitled to apply under CAA section 209(b) for a waiver of the preemptive effect of CAA section 209(a). CAA section 209(a), in turn, provides that (unless a waiver is issued) no state may regulate new motor vehicle or new motor vehicle engine emissions. That authority instead is conferred on EPA under CAA section 202(a), subject to an “endangerment finding.” That finding requires EPA to consider the relationship between [1] sources and their emissions of *pollutants*; [2] the *pollution* to which those emissions contribute; and [3] resulting *impacts* on health and welfare. Congress has

²⁵⁸ EPA notes that Congress provided no definition of the phrase “compelling and extraordinary conditions,” and that the phrase appears to be entirely unique, not found anywhere else in the United States Code.

²⁵⁹ We therefore, also disagree with CARB’s argument that EPA’s reading of CAA section 209(b)(1)(B) “ignores the statutory structure—improperly reading Section 209(b) without consideration of the relationship between Sections 202(a), 209(a) and 209(b). Specifically, EPA proposes to read Section 209(b) as excluding GHGs at the same time that it proposes to continue regulating GHGs under Section 202(a) and presumes, albeit implicitly, that Section 209(a) preempts other States from regulating GHGs.” CARB comments at 359.

therefore, in the elements of the endangerment finding, laid out the terms of what constitutes a pollution problem to provide the appropriate and requisite predicate for federal regulation. Because CAA section 209(a) expresses Congress's judgment that vehicle emission pollution problems are presumptively appropriate only for federal regulation, with one state afforded the extraordinary treatment under CAA section 209(b) of being able to apply for a waiver from that preemption, the best, if not the only, reading of the waiver criterion under CAA section 209(b)(1)(B) is that it requires a pollution problem at the local level that corresponds in a state-specific particularized manner to the type of pollution problem that Congress required as the predicate for federal regulation.

It is against this backdrop that EPA believes the text of CAA section 209(b)(1)(B) is best interpreted. Informed by the criteria-pollutant context in which California's pre-1970 program was enacted, the legislative history, and the principle, as discussed elsewhere in this action, that differential treatment of the states by Congress in a geographically disparate way is extraordinary and is justified only by a sufficient link between that differential treatment and particularized local facts, EPA interprets Congress's command in CAA section 209(b)(1)(B), that it may not grant a preemption waiver for a California state vehicle emissions program if California does not "need" that program "to meet compelling and extraordinary conditions," to condition the issuance of a waiver on a *state-specific* pollution problem that maps on to the elements as laid out in CAA section 202(a): [1] Emissions of pollutants; [2] resulting air pollution; [3] health and welfare effects from that resulting air pollution. EPA concludes that the interpretation of CAA section 209(b)(1)(B) it adopts in this document is the best, if not the only, reading of that provision.

The Supreme Court's opinion in *UARG*, 134 S. Ct. 2427 (2014), instructs that Clean Air Act provisions cannot necessarily rationally be applied identically to GHG as they are to traditional pollutants.²⁶⁰ For the reasons

set forth in this subsection, it is appropriate to consider the application of the second waiver prong, CAA section 209(b)(1)(B), to California's "need" *vel non* for its own GHG and ZEV programs, separate and apart from its "need" for its own criteria pollutant program. EPA determines, based on the application of the second waiver prong, that California does not "need" its own GHG and ZEV programs "to meet compelling and extraordinary conditions," notwithstanding EPA's historical determinations that California does so "need" its own criteria pollutant programs.

Furthermore, the fact that GHG emissions may affect criteria pollutant concentrations (e.g., increases in ambient temperature are conducive to ground-level ozone formation) does not satisfy this requirement for a particularized nexus, because to allow such attenuated effects to fill in the gaps would eliminate the function of requiring such a nexus in the first place and would elide the distinction between national and local pollution problems which EPA discerns as underlying the text, structure, and purpose of the waiver provision. EPA departs in this regard from the position it took in the 2009 reversal of the 2008 waiver denial, 74 FR at 32763, where it determined that "[t]here is a logical link between the local air pollution problem of ozone

(referred to colloquially as "endangerment findings"), also encompasses carbon dioxide. 549 U.S. at 528. But CAA section 209, as a whole, in its preemption provision in 209(a), in the waiver provision in 209(b), and most specifically in the second waiver prong under CAA 209(b)(1)(B), does not contain the term "pollutant," and EPA does not in this document interpret section 209 as simply establishing a distinction between criteria and GHG pollutants. Rather, for the reasons stated in this document, EPA interprets CAA section 209(b), and its extraordinary treatment afforded to one state, as requiring, in its provision in CAA section 209(b)(1)(B) that no waiver shall issue where a state does not need its own standards "to meet compelling and extraordinary conditions," as requiring a state-specific, particularized nexus between the elements of a pollution problem—i.e., pollutants, pollution, and impacts—as set forth in CAA section 202(a). CARB asserts that "[t]here is no reason Section 209(b)(1)(B) should be interpreted more narrowly than Section 202(a)," CARB comments at 360. One such reason is perfectly evident: They have different text. Another, as discussed in this action, is that CAA 209(b)(1)(B) must be read against the principle that extraordinary treatment afforded one state must be justified by "extraordinary conditions" in that state. Here, CARB misses the mark when it invokes *Massachusetts's* observation that "without regulatory flexibility, changing circumstances and scientific developments would soon render the Clean Air Act obsolete," quoting 549 U.S. at 532. CARB comments at 360. The Supreme Court there was discussing evolution of scientific understanding of what pollutants may pose harm. Nothing in *Massachusetts* suggests that scientific developments can alter the fundamental relationship between the States among themselves and vis-à-vis the federal government.

and California's desire to reduce GHGs as one way to address the adverse impact that climate change may have on local ozone conditions."

EPA further notes that elsewhere in the 2009 waiver denial reversal, EPA took the position that *Massachusetts v. EPA* supports the view that, because "every small reduction is helpful in reducing [climate] concerns. . . . [A] reduction in domestic automobile emissions would slow the pace of global emissions increase no matter what happens with regard to other emissions," and therefore "opponents [of the waiver] have not met their burden of demonstrating that California's motor vehicle program, or its GHG standards, does not have a *rational relationship* to contributing to amelioration of the air pollution problems in California." *Id.* at 32766 (emphasis added). EPA now departs from this prior position in several important respects.

First, to the extent that its 2009 waiver denial reversal was guided by an interpretation of the teachings of *Massachusetts* under which any reduction in GHG gives warrant for regulatory action (to include EPA's waiver approvals), that must now be weighed against the Supreme Court's subsequent 2014 *UARG* opinion, which stands for the proposition that particular CAA provisions will not necessarily apply identically in the case of GHG emissions as they do to criteria pollutant emissions.

Second, to the extent that EPA's 2009 waiver denial reversal framed the question under CAA section 209(b)(1)(B) as whether there is a "rational relationship" between California's programs and California's air pollution problems, that conflated the "arbitrary and capricious" test in CAA section 209(b)(1)(A) with the unique and distinct term "need[ed] to meet compelling and extraordinary conditions" in CAA section 209(b)(1)(B); EPA's position in this document gives that term a distinct and appropriate meaning and application.

Third, whereas the 2009 waiver denial reversal also noted in this passage that "there is some evidence in the record that proffers a specific level of reduction in temperature resulting from California's regulations," this action notes elsewhere that the 2012 joint rule record reflected that even standards much more stringent than either the 2012 Federal standards or California's ACC program would only reduce global temperature by 0.02 degrees Celsius in 2100. As discussed elsewhere in this action, EPA concludes that this does not constitute a showing

²⁶⁰ CARB is wrong to suggest in its comments that EPA's interpretation in this action of CAA section 209(b)(1)(B) is inconsistent with the Supreme Court's opinion in *Massachusetts v. EPA*. CARB comments at 360. *Massachusetts* held that the general, CAA-wide definition of "air pollutant" at CAA section 302(g) encompasses carbon dioxide, and that the text of CAA section 202(a)(1), which provides that EPA shall regulate standards for emissions of "any air pollutant" from new motor vehicles if EPA makes certain predicate findings

that California “needs” its standards to “meet” climate change, separate from the question whether climate change and its impacts on California constitute “compelling and extraordinary conditions” within the meaning of the statute. Further, the claim by some commenters that “incremental progress is progress nonetheless” does not meaningfully address the reality that the waiver would result in an indistinguishable change in global temperatures and, based on geographic variability and measurement sensitivity, likely no change in temperatures or physical impacts resulting from anthropogenic climate change in California.

EPA proposed to determine that the balance of textual, contextual, structural, and legislative history evidence supports the conclusion that the statute is ambiguous in one particular respect: Whether CAA section 209(b)(1)(B) refers to an individual standard or the California standards as a whole when referring to the Administrator’s review of state standards submitted for a waiver, to determine whether the state “needs such State standards to meet compelling and extraordinary conditions.” We explained that “such State standards” in CAA section 209(b)(1)(B) is ambiguous with respect to the scope of EPA’s analysis. For example, it is unclear whether EPA is meant to evaluate either the standard or standards at issue in the waiver request or all of California’s standards in the aggregate. We also explained that CAA section 209(b)(1)(B) does not specifically employ terms that could only be construed as calling for a standard-by-standard analysis or each individual standard. For example, it does not contain phrases such as “each State standard” or “the State standard.” Nor does the use of the plural term “standards” definitively answer the question of the proper scope of EPA’s analysis, given that the variation in the use of singular and plural form of a word in the same law is often insignificant and a given waiver request typically encompasses multiple “standards.” Thus, we explained that while it is clear that “such State standards” refers at least to all of the standards that are the subject of the particular waiver request before the Administrator, that phrase could reasonably be considered as referring either to the standards in the entire California program, the program for similar vehicles, or the particular standards for which California is

requesting a waiver under the pending request.²⁶¹

We did explain, however, that there are reasons to doubt that “such State standards” is intended to refer to all standards in California’s program, including all standards that it has previously adopted and obtained waivers for, because this would limit EPA’s ability to consider and act on standards that are the subject of particular waiver applications, even where that individualized consideration is reasonable or the only rational approach. Specifically, given that the term “extraordinary” should refer to circumstances that are specific to California, such as thermal inversions resulting from local geography and wind patterns, and primarily responsible for causing the air pollution problems that the standards are designed to address, standards which address pollution problems that lack that type of particularized nexus to California are particularly appropriate candidates for an individualized consideration. EPA affirms this view as it relates to the review of GHG standards, given that GHG emissions from in California cars, and their consequences for California, bear no particular relation to these California-specific circumstances—*i.e.*, *global* GHG emissions in the aggregate are what present problems for California, not California-specific ones.

The waiver under CAA section 209(b) is a waiver of, and is logically

²⁶¹ California suggests in its comments that EPA is “logically inconsistent” in that it said at proposal, 83 FR at 43246, that the CAA section 209(b)(1)(B) phrase “such State standards” “refers at least to all of the standards that are the subject of the particular waiver request before the Administrator,” while at the same time proposing to reconsider and withdraw the January 2013 grant of a waiver with respect to some, but not all, of the components of the ACC program (*i.e.*, with respect to GHG and ZEV, but not LEV). EPA disagrees that this is inconsistent. The question of how to interpret “such state standards” refers to the determination of what the total set of standards is with regard to which EPA will consider whether California “needs” those standards “to meet compelling and extraordinary conditions.” It is reasonable to assign that total set at the level of the waiver-request package before the Agency, rather than all the state-specific emission standards that California has ever adopted. If the consideration reveals that, within that set, California does not need *particular* subsets “to meet compelling and extraordinary conditions”—here, because the GHG and ZEV programs lack a particularized, California-specific nexus between pollutant, pollution, and impacts, a rationale that does not apply to the LEV program, for which EPA did not propose to withdraw the waiver and is not in this document withdrawing the waiver—that is nothing unusual. And it is consistent with EPA’s prior practice, as discussed in subsection III.B, of only partially granting aspects of, in combination with denial or deferral of action on other aspects of, some previous waivers. The ultimate analysis whether a waiver is appropriate is not limited to a binary, all-or-nothing determination.

dependent on and presupposes the existence of, the prohibition under CAA section 209(a), which forbids (absent a waiver) any State to “adopt or attempt to enforce any *standard* [singular] relating to the control of emissions from new motor vehicles or new motor vehicle engines subject to this part.” States are forbidden from adopting a standard, singular; California requests waivers seriatim by submitting a standard or package of standards to EPA; it follows that EPA considers those submissions as it receives them, individually, not in the aggregate with all standards for which it has previously granted waivers. Further, reading the phrase “such State standards” as requiring EPA always and only to consider California’s entire program in the aggregate would limit the application of this waiver prong in a way that EPA does not believe Congress intended. We explained that, under the interpretation where EPA is constrained to the aggregate approach, once EPA had determined that California needed its very first set of submitted standards to meet extraordinary and compelling conditions, EPA would never have the discretion to determine that California did not need any subsequent standards for which it sought a successive waiver—unless EPA is authorized to consider a later submission separate from its earlier finding. Moreover, as also explained at proposal, up until the ACC program waiver request, California’s waiver request involved individual standards or particular aspects of California’s new motor vehicle program. For example, only GHG standards were at issue in the 2008 GHG waiver request denial.^{262 263}

Several commenters disagreed with our view of ambiguity and the proposal to construe “such state standards,” in the context of our reconsideration and proposal to withdraw the January 2013 waiver for California’s GHG and ZEV provisions, as applying to those provisions themselves, rather than California’s entire, aggregate program consisting of *all* California’s motor vehicle emission standards, when considering whether California needs its

²⁶² 73 FR 12156 (March 6, 2008).

²⁶³ EPA determines in this document that GHG emissions, with regard to the lack of a nexus between their State-specific sources and their State-specific impacts, and California’s GHG standard program, are sufficiently distinct from criteria pollutants and traditional, criteria pollutant standards, that it is appropriate for EPA to consider whether California needs its own GHG vehicle emissions program. EPA does not determine in this document and does not need to determine today how this determination may affect subsequent reviews of waiver applications with regard to criteria pollutant control programs.

GHG and ZEV provisions to meet compelling and extraordinary conditions within the meaning of CAA section 209(b)(1)(B). One commenter argued that this reading would require EPA to consider the protectiveness of California's standards by looking at them in the aggregate while also allowing EPA to consider California's "need" on an individual, standard-by-standard basis. Commenters also argued that EPA's historical or traditional interpretation was correct. They argued that EPA could not apply a different interpretation of "such State standards" given that "such State standards" in CAA section 209(b)(1)(B) does not relate back to the singular "any standard" in CAA section 209(a). They cast this reading as "implausible," given that under the rule of last antecedent "such" should properly refer to standards in (b)(1) and not 209(a). We disagree. As explained earlier above, reading the phrase "such State standards" as requiring EPA always and only to consider California's entire program in the aggregate would limit the application of this waiver criterion. Specifically, it would mean that once EPA determines that California needed its very first set of submitted standards to meet extraordinary and compelling conditions, EPA would never have the discretion to determine that California did not need any subsequent standards for which it sought a successive waiver—unless EPA is authorized to consider a later submission separate from its earlier finding. Instead, it is reasonable to read CAA section 209(b) as articulating, first, that EPA shall consider the standards in the aggregate to determine if the State's determination that they are sufficiently protective is arbitrary and capricious (CAA section 209(b)(1)(A)). But, even if this first criterion for denying a waiver is not triggered, nevertheless, such a waiver shall not be granted as to such standards that are not needed to meet compelling and extraordinary conditions, under the second waiver denial criterion (CAA section 209(b)(1)(B)). Commenters' argument, in effect, inserts the word "every" (or "all") into CAA section 209(b)(1)(B) in between the words "need" and "such."

Additionally, as shown in further detail in section D.2., below, the term "extraordinary" refers to circumstances that are specific to California, such as thermal inversions resulting from local geography and wind patterns, and that are primarily responsible for causing the air pollution problems that the standard under waiver review is designed to address. EPA affirms the view that the

term "extraordinary" refers primarily to factors that tend to produce higher levels of pollution: Geographical and climatic conditions (like thermal inversions) that in combination with large numbers and high concentrations of automobiles, create serious air pollution problems in California (73 FR 12156, 12159–60).

The text, context, and structure of CAA section 209(b) support EPA's reasoning that the relevant "conditions" are those conditions present in a particular state and that have a particularized nexus to emissions in that state. The statute calls for an examination of whether the "State" needs such "state standards" in the context of a prohibition in CAA section 209(a) of a "state or other political subdivision" adopting or attempting to enforce alternative standards. It would be inconsistent with the overall structure for a state's own preferred policy approach to addressing national or global—rather than local and state-specific—"conditions" to permit a waiver from a scheme that otherwise establishes a uniform, national policy.²⁶⁴

Notably, pertinent legislative history supports this view of the text and structure of 209(b), insofar as it refers to California's "peculiar local conditions" and "unique problems." S. Rep. No. 403, 90th Cong. 1st Sess., at 32 (1967). This legislative history also indicates that California is to demonstrate "compelling and extraordinary circumstances sufficiently different from the nation as a whole to justify standards on automobile emissions which may, from time to time, need to be more stringent than national standards." *Id.* EPA views this as evidence of Congressional intent that separate standards in California are to be justified by a showing of circumstances in California that are different from circumstances in the country at large. Additionally, EPA views this legislative history as demonstrating that Congress did not intend for CAA section 209(b)(1)(B) to be based on the need for California to

enact separate standards that address pollution problems of a more national or global nature. Relevant legislative history also "indicates that Congress allowed waivers of preemption for California motor vehicle standards based on the particular effects of local conditions in California on the air pollution problems in California." Congress discussed "the unique problems faced in California as a result of its climate and topography." H.R. Rep. No. 728, 90th Cong. 1st Sess., at 21 (1967). See also Statement of Cong. Holifield (CA), 113 Cong. Rec. 30942–43 (1967). Congress also noted the large effect of local vehicle pollution on such local problems. See, e.g., Statement of Cong. Bell (CA) 113 Cong. Rec. 30946. As explained at proposal, Congress focus was on California's ozone problem, which is especially affected by local conditions and local pollution. See Statement of Cong. Smith (CA) 113 Cong. Rec. 30940–41 (1967); Statement of Cong. Holifield (CA), *id.*, at 30942. See also, *MEMA I*, 627 F.2d at 1109 (noting the discussion of California's "peculiar local conditions" in the legislative history). In sum and as explained at proposal, conditions that are similar on a global scale are not "extraordinary," especially where "extraordinary" conditions are a predicate for a local deviation from national standards, under CAA section 209(b). 83 FR 43247.

As further explained in section D.2., below, GHG is a globally distributed pollutant with environmental effects that are different from emissions of criteria pollutants. For example, GHG emissions from the California vehicle fleet bear no more relation to GHG emissions in California than fleet in other parts of the country. As also explained in the SAFE proposal, EPA believes that the GHG and ZEV standards are standards that would not meaningfully address global air pollution problems posed by GHG emissions, in contrast to local or regional air pollution problem with causal ties to conditions in California. Additionally, the impacts of California vehicles' GHG emissions on California are mediated through the context of the global mixture of elevated levels of GHG in the upper atmosphere. As also shown below, EPA finds that while potential conditions in California related to global climate change could be substantial, they are not sufficiently different from the potential conditions in the nation as a whole to justify separate state standards under CAA section

²⁶⁴ Cf. *Ford Motor Co. v. EPA*, 606 F.2d 1293, 1301–02 (D.C. Cir. 1979) ("Ford is asking this court to declare that Congress intended to make standards adopted by California for its own particular problems, and never substantively reviewed for stringency or national protectiveness by federal officials, an option which auto manufacturers can choose in the rest of the country as an alternative to compliance with the federal standards which Congress determined are in the best interests of the nation. We find this reading to be wholly implausible."). See also *id.* at 1303 ("It was clearly the intent of the Act that that determination focus on local air quality problems . . . that may differ substantially from those in other parts of the nation.").

209(b)(1)(B).²⁶⁵ In this action, EPA is reviewing a waiver for motor vehicle standards designed to address a global air pollution problem and its effects, as compared to a local or regional air pollution problem that has causal ties to conditions in California. EPA must therefore, review California's GHG standards in light of the fact that GHG emissions impacts are different from criteria pollutants themselves, and California must address their need for them as it relates to conditions in California. In sum, as explained at proposal, under our reading of "such state standards" and "extraordinary and compelling conditions," EPA will examine California's need for GHG standards by considering levels of GHG emissions emitted from motor vehicles in California to determine if they are specific to California and contribute primarily to environmental effects that are specific to California. This review, which calls for a showing of a particularized causal link between the standards under review, emissions in California, and conditions in California, is similar to agency review of California's need for standards designed to address criteria pollutants and is further discussed in section D.2.d, below.²⁶⁶

CARB argues that what it characterizes as EPA's reading of "compelling and extraordinary" as equivalent to "unique" or "sufficiently different from" the rest of the country "is inconsistent with Section 209(b)(1)(B), other provisions of the Clean Air Act, and the legislative history." CARB also asserts that EPA "cites no case" to support this reading. At the same time, CARB claims that EPA has either interpreted legislative history incorrectly or relies entirely on legislative history for the 1967 CAA, which does note California's "unique problems," instead of legislative history for the 1977 amendments; CARB asserts that the latter legislative history is more relevant, given that the addition of section 177 in the 1977 CAA meant that Congress did not intend that Section

209(b)(1)(B) be construed as requiring "California's problems to be entirely unique or sufficiently different from those in other States." CARB also contends that EPA is limiting application of CAA section 209(b)(1)(B) to smog, even though EPA has granted waivers for pollutants that do not contribute to smog, such as particulate matter. In addition, CARB maintains that what it characterizes as EPA's reading "compelling and extraordinary conditions" as restricted to "local" or "regional" pollutants would weaken Congress's intent that California retain its own regulatory program and continue to lead the nation as a "laboratory of innovation." CARB further argues that EPA provides no support for this "geographic distinction," while also casting the reading as "illusory." According to CARB, both local and global pollution cause compelling and extraordinary conditions, as evidenced by provisions of the CAA that address long-range transport of emissions (beyond the state level). In sum, CARB argues that "compelling and extraordinary conditions" is expansive enough to be read as including GHG emissions and that EPA's "exacting and unrealistic" reading can only be met by "a rare air pollution problem." CARB comments at 360–365.

EPA disagrees. First, as explained at proposal, the 1977 Amendments revised CAA section 209(b)(1) in only one material aspect. Specifically, California is required to determine that standards it seeks a waiver for will be "in the aggregate, at least as protective of public health and welfare than applicable Federal standards," rather than the "more stringent" standard under 1967 Clean Air Act. 83 FR 43247 n.579. Second, there is relevant legislative history from the 1977 amendments, which describes EPA's role in reviewing California's protectiveness determination, under CAA section 209(b)(1)(A), as whether "the State acted unreasonably in evaluating the relative risks of various pollutants in light of air quality, topography, photochemistry and climate in that State." This 1977 legislative history further supports a reading requiring a particularized nexus. H. Rep. No. 294, 95th Cong., 1st Sess. 302 (1977), U.S. C.C.A.N. 1977, p. 1381. Third, in support of the proposed reading, EPA cited *MEMA I* as noting the Senate Committee discussion of California's "peculiar local conditions" in 1967 legislative history for this provision in upholding the grant of a waiver subsequent to the 1977 CAA amendments. . 627 F.2d at 1109, citing

S.Rep. No. 403, 90th Cong., 1st Sess. 33 (1967); see also *Ford Motor Co. v. EPA*, 606 F.2d 1293, 1303 (D.C. Cir. 1979) ("It was clearly the intent of the Act that that determination focus on local air quality problems . . . that may differ substantially from those in other parts of the nation."). Fourth, EPA's reading of CAA section 209(b)(1)(B) has never been and is not limited to "smog"-causing pollutants. Here, CARB's comment glosses over extensive discussion in the SAFE proposal of the phrase "compelling and extraordinary" including, for example, legislative history indicating that California is to demonstrate "compelling and extraordinary circumstances sufficiently different from the nation as a whole to justify standards on automobile emissions which may, from time to time, need to be more stringent than national standards." 83 FR 23427, citing S. Rep. No. 403, 90th Cong. 1st Sess., at 32 (1967). Fifth, as shown in greater detail in section III.D, the phrase "compelling and extraordinary conditions" qualifies the "need" for California's standards. And in a statute designed to address public health and welfare, it certainly cannot mean standards that allow a state to be "a laboratory for innovation" in the abstract, without any connection to a need to address pollution problems. Most notably, legislative history explains that CAA section 209(b)(1) was is intended to recognize California's "unique problems." For example, in originally adopting the provision, the Senate Committee on Public Works explained that "California's *unique* problems and pioneering efforts justified a waiver of the preemption section to the State of California." S. Rep. No. 403, 90th Cong., 1st Sess. 33 (1967) (emphasis added); see also 113 Cong. Rec. 30948 (bound ed. Nov. 2, 1967), Statement of Representative Harley Staggers, chairman of the House Interstate and Foreign Commerce Committee (explaining that "overall national interest required administration of controls on motor vehicle emissions, with special recognition given by the Secretary to the unique problems facing California as a result of numerous thermal inversions that occur within that state because of its geography and prevailing wind patterns"); ; *id.* at 30950, Remarks of Rep. Corman ("The uniqueness and the seriousness of California's problem is evident—more than 90 percent of the smog in our urban area is caused by automobiles, and in the next 15 years the number of automobiles in the state will almost double."). Sixth, while it is

²⁶⁵ See Fourth National Climate Assessment, Chapter 25: Southwest, available at <https://nca2018.globalchange.gov/chapter/25/>. See also Intergovernmental Panel on Climate Change (IPCC) Observed Climate Change Impacts Database, available at http://sedac.ipcc-data.org/ddc/observed_ar5/index.html.

²⁶⁶ California argues in its comments that EPA has inappropriately reduced the scope of waiver ability under CAA section 209(b) to be narrower than the scope of express preemption under CAA section 209(a). EPA disagrees. To the extent that CAA section 209(b)(1)(B), as interpreted and applied here, precludes a waiver for California's GHG vehicle emissions and ZEV programs, that effect flows from the text and structure of this statutory section.

true that local and regional pollutants can be transported at greater geographic scales than the state level, the Clean Air Act sets out a comprehensive scheme for addressing air pollution transported to other regions; *see, e.g.*, CAA sections 126 and 110(a)(2)(D)(i). The fact that the Act addresses pollutant transport elsewhere does not expand the scope of the waiver provision. In contrast, in CAA section 209(b), Congress set out a waiver of preemption for California to address automotive pollution that give rise to local and regional air quality problems. Finally, to the extent CARB casts EPA reading as “exacting and unrealistic,” it mischaracterizes CAA section 209(a) and (b), which preempts states from adopting and enforcing standards for new motor vehicles and engines, with CAA section 209(b) allowing for a waiver of the preemption in 209(a) only if certain enumerated conditions are met. It is not “a rare air pollution problem” that satisfies the particularized nexus interpretation of CAA section 209(b)(1)(B) that EPA adopts in this document. Rather, it is the all-too-well understood and longstanding air pollution problem that California continues to face: Aggravated criteria pollution at the state and local level.

2. It Is Appropriate To Apply This Criterion to California’s GHG Standards Separately, Rather Than to California’s Motor Vehicle Program as a Whole

Under CAA section 209(b)(1)(B) of the Clean Air Act, the Administrator may not grant a waiver if he finds that the “State does not need such State standards to meet compelling and extraordinary conditions.” EPA proposed to find that CARB does not need its own GHG and ZEV standards to meet compelling and extraordinary conditions in California, on the grounds that “compelling and extraordinary conditions” mean environmental conditions with causes and effects particular or unique to, California whereas GHG emissions present global air pollution problems. Specifically, EPA proposed to determine that the GHG-related standards are designed to address global air pollution and its consequences, in contrast to local or regional air pollution problems with causal ties to conditions in California. EPA also proposed to find that, while effects related to climate change in California could be substantial, they are not sufficiently different from the conditions in the nation as a whole to justify separate State standards under CAA section 209(b)(1)(B). 83 FR 43248–43250. Lastly, EPA proposed to find that the State’s GHG-related standards would

not have a meaningful impact on the potential conditions related to global climate change. Because EPA has traditionally interpreted and applied CAA section 209(b)(1)(B) in a manner that examines whether the conditions that Congress identified (*e.g.*, topography number of vehicles, etc.)²⁶⁷ still give rise to serious air quality problems in California, and thus a need for California’s own motor vehicle emission control program, EPA concludes that this causal-link test is the appropriate basis on which to evaluate California’s GHG emission standards under the second waiver prong, CAA section 209(b)(1)(B).²⁶⁸ In general, EPA has in the past recognized California’s unique

²⁶⁷ *See, e.g.*, 49 FR 18887, 18890 (May 3, 1984) (waiver decision discussing legislative history of CAA section 209).

²⁶⁸ It is not appropriate for EPA to defer to California and other outside parties when EPA is interpreting its own statute. By contrast, EPA does defer to California’s policy choices when it comes to choosing emissions standards that will best address the serious air quality problems and impacts on public health and welfare in California—to the extent that the State standards at issue will actually address pollution and its consequences that are particular to California. But the question whether the State regulations at issue actually do meet the statutory criterion of being necessary “to meet compelling and extraordinary conditions” in the meaning of the statute, CAA section 209(b)(1)(B), is one which EPA must answer. In this regard, EPA notes that it has previously taken the position that “the burden of proof [lies] on the party opposing a waiver,” and that “the burden [is] on those who allege, in effect, that EPA’s GHG emission standards are adequate to California’s needs.” 78 FR at 2117 (Jan. 2013 waiver grant). EPA notes that this previous discussion is distinguishable from the current context in two key regards. First, EPA was in 2013 analyzing third parties’ opposition to a waiver, rather than conducting its own analysis of whether a previously granted waiver was appropriately granted. Second, EPA’s change in position in this document does not constitute an assertion that “EPA’s GHG emission standards are [or are not] adequate to California’s needs” as a matter of policy. Rather, EPA is adopting an interpretation of CAA section 209(b)(1)(B), specifically its provision that no waiver is appropriate if California does not need standards “to meet compelling and extraordinary conditions,” similar to the interpretation that it adopted in the 2008 waiver denial but abandoned in the 2009 and 2013 waiver grants, and applying that interpretation to determine to withdraw the January 2013 waiver for California’s GHG and ZEV program for model years 2021 through 2025. Under that interpretation, the question is not whether existing federal standards are “adequate to California’s needs,” but whether California’s standards are needed under the meaning of CAA section 209(b)(1)(B), which, as set forth in this document, requires a particularized nexus between California-specific pollutant sources, California-specific pollution contributed to thereby, and California-specific pollutants impacts caused thereby. Furthermore, we took comment on burden of proof in the proposal, *see* 83 FR at 43244 n.567. EPA believes it is not necessary to resolve that issue in this action as regardless of whether a preponderance of the evidence or clear and compelling evidence standard is applied, the Agency concludes that withdrawal of the waiver is appropriate.

underlying conditions and serious air pollution problems when reviewing waiver requests.²⁶⁹ California, and others that oppose the withdrawal of the waiver, assert that the relevant inquiry is merely whether California needs to have some form of a separate State motor vehicle emissions control program to meet compelling and extraordinary conditions, not whether any given standard is needed to meet compelling and extraordinary conditions related to that air pollution problem. On the other hand, several commenters that support a withdrawal of the waiver suggest EPA’s determination should be based on whether California needs greenhouse gas standards in particular to meet compelling and extraordinary conditions, asserting that a proposed set of standards must be linked to compelling and extraordinary conditions. These commenters suggest that the Act requires EPA to look at the particular “standards” at issue, not the entire State program.

EPA determines that it in this context it is appropriate to review whether California needs its GHG standards to meet compelling and extraordinary conditions separately from the need for the remainder of California’s new motor vehicle program, which has historically addressed criteria pollutants with a particular causal link to local and regional conditions both in the nature and quantity of emissions and in the particularized local and regional impacts of the pollution to which those emissions contribute. EPA bases this decision on the fact that California’s GHG standards are designed to address global climate change problems that are different from the local pollution conditions and problems that California has addressed previously in its new motor vehicle program. The climate change problems are different in terms of the distribution of the pollutants and the effect of local California factors, including the local effect of motor vehicle emissions as differentiated from other GHG emissions worldwide on the GHG concentrations in California. In

²⁶⁹ *See American Trucking Associations, Inc. v. Environmental Protection Agency*, 600 F.3d 624, 627 (D.C. Cir. 2010) (“With respect to the statutory language, EPA concluded that ‘compelling and extraordinary conditions’ refers to the factors that tend to cause pollution—the ‘geographical and climate conditions that, when combined with large numbers and high concentrations of automobiles, create serious air pollution problems.’ The expansive and statutory language gives California (and in turn EPA) a good deal of flexibility in assessing California’s regulatory needs. We therefore find no basis to disturb EPA’s reasonable interpretation of the second criterion. *See Chevron, USA Inc v. Natural Res. Def. Council*, 467 U.S. 837, 842–43.”) (citation omitted).

addition, EPA notes that under its traditional interpretation of CAA section 209(b)(1)(B), where EPA evaluates the need for a separate California new motor vehicle program, conditions such as the nature of the air quality problem may change whereby a particular motor vehicle regulation designed for a specific criteria pollutant is no longer needed to address a serious air quality problem (e.g., the underlying air quality problem no longer exists). Therefore, EPA concludes that it is appropriate to examine the need for GHG standards within California's mobile source program to ensure that such standard is linked to local conditions that giving rise to the air pollution problem, that the air pollution problem is serious and of a local nature, and that the State standards at issue will meaningfully redress that local problem.²⁷⁰

This waiver decision falls within the context of a few instances of EPA applying the CAA section 209(b)(1)(B) criterion to a California waiver request for a fundamentally global air pollution problem.²⁷¹ Although EPA's review of

this criterion has typically been cursory due to California needing its motor vehicle emission program due to fundamental factors leading to local and regional air pollution problems that were well established at the time of creation of the waiver provision (as discussed below), it is appropriate in this case to carefully review the purpose of CAA section 209(b)(1)(B) when applying it to the unique circumstance of California's regulation of greenhouse gases. By doing so, EPA gives meaning to Congress's decision to include this provision in CAA section 209(b).²⁷²

Moreover, because both CAA sections 209(b)(B) and (C) employ the term "such state standards," it is appropriate for EPA to read the term consistently between prongs (B) and (C). Under CAA section 209(b)(1)(C) EPA conducts review of standards California has submitted to EPA for the grant of a waiver to determine if they are consistent with CAA section 202(a).²⁷³ It follows then that EPA must read "such state standards" in CAA section 209(b)(1)(B) as a reference to the same standards in subsection (C).²⁷⁴

a. EPA Practice in Previous Waivers

In past waivers that addressed local or regional air pollution, EPA has interpreted CAA section 209(b)(1)(B) as requiring it to consider whether California needs a separate motor vehicle program to meet compelling and extraordinary conditions. Under this approach, EPA does not consider whether the specific standards at issue are needed to meet compelling and extraordinary conditions related to that air pollutant. For example, EPA reviewed this issue in detail with regard

to particulate matter in a 1984 waiver decision.²⁷⁵ In that waiver proceeding, California argued that EPA is restricted to considering whether California needs to have its own motor vehicle program to meet compelling and extraordinary conditions, and does not consider whether any given standard is necessary to meet such conditions. Opponents of the waiver in that proceeding argued that EPA was to consider whether California needed these PM standards to meet compelling and extraordinary conditions related to PM air pollution.

The Administrator agreed with California that it was appropriate to look at the program as a whole in determining compliance with CAA section 209(b)(1)(B). One justification of the Administrator was that many of the concerns with regard to having separate State standards were based on the manufacturers' worries about having to meet more than one motor vehicle program in the country, but that once a separate California program was permitted, it should not be a greater administrative hindrance to have to meet further standards in California. The Administrator also justified this decision by noting that the language of the statute referred to "such state standards," which referred back to the use of the same phrase in the criterion looking at the protectiveness of the standards in the aggregate. He also noted that the phrase referred to standards in the plural, not individual standards. He considered this interpretation to be consistent with the ability of California to have some standards that are less stringent than the federal standards, as long as, under CAA section 209(b)(1)(A), in the aggregate its standards were at least as protective as the federal standards.

The Administrator further stated that in the legislative history of CAA section 209, the phrase "compelling and extraordinary circumstances" refers to "certain general circumstances, *unique to California*, primarily responsible for causing its air pollution problem," like the numerous thermal inversions caused by its local geography and wind patterns. The Administrator also noted that Congress recognized "the presence and growth of California's vehicle population, whose emissions were thought to be responsible for ninety percent of the air pollution in certain parts of California."²⁷⁶ EPA reasoned that the term compelling and extraordinary conditions "does not refer to the levels of pollution directly." Instead, the term refers primarily to the

²⁷⁰ EPA notes in this regard that the position that GHG and climate are no different from criteria pollutants and criteria air pollution in terms of applicability of the CAA section 209(b) waiver regime, and specifically that no particularized nexus between in-state emissions and in-state impacts is necessary in order to meet the CAA section 209(b)(1)(B) "need[ed] . . . to meet compelling and extraordinary conditions," would effectively read the term "extraordinary" out of the statute, or reduce it to surplusage with the term "compelling." Whether GHG emissions and attendant climate impacts are, in the colloquial sense, compelling or not is not the relevant question. It is whether they are "compelling and extraordinary" within the reasonably interpreted meaning of that term in its context here. Inasmuch as that term in its context requires a particularized nexus between California emissions, California pollution, and California impacts, they are not.

²⁷¹ See generally California State Motor Vehicle Pollution Control Standards; Advanced Clean Car Program; Notice of Decision, January 9, 2013 Volume 78, Number 6 pp. 2211–2145; California State Motor Vehicle Pollution Control Standards; Greenhouse Gas Emissions from 2014 and Subsequent Model Year Medium- and Heavy-Duty Engines and Vehicles; Notice of Decision; December 29, 2016 Volume 81, Number 250, pp. 95982–95987; California State Motor Vehicle Pollution Control Standards; Heavy-Duty Tractor-Trailer Greenhouse Gas Regulations; Notice of Decision; August 7, 2014 Volume 79, Number 152 pp. 46256–46265; California State Motor Vehicle Pollution Control Standards; Within-the-Scope Determination for Amendments to California's Motor Vehicle Greenhouse Gas Regulations; Notice of Decision; June 14, 2011 Volume 76, Number 114 pp. 34693–34700; California State Motor Vehicle Pollution Control Standards; Notice of Decision Granting a Waiver of Clean Air Act Preemption for California's 2009 and Subsequent Model Year Greenhouse Gas Emission Standards for New Motor Vehicles; July 8, 2009 Volume 74, Number 129 pp. 32744–32784; California State Motor Vehicle Pollution Control Standards; Notice of Decision Denying a Waiver of Clean Air Act Preemption for California's 2009 and Subsequent Model Year Greenhouse Gas Emission Standards for New Motor Vehicles; March 6, 2008 Volume 73, Number 45 pp. 12156–12169.

²⁷² See *United States v. Menashe*, 348 US 528, 538–39 (1955) (courts must give effect to every word, clause, and sentence of a statute).

²⁷³ "Technology exists with which to achieve California's proposed standards for HC and CO, however, the standards are inconsistent with Section 202(a) of the Clean Air Act because the cost of compliance within the lead time remaining is excessive." 38 FR 30136 (November 1, 1973). See also 40 FR 30311 (July 18, 1975); 43 FR 998, 1001 (Jan. 5, 1978).

²⁷⁴ Under CAA section 177 states may adopt and enforce motor vehicle emissions standards if "such standards are identical to the California standards for which a waiver has been granted." See, e.g., *Motor Vehicle Mfrs. Ass'n v. NYS Dep. of Env't'l Conservation*, 17 F.3d 521, 532 (2d Cir. 1994). "Section 177 refers to 'standards relating to control of emissions . . . for which a waiver has been granted.' *Id.* In enacting § 209(b), which establishes California's preemption exception, Congress uses the same words as it did when it allowed California to set its own 'standards . . . for the control of emissions,' provided the EPA approves a waiver application. *Id.* § 7543(b)(1). Hence, the most logical reading of § 177 is that New York may adopt only those standards that, pursuant to § 209(b), California included in its waiver application to the EPA." (Emphasis in original).

²⁷⁵ See 49 FR 18887 (May 3, 1984).

²⁷⁶ *Id.* at 18890 (emphasis added).

confluence of factors that tend to produce higher levels of pollution of the type particular to California: “geographical and climatic conditions (like thermal inversions) that, when combined with large numbers and high concentrations of automobiles, create serious air pollution problems.”

The Administrator summarized that the question to be addressed in the second criterion is whether these “fundamental conditions” (*i.e.*, the geographical and climate conditions and large motor vehicle population) that cause air pollution continued to exist, not whether the air pollution levels for PM were “compelling and extraordinary,” nor the extent to which these specific PM standards will address the PM air pollution problem.

From this it can be seen that EPA’s interpretation in the context of reviewing standards designed to address local or regional air pollution has looked at the local causes of the air pollution problems: Geographic and climatic conditions that turn local emissions into air pollution problems, such as thermal inversions, combined with a large number of motor vehicles in California emitting in the aggregate large quantities of emissions. Under the interpretation EPA adopts in this document, it is the particularized nexus between the emissions from California vehicles, their contribution to local pollution, and the extraordinary impacts that that pollution has on California due to California’s specific characteristics, that set California apart from other areas when Congress adopted this provision.

EPA’s review of this criterion has usually been cursory and not in dispute, as the fundamental factors leading to these traditional criteria air pollution problems—geography, local climate conditions (like thermal inversions), significance of the motor vehicle population—have not changed over time and over different local and regional air pollutants. These fundamental factors have applied similarly for all of California’s air pollution problems that are local or regional in nature. California’s circumstances of geography, climate, and motor vehicle population continue to show that it has compelling and extraordinary conditions leading to such local air pollution problems related to traditional pollutants.

California’s motor vehicle program has historically addressed air pollution problems that are generally local or regional in nature. The emission standards have been designed to reduce emissions coming from local vehicles, in circumstances where these local emissions lead to air pollution in

California that will affect directly the local population and environment in California. The narrow question in this waiver proceeding is whether this interpretation is appropriate when considering motor vehicle standards designed to address a global air pollution problem and its effects, as compared to a local or regional air pollution problem that has particular causal ties to conditions in California.

As EPA observed in the SAFE proposal, the agency has articulated differing interpretations of CAA section 209(b)(1)(B). Historically, EPA has interpreted this provision to require that California needs to have its own separate new motor vehicle program in the aggregate to meet compelling and extraordinary conditions in California, not whether the state needs the specific standards under consideration. In 2008, in contrast, when EPA first considered whether State GHG emission regulations meet the requirements for a CAA section 209(b) waiver, EPA determined that the better reading of CAA section 209(b)(1)(B) would be to consider whether California “need[s]” the particular standards at issue “to meet compelling and extraordinary conditions,” and the agency denied the waiver on these grounds. Then, when EPA reconsidered that denial in 2009, the agency reverted to the interpretation that it had previously applied for criteria pollutants and granted the waiver.

EPA concludes that the long and contentious history of this question, and the recent measures that California has taken even during the pendency of this administrative action to amend its State regulations beyond the form in which they were granted the waiver in 2013 and, even more recently, to purport to establish “voluntary” programs creating yet a third program distinct both from that for which CAA preemption was waived in 2013 and the Federal standards promulgated in 2012 and currently under review by the Federal government, confirm that extension of CAA section 209(b) waivers to State GHG and ZEV programs was inappropriate. Such waivers have led to actions by California increasingly at odds with the clear Congressional design and intent that national standards would be set by the federal government with California having an ability to apply for targeted waivers of preemption to address its own particular problems. EPA therefore views this interpretation and application of CAA section 209(b)(1)(B) set forth here as, at minimum, a reasonable one that gives appropriate meaning and effect to this provision and

does not second-guess California’s policy judgment notwithstanding assertions to the contrary.

b. The Distinct Nature of Global GHG Pollution as It Relates to CAA Section 209(b)(1)(B)

The air pollution problem at issue here is elevated atmospheric concentrations of greenhouse gases, and the concern is the impact these concentrations have on global climate change and the effect of global climate change on California. In contrast to local or regional air pollution problems, the atmospheric concentrations of these greenhouse gases are substantially uniform across the globe, based on their long atmospheric life and the resulting mixing in the atmosphere. The factors looked at in the past when considering waiver requests for State standards addressing criteria pollutants—the geography and climate of California, and the large motor vehicle population in California, which were considered the fundamental causes of the air pollution levels found in California—cannot form the basis of a meaningful analysis of the causal link between California vehicles’ GHG emissions and climate effects felt in California. The concentration of greenhouse gases in the upper atmosphere may affect California, but that concentration is not affected in any particular way by the geography and climate of California. The long duration of these gases in the atmosphere means they are well-mixed throughout the global atmosphere, such that their concentrations over California and the U.S. are, for all practical purposes, the same as the global average. The number of motor vehicles in California, while still a notable percentage of the national total and still a notable source of GHG emissions in the State, bears no more relation to the levels of greenhouse gases in the atmosphere over California than any other comparable source or group of sources of greenhouse gases anywhere in the world. Emissions of greenhouses gases from California cars do not generally remain confined within California’s local environment (and, indeed, were they to do so, rather than rise to the upper atmosphere to become well-mixed with other GHG emissions, those locally located emissions would not, by definition, contribute to the “pollution” that is at issue here). Instead, those GHG emissions from vehicles operating in California become one part of the global pool of GHG emissions, with this global pool of emissions leading to a relatively homogenous concentration of greenhouse gases over the globe. Thus, the emissions of motor vehicles in

California do not affect California's air pollution problem in any way different from emissions from vehicles and other pollution sources all around the world. Similarly, the emissions from California's cars do not just affect the atmosphere in California, but in fact become one part of the global pool of GHG emissions that affect the atmosphere globally and are distributed throughout the world, resulting in basically a uniform global atmospheric concentration.

Given the different, and global, nature of the pollution at issue, EPA determines that the conceptual basis underlying the practice of considering California's motor vehicle program as a whole (in the context of criteria emission regulations) does not meaningfully apply with respect to elevated atmospheric concentrations of GHGs. Therefore, EPA has considered whether it is appropriate to apply this criterion in a different manner for this kind of air pollution problem; that is, a global air pollution problem.

As previously explained, the text and relevant legislative history of CAA section 209 also supports EPA's decision to examine the application of the second waiver denial criterion (CAA section 209(b)(1)(B)) with regard to California's GHG and ZEV standards specifically in the context of global climate change. It indicates that Congress was moved to allow waivers of preemption for California motor vehicle standards based on the particular effects of local conditions in California on the air pollution problems in California. Congress discussed "the unique problems faced in California as a result of its climate and topography." H.R. Rep. No. 728, 90th Cong. 1st Sess., at 21 (1967). *See also* Statement of Cong. Holifield (CA), 113 Cong. Rec. 30942–43 (1967). Congress also noted the large effect of local vehicle pollution on such local problems. *See, e.g.*, Statement of Rep. Bell (CA), 113 Cong. Rec. 30946. In particular, Congress focused on California's ozone problem, which is especially affected by local conditions and local pollution. *See* Statement of Rep. Smith (CA), 113 Cong. Rec. 30940–41 (1967); Statement of Rep. Holifield (CA), *id.* at 30942. *See also Motor & Equip. Mfrs. Ass'n, Inc. v. EPA (MEMA)*, 627 F.2d 1095, 1109 (D.C. Cir., 1979) (noting the discussion of California's "peculiar local conditions" in the legislative history). Congress clearly did not have in view pollution problems of a more national or global nature in justifying this provision.²⁷⁷ Moreover,

"the [Clean Air] Act also differentiates between the states, despite our historic tradition that all the States enjoy equal sovereignty. Distinctions can be justified in some cases. 'The doctrine of the equality of States . . . does not bar . . . remedies for *local* evils which have subsequently appeared.' But a departure from the fundamental principle of equal sovereignty requires a showing that a statute's disparate geographic coverage is sufficiently related to the problem that it targets." *Nw. Austin Mun. Util. Dist. No. One v. Holder*, 557 U.S. 193, 203 (2009) (some citations and internal quotation marks omitted) (quoting *South Carolina v. Katzenbach*, 383 U.S. 301, 328–29 (1966)) (ellipses and emphasis added by *Northwest Austin Court*); *see also Katzenbach*, 383 U.S. at 334 ("exceptional conditions can justify legislative measures not otherwise appropriate") (emphasis added); *cf.* 42 U.S.C. 7543(b)(1)(B) ("No such waiver shall be granted if the Administrator finds that . . . such State does not need such State standards to meet *compelling and extraordinary conditions*.")) (emphasis added). These principles support our conclusion that Congress did not intend the waiver provision in CAA section 209(b) to be applied to California measures that address pollution problems of a national or global nature, as opposed to conditions that are "extraordinary" with respect to California in particular—*i.e.*, those with a particularized nexus to emissions in California and to topographical or other features peculiar to California."

c. It Is Appropriate To Apply CAA Section 209(b)(1)(B) Separately to GHG Standards

EPA concludes that in the context of reviewing California GHG related standards designed to address global climate change, it is appropriate to apply the second criterion separately for GHG standards.

The intent of Congress, in enacting CAA section 209(b) and in particular Congress's decision to have a separate CAA section 209(b)(1)(B), was to require EPA to specifically review whether California continues to have compelling and extraordinary conditions and the need for State standards to address those conditions. Thus, EPA concludes that it is appropriate to review

program may not increase significantly based on the addition of new standards, there is still cost in the implementation of new standards, particularly in terms of changes in design necessitated by the new standards. In any case, this issue does not appear to be relevant to the issue of whether California needs its standards to meet compelling and extraordinary conditions.

California's GHG standards separately from the remainder of the State's motor vehicle emission control program for purposes of CAA section 209(b)(1)(B).

In this context it is appropriate to give meaning to this criterion by looking at whether the emissions from California motor vehicles, as well as the local climate and topography in California, are the fundamental causal factors for the air pollution problem—elevated concentrations of greenhouse gases—apart from the other parts of California's motor vehicle program, which are intended to remediate different air pollution concerns.

The appropriate criteria to apply therefore is whether the emissions of California motor vehicles, as well as California's local climate and topography, are the fundamental causal factors for the air pollution problem of elevated concentrations of greenhouse gases.

d. Relationship of California Motor Vehicles, Climate, and Topography to Elevated Concentrations of Greenhouse Gases in California

Under CAA section 209(b)(1)(B), EPA proposed to withdraw the waiver of preemption of the ACC program GHG and ZEV standards for MY 2021–2025 on two alternative grounds. Specifically, (1) California "does not need" these standards "to meet compelling and extraordinary conditions;" and (2) even if California does have compelling and extraordinary conditions in the context of global climate change, California does not "need" these standards because they will not meaningfully address global air pollution problems of the sort associated with GHG emissions. 83 FR 43248.

As previously explained, EPA proposed to determine that the balance of textual, contextual, structural, and legislative history evidence provide reasonable support for the conclusion that the statute is ambiguous in one particular respect: Whether section 209(b)(1)(B) refers to an individual standard or the California standards as a whole when referring to the Administrator's review of state standards submitted for a waiver, to determine whether the state "needs such State standards to meet compelling and extraordinary conditions," and that the approach of examining the need for GHG-related standards separate from the other, traditional aspects of California's program is reasonable given, among other factors, the unique nature of the global pollutant. EPA recognizes that Congress's purpose in establishing the prohibition in CAA section 209(a) and the waiver in CAA section 209(b) was to

²⁷⁷ In reference to another argument made in the 1984 waiver, while the administrative costs of a

balance the benefit of allowing California significant discretion in deciding how to protect the health and welfare of its population with the burden imposed on the manufacturers of being subject to two separate motor vehicle programs and the overarching policy judgment that uniform national standards are appropriate. S. Rep. No. 403, 90th Cong. 1st Sess., at 32–33 (1967). It is clear that Congress intended this balance to be premised on a situation where California needs the State standards to meet compelling and extraordinary conditions. Thus, if EPA determines that California does not need its State GHG standards to meet compelling and extraordinary conditions, a waiver of preemption for those State standards is not permitted under the statute.

Commenters supportive of EPA's proposal to withdraw the waiver commented that California should not continue to enjoy a waiver for separate State GHG standards because those State standards are not needed to meet compelling and extraordinary conditions because there is no link between California-based motor vehicle GHG emissions and any alleged extraordinary conditions in California. These commenters state that while California spends a great deal of time discussing the effects of climate change in California, California does not link its GHG standards to those effects. They note that GHGs are not localized pollutants that can affect California's local climate, or that are problematic due to California's specific topography. Instead, emissions from vehicles in California become mixed with the global emissions of GHG and affect global climate (including California's climate) in the same way that any GHG from around the world affect global (and California) climate conditions. They claim that Congress authorized EPA to grant a waiver of preemption only in cases where California standards were necessary to address peculiar local air quality problems. They claim that there can be no need for separate California standards if the standards are not aimed at, and do not redress, a California-specific problem.

In previous waiver decisions, EPA was asked to waive preemption of standards regulating emissions that were local or regional in effect. Local air pollution problems are affected directly by local conditions in California, largely the emissions from motor vehicles in California in the context of the local climate and topography. As a result, State standards regulating such local motor vehicle emissions will have a direct effect on the concentration of

pollutants directly affecting California's environment. They are effective mechanisms to reduce the levels of local air pollution in California because local conditions are the primary cause of that kind of air pollution problem. In addition, reductions in emissions from motor vehicles that occur elsewhere in the United States will not have the same impact, and often will have no impact, on reducing the levels of local air pollution in California.

By contrast, GHGs emitted by California motor vehicles become part of the global pool of GHG emissions that affect concentrations of GHGs on a uniform basis throughout the world. The local climate and topography in California have no significant impact on the long-term atmospheric concentrations of greenhouse gases in California. Greenhouse gas emissions from vehicles or other pollution sources in other parts of the country and the world will have as much effect on California's environment as emissions from California vehicles. As a result, reducing emissions of GHGs from motor vehicles in California has the same impact or effect on atmospheric concentrations of GHGs as reducing emissions of GHGs from motor vehicles or other sources elsewhere in the U.S., or reducing emissions of GHGs from other sources anywhere in the world. California's motor vehicle standards for GHG emissions do not affect only California's concentration of GHGs, but affect such concentrations globally, in ways unrelated to the particular topography in California. Similarly, emissions from other parts of the world affect the global concentrations of GHGs, and therefore concentrations in California, in exactly the same manner as emissions from California's motor vehicles.

Further, as explained in the SAFE proposal, California's claims that it is uniquely susceptible to certain risks because it is a coastal State does not differentiate California from other coastal States such as Massachusetts, Florida, and Louisiana, much less that conditions in California are any more "extraordinary" as compared to any other coastal States, particularly those coastal States that may possess a greater percentage of low-lying territory than California. Any effects of global climate change (e.g. water supply issues, increases in wildfires, effects on agriculture) could certainly affect California. But those effects would also affect other parts of the United States.²⁷⁸

²⁷⁸ Some commenters made this same point. See, e.g., Fiat Chrysler Automobiles, Docket No. EPA-HQ-OAR-2018-0283-4406 at 89; American Fuel &

Many parts of the United States, especially western States, may have issues related to drinking water (e.g., increased salinity) and wildfires, and effects on agriculture; these occurrences are by no means limited to California. These are among the types of climate change effects that EPA considered in the 2009 CAA section 202(a) endangerment finding which is the predicate for its authority to issue national motor vehicle GHG standards. But EPA's evaluation of whether California's standards are "need[ed] to meet compelling and extraordinary conditions" is not identical to its prior determination, pursuant to CAA section 202(a) whether GHG emissions from the national motor vehicle fleet contribute to pollution that may reasonably be anticipated to endanger public health or welfare. In order for a waiver request to pass muster under CAA section 209(b)(1)(B), as set forth in this document, a particularized, state-specific nexus must exist between sources of pollutants, resulting pollution, and impacts of that pollution. This is analogous to but distinct from the more abstract or general predicate finding for regulation under CAA section 202(a); if it were not distinct, then California would, under CAA section 209(b)(1)(B), *always* "need" a waiver for a state-specific program to "meet" any pollution problem that it experienced once EPA had found under CAA section 202(a) that motor vehicle emissions contribute to that pollution problem (without particular reference to that pollution problem's impact on California). This would effectively nullify the second waiver denial prong, CAA section 209(b)(1)(B).²⁷⁹ California

Petrochemical Manufacturers, Docket No. E_A-HQ-OAR-2018-0283-5648 at 34, 36. At least one recent analysis, cited by a number of commenters, has produced estimates of climate change damage that project that with respect to such matters as coastal damage, agricultural yields, energy expenditures, and mortality, California is not worse-positioned in relation to certain other areas of the U.S., and indeed is estimated to be better-positioned, particularly as regards the Southeast region of the country. See S. Hsiang, *et al.* "Estimating Economic Damage from Climate Change in the United States," 356 *Science* 1362 (2017).

²⁷⁹ Cf. *Ford*, 606 F.2d at 1303 n.68 (affirming EPA's refusal to allow nationwide sale of cars that meet California standards that, due to the waiver predicate that California's standards only need be as stringent as federal standards in the aggregate, were not certified as meeting national standards with respect to all pollutants) ("[Appellants] suggest to varying degrees that California is a microcosm of the entire nation and, as such, has no particularized problems the resolution of which would require emission control standards inappropriate to the rest of the country. This may or may not be completely true. The fact remains, however, that Congress expected California to be putting its interests first and there is no guarantee that those interests are congruent with the interests

would have it that the 2009 CAA section 202(a) GHG endangerment finding necessarily means California “needs” its own GHG program “to meet compelling and extraordinary conditions.” That does not follow.²⁸⁰ *Cf. Utility Air Regulatory Group v. EPA*, 134 S. Ct. 2427 (2014) (partially reversing the GHG “Tailoring” Rule on grounds that the CAA section 202(a) endangerment finding for GHG emissions from motor vehicles did not compel regulation of all sources of GHG emissions under the Prevention of Significant Deterioration and Title V permit programs). 83 FR 43249.

EPA has discussed the reasons for concluding that it is appropriate to consider California’s GHGs standards separately in determining whether the State needs those standards to meet compelling and extraordinary conditions, as compared to looking at its need for a motor vehicle program in general. These reasons also lead to the conclusion that California does not need these GHG standards to meet compelling and extraordinary conditions. The text, structure, and legislative history indicates that Congress’s intent in the second waiver criterion, CAA section 209(b)(1)(B), was to allow California to adopt new motor vehicle standards because of compelling

and extraordinary conditions in California that were causally related to local or regional air pollution levels in California. These factors—including topography and large population of motor vehicles—cause these kinds of local or regional air pollution levels in California and because of this causal link, California’s motor vehicle standards can be effective mechanisms to address these local problems. Reductions outside California would lack that causal link to local or regional air quality conditions inside California.

Congress did not indicate any intent to allow California to promulgate local standards to deal with global air pollution like atmospheric concentrations of GHGs. In California’s comments on the SAFE proposal, it asserted that it has a need for reductions in GHG atmospheric concentrations and therefore emissions, but the issue is not whether such reductions are needed as a matter of general policy, but whether Congress intended them to be effectuated on a State-specific basis by California through EPA granting a waiver for the GHG aspects of the State’s new motor vehicle program. This type of pollution seems ill-fitted to Congress’s intent to provide California with a method of handling its local air pollution concentrations and related problems with local emission control measures. EPA determines that standards regulating emissions of global pollutants like greenhouse gases were not part of the compromise envisioned by Congress in passing CAA section 209(b).²⁸¹ Moreover, even if California does have compelling and extraordinary conditions in the context of global climate change, California does not “need” these standards under CAA section 209(b)(1)(B) because they will not meaningfully address global air pollution problems of the sort associated with GHG emissions. As noted in the SAFE proposal, the most stringent of the regulatory alternatives considered in the 2012 final rule and FRIA (under much more optimistic assumptions about technology effectiveness), which would have required a seven percent average annual fleetwide increase in fuel economy for MYs 2017–2025 compared to MY 2016 standards, was forecast to decrease global temperatures only by 0.02 °C in 2100.²⁸² This conclusion was further

bolstered by multiple commenters.²⁸³ EPA therefore concludes that California’s GHG and ZEV regulations do not fulfil the requirement within CAA section 209(b)(1)(B) that such regulations are “needed” to “meet” the impacts of global climate change in California, even assuming *arguendo* that those impacts do constitute “compelling and extraordinary conditions” within the meaning of that statutory phrase (although, to be clear, EPA is determining that those impacts do not in fact fall within that phrase’s meaning). Given that Congress enacted CAA section 209(b) to provide California with a unique ability to receive a waiver of preemption, which provides California with authority that it would not otherwise have under CAA section 209, and given the specific language in CAA section 209(b)(2) pointing out the need for extraordinary and compelling conditions as a condition for the waiver, EPA determines that it is not appropriate to waive preemption for California’s standards that regulate GHGs. Atmospheric concentrations of greenhouse gases are an air pollution problem that is global in nature, and this air pollution problem does not bear the same causal link to factors local to California as do local or regional air pollution problems. EPA determines that globally elevated atmospheric concentrations of GHGs and their environmental effects are not the kind of local or regional air pollution problem that fall within the scope of the “compelling and extraordinary conditions” encompassed by the terms of CAA section 209(b)(1)(B). As such, EPA finds that California does not need its 2021 through 2025 MY GHG-related standards to meet compelling and extraordinary conditions.²⁸⁴

of the nation as a whole.”). Here, California offers an inverse reflection of appellants’ argument in *Ford*, but it is no more valid: Because it can marshal a list of climate impacts that it is experiencing, California insists it is entitled to a waiver for a state-specific program to address those impacts. All of California’s problems and corresponding programs, under this logic, are “particularized.” If this were the case, no waiver request could ever be denied under CAA section 209(b)(1)(B), and Congress would much more likely have simply afforded California a blanket and automatic waiver. Congress did not do so, its choice not to do so should be respected and given meaning, and EPA in this document sets forth an interpretation and application of CAA section 209(b)(1)(B) that does so by articulating a required particularized nexus to State-specific facts which is present in the case of California’s criteria vehicle emissions programs but lacking in the case of its GHG and ZEV ones.

²⁸⁰ EPA notes in this regard that, even in the 2009 reversal of the 2008 waiver denial, the Agency was careful to distinguish its consideration of the waiver application from “the issues pending before EPA under section 202(a) of the Act,” i.e., the then-pending endangerment finding. 74 FR at 32765. While EPA maintains the position that the CAA section 202(a) “endangerment finding” inquiry and the CAA section 209(b)(1)(B) inquiry are distinct, EPA notes that the 2009 waiver denial reversal (and the 2008 waiver denial itself) took pains to distinguish the two primarily because the Agency was at that time still considering whether to issue the endangerment finding. As EPA explains in this document, the two provisions are distinct, but the CAA section 202(a) predicate criteria for federal regulation do support the Agency’s position that the CAA section 209(b)(1)(B) waiver prong is best interpreted as calling for a consideration whether the pollution problem at issue has a State-specific, particularized nexus between emissions, pollution, and impacts.

²⁸¹ Moreover, EPA is mindful that principles of equal sovereignty between the states ordinarily require “‘exceptional conditions’ prevailing in certain parts of the country [to] justify] extraordinary legislation otherwise unfamiliar to our federal system.” *Northwest Austin*, 557 U.S. at 211.

²⁸² 83 FR 42986, 43216–43217.

²⁸³ The George Washington University Regulatory Studies Center, Docket No. EPA–HQ–OAR–2018–0283–4028; Competitive Enterprise Institute, Docket No. NHTSA–2018–0067–12015.

²⁸⁴ EPA disagrees with comments that suggest that California “needs” its GHG and ZEV programs “to meet compelling and extraordinary conditions” in the meaning of CAA section 209(b)(1)(B) because those programs are intended to reduce criteria pollutants emissions, separate and apart from their status as programs designed to address climate change. To take this position would not be in keeping with historical agency practice in reviewing California’s waiver requests. Specifically, EPA practice is not to scrutinize California’s criteria pollutant emissions reductions projections or air emissions benefits. Rather, EPA’s view has been that these are matters left for California’s judgments, especially given that Title I of the Clean Air Act imposes the obligation of NAAQS attainment planning on states. See, e.g., 36 FR 17458; 78 FR 2134; 79 FR 46256, 46261 (Aug. 7, 2014). EPA’s withdrawal action is premised on CARB’s 2012 ACC program waiver request, which, as previously

e. No Findings Under CAA Section 209(b)(1)(C) Are Finalized at This Time

In the SAFE proposal, EPA proposed to determine, as an additional basis for the waiver withdrawal, that California's ZEV and GHG standards for new MY 2021 through 2025 are not consistent with section 202(a) of the Clean Air Act. That proposed determination was intertwined with the SAFE proposal's assessment with regard to the technological feasibility of the Federal GHG standards for MY 2021 through 2025 and the proposed revisions thereto. Because EPA and NHTSA are not at this time finalizing that assessment or taking final action on the proposal to revise the Federal standards, and because the finalized determinations under CAA section 209(b)(1)(B) and the discussion of the implications of EPCA preemption with regard to the waiver previously granted with respect to those standards set forth above are each independent and adequate grounds for the waiver withdrawal, EPA at this time is not finalizing any determination with respect to CAA section 209(b)(1)(C). EPA may do so in connection with potential future final action with regard to the Federal standards.

E. Withdrawal of Waiver

In this final action, EPA determines that the California Air Resources Board's (CARB's) regulations pertaining to greenhouse gases-related (GHG) emission standards for 2021 through 2025 model year (MY) passenger cars, light-duty trucks, and medium-duty vehicles are not needed to meet compelling and extraordinary conditions. EPA concludes that CAA section 209(b) was intended to allow California to promulgate State standards applicable to emissions from new motor vehicles to address pollution problems that are local or regional, and that have a particular nexus to emissions from vehicles in California.²⁸⁵ EPA does not believe CAA section 209(b)(1)(B) was intended to allow California to

discussed, only discussed the potential GHG benefits or attributes of CARB's GHG and ZEV standards program (78 FR 2114, 2130–2131). If EPA does not even scrutinize a California program's criteria pollutant emission and benefits projections when California applies for a waiver for that program *presenting it as a criteria program*, then *a fortiori* commenters' retrospective attempt to claim criteria benefits to maintain a waiver for programs that were originally presented to EPA in a waiver request that disclaimed any such benefits is not appropriate.

²⁸⁵ As noted in the SAFE proposal, "Attempting to solve climate change, even in part, through the Section 209 waiver provision is fundamentally different from that section's original purpose of addressing smog-related air quality problems." 83 FR 42999.

promulgate State standards for emissions from new motor vehicles designed to address global climate change problems.

EPA's 2013 waiver for CARB's Advanced Clean Car Program (as it pertains to its 2021 through 2025 MY relating to greenhouse gas emissions and the ZEV mandate) is withdrawn. This is separate and apart from EPA's determination that it cannot and did not validly grant a waiver with respect to those California State measures which are preempted under NHTSA's determination in this document that EPCA preempts State GHG and ZEV programs, which, as explained above, is effective on the effective date of this joint action.

F. States Cannot Adopt California's GHG Standards Under CAA Section 177

At proposal, EPA explained that CAA section 177 provides that other States, under certain circumstances and with certain conditions, may "adopt and enforce" standards that are "identical to the California standards for which a waiver has been granted for [a given] model year." 42 U.S.C. 7507. As a result, EPA proposed to determine that this section does not apply to CARB's GHG standards given that they are intended to address global air pollution. We also noted that the section is titled "New motor vehicle emission standards in nonattainment areas" and that its application is limited to "any State which has [state implementation] plan provisions approved under this part"—*i.e.*, under CAA title I part D, which governs "Plan requirements for nonattainment areas."

We received comments in support of and against our proposal. Commenters opposing our interpretation argued that CAA section 177 does not contain any text that could be read as limiting its applicability to certain pollutants only. They also argued that EPA has inappropriately relied on the heading for CAA section 177 to construe a statutory provision as well as arrogated authority to implement an otherwise self-implementing provision. We disagree with these commenters, conclude that the text (including both the title and main text), structural location, and purpose of the provision confirm that it does not apply to GHG standards, and are finalizing this determination as proposed.

Under the Clean Air Act, EPA establishes national ambient air quality standards (NAAQS) to protect public health and welfare and has established such ambient standards for the following criteria pollutants: ozone, carbon monoxide, nitrogen dioxide,

sulfur dioxide, lead, and particulate matter. As also explained at proposal, areas are only designated nonattainment with respect to criteria pollutants for which EPA has issued a NAAQS, and nonattainment State Implementation Plan (SIPs) are intended to assure that those areas attain the NAAQS.

Congress added CAA section 177 in the 1977 Clean Air Act amendments cognizant that states might need to address air pollution within their boundaries similar to California but were otherwise preempted under CAA section 209(a) from setting new motor vehicle and engine standards. *See, e.g.*, H.R. Rep. No. 294, 95th Cong., 1st Sess. 309 (1977), 1977 U.S.C.C.A.N. 1077, 1388 (explaining that the Committee "was concerned that this preemption (section 209(a) of the Act) now interferes with legitimate police powers of States"); *Motor Vehicle Mfrs. Ass'n of U.S., Inc. v. New York State Dep't of Env'tl. Conservation*, 17 F.3d 521, 527 (2d Cir. 1994) ("It was in an effort to assist those states struggling to meet federal pollution standards that Congress, . . . directed in 1977 that other states could promulgate regulations requiring vehicles sold in their state to be in compliance with California's emission standards or to 'piggyback' onto California's preemption exemption."), *citing* H.R. Rep. No. 294, 95th Cong., 1st Sess. 309–10 (1977); *id.* at 531 ("[Section] 177 was inserted into the Act in 1977 so that states attempting to combat their own pollution problems could adopt California's more stringent emission controls."). Relevant legislative history further identifies CAA section 177 as a means of addressing the NAAQS attainment planning requirements of CAA section 172, including the specific SIPs content and approvals criteria for EPA.²⁸⁶ H.R.

²⁸⁶ The version of CAA section 172 adopted in 1977 set forth the general requirements for state plans for nonattainment areas and CAA section 172(b) set forth the "requisite provisions" of those plans. In drafting the provisions that would become CAA section 172(b), Congress explained that they required the Administrator, after notice and opportunity for a public hearing, to approve "a State plan which meets the following criteria: It must identify all nonattainment areas for each pollutant. Next it must assure attainment of the national ambient air quality standard in those areas as expeditiously as practicable, but not later than December 31, 1982, for all pollutants other than photochemical oxidants. In respect to photochemical oxidants, the standard must be met as expeditiously as practicable, but not later than December 31, 1987. The plan must include a comprehensive, accurate, up-to-date inventory of actual emissions from all sources of pollutants in the area. This inventory must be revised and resubmitted every 2 years to substantiate that reasonable further progress has been achieved as a condition for permitting additional sources of pollution. Finally, the plan must identify and quantify the actual emissions which must be taken

Rep. No. 294, 95th Cong., 1st Sess. 213 (1977), 1977 U.S.C.C.A.N 1077, 1292 (“Still another element of flexibility for States that is afforded in this section is the authority for States with nonattainment areas for automotive pollutants (other than California) to adopt and enforce California new-car emission standards if adequate notice is given.”).

Contrary to commenters’ assertions, therefore, the text, placement in Title I, and relevant legislative history are all indicative that CAA section 177 is in fact intended for NAAQS attainment planning and not to address global air pollution. As further explained in section D.2, GHG is a globally distributed pollutant with environmental effects that are different enough from emissions of criteria pollutants. For example, GHG emissions from fleet in California bear no more relation to GHG emissions in California than fleet in other parts of the country. Where states are now adopting standards for intents and purposes far removed from NAAQS attainment planning or more specifically directed at global air pollution, EPA as the agency charged with implementing the Clean Air Act is acting well within that role in setting out an interpretation that aligns with Congressional intent. See *Chevron U.S.A. v. NRDC*, 467 U.S. 837, 843 (1984) (“The power of an administrative agency to administer a congressionally created . . . program necessarily requires the formulation of policy and the making of rules to fill any gap left, implicitly or explicitly, by Congress.”). This construct also comports with our reading of CAA section 209(b)(1)(B) as limiting applicability of CAA section 209(b) waiver authority to state programs that address pollutants that affect local or regional air quality and not those

into account by the State for purposes of deciding how to achieve reasonable further progress and assure timely attainment. Thus, the plan must consider the following factors among others: The actual emissions increases which will be allowed to result from the construction and operation of major new or modified stationary sources in the area; the actual emissions of such pollutant from unregulated sources, fugitive emissions and other uncontrolled sources; actual emissions of the pollutant from modified and existing indirect sources; actual emissions resulting from extension or elimination of transportation control measures; *actual emissions of such pollutant resulting from in-use motor vehicles* and emissions of such pollutant resulting from stationary sources to which delayed compliance orders or enforcement orders (pursuant to sec. 121 (pursuant to sec. 121 or sec 113(b)) and compliance date extension (pursuant to sec. 119) have been issued; and actual transported emissions.” H.R. Rep. No. 294, 95th Cong., 1st Sess. 212 (1977), 1977 U.S.C.C.A.N. 1077, 1291, 1977 WL 16034 (emphasis added).

relating to global air pollution like GHGs.

G. Severability and Judicial Review

EPA intends that its withdrawal of the January 2013 waiver for California’s GHG and ZEV programs on the basis of EPCA preemption, to take effect upon the effective date of this joint action, as set forth in subsection III.C, on the one hand, is separate and severable from its withdrawal of the January 2013 waiver for those programs on the basis of an interpretation and application of CAA section 209(b)(1)(B), beginning in model year 2021, as set forth in subsection III.D, on the other. EPA further intends that its withdrawal of the waiver with regard to California’s GHG program is severable from its withdrawal of the waiver with regard to California’s ZEV program. The basis for this distinction (*i.e.*, that EPA intends that its withdrawal of the waiver for California’s GHG program and for its ZEV program should be severable from one another) is, as follows, twofold: (1) While EPA concludes for the reasons set forth in subsection III.D above that the ZEV program, as subjected to the January 2013 waiver and as presented to EPA by CARB in CARB’s waiver application and supporting documents, is a GHG-targeting program and as such is susceptible to the interpretation and application of CAA 209(b)(1)(B) set forth above, EPA acknowledges that there are aspects to the analysis as it affects the state’s ZEV program that are not applicable with respect to the state’s GHG program; (2) in this final action, NHTSA expresses in section II above its intent that its determination that a State or local law or regulation of tailpipe greenhouse gas emissions from automobiles is related to fuel economy standards is severable from its determination that State or local ZEV mandates are related to fuel economy standards. EPA further intends that its determination with regard to the scope of CAA section 177 as set forth in subsection III.F above be severable from all other aspects of this joint action.

Pursuant to CAA section 307(b)(1), judicial review of this final action may be sought only in the United States Court of Appeals for the District of Columbia Circuit. For the reasons explained in this section, this final waiver withdrawal action is nationally applicable for purposes of CAA section 307(b)(1). To the extent a court finds this action to be locally or regionally applicable, for the reasons explained in this section, EPA determines and finds for purposes of CAA section 307(b)(1) that this final waiver withdrawal action is based on a determination of

nationwide scope or effect. As also explained at proposal, CAA Section 307(b)(1) of the CAA provides in which Federal courts of appeal petitions of review of final actions by EPA must be filed. This section provides, in part, that petitions for review must be filed in the Court of Appeals for the District of Columbia Circuit if: (i) The Agency action consists of “nationally applicable regulations promulgated, or final action taken, by the Administrator,” or (ii) such action is locally or regionally applicable, but “such action is based on a determination of nationwide scope or effect and if in taking such action the Administrator finds and publishes that such action is based on such a determination.” Additionally, we proposed to find that any final action resulting from the August 2018 SAFE proposal is based on a determination of “nationwide scope or effect” within the meaning of CAA section 307(b)(1). We explained that the withdrawal, when finalized, would affect persons in California and those manufacturers and/or owners/operators of new motor vehicles nationwide who must comply with California’s new motor vehicle requirements. For instance, California’s program provides that manufacturers may generate credits in CAA section 177 States as a means to satisfy those manufacturers’ obligations to comply with the mandate that a certain percentage of their vehicles sold in California be ZEV (or be credited as such from sales in CAA section 177 States). In addition, other States have adopted aspects of California’s ACC program; this decision would also affect those States and those persons in such States, which are in multiple EPA regions and federal circuits.

This final action is distinguishable from the situation faced by the D.C. Circuit in *Dalton Trucking Inc., v. EPA*, 808 F.3d 875 (D.C. Cir. 2015), where the Court held that EPA’s action on California’s waiver request with respect to its nonroad engine program was not nationally applicable, and that EPA had not properly made and published a finding that its action was based on a determination of nationwide scope and effect. First, *Dalton Trucking* noted that no other State had ever adopted California’s nonroad program, *id.* at 880; that is not the case here. Second, *Dalton Trucking* noted that the nonroad waiver final action was facially limited to fleets operating in California, *id.* at 881; the nature of the California program at issue here, with its complex credit system connected with sales in other States, is quite different. Third, *Dalton Trucking* noted that EPA in the nonroad waiver

final action did not actually make and publish a finding that that final action was based on a determination of nationwide scope and effect, *id.* *Dalton Trucking* expressly did *not* hold, and indeed expressly disclaimed any intent to even suggest, that EPA could not have made and published such a finding in that action. *Id.* at 882. EPA in this document does so with regard to this final action, for the reasons stated above. For these reasons, this final waiver withdrawal action is nationally applicable for purposes of CAA section 307(b)(1), or, in the alternative, EPA determines and finds for purposes of CAA section 307(b)(1) that this final waiver withdrawal action is based on a determination of nationwide scope or effect. Thus, pursuant to CAA section 307(b), any petitions for review of this final action must be filed in the Court of Appeals for the District of Columbia Circuit within 60 days from the date such final action is published in the **Federal Register**.

IV. Regulatory Notices and Analyses

As it is relevant to many of the following discussions, it is important to clarify at the outset that this action does not finalize or otherwise affect either EPA's GHG standards or NHTSA's CAFE standards and, thus, the various impacts associated with those standards have not been considered below. Further, consistent with its past practice, EPA's withdrawal of the waiver does not add or amend regulatory text and is, therefore, subject to considerably fewer of the below discussions than NHTSA's final rule establishing regulatory text on preemption.

A. Executive Order 12866, Executive Order 13563

Executive Order 12866, "Regulatory Planning and Review" (58 FR 51735, Oct. 4, 1993), as amended by Executive Order 13563, "Improving Regulation and Regulatory Review" (76 FR 3821, Jan. 21, 2011), provides for making determinations whether a regulatory action is "significant" and therefore subject to the Office of Management and Budget (OMB) review and to the requirements of the Executive Order.

Under section 3(f) of Executive Order 12866, NHTSA's final rule has been determined to be a "significant regulatory action," but not an economically significant action. EPA's withdrawal on the waiver, however, is not a rule under E.O. 12866, as consistent with the agency's historical classification of its notices and decisions related to the waiver. However, as part of its commitment to

working together with NHTSA to establish a consistent Federal program for fuel economy and GHG emissions, EPA has submitted this action to the OMB for review and any changes made in response to OMB recommendations have been documented in the docket for this action. EPA's action here, however, is not a rule as defined by Executive Order 12866, consistent with its previous actions on waiver requests, and is therefore exempt from review by the Office of Management and Budget as required for rules and regulations by Executive Order 12866. *See, e.g.,* 78 FR at 2145 (Jan. 9, 2013); 74 FR at 32784 (July 8, 2009); 73 FR at 12169 (Mar. 6, 2008).

In determining the economic impact of this action, it is important to be clear that the rule establishing new standards for the Model Years within scope of the NPRM is expected to continue to be economically significant and is, thus, anticipated, to include a full FRIA. Moreover, as EPA's action is not a rule and not subject to E.O. 12866, its consideration of costs has been limited to the role costs play under section 209. Accordingly, the following discussion only concerns the economic impact associated with NHTSA's final regulatory text clarifying its views on EPCA preemption.

As a general matter, NHTSA has determined that there may be some nonsignificant economic impact arising out of its clarification, particularly some reduction in costs, to this final rule, but the agency has not quantified any such impact in this rulemaking, which has been determined to be "significant" but not "economically significant" under Executive Order 12866. This rulemaking merely clarifies the existing statutory provisions relating to preemption that have been in effect since EPCA was enacted and does not modify any Federal requirement. As such, as in the NPRM, the agency has provided a qualitative discussion of the impacts in response to the comments, which themselves raised qualitative issues.

In the NPRM, NHTSA mentioned at a general, qualitative, level that California's currently existing GHG program and ZEV mandate lead to increased compliance costs, with some greater discussion of potential increases in costs due specifically to the ZEV mandate, which constrains an OEMs ability to meet their CAFE and GHG requirements in the most cost-effective way.

The agencies received many comments on the economic analysis as it relates to the CAFE and GHG standards, but only received a small number of comments that specifically

dealt with the issue of the economic impact of the regulatory text concerning EPCA preemption. These comments, similar to how the agency addressed the issue in the NPRM, generally made qualitative and general points about the economic impact.

Many of the comments that addressed the economic impacts of preemption did so by stating that one important aspect of the "One National Program" established beginning in 2009 was that it would reduce regulatory cost by not allowing for the creation of different Federal and California programs, with different levels of stringency and different compliance regimes. NHTSA agrees with this concern, but this is exactly why Congress provided that any State or local law "related to" fuel economy is preempted. This final rule will provide more certainty on this issue than the prior approach, which would always be subject to California removing itself from the program. This is exactly what has occurred in recent months, as the State has taken action to amend the "deemed to comply" provision and then announced that it entered into an agreement with several automakers to apply a different set of standards on a national basis.

Various other commenters noted that the GHG program and ZEV mandate would increase compliance costs. Most of these comments only made general statements to this effect and did not provide specific or detailed information about potential costs. One commenter approvingly noted NHTSA's citation of a study that found that the ZEV mandate could potentially lead to increased costs, though the author of the cited study also commented that the cited value did not provide a complete picture of the economic effect. The agency agrees that programs such as these are likely to introduce additional costs, which, of course, was a significant part of Congress's motivation in providing NHTSA with its broad preemptive authority over fuel economy. The agency, though, like commenters, has found calculation of these costs to be challenging, as they constrain the avenues of compliance with the Federal standards without actually altering what must be, ultimately, achieved.

With regard to benefits, some commenters believed that California's GHG program and ZEV mandate could provide additional benefits, but, as with costs, these commenters did not provide detailed information about the benefits of these programs independent of the Federal standards. One commenter argued that a separate State GHG program is unlikely to have any

meaningful benefits, because of “leakage” from vehicles in States that adopt the California standards to vehicles in States that do not adopt this standard. Although the comment was in context of supporting the “One National Program,” NHTSA believes that the argument that separate State standards will have little benefit has merit. The existence of State or local laws does not in any way alter an OEM’s obligation under Federal law. For instance, OEMs would likely produce more efficient vehicles for sale in California and the States that have adopted California’s standards, but the increased fuel economy of these vehicles would likely be offset by less efficient vehicles produced for sale in the rest of the U.S., leading to little to no change in either fuel use or GHG emissions at a national level. Some commenters stated that the decision to preempt programs including and similar to the ZEV mandate, to the extent that those programs are related to fuel economy, would have negative benefits related to ozone-forming pollutants, though these commenters did not quantify these concerns. NHTSA notes that, as was discussed in the NPRM, California, in its 2013 waiver request, noted that the ZEV program did not provide for ozone-forming pollutants, acknowledging, “[t]here is no criteria emissions benefit from including the ZEV proposal in terms of vehicle (tank-to-wheel or TTW) emissions. The LEV III criteria pollutant fleet standard is responsible for those emission reductions in the fleet; the fleet would become cleaner regardless of the ZEV regulation because manufacturers would adjust their compliance response to the standard by making less polluting conventional vehicles.”²⁸⁷ NHTSA continues to believe that preemption of the programs such as the ZEV mandate will not have a significant effect, as California remains free to revise its LEV program to reduce ozone-forming emissions and seek a waiver of Clean Air Act preemption from EPA, as described above, while not violating NHTSA’s preemption authority, and other States and local governments would continue to be allowed to take other actions so long as those are not related to fuel economy and are consistent with any other relevant Federal law.

The comments, therefore, reaffirm NHTSA’s preliminary determination that State and Local programs including, and similar to, California’s GHG and ZEV programs are likely to lead to increased compliance costs and highly

uncertain, if any, benefits because they constrain the ability of OEMs to meet the Federal standard without in anyway altering their obligations under that standard. Further, the agency’s decision that State or local laws such as the GHG program and ZEV mandate should be preempted is not based on any evaluation of the policy or other merits of either program, but simply the fact that these programs are clearly related to fuel economy.

B. DOT Regulatory Policies and Procedures

The final rule is also significant within the meaning of the Department of Transportation’s Order 2100.6, “Policies and Procedures for Rulemakings.” Regulatory Policies and Procedures.

C. Executive Order 13771 (Reducing Regulation and Controlling Regulatory Costs)

NHTSA’s final rule is expected to be an E.O. 13771 deregulatory action, but NHTSA has not estimated any quantifiable cost savings. EPA’s withdrawal is not a regulatory action and thus outside the scope of E.O. 13771.

D. Congressional Review Act

Pursuant to the Congressional Review Act (5 U.S.C. 801 *et seq.*), the Office of Information and Regulatory Affairs designated this action as not a “major rule”, as defined by 5 U.S.C. 804(2). The EPA and NHTSA will submit a rule report to each House of the Congress and to the Comptroller General of the United States.

E. Executive Order 13211 (Energy Effects)

Executive Order 13211 applies to any rule that: (1) Is determined to be economically significant as defined under E.O. 12866, and is likely to have a significant adverse effect on the supply, distribution, or use of energy; or (2) that is designated by the Administrator of the Office of Information and Regulatory Affairs as a significant energy action. If the regulatory action meets either criterion, the agencies must evaluate the adverse energy effects of the proposed rule and explain why the proposed regulation is preferable to other potentially effective and reasonably feasible alternatives considered. NHTSA’s final rule is not subject to E.O. 13211 because it is not economically significant and is not a significant energy action. As discussed in the E.O. 12866 section, NHTSA’s final rule merely clarifies the contours of its existing preemption authority and

does not in any way change the existing fuel economy standards. As EPA’s withdrawal is not within the scope of E.O. 12866, it is also not within scope of E.O. 13211.

F. Environmental Considerations

1. National Environmental Policy Act

The National Environmental Policy Act (NEPA)²⁸⁸ directs that Federal agencies proposing “major Federal actions significantly affecting the quality of the human environment” must, “to the fullest extent possible,” prepare “a detailed statement” on the environmental impacts of the proposed action (including alternatives to the proposed action).²⁸⁹ Concurrently with the NPRM, NHTSA released a Draft Environmental Impact Statement (Draft EIS) pursuant to NEPA and implementing regulations issued by the Council on Environmental Quality (CEQ), 40 CFR part 1500, and NHTSA, 49 CFR part 520. NHTSA prepared the Draft EIS to analyze and disclose the potential environmental impacts of the proposed CAFE standards and a range of alternatives (largely varying in terms of stringency). NHTSA considered the information contained in the Draft EIS as part of developing its proposal and made the Draft EIS available for public comment. For the final rule on the standards for model year 2021 through 2026 automobiles proposed in the NPRM, NHTSA will simultaneously issue a Final EIS and Record of Decision, pursuant to 49 U.S.C. 304a(b) and U.S. Department of Transportation *Guidance on the Use of Combined Final Environmental Impact Statements/Records of Decision and Errata Sheets in National Environmental Policy Act Reviews* (April 25, 2019),²⁹⁰ unless it is determined that statutory criteria or practicability considerations preclude simultaneous issuance.

NHTSA has not prepared a separate environmental analysis pursuant to NEPA for this final action on preemption. This final rule provides clarity on the scope of EPCA’s preemption provision. Ultimately, the determination of whether a particular State or local law is preempted under EPCA is not determined based upon its environmental impact but solely whether it is “related to fuel economy standards or average fuel economy standards.” Any preemptive effect

²⁸⁸ 42 U.S.C. 4321–4347.

²⁸⁹ 42 U.S.C. 4332. EPA is expressly exempted from the requirements of NEPA for actions under the Clean Air Act. 15 U.S.C. 793(c)(1).

²⁹⁰ <https://www.transportation.gov/sites/dot.gov/files/docs/mission/transportation-policy/permittingcenter/337371/feis-rod-guidance-final-04302019.pdf>.

²⁸⁷ Docket No. EPA–HQ–OAR–2012–0562, PP. 15–16.

resulting from this final action is not the result of the exercise of Agency discretion, but rather reflects the operation and application of the Federal statute. NHTSA does not have authority to waive any aspect of EPCA preemption no matter the potential environmental impacts; rather, preempted standards are void *ab initio*. Courts have long held that NEPA does not apply to nondiscretionary actions by Federal agencies.²⁹¹ As NHTSA lacks discretion over EPCA's preemptive effect, the Agency concludes that NEPA does not apply to this action.

It bears noting that this action only concerns the question of preemption; it does not set CAFE standards. Fundamentally, this action is about which sovereign entity (*i.e.*, the Federal government or State governments) can issue standards that relate to fuel economy. EPCA is clear that this authority is restricted to the Federal government. This action provides guidance on the boundary set by Congress, as well as under principles of implied preemption. NHTSA's regulation concerning EPCA preemption is independent and severable from any particular CAFE standards adopted by NHTSA, and this action, in and of itself, is not expected to have significant environmental impacts on a national scale. As described above, OEMs would likely produce more efficient vehicles for sale in California and the States that have adopted California's standards, but the increased fuel economy of these vehicles would likely be offset by less efficient vehicles produced for sale in the rest of the U.S., leading to little to no change in either fuel use or GHG emissions at a national level. In fact, as NHTSA has not finalized any action to amend the fuel economy standards that were promulgated in 2012, California's "deemed to comply" provision remains operative. As OEMs are anticipated to make use of this compliance mechanism, CARB's GHG standards are functionally identical to Federal standards, and their preemption would not result in additional environmental impacts. Furthermore, as was discussed in the NPRM, California, in its 2013 waiver request, noted that the ZEV program did not provide for ozone-forming pollutants, acknowledging, "[t]here is no criteria emissions benefit from including the ZEV proposal in terms of vehicle (tank-to-wheel or TTW)

emissions. The LEV III criteria pollutant fleet standard is responsible for those emission reductions in the fleet; the fleet would become cleaner regardless of the ZEV regulation because manufacturers would adjust their compliance response to the standard by making less polluting conventional vehicles."²⁹² Ultimately NHTSA will address potential environmental impacts of fuel economy standards in its forthcoming Final EIS that will accompany the final rule on the standards for model year 2021 through 2026 automobiles proposed in the NPRM. This action, however, does not result in significant environmental impacts to the quality of the human environment.

NHTSA intends to fully respond to all substantive comments received on the Draft EIS in the forthcoming Final EIS, consistent with CEQ regulations. NHTSA received numerous public comments on the Draft EIS that related to the revocation of California's waiver and EPCA preemption. The following summarizes and briefly addresses those comments.

Multiple commenters called NHTSA's DEIS inadequate because it did not analyze an alternative that would keep the California waiver and regulations (as well as similar regulations adopted in the District of Columbia and other States pursuant to section 177 of the CAA) in place.²⁹³ On the other hand, one commenter noted its support for the proposition that NHTSA is not obligated under NEPA to consider a scenario that it believes Federal law does not permit.²⁹⁴ As described above, NHTSA concludes that NEPA does not apply to this final rule regarding preemption. Based on this conclusion, it is immaterial whether NHTSA analyzed an alternative that would keep the California waiver and regulations in place. NHTSA lacks the discretion and authority to select such an alternative as a State or local law or regulation related to automobile fuel economy standards is

void *ab initio* under the preemptive force of EPCA.

One commenter criticized NHTSA for failing to consider the criteria pollutant impacts of alternatives that keep the waiver in place and that account for California's specific electricity grid.²⁹⁵ That commenter also criticized NHTSA for not fully accounting for the impacts to NO_x emissions in the South Coast Air Basin as a result of revoking the waiver.²⁹⁶ Another commenter noted that the nine areas NHTSA identified as suffering from "serious" or "extreme" nonattainment conditions for ozone and PM_{2.5} are located in California, even though the agencies proposed to revoke or declare preempted the State's Clean Air Act waiver for GHG emissions and the State's ZEV mandate.²⁹⁷ One commenter wrote that NHTSA should consider and discuss the local impacts that preempting the ZEV mandate would have on localities where ZEV sales are currently concentrated and where they will likely concentrate in the future, and particularly in California and the other States that have adopted the ZEV mandate pursuant to section 177 of the CAA.²⁹⁸ While these comments are more specific about identifying potential environmental impacts, these impacts simply do not bear on the question of whether or how preemption applies. Preemption relies solely on whether the State or local law or regulation is "related to fuel economy standards or average fuel economy standards." Therefore, NHTSA is not obligated to analyze or consider these environmental impacts as part of this final rule.

One commenter noted that if California's waiver is revoked, the State would be unable to address pollution issues through adoption of California's or its own standards, making it difficult to attain or maintain compliance with the Clean Air Act.²⁹⁹ Another State alleged that it depends on the criteria pollutant and air toxic emission reduction co-benefits of the State's use of section 177 motor vehicle emissions standards as a control strategy in its State Implementation Plan to meet its

²⁹² Docket No. EPA-HQ-OAR-2012-0562, Pp. 15–16. California's LEV III criteria pollution standard would not be preempted under this action.

²⁹³ Center for Biological Diversity, Earthjustice, Environmental Law and Policy Center, Natural Resources Defense Council, Public Citizen, Inc., Safe Climate Campaign, Sierra Club, Southern Environmental Law Center, and Union of Concerned Scientists, Docket No. NHTSA-2017-0069-0550; South Coast Air Quality Management District, Docket Nos. NHTSA-2017-0069-0532 and NHTSA-2017-0069-0497; Blanca Luevanos, Docket No. NHTSA-2017-0069-0508; National Coalition for Advanced Transportation, Docket No. NHTSA-2017-0069-0597; California Office of the Attorney General et al., Docket No. NHTSA-2017-0069-0625.

²⁹⁴ Alliance of Automobile Manufacturers, Docket No. NHTSA-2017-0069-0588.

²⁹⁵ South Coast Air Quality Management District, Docket No. NHTSA-2017-0069-0497.

²⁹⁶ South Coast Air Quality Management District, Docket No. NHTSA-2017-0069-0497.

²⁹⁷ Center for Biological Diversity, Earthjustice, Environmental Law and Policy Center, Natural Resources Defense Council, Public Citizen, Inc., Safe Climate Campaign, Sierra Club, Southern Environmental Law Center, and Union of Concerned Scientists, Docket No. NHTSA-2017-0069-0550.

²⁹⁸ New York State Department of Environmental Conservation, NHTSA-2017-0069-0608.

²⁹⁹ Boulder County Public Health, Docket No. NHTSA-2017-0069-0499.

²⁹¹ See, e.g., *Department of Transp. v. Public Citizen*, 541 U.S. 752 (2004); *Milo Cmty. Hosp. v. Weinberger*, 525 F.2d 144 (1st Cir. 1975); *State of South Dakota v. Andrus*, 614 F.2d 1190 (8th Cir. 1980); *Citizens Against Rails-to-Trails v. Surface Transp. Bd.*, 267 F.3d 1144 (D.C. Cir. 2001); *Sierra Club v. Babbitt*, 65 F.3d 1502 (9th Cir. 1995).

SIP.³⁰⁰ NHTSA disagrees with the underlying premise of the comments. States and local governments are able to continue to encourage ZEVs in many different ways, such as through investments in infrastructure and appropriately tailored incentives. States and local governments cannot adopt or enforce regulations related to fuel economy standards, which include ZEV mandates, but they are able to address pollutants regulated by the Clean Air Act in numerous ways that are not preempted by Federal law. Moreover, as noted above, this action does not impact in any way the Federal standards in place for greenhouse gas emissions from automobiles and fuel economy standards. Since California and other section 177 States have “deemed” compliance with the Federal standards to be compliance with the State standards, this action does not have significant environmental impacts to the quality of the human environment. Any impacts associated with potential changes to Federal standards are not a result of this action and are purely speculative until the agencies finalize a change.

2. Clean Air Act Conformity Requirements as Applied to NHTSA’s Action

The Clean Air Act (42 U.S.C. 7401 *et seq.*) is the primary Federal legislation that addresses air quality. Under the authority of the Clean Air Act and subsequent amendments, EPA has established NAAQS for six criteria pollutants, which are relatively commonplace pollutants that can accumulate in the atmosphere as a result of human activity. The air quality of a geographic region is usually assessed by comparing the levels of criteria air pollutants found in the ambient air to the levels established by the NAAQS (taking into account, as well, the other elements of a NAAQS: Averaging time, form, and indicator). These ambient concentrations of each criteria pollutant are compared to the levels, averaging time, and form specified by the NAAQS in order to assess whether the region’s air quality is in attainment with the NAAQS. When the measured concentrations of a criteria pollutant within a geographic area are below those permitted by the NAAQS, EPA designates the region as an attainment area for that pollutant, while areas where concentrations of criteria pollutants exceed Federal standards (or nearby areas that contribute to such concentrations) are

designated as nonattainment areas. Former nonattainment areas that come into compliance with the NAAQS and are redesignated as attainment are known as maintenance areas. When EPA revises a NAAQS, each State is required to develop and implement a State Implementation Plan (SIP) to address how it plans to attain and maintain the new standard. Each State with a nonattainment area is also required to submit a SIP documenting how the region will reach attainment levels within time periods specified in the Clean Air Act. For maintenance areas, the SIP must document how the State intends to maintain compliance with the NAAQS.

No Federal agency may “engage in, support in any way or provide financial assistance for, license or permit, or approve” any activity in a nonattainment or maintenance area that does not “conform” to a SIP or Federal Implementation Plan after EPA has approved or promulgated it.³⁰¹ Further, no Federal agency may “approve, accept or fund” any transportation plan, program, or project developed pursuant to title 23 or chapter 53 of title 49, U.S.C., in a nonattainment or maintenance area unless the plan, program, or project has been found to “conform” to any applicable implementation plan in effect.³⁰² The purpose of these conformity requirements is to ensure that Federally sponsored or conducted activities do not interfere with meeting the emissions targets in SIPs, do not cause or contribute to new violations of the NAAQS, and do not impede the ability of a State to attain or maintain the NAAQS or delay any interim milestones. EPA has issued two sets of regulations to implement the conformity requirements:

(1) The Transportation Conformity Rule³⁰³ applies to transportation plans, programs, and projects that are developed, funded, or approved under title 23 or chapter 53 of title 49, U.S.C.

(2) The General Conformity Rule³⁰⁴ applies to all other federal actions not covered under transportation conformity. The General Conformity Rule establishes emissions thresholds, or de minimis levels, for use in evaluating the conformity of an action that results in emissions increases.³⁰⁵ If the net increases of direct and indirect emissions are lower

than these thresholds, then the project is presumed to conform and no further conformity evaluation is required. If the net increases of direct and indirect emissions exceed any of these thresholds, and the action is not otherwise exempt,³⁰⁶ then a conformity determination is required. The conformity determination can entail air quality modeling studies, consultation with EPA and state air quality agencies, and commitments to revise the SIP or to implement measures to mitigate air quality impacts.

This action is not developed, funded, or approved under title 23 or chapter 53 of title 49, U.S.C. Accordingly, this action is not subject to transportation conformity. Under the General Conformity Rule, a conformity determination is required when a Federal action would result in total direct and indirect emissions of a criteria pollutant or precursor originating in nonattainment or maintenance areas equaling or exceeding the rates specified in 40 CFR 93.153(b)(1) and (2), and the action is not otherwise exempt. As explained below, NHTSA’s action results in neither direct nor indirect emissions as defined in 40 CFR 93.152.

The General Conformity Rule defines direct emissions as “those emissions of a criteria pollutant or its precursors that are caused or initiated by the Federal action and originate in a nonattainment or maintenance area and occur at the same time and place as the action and are reasonably foreseeable.”³⁰⁷ NHTSA’s action is to promulgate regulatory text and a detailed appendix, in addition to discussing the issue in this preamble to the rule, specifically to provide clarity on EPCA’s preemption provision in order to give already established standards meaning, and thus is specifically exempt from general conformity requirements.³⁰⁸ Moreover, this action would cause no direct emissions consistent with the meaning of the General Conformity Rule.³⁰⁹ Any changes in emissions that could occur as a result of preemption would happen well after and in a different place from the promulgation of this rule. Furthermore, any such changes in emissions—especially those occurring in specific nonattainment or maintenance areas—are not reasonably foreseeable. Any such changes are

³⁰⁶ 40 CFR 93.153(c).

³⁰⁷ 40 CFR 93.152.

³⁰⁸ 40 CFR 93.153(c)(2)(iii).

³⁰⁹ *Department of Transp. v. Public Citizen*, 541 U.S. 752, 772 (2004) (“[T]he emissions from the Mexican trucks are not ‘direct’ because they will not occur at the same time or at the same place as the promulgation of the regulations.”).

³⁰¹ 42 U.S.C. 7506(c)(1) and (5).

³⁰² 42 U.S.C. 7506(c)(2) and (5).

³⁰³ 40 CFR part 51, subpart T, and part 93, subpart A.

³⁰⁴ 40 CFR part 93, subpart B.

³⁰⁵ 40 CFR 93.153(b).

³⁰⁰ Oregon Department of Environmental Quality, Docket No. NHTSA–2017–0069–0526.

unlikely because this action does not impact in any way the Federal standards in place for criteria pollutant emissions from automobiles. Further, this action does not impact the Federal standards in place for greenhouse gas emissions from automobiles or fuel economy standards. Since California and other section 177 States have “deemed” compliance with the Federal standards to be compliance with the State standards, it is not clear that this action (as it pertains to the State’s greenhouse gas emissions standards) would result in changes to the anticipated fleet of vehicles in those States and therefore to criteria pollutant emissions. Any impacts associated with potential changes to Federal standards are not a result of this action and are purely speculative until the agencies finalize a change. Additionally, we note California’s statement in its 2013 waiver request that “[t]here is no criteria emissions benefit from including the ZEV proposal in terms of vehicle (tank-to-wheel or TTW) emissions. The LEV III criteria pollutant fleet standard is responsible for those emission reductions in the fleet”³¹⁰ As discussed previously, this action clarifies that criteria pollutant standards are not preempted unless they have a direct or substantial relationship to fuel economy standards. California’s LEV III criteria pollution standard would not be preempted under this approach.

Indirect emissions under the General Conformity Rule are “those emissions of a criteria pollutant or its precursors: (1) That are caused or initiated by the Federal action and originate in the same nonattainment or maintenance area but occur at a different time or place as the action; (2) That are reasonably foreseeable; (3) That the agency can practically control; and (4) For which the agency has continuing program responsibility.”³¹¹ Each element of the definition must be met to qualify as indirect emissions. NHTSA finds that neither of the first two criteria are satisfied for the same reasons as presented regarding direct emissions.

Furthermore, NHTSA cannot practically control, nor does it have continuing program responsibility for, any emissions that could occur as a result of preemption. “[E]ven if a Federal licensing, rulemaking, or other approving action is a required initial step for a subsequent activity that causes emissions, such initial steps do not mean that a Federal agency can practically control any resulting

emissions.”³¹² With regard to preemption, NHTSA lacks the discretion and authority to keep the California waiver and regulations in place, as a State or local law or regulation related to automobile fuel economy standards is void *ab initio* under the preemptive force of EPCA. NHTSA cannot be considered to practically control or have continuing program responsibility for emissions that could result from preemption when that result is required by Federal statute.³¹³ NHTSA also does not have continuing program responsibility for emissions that occur in California and other section 177 States, are regulated by the Clean Air Act, and for which the States and local governments can continue to address in numerous ways that do not conflict with Federal law.

For the foregoing reasons, this action does not cause direct or indirect emissions under the General Conformity Rule, and a general conformity determination is not required. NHTSA will address any responsibilities under the General Conformity Rule as it pertains to potential changes to the fuel economy standards in the forthcoming final rule for that action.

3. Endangered Species Act

Under Section 7(a)(2) of the Endangered Species Act (ESA), Federal agencies must ensure that actions they authorize, fund, or carry out are “not likely to jeopardize the continued existence” of any Federally listed threatened or endangered species or result in the destruction or adverse modification of the designated critical habitat of these species. 16 U.S.C. 1536(a)(2). If a Federal agency determines that an agency action may affect a listed species or designated critical habitat, it must initiate consultation with the appropriate Service—the U.S. Fish and Wildlife Service (FWS) of the Department of the Interior (DOI) and/or the National Oceanic and Atmospheric Administration’s National Marine Fisheries Service of the Department of Commerce (together, “the Services”), depending on the species involved—in order to ensure that the action is not likely to jeopardize the species or destroy or adversely modify designated critical habitat. See 50 CFR 402.14. Under this standard, the Federal agency taking action evaluates the possible effects of its action and determines whether to initiate consultation. See 51 FR 19926, 19949 (June 3, 1986).

Pursuant to Section 7(a)(2) of the ESA, the agencies have reviewed this action and have considered applicable ESA regulations, case law, and guidance to determine what, if any, obligations the agencies have under the ESA. The agencies have considered issues related to emissions of CO₂ and other GHGs and issues related to non-GHG emissions. Based on this assessment, the agencies have determined that their actions (withdrawal of California’s waiver and the final rule regarding preemption) do not require consultation under Section 7(a)(2) of the ESA.

a. The Agencies Lack Discretionary Authority

NHTSA’s final rule adopts regulatory text (including a detailed appendix) regarding EPCA’s preemption provision, in addition to discussing the issue in this preamble to the rule, specifically to provide needed clarity on that provision. The new regulatory text provides for why any law or regulation of a State or a political subdivision of a State regulating or prohibiting tailpipe carbon dioxide emissions from automobiles is expressly and impliedly preempted by EPCA. Any preemptive effect resulting from this final action is not the result of the exercise of Agency discretion, but rather reflects the operation and application of the Federal statute. NHTSA does not have authority to waive any aspect of EPCA preemption no matter the potential impacts; rather, preempted standards are void *ab initio*.

EPA’s action is to withdraw the waiver it had previously provided in January 2013 to California for that State’s GHG and ZEV programs under section 209 of the Clean Air Act. This action is being undertaken on two separate and independent grounds. First, EPA has determined EPCA preemption renders its prior grant of a waiver for those aspects of California’s regulations that EPCA preempts invalid, null, and void, thereby necessitating withdrawal of the waiver. Second, EPA concludes that CAA section 209(b)(1)(B), which provides that EPA shall not issue a waiver if California does not “need” separate state standards “to meet compelling and extraordinary conditions,” was not intended to allow California to promulgate State standards for emissions from new motor vehicles designed to address global climate change problems. Therefore, California does not meet the necessary criteria to receive a waiver for these aspects of its program. Similar to NHTSA, these decisions are not discretionary, but rather reflect EPA’s conclusion that EPCA preemption and the requirements

³¹⁰ Docket No. EPA-HQ-OAR-2012-0562, pp. 15–16.

³¹¹ 40 CFR 93.152.

³¹² 40 CFR 93.152.

³¹³ See *Public Citizen*, 541 U.S. at 772–3.

of the Clean Air Act prohibit the granting of a waiver to California.

The Supreme Court has held that Section 7(a)(2) of the ESA and its implementing regulations apply only to actions in which there is discretionary Federal authority.³¹⁴ In *National Association of Home Builders*, EPA considered the requirement of Section 402(b) of the Clean Water Act that EPA transfer certain permitting powers to State authorities upon an application and a showing that nine specified criteria had been met. The Court concluded that the ESA did not operate as a “tenth criterion.”³¹⁵ According to the Court: “While the EPA may exercise some judgment in determining whether a State has demonstrated that it has the authority to carry out [the] enumerated statutory criteria, the statute clearly does not grant it the discretion to add another entirely separate prerequisite to that list. Nothing in the text of [the statute] authorizes the EPA to consider the protection of threatened or endangered species as an end in itself when evaluating a transfer application.”³¹⁶

The agencies believe this holding applies to the instant action as well. As this action results from nondiscretionary authorities, the Section 7(a)(2) implementing regulations expressly exclude them from coverage. Neither ECPA nor the Clean Air Act include the protection of threatened or endangered species as a consideration for the application of preemption (which operates by statute) or the prohibition on the granting of a waiver (under the enumerated statutory criterion in CAA section 209(b)(1)(B)). Although there is some judgment in considering the application of EPCA and the CAA, neither action involves the type of discretion that would require a Section 7(a)(2) consultation by the agencies with the Services.

b. Any Effects Resulting From the Agencies’ Actions Are too Attenuated for Consultation To Be Required

In addition, the agencies have considered the potential effects of this action to listed threatened or endangered species or designated critical habitat of these species and concludes that any such effects are too

attenuated to require Section 7(a)(2) consultation. The agencies base this conclusion both on the language of the Section 7(a)(2) implementing regulations and on the long history of actions and guidance provided by DOI.

The Section 7(a)(2) implementing regulations require consultation if a Federal agency determines its action “may affect” listed species or critical habitat.³¹⁷ The Services’ current regulations define “effects of the action” in relevant part as “the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the environmental baseline.”³¹⁸ Further, they define indirect effects as “those that are caused by the proposed action and are later in time, but still are reasonably certain to occur.”³¹⁹

The Services’ recently published final rule revising the definition of “effects of the action” to be “all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur.”³²⁰ In the preamble to the final rule, the Services emphasized that the “but for” test and “reasonably certain to occur” are not new or heightened standards.³²¹ In this context, “‘but for’ causation means that the consequence in question would not occur if the proposed action did not go forward In other words, if the agency fails to take the proposed action and the activity would still occur, there is no ‘but for’ causation. In that event, the activity would not be considered an effect of the action under consultation.”³²² As the Services do not consider these to be changes in their

longstanding application of the ESA, these interpretations apply equally under the existing regulations (which are effective through September 25, 2019) and the new regulations (which are effective beginning September 26, 2019).

Any potential effects of this action to threatened or endangered species or designated critical habitat would be a result of changes to GHG or criteria air pollutant emissions. In the next section, the agencies discuss why this action is not anticipated to result in changes to GHG or criteria air pollutant emissions. However, even if such changes to emissions were to occur, the agencies do not believe resulting impacts to listed species or critical habitat satisfy the “but for” test or are “reasonably certain to occur.”

GHG emissions are relevant to Section 7(a)(2) consultation because of the potential impacts of climate change on listed species or critical habitat. For example, one comment to the NPRM documented the potential impacts of climate change on federally protected species and included a five-page table of species listed during 2006 to 2015 for which the commenters claim climate change was a listing factor.³²³ However, the agencies believe this comment inappropriately attributes the entire issue of climate change, including all GHG emissions no matter which sector generated them, to NHTSA and EPA’s actions.³²⁴ In fact, the commenter demonstrates the very issue with doing so: There is no “but for” causation associated with EPA’s revocation of California’s waiver and NHTSA’s final rule on preemption, as the impacts of climate change will occur regardless of this action. Furthermore, even if this action results in changes to GHG emissions, such changes would be extremely small compared to global GHG emissions. There is no scientific evidence that sufficiently “connects the dots” between those changes in emissions and any particular impact to a listed species or critical habitat; thus, any impacts are not “reasonably certain to occur.” States (such as California) and local governments may also continue to encourage ZEVs in numerous ways that do not conflict with

³¹⁷ 50 CFR 402.14(a). The Departments of the Interior and Commerce recently issued a final rule revising the regulations governing the ESA Section 7 consultation process. 84 FR 44966 (Aug. 27, 2019). The new regulations take effect on September 26, 2019. As discussed in the text above, the agencies do not believe that the change in regulations has any effect on the agencies’ analysis here.

³¹⁸ 50 CFR 402.02.

³¹⁹ *Id.*

³²⁰ 50 CFR 402.02, as amended by 84 FR 44976, 45016 (Aug. 27, 2019) (effective Sept. 26, 2019).

³²¹ 84 FR at 44977 (“As discussed in the proposed rule, the Services have applied the ‘but for’ test to determine causation for decades. That is, we have looked at the consequences of an action and used the causation standard of ‘but for’ plus an element of foreseeability (*i.e.*, reasonably certain to occur) to determine whether the consequence was caused by the action under consultation.”).

³²² *Id.*

³²³ Center for Biological Diversity, Sierra Club, and Public Citizen, Inc., Docket No. NHTSA–2018–0067–12378.

³²⁴ See, e.g., 78 FR 11766, 11785 (Feb. 20, 2013) (“Without the requirement of a causal connection between the action under consultation and effects to species, literally every agency action that contributes GHG emissions to the atmosphere would arguably result in consultation with respect to every listed species that may be affected by climate change.”).

³¹⁴ *National Ass’n of Home Builders v. Defenders of Wildlife*, 551 U.S. 644, 673 (2007) (“Applying *Chevron*, we defer to the Agency’s reasonable interpretation of ESA [section] 7(a)(2) as applying only to ‘actions in which there is discretionary Federal involvement or control.’” (quoting 50 CFR 402.03)).

³¹⁵ *National Ass’n of Home Builders*, 551 U.S. at 649.

³¹⁶ *Id.* at 671.

Federal law, which may also prevent any alleged impact from these actions.

Similarly, with regard to criteria air pollutants, States are still subject to the Clean Air Act, which requires limitations on emissions of those pollutants. Furthermore, since California and other Section 177 States have “deemed” compliance with the Federal standards to be compliance with the State standards, it is not clear that this action would result in changes to emissions. Any impacts associated with potential changes to Federal standards are not a result of this action and are purely speculative until the agencies finalize a change. We again note California’s statement in its 2013 waiver request that “[t]here is no criteria emissions benefit from including the ZEV proposal in terms of vehicle (tank-to-wheel or TTW) emissions. The LEV III criteria pollutant fleet standard is responsible for those emission reductions in the fleet”³²⁵ As discussed previously, this action clarifies that criteria pollutant standards are not preempted unless they have a direct or substantial relationship to fuel economy standards. California’s LEV III criteria pollution standard would not be preempted under this approach, and that program’s benefits are anticipated to remain in place.

The agencies have also considered the long history of actions and guidance provided by DOI. To that point, the agencies incorporate by reference Appendix G of the MY 2012–2016 CAFE standards EIS.³²⁶ That analysis relied on the significant legal and technical analysis undertaken by FWS and DOI. Specifically, NHTSA looked at the history of the Polar Bear Special Rule and several guidance memoranda provided by FWS and the U.S. Geological Survey. Ultimately, FWS concluded that a causal link could not be made between GHG emissions associated with a proposed Federal action and specific effects on listed species; therefore, no Section 7(a)(2) consultation would be required.

Subsequent to the publication of that Appendix, a court vacated the Polar Bear Special Rule on NEPA grounds, though it upheld the ESA analysis as having a rational basis.³²⁷ FWS subsequently issued a revised Final

Special Rule for the Polar Bear.³²⁸ In that final rule, FWS provided that for ESA section 7, the determination of whether consultation is triggered is narrow and focused on the discrete effect of the proposed agency action. FWS wrote, “[T]he consultation requirement is triggered only if there is a causal connection between the proposed action and a discernible effect to the species or critical habitat that is reasonably certain to occur. One must be able to ‘connect the dots’ between an effect of a proposed action and an impact to the species and there must be a reasonable certainty that the effect will occur.”³²⁹ The statement in the revised Final Special Rule is consistent with the prior guidance published by FWS and remains valid today.³³⁰ Ultimately, EPA and NHTSA are not able to make a causal link for purposes of Section 7(a)(2) that would “connect the dots” between this action, vehicle emissions from motor vehicles affected by this action, climate change, and particular impacts to listed species or critical habitats. Therefore, no Section 7(a)(2) consultation is required.

c. The Agencies’ Actions Would Have No Effect on Listed Species and Designated Critical Habitat

In addition to the foregoing a Section 7(a)(2) consultation is not required because this action will have no effect on a listed species or designated critical habitat. This notification and final rule only address the issues of California’s waiver and preemption; they do not set CAFE standards. Fundamentally, this action is about which sovereign entity (*i.e.*, the Federal government or State governments) can issue standards that relate to fuel economy. EPCA is clear that this authority is restricted to the Federal government. This action provides clarity on the boundary set by Congress, as well as under principles of implied preemption.

As previously described, absent this action, OEMs would likely produce more efficient vehicles for sale in California and the States that have adopted California’s standards, but the increased fuel economy of these vehicles would likely be offset by less efficient vehicles produced for sale in the rest of the U.S., leading to little to no change in either fuel use or GHG emissions at a national level. Further, as EPA and NHTSA have not finalized any

action to amend the Federal GHG and fuel economy standards that were promulgated in 2012, California’s “deemed to comply” provision remains operative. As OEMs are anticipated to make use of this compliance mechanism, CARB’s GHG standards are functionally identical to Federal standards, and their preemption would not result in additional environmental impacts. Any impacts associated with potential changes to Federal standards are not a result of this action and are purely speculative until the agencies finalize a change.

Finally, we again note California’s 2013 waiver request statement that there is no criteria emissions benefit associated with the ZEV program because the LEV III criteria pollution standard is responsible for those emissions reductions. This action clarifies that criteria pollutant standards are not preempted unless they have a direct or substantial relationship to fuel economy standards. California’s LEV III criteria pollution standard would not be preempted under this approach. Therefore, those benefits are anticipated to remain in place.

For the foregoing reasons, automobile emissions are not anticipated to change as a result of this action. Even if they do, any change would be so minimal as to be unlikely to pose any effects on a listed species or critical habitat. Because any effect on a listed species or critical habitat is not reasonably certain to occur, the agencies conclude that there will be no effect on listed species or critical habitat under the Section 7(a)(2) implementing regulations, and no Section 7(a)(2) consultation is required for this action.

4. National Historic Preservation Act (NHPA)

The NHPA (54 U.S.C. 300101 *et seq.*) sets forth government policy and procedures regarding “historic properties”—that is, districts, sites, buildings, structures, and objects included on or eligible for the National Register of Historic Places. Section 106 of the NHPA requires federal agencies to “take into account” the effects of their actions on historic properties.³³¹ The agencies conclude that the NHPA is not applicable to this action because a rule regarding the preemption of State laws and a decision to revoke California’s waiver are not the type of activities that have the potential to cause effects on historic properties. This conclusion is supported by the lack of discretion over

³²⁵ Docket No. EPA–HQ–OAR–2012–0562, pp. 15–16.

³²⁶ Available on NHTSA’s Corporate Average Fuel Economy website <https://one.nhtsa.gov/Laws-&Regulations/CAFE-%E2%80%93-Fuel-Economy/Final-EIS-for-CAFE-Passenger-Cars-and-Light-Trucks-Model-Years-2012%E2%80%932016>.

³²⁷ *In re: Polar Bear Endangered Species Act Listing and Section 4(D) Rule Litigation*, 818 F. Supp. 2d 214 (D.D.C. Oct. 17, 2011).

³²⁸ 78 FR 11766 (Feb. 20, 2013).

³²⁹ 78 FR at 11784–11785.

³³⁰ See DOI Solicitor’s Opinion No. M–37017, “Guidance on the Applicability of the Endangered Species Act Consultation Requirements to Proposed Actions Involving the Emissions of Greenhouse Gases” (Oct. 3, 2008).

³³¹ Section 106 is now codified at 54 U.S.C. 306108. Implementing regulations for the Section 106 process are located at 36 CFR part 800.

preemption and the underlying justification for the withdrawal of the waiver to California, the fact that any causal relationship between effects on historic properties as a result of emissions from the sale and operation of motor vehicles in California and section 177 States and this action are too attenuated, and the conclusion that impacts are not reasonably foreseeable.³³²

5. Fish and Wildlife Conservation Act (FWCA)

The FWCA (16 U.S.C. 2901 *et seq.*) provides financial and technical assistance to States for the development, revision, and implementation of conservation plans and programs for nongame fish and wildlife. In addition, the Act encourages all Federal departments and agencies to utilize their statutory and administrative authorities to conserve and to promote conservation of nongame fish and wildlife and their habitats. The agencies conclude that the FWCA is not applicable to this action because it does not involve the conservation of nongame fish and wildlife and their habitats.

6. Coastal Zone Management Act (CZMA)

The Coastal Zone Management Act (16 U.S.C. 1451 *et seq.*) provides for the preservation, protection, development, and (where possible) restoration and enhancement of the nation's coastal zone resources. Under the statute, States are provided with funds and technical assistance in developing coastal zone management programs. Each participating State must submit its program to the Secretary of Commerce for approval. Once the program has been approved, any activity of a Federal agency, either within or outside of the coastal zone, that affects any land or water use or natural resource of the coastal zone must be carried out in a manner that is consistent, to the maximum extent practicable, with the enforceable policies of the State's program.³³³

The agencies conclude that the CZMA is not applicable to this action because it does not involve an activity within, or outside of, the nation's coastal zones that affects any land or water use or natural resource of the coastal zone. This conclusion is supported by the lack of discretion over preemption and the underlying justification for the withdrawal of the waiver to California,

the fact that any causal relationship between effects on coastal zones as a result of emissions from the sale and operation of motor vehicles in California and section 177 States and this action are too attenuated, and the conclusion that impacts are not reasonably foreseeable.³³⁴

7. Floodplain Management (Executive Order 11988 and DOT Order 5650.2)

These Orders require Federal agencies to avoid the long- and short-term adverse impacts associated with the occupancy and modification of floodplains, and to restore and preserve the natural and beneficial values served by floodplains. Executive Order 11988 also directs agencies to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains through evaluating the potential effects of any actions the agency may take in a floodplain and ensuring that its program planning and budget requests reflect consideration of flood hazards and floodplain management. DOT Order 5650.2 sets forth DOT policies and procedures for implementing Executive Order 11988. The DOT Order requires that the agency determine if a proposed action is within the limits of a base floodplain, meaning it is encroaching on the floodplain, and whether this encroachment is significant. If significant, the agency is required to conduct further analysis of the proposed action and any practicable alternatives. If a practicable alternative avoids floodplain encroachment, then the agency is required to implement it.

In this action, the agencies are not occupying, modifying and/or encroaching on floodplains. The agencies, therefore, conclude that the Orders are not applicable to this action.

8. Preservation of the Nation's Wetlands (Executive Order 11990 and DOT Order 5660.1a)

These Orders require Federal agencies to avoid, to the extent possible, undertaking or providing assistance for new construction located in wetlands unless the agency head finds that there is no practicable alternative to such construction and that the proposed action includes all practicable measures to minimize harms to wetlands that may result from such use. Executive Order 11990 also directs agencies to take action to minimize the destruction, loss or degradation of wetlands in "conducting Federal activities and

programs affecting land use, including but not limited to water and related land resources planning, regulating, and licensing activities." DOT Order 5660.1a sets forth DOT policy for interpreting Executive Order 11990 and requires that transportation projects "located in or having an impact on wetlands" should be conducted to assure protection of the Nation's wetlands. If a project does have a significant impact on wetlands, an EIS must be prepared.

In this action, the agencies are not undertaking or providing assistance for new construction located in wetlands and conclude that these Orders do not apply to this action.

9. Migratory Bird Treaty Act (MBTA), Bald and Golden Eagle Protection Act (BGEPA), Executive Order 13186

The MBTA (16 U.S.C. 703–712) provides for the protection of certain migratory birds by making it illegal for anyone to "pursue, hunt, take, capture, kill, attempt to take, capture, or kill, possess, offer for sale, sell, offer to barter, barter, offer to purchase, purchase, deliver for shipment, ship, export, import, cause to be shipped, exported, or imported, deliver for transportation, transport or cause to be transported, carry or cause to be carried, or receive for shipment, transportation, carriage, or export" any migratory bird covered under the statute.³³⁵

The BGEPA (16 U.S.C. 668–668d) makes it illegal to "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import" any bald or golden eagles.³³⁶ Executive Order 13186, "Responsibilities of Federal Agencies to Protect Migratory Birds," helps to further the purposes of the MBTA by requiring a Federal agency to develop a Memorandum of Understanding (MOU) with the Fish and Wildlife Service when it is taking an action that has (or is likely to have) a measurable negative impact on migratory bird populations.

The agencies conclude that the MBTA, BGEPA, and Executive Order 13186 do not apply to this action because there is no disturbance, take, measurable negative impact, or other covered activity involving migratory birds or bald or golden eagles involved in this rulemaking. This conclusion is supported by the lack of discretion over preemption and the reasons underlying justification for the withdrawal of the waiver to California, the fact that any causal relationship between effects on migratory birds or bald or golden eagles as a result of emissions from the sale

³³² See the discussions regarding NEPA, Clean Air Act Conformity, and the ESA.

³³³ 16 U.S.C. 1456(c)(1)(A).

³³⁴ See the discussions regarding NEPA, Clean Air Act Conformity, and the ESA.

³³⁵ 16 U.S.C. 703(a).

³³⁶ 16 U.S.C. 668(a).

and operation of motor vehicles in California and section 177 States and this action are too attenuated, and the conclusion that impacts are not reasonably foreseeable.³³⁷

10. Department of Transportation Act (Section 4(f))

Section 4(f) of the Department of Transportation Act of 1966 (49 U.S.C. 303), as amended, is designed to preserve publicly owned park and recreation lands, waterfowl and wildlife refuges, and historic sites. Specifically, Section 4(f) provides that DOT agencies cannot approve a transportation program or project that requires the use of any publicly owned land from a public park, recreation area, or wildlife or waterfowl refuge of national, State, or local significance, or any land from a historic site of national, State, or local significance, unless a determination is made that:

(1) There is no feasible and prudent alternative to the use of land, and

(2) The program or project includes all possible planning to minimize harm to the property resulting from the use.

These requirements may be satisfied if the transportation use of a Section 4(f) property results in a de minimis impact on the area.

NHTSA concludes that Section 4(f) is not applicable to its final rule here because this rulemaking is not an approval of a transportation program or project that requires the use of any publicly owned land.

11. Executive Order 12898: “Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations”

Executive Order (E.O.) 12898 (59 FR 7629 (Feb. 16, 1994)) establishes Federal executive policy on environmental justice. Its main provision directs Federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States.

The agencies have determined that this action will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations because it does not change existing Federal standards. This conclusion is supported by the lack of discretion over

preemption and the underlying justification for the withdrawal of the waiver to California, the fact that any causal relationship between effects on minority or low-income populations as a result of emissions from the sale and operation of motor vehicles in California and section 177 States and this action are too attenuated, and the conclusion that impacts are not reasonably foreseeable.³³⁸

12. Executive Order 13045: “Protection of Children From Environmental Health Risks and Safety Risks”

This action is not subject to E.O. 13045 (62 FR 19885, April 23, 1997) because it is not an economically significant regulatory action as defined by E.O. 12866, and the agencies have no reason to believe that the environmental health or safety risks related to this action may have a disproportionate effect on children because it does not change existing Federal standards. This conclusion is supported by the lack of discretion over preemption and the underlying justification for the withdrawal of the waiver to California, the fact that any causal relationship between effects on children as a result of emissions from the sale and operation of motor vehicles in California and section 177 States and this action are too attenuated, and the conclusion that impacts are not reasonably foreseeable.³³⁹

G. Regulatory Flexibility Act

Pursuant to the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*, as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996), whenever an agency is required to publish a notice of proposed rulemaking or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effect of the rule on small entities (*i.e.*, small businesses, small organizations, and small governmental jurisdictions). No regulatory flexibility analysis is required if the head of an agency certifies the proposal will not have a significant economic impact on a substantial number of small entities. SBREFA amended the Regulatory Flexibility Act to require Federal agencies to provide a statement of the factual basis for certifying that a proposal will not have a significant economic impact on a substantial number of small entities.

³³⁸ See the discussions regarding NEPA, the Clean Air Act Conformity, and the ESA.

³³⁹ See the discussions regarding NEPA, the Clean Air Act Conformity, and the ESA.

This joint action only concern the question of preemption; the joint action does not set CAFE or emissions standards themselves. Further, as the California waiver withdrawal is not a rulemaking, it is not subject to the RFA. Accordingly, only NHTSA's final rule establishing regulatory text related to preemption is at issue in this action. NHTSA has considered the impacts of this document under the Regulatory Flexibility Act and certifies that this rule would not have a significant economic impact on a substantial number of small entities. One commenter, Workhorse Group, Inc. (Workforce), in comments echoed by a trade association, argued that it was a small business and would be affected the preemption provisions because it would no longer be able to earn and sell credits under the ZEV mandates established by California and the other 177 States. This argument is not persuasive, as the preemption regulation has no direct effect on Workforce or any other similar entity because it does not regulate any private entity, but instead clarifies the agency's views on what State or local laws are preempted. Thus, any effect on Workhorse or any other similar entities is, at most, indirect. Any effect is even further attenuated by the fact that small entities such as Workhorse are not even subject to a ZEV mandate, but choose to participate in the program voluntarily.

Additionally, in keeping with previous waiver actions, EPA's action is not a rule as defined in the Regulatory Flexibility Act, 5 U.S.C. 601(2). Therefore, EPA has not prepared a supporting regulatory flexibility analysis addressing the impact of this action on small business entities. See 78 FR at 2145 (Jan. 9, 2013); 74 FR at 32784 (July 8, 2009); 73 FR at 12169 (Mar. 6, 2008).

H. Executive Order 13132 (Federalism)

Executive Order 13132 requires federal agencies to develop an accountable process to ensure “meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications.” The Order defines the term “Policies that have federalism implications” to include regulations that have “substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.” Under the Order, agencies may not issue a regulation that has federalism implications, that imposes substantial direct compliance costs, unless the Federal government

³³⁷ See the discussions regarding NEPA, Clean Air Act Conformity, and the ESA.

provides the funds necessary to pay the direct compliance costs incurred by State and local governments, or the agencies consult with State and local officials early in the process of developing the proposed regulation. The agencies complied with Order's requirements and discuss their response to comments in the above sections.

I. Executive Order 12988 (Civil Justice Reform)

Pursuant to Executive Order 12988, "Civil Justice Reform,"³⁴⁰ NHTSA has determined that this final rule does not have any retroactive effect.

J. Executive Order 13175 (Consultation and Coordination With Indian Tribal Governments)

This final rule does not have tribal implications, as specified in Executive Order 13175 (65 FR 67249, November 9, 2000). This rule will be implemented at the Federal level. Thus, Executive Order 13175 does not apply to this rule. Two commenters raised issues associated with this Executive Order. Issues raised in these comments related to the standards will be addressed that forthcoming rulemaking. One commenter, in an apparent reference to the preemption actions being finalized in this document, argued that the NPRM would weaken tribal abilities to set GHG standards. This is incorrect: The finalization of the EPCA preemption provisions merely clarifies the law that any law or regulation of a State or political subdivision of a State "related to" fuel economy is preempted, while EPA's decision in this document only affects a State, not a Tribal government.

K. Unfunded Mandates Reform Act

Section 202 of the Unfunded Mandates Reform Act of 1995 (UMRA) requires Federal agencies to prepare a written assessment of the costs, benefits, and other effects of a proposed or final rule that includes a Federal mandate likely to result in the expenditure by State, local, or tribal governments, in the aggregate, or by the private sector, of more than \$100 million in any one year (adjusted for inflation with base year of 1995). Adjusting this amount by the implicit gross domestic product price deflator for 2016 results in \$148 million ($111.416/75.324 = 1.48$).³⁴¹ This final rule will not result in the expenditure by State, local, or Tribal governments, in

the aggregate, or by the private sector of more than \$148 million annually.

L. Regulation Identifier Number

The Department of Transportation assigns a regulation identifier number (RIN) to each regulatory action listed in the Unified Agenda of Federal Regulations. The Regulatory Information Service Center publishes the Unified Agenda in April and October of each year. You may use the RIN contained in the heading at the beginning of this document to find this action in the Unified Agenda.

M. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act (NTTAA) requires NHTSA and EPA to evaluate and use existing voluntary consensus standards in its regulatory activities unless doing so would be inconsistent with applicable law (e.g., the statutory provisions regarding NHTSA's vehicle safety authority, or EPA's testing authority) or otherwise impractical.³⁴² As this action does not affect the CAFE or GHG standards, it is not subject to the NTTAA.

N. Department of Energy Review

49 U.S.C. 32902(j)(2) requires that "Before taking final action on a standard or an exemption from a standard under this section, the Secretary of Transportation shall notify the Secretary of Energy and provide the Secretary of Energy a reasonable time to comment." As this action does not establish a standard or provide an exemption, it is not subject to this requirement. However, NHTSA has submitted this action to OMB for interagency review and, thus, the Department of Energy has been afforded the opportunity to review.

O. Paperwork Reduction Act

The Paperwork Reduction Act (PRA) of 1995, Public Law 104-13,³⁴³ gives the Office of Management and Budget (OMB) authority to regulate matters regarding the collection, management, storage, and dissemination of certain information by and for the Federal government. It seeks to reduce the total amount of paperwork handled by the government and the public. The PRA requires Federal agencies to place a notice in the **Federal Register** seeking public comment on the proposed collection of information. This action includes no information collections. The information collections associated with the CAFE and GHG programs will

be discussed in the final rule that will establish CAFE and GHG standards.

P. Privacy Act

In accordance with 5 U.S.C. 553(c), the agencies solicited comments from the public to better inform the rulemaking process. These comments are posted, without edit, to www.regulations.gov, as described in DOT's system of records notice, DOT/ALL-14 FDMS, accessible through www.transportation.gov/privacy.

Q. Judicial Review

NHTSA and EPA undertake this joint action under their respective authorities pursuant to the Energy Policy and Conservation Act and the Clean Air Act, mindful of the Supreme Court's statement in *Massachusetts v. EPA*, 549 U.S. 497, 532 (2007), that "there is no reason to think the two agencies cannot both administer their obligations and yet avoid inconsistency." Pursuant to Clean Air Act section 307(b), any petitions for judicial review of this action must be filed in the United States Court of Appeals for the D.C. Circuit by November 26, 2019. Given the inherent relationship between the agencies' actions, any challenges to NHTSA's regulation should also be filed in the United States Court of Appeals for the D.C. Circuit.

List of Subjects in 49 CFR Parts 531 and 533

Fuel economy.

Regulatory Text

In consideration of the foregoing, under the authority of 49 U.S.C. 322, 32901, 32902, and 32903, and delegation of authority at 49 CFR 1.95, NHTSA amends 49 CFR chapter V as follows:

PART 531—PASSENGER AUTOMOBILE AVERAGE FUEL ECONOMY STANDARDS

■ 1. The authority citation for part 531 continues to read as follows:

Authority: 49 U.S.C. 32902, delegation of authority at 49 CFR 1.50.

■ 2. Add § 531.7 to read as follows:

§ 531.7 Preemption.

(a) *General.* When an average fuel economy standard prescribed under this chapter is in effect, a State or a political subdivision of a State may not adopt or enforce a law or regulation related to fuel economy standards or average fuel economy standards for automobiles covered by an average fuel economy standard under this chapter.

³⁴⁰ 61 FR 4729 (Feb. 7, 1996).

³⁴¹ Bureau of Economic Analysis, National Income and Product Accounts (NIPA), Table 1.1.9 Implicit Price Deflators for Gross Domestic Product. https://bea.gov/iTable/index_nipa.cfm.

³⁴² 15 U.S.C. 272.

³⁴³ Codified at 44 U.S.C. 3501 *et seq.*

(b) *Requirements must be identical.* When a requirement under section 32908 of title 49 of the United States Code is in effect, a State or a political subdivision of a State may adopt or enforce a law or regulation on disclosure of fuel economy or fuel operating costs for an automobile covered by section 32908 only if the law or regulation is identical to that requirement.

(c) *State and political subdivision automobiles.* A State or a political subdivision of a State may prescribe requirements for fuel economy for automobiles obtained for its own use.

Appendix to Part 531 [Designated as Appendix A to Part 531 and Amended]

■ 3. Designate the appendix to part 531 as appendix A to part 531 and in newly designated appendix A, remove all references to “Appendix” and add in their place “Appendix A.”

■ 4. Add appendix B to part 531 to read as follows:

Appendix B to Part 531—Preemption

(a) Express Preemption:

(1) To the extent that any law or regulation of a State or a political subdivision of a State regulates or prohibits tailpipe carbon dioxide emissions from automobiles, such a law or regulation relates to average fuel economy standards within the meaning of 49 U.S.C. 32919.

(A) Automobile fuel economy is directly and substantially related to automobile tailpipe emissions of carbon dioxide;

(B) Carbon dioxide is the natural by-product of automobile fuel consumption;

(C) The most significant and controlling factor in making the measurements necessary to determine the compliance of automobiles with the fuel economy standards in this part is their rate of tailpipe carbon dioxide emissions;

(D) Almost all technologically feasible reduction of tailpipe emissions of carbon dioxide is achievable through improving fuel economy, thereby reducing both the consumption of fuel and the creation and emission of carbon dioxide;

(E) Accordingly, as a practical matter, regulating fuel economy controls the amount of tailpipe emissions of carbon dioxide, and regulating the tailpipe emissions of carbon dioxide controls fuel economy.

(2) As a law or regulation related to fuel economy standards, any law or regulation of a State or a political subdivision of a State regulating or prohibiting tailpipe carbon dioxide emissions from automobiles is expressly preempted under 49 U.S.C. 32919.

(3) A law or regulation of a State or a political subdivision of a State having the direct or substantial effect of regulating or prohibiting tailpipe carbon dioxide emissions from automobiles or automobile fuel economy is a law or regulation related to fuel economy standards and expressly preempted under 49 U.S.C. 32919.

(b) Implied Preemption:

(1) A law or regulation of a State or a political subdivision of a State regulating tailpipe carbon dioxide emissions from automobiles, particularly a law or regulation that is not attribute-based and does not separately regulate passenger cars and light trucks, conflicts with:

(A) The fuel economy standards in this part;

(B) The judgments made by the agency in establishing those standards; and

(C) The achievement of the objectives of the statute (49 U.S.C. Chapter 329) under which those standards were established, including objectives relating to reducing fuel consumption in a manner and to the extent consistent with manufacturer flexibility, consumer choice, and automobile safety.

(2) Any law or regulation of a State or a political subdivision of a State regulating or prohibiting tailpipe carbon dioxide emissions from automobiles is impliedly preempted under 49 U.S.C. Chapter 329.

(3) A law or regulation of a State or a political subdivision of a State having the direct or substantial effect of regulating or prohibiting tailpipe carbon dioxide emissions from automobiles or automobile fuel economy is impliedly preempted under 49 U.S.C. Chapter 329.

PART 533—LIGHT TRUCK FUEL ECONOMY STANDARDS

■ 5. The authority citation for part 533 continues to read as follows:

Authority: 49 U.S.C. 32902; delegation of authority at 49 CFR 1.50.

■ 6. Add § 533.7 to read as follows:

§ 533.7 Preemption.

(a) *General.* When an average fuel economy standard prescribed under this chapter is in effect, a State or a political subdivision of a State may not adopt or enforce a law or regulation related to fuel economy standards or average fuel economy standards for automobiles covered by an average fuel economy standard under this chapter.

(b) *Requirements must be identical.*

When a requirement under section 32908 of title 49 of the United States Code is in effect, a State or a political subdivision of a State may adopt or enforce a law or regulation on disclosure of fuel economy or fuel operating costs for an automobile covered by section 32908 only if the law or regulation is identical to that requirement.

(c) *State and political subdivision automobiles.* A State or a political subdivision of a State may prescribe requirements for fuel economy for automobiles obtained for its own use.

Appendix to Part 533 [Designated as Appendix A to Part 533 and Amended]

■ 7. Designate appendix to part 533 as appendix A to part 533 and in newly redesignated appendix A, remove all

references to “Appendix” and add in their place “Appendix A”.

■ 8. Add appendix B to part 533 to read as follows:

Appendix B to Part 533—Preemption

(a) Express Preemption:

(1) To the extent that any law or regulation of a State or a political subdivision of a State regulates or prohibits tailpipe carbon dioxide emissions from automobiles, such a law or regulation relates to average fuel economy standards within the meaning of 49 U.S.C. 32919.

(A) Automobile fuel economy is directly and substantially related to automobile tailpipe emissions of carbon dioxide;

(B) Carbon dioxide is the natural by-product of automobile fuel consumption;

(C) The most significant and controlling factor in making the measurements necessary to determine the compliance of automobiles with the fuel economy standards in this part is their rate of tailpipe carbon dioxide emissions;

(D) Almost all technologically feasible reduction of tailpipe emissions of carbon dioxide is achievable through improving fuel economy, thereby reducing both the consumption of fuel and the creation and emission of carbon dioxide;

(E) Accordingly, as a practical matter, regulating fuel economy controls the amount of tailpipe emissions of carbon dioxide, and regulating the tailpipe emissions of carbon dioxide controls fuel economy.

(2) As a law or regulation of a State or a political subdivision of a State related to fuel economy standards, any state law or regulation regulating or prohibiting tailpipe carbon dioxide emissions from automobiles is expressly preempted under 49 U.S.C. 32919.

(3) A law or regulation of a State or a political subdivision of a State having the direct or substantial effect of regulating or prohibiting tailpipe carbon dioxide emissions from automobiles or automobile fuel economy is a law or regulation related to fuel economy standards and expressly preempted under 49 U.S.C. 32919.

(b) Implied Preemption:

(1) A law or regulation of a State or a political subdivision of a State regulating tailpipe carbon dioxide emissions from automobiles, particularly a law or regulation that is not attribute-based and does not separately regulate passenger cars and light trucks, conflicts with:

(A) The fuel economy standards in this part;

(B) The judgments made by the agency in establishing those standards; and

(C) The achievement of the objectives of the statute (49 U.S.C. Chapter 329) under which those standards were established, including objectives relating to reducing fuel consumption in a manner and to the extent consistent with manufacturer flexibility, consumer choice, and automobile safety.

(2) Any law or regulation of a State or a political subdivision of a State regulating or prohibiting tailpipe carbon dioxide emissions from automobiles is impliedly preempted under 49 U.S.C. Chapter 329.

(3) A law or regulation of a State or a political subdivision of a State having the direct or substantial effect of regulating or prohibiting tailpipe carbon dioxide emissions from automobiles or automobile fuel economy is impliedly preempted under 49 U.S.C. Chapter 329.

Issued on September 19, 2019 in Washington, DC, under authority delegated in 49 CFR 1.95 and 501.4

Dated: September 19, 2019.

James C. Owens,

Acting Administrator, National Highway Traffic Safety Administration.

Dated: September 19, 2019.

Andrew R. Wheeler,

Administrator, Environmental Protection Agency.

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EXHIBIT

6



INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE



IPCC SPECIAL REPORT

AVIATION AND THE GLOBAL ATMOSPHERE

Summary for Policymakers



INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE



Summary for Policymakers

Aviation and the Global Atmosphere

Edited by

Joyce E. Penner
University of Michigan

David H. Lister
*Defence Research
and Evaluation Agency*

David J. Griggs
UK Meteorological Office

David J. Dokken
*University Corporation
for Atmospheric Research*

Mack McFarland
DuPont Fluoroproducts

A Special Report of IPCC Working Groups I and III

in collaboration with the

Scientific Assessment Panel to the Montreal Protocol
on Substances that Deplete the Ozone Layer

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Contents

Foreword	v
Preface	vii
1. Introduction	3
2. How Do Aircraft Affect Climate and Ozone?	3
3. How are Aviation Emissions Projected to Grow in the Future?	4
4. What are the Current and Future Impacts of Subsonic Aviation on Radiative Forcing and UV Radiation?	6
4.1 Carbon Dioxide	6
4.2 Ozone	6
4.3 Methane	6
4.4 Water Vapour	7
4.5 Contrails	7
4.6 Cirrus Clouds	8
4.7 Sulfate and Soot Aerosols	8
4.8 What are the Overall Climate Effects of Subsonic Aircraft?	8
4.9 What are the Overall Effects of Subsonic Aircraft on UV-B?	9
5. What are the Current and Future Impacts of Supersonic Aviation on Radiative Forcing and UV Radiation? ...	9
6. What are the Options to Reduce Emissions and Impacts?	10
6.1 Aircraft and Engine Technology Options	10
6.2 Fuel Options	10
6.3 Operational Options	11
6.4 Regulatory, Economic, and Other Options	11
7. Issues for the Future	12
List of IPCC Outputs	13

Foreword

The Intergovernmental Panel on Climate Change (IPCC) was jointly established by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) in 1988 to: (i) assess available information on the science, the impacts, and the economics of, and the options for mitigating and/or adapting to, climate change and (ii) provide, on request, scientific/technical/socio-economic advice to the Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC). Since then the IPCC has produced a series of Assessment Reports, Special Reports, Technical Papers, methodologies, and other products that have become standard works of reference, widely used by policymakers, scientists, and other experts.

This Special Report was prepared following a request from the International Civil Aviation Organization (ICAO) and the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer. The state of understanding of the relevant science of the atmosphere, aviation technology, and socio-economic issues associated with mitigation options is assessed and reported for both subsonic and supersonic fleets. The potential effects that aviation has had in the past and may have in the future on both stratospheric ozone depletion and global climate change are covered; environmental impacts of aviation at the local scale, however, are not addressed. The report synthesizes the findings to identify and characterize options for mitigating future impacts.

As is usual in the IPCC, success in producing this report has depended first and foremost on the enthusiasm and cooperation of experts worldwide in many related but different disciplines.

G.O.P. Obasi

Secretary-General
World Meteorological Organization

We would like to express our gratitude to all the Coordinating Lead Authors, Lead Authors, Contributing Authors, Review Editors, and Expert Reviewers. These individuals have devoted enormous time and effort to produce this report and we are extremely grateful for their commitment to the IPCC process.

We would also like to express our sincere thanks to:

- Robert Watson, the Chairman of the IPCC and Co-Chair of the Scientific Assessment Panel to the Montreal Protocol
- John Houghton, Ding Yihui, Bert Metz, and Ogunlade Davidson—the Co-Chairs of IPCC Working Groups I and III
- Daniel Albritton, Co-Chair of the Scientific Assessment Panel to the Montreal Protocol
- David Lister and Joyce Penner, the Coordinators of this Special Report
- Daniel Albritton, John Crayston, Ogunlade Davidson, David Griggs, Neil Harris, John Houghton, Mack McFarland, Bert Metz, Nelson Sabogal, N. Sundararaman, Robert Watson, and Howard Wesoky—the Science Steering Committee for this Special Report
- David Griggs, David Dokken, and all the staff of the Working Group I and II Technical Support Units, including Mack McFarland, Richard Moss, Anne Murrill, Sandy MacCracken, Maria Noguer, Laura Van Wie McGrory, Neil Leary, Paul van der Linden, and Flo Ormond, and Neil Harris who provided additional help
- N. Sundararaman, the Secretary of the IPCC, and his staff, Rudie Bourgeois, Cecilia Tanikie, and Chantal Ettori.

K. Töpfer

Executive Director
United Nations Environment Programme
and
Director-General
United Nations Office in Nairobi

Preface

Following a request from the International Civil Aviation Organization (ICAO) to assess the consequences of greenhouse gas emissions from aircraft engines, the IPCC at its Twelfth Session (Mexico City, 11–13 September 1996) decided to produce this Special Report, *Aviation and the Global Atmosphere*, in collaboration with the Scientific Assessment Panel to the Montreal Protocol. The task was initially a joint responsibility between IPCC Working Groups I and II but, following a change in the terms of reference of the Working Groups (Thirteenth Session of the IPCC, Maldives, 22 and 25–28 September 1997), the responsibility was transferred to IPCC Working Groups I and III, with administrative support remaining with the Technical Support Units of Working Groups I and II.

Although it is less than 100 years since the first powered flight, the aviation industry has undergone rapid growth and has become an integral and vital part of modern society. In the absence of policy intervention, the growth is likely to continue. It is therefore highly relevant to consider the current and possible future effects of aircraft engine emissions on the atmosphere. A unique aspect of this report is the integral involvement of technical experts from the aviation industry, including airlines, and airframe and engine manufacturers, alongside atmospheric scientists. This involvement has been critical in producing what we believe is the most comprehensive assessment available to date of the effects of aviation on the global atmosphere. Although this Special Report is the first IPCC report to consider a particular industrial subsector, other sectors equally deserve study.

The report considers all the gases and particles emitted by aircraft into the upper atmosphere and the role that they play in modifying the chemical properties of the atmosphere and initiating the formation of condensation trails (contrails) and cirrus clouds. The report then considers (a) how the radiative properties of the atmosphere can be modified as a result, possibly leading to climate change, and (b) how the ozone layer could be modified, leading to changes in ultraviolet radiation reaching the Earth's surface. The report also considers how potential changes in aircraft technology, air transport operations, and the institutional, regulatory, and economic framework might affect emissions in the future. The report does not deal with the effects of engine emissions on local air quality near the surface.

The objective of this Special Report is to provide accurate, unbiased, policy-relevant information to serve the aviation industry and the expert and policymaking communities. The report, in describing the current state of knowledge, also identifies areas where our understanding is inadequate and where further work is urgently required. It does not make policy recommendations or suggest policy preferences, thus is consistent with IPCC practice.

This report was compiled by 107 Lead Authors from 18 countries. Successive drafts of the report were circulated for review by experts, followed by review of governments and experts. Over 100 Contributing Authors submitted draft text and information to the Lead Authors and over 150 reviewers submitted valuable suggestions for improvement during the review process. All the comments received were carefully analysed and assimilated into a revised document for consideration at the joint session of IPCC Working Groups I and III held in San José, Costa Rica, 12–14 April 1999. There, the Summary for Policymakers was approved in detail and the underlying report accepted.

We wish to express our sincere appreciation to the Report Coordinators, David Lister and Joyce Penner; to all the Coordinating Lead Authors, Lead Authors, and Review Editors whose expertise, diligence, and patience have underpinned the successful completion of this report; and to the many contributors and reviewers for their valuable and painstaking dedication and work. We thank the Steering Committee for their wise counsel and guidance throughout the preparation of the report. We are grateful to:

- ICAO for hosting the initial scoping meeting for the report and the final drafting meeting, and for translating the Summary for Policymakers into Arabic, Chinese, French, Russian, and Spanish (ICAO also provided technical inputs requested)
- The government of Trinidad and Tobago for hosting the first drafting meeting
- The International Air Transport Association (IATA) for hosting the second drafting meeting
- The government of Costa Rica for hosting the Joint Session of IPCC Working Groups I and III (San José, 12–14 April 1999), where the Summary for Policymakers was approved line by line and the underlying assessment accepted.

In particular, we are grateful to John Crayston (ICAO), Steve Pollonais (Government of Trinidad and Tobago), Leonie Dobbie (IATA), and Max Campos (government of Costa Rica) for their taking on the demanding burden of arranging for these meetings.

We also thank Anne Murrill of the Working Group I Technical Support Unit and Sandy MacCracken of the Working Group II Technical Support Unit for their tireless and good humored support throughout the preparation of the report. Other members of the Technical Support Units of Working Groups I and II also provided much assistance, including Richard Moss, Mack McFarland, Maria Noguer, Laura Van Wie McGrory, Neil Leary, Paul van der Linden, and Flo Ormond. The staff of the IPCC Secretariat, Rudie Bourgeois, Cecilia Tanikie, and

Chantal Ettori, provided logistical support for all government liaison and travel of experts from the developing and transitional economy countries.

Robert Watson, IPCC Chairman

John Houghton, Co-Chair of IPCC Working Group I

Ding Yihui, Co-Chair of IPCC Working Group I

Bert Metz, Co-Chair of IPCC Working Group III

Ogunlade Davidson, Co-Chair of IPCC Working Group III

N. Sundararaman, IPCC Secretary

David Griggs, IPCC Working Group I TSU

David Dokken, IPCC Working Group II TSU

SUMMARY FOR POLICYMAKERS

AVIATION AND THE GLOBAL ATMOSPHERE

A Special Report of Working Groups I and III of the Intergovernmental Panel on Climate Change

This summary, approved in detail at a joint session of IPCC Working Groups I and III (San José, Costa Rica, 12–14 April 1999), represents the formally agreed statement of the IPCC concerning current understanding of aviation and the global atmosphere.

Based on a draft prepared by:

David H. Lister, Joyce E. Penner, David J. Griggs, John T. Houghton, Daniel L. Albritton, John Begin, Gerard Bekebrede, John Crayston, Ogunlade Davidson, Richard G. Derwent, David J. Dokken, Julie Ellis, David W. Fahey, John E. Frederick, Randall Friedl, Neil Harris, Stephen C. Henderson, John F. Hennigan, Ivar Isaksen, Charles H. Jackman, Jerry Lewis, Mack McFarland, Bert Metz, John Montgomery, Richard W. Niedzwiecki, Michael Prather, Keith R. Ryan, Nelson Sabogal, Robert Sausen, Ulrich Schumann, Hugh J. Somerville, N. Sundararaman, Ding Yihui, Upali K. Wickrama, Howard L. Wesoky

1. Introduction

This report assesses the effects of aircraft on climate and atmospheric ozone and is the first IPCC report for a specific industrial subsector. It was prepared by IPCC in collaboration with the Scientific Assessment Panel to the Montreal Protocol on Substances that Deplete the Ozone Layer, in response to a request by the International Civil Aviation Organization (ICAO)¹ because of the potential impact of aviation emissions. These are the predominant anthropogenic emissions deposited directly into the upper troposphere and lower stratosphere.

Aviation has experienced rapid expansion as the world economy has grown. Passenger traffic (expressed as revenue passenger-kilometres²) has grown since 1960 at nearly 9% per year, 2.4 times the average Gross Domestic Product (GDP) growth rate. Freight traffic, approximately 80% of which is carried by passenger airplanes, has also grown over the same time period. The rate of growth of passenger traffic has slowed to about 5% in 1997 as the industry is maturing. Total aviation emissions have increased, because increased demand for air transport has outpaced the reductions in specific emissions³ from the continuing improvements in technology and operational procedures. Passenger traffic, assuming unconstrained demand, is projected to grow at rates in excess of GDP for the period assessed in this report.

The effects of current aviation and of a range of unconstrained growth projections for aviation (which include passenger, freight, and military) are examined in this report, including the possible effects of a fleet of second generation, commercial supersonic aircraft. The report also describes current aircraft technology, operating procedures, and options for mitigating aviation's future impact on the global atmosphere. The report does not consider the local environmental effects of aircraft engine emissions or any of the indirect environmental effects of aviation operations such as energy usage by ground transportation at airports.

2. How Do Aircraft Affect Climate and Ozone?

Aircraft emit gases and particles directly into the upper troposphere and lower stratosphere where they have an impact on atmospheric composition. These gases and particles alter the concentration of atmospheric greenhouse gases, including carbon dioxide (CO₂), ozone (O₃), and methane (CH₄); trigger formation of condensation trails (contrails); and may increase cirrus cloudiness—all of which contribute to climate change (see Box on page 4).

The principal emissions of aircraft include the greenhouse gases carbon dioxide and water vapour (H₂O). Other major emissions are nitric oxide (NO) and nitrogen dioxide (NO₂) (which together are termed NO_x), sulfur oxides (SO_x), and soot. The total amount of aviation fuel burned, as well as the total emissions of carbon dioxide, NO_x, and water vapour by aircraft, are well known relative to other parameters important to this assessment.

The climate impacts of the gases and particles emitted and formed as a result of aviation are more difficult to quantify than the emissions; however, they can be compared to each other and to climate effects from other sectors by using the concept of radiative forcing.⁴ Because carbon dioxide has a long atmospheric residence time (≈100 years) and so becomes well mixed throughout the atmosphere, the effects of its emissions from aircraft are indistinguishable from the same quantity of carbon dioxide emitted by any other source. The other gases (e.g., NO_x, SO_x, water vapour) and particles have shorter atmospheric residence times and remain concentrated near flight routes, mainly in the northern mid-latitudes. These emissions can lead to radiative forcing that is regionally located near the flight routes for some components (e.g., ozone and contrails) in contrast to emissions that are globally mixed (e.g., carbon dioxide and methane).

The global mean climate change is reasonably well represented by the global average radiative forcing, for example, when evaluating the contributions of aviation to the rise in globally averaged temperature or sea level. However, because some of aviation's key contributions to radiative forcing are located mainly in the northern mid-latitudes, the regional climate response may differ from that derived from a global mean radiative forcing. The impact of aircraft on regional climate could be important, but has not been assessed in this report.

Ozone is a greenhouse gas. It also shields the surface of the Earth from harmful ultraviolet (UV) radiation, and is a common air pollutant. Aircraft-emitted NO_x participates in ozone chemistry. Subsonic aircraft fly in the upper troposphere and lower stratosphere (at altitudes of about 9 to 13 km), whereas supersonic aircraft cruise several kilometres higher (at about 17 to 20 km) in the stratosphere. Ozone in the upper troposphere and lower stratosphere is expected to increase in response to NO_x increases and methane is expected to decrease. At higher altitudes, increases in NO_x lead to decreases in the stratospheric ozone layer. Ozone precursor (NO_x) residence times in these regions increase with altitude, and hence perturbations to ozone by aircraft depend on the altitude of NO_x injection and vary from regional in scale in the troposphere to global in scale in the stratosphere.

¹ ICAO is the United Nations specialized agency that has global responsibility for the establishment of standards, recommended practices, and guidance on various aspects of international civil aviation, including environmental protection.

² The revenue passenger-km is a measure of the traffic carried by commercial aviation: one revenue-paying passenger carried 1 km.

³ Specific emissions are emissions per unit of traffic carried, for instance, per revenue passenger-km.

⁴ Radiative forcing is a measure of the importance of a potential climate change mechanism. It expresses the perturbation or change to the energy balance of the Earth-atmosphere system in watts per square metre (Wm⁻²). Positive values of radiative forcing imply a net warming, while negative values imply cooling.

The Science of Climate Change

Some of the main conclusions of the Summary for Policymakers of Working Group I of the IPCC Second Assessment Report, published in 1995, which concerns the effects of all anthropogenic emissions on climate change, follow:

- Increases in greenhouse gas concentrations since pre-industrial times (i.e., since about 1750) have led to a positive radiative forcing of climate, tending to warm the surface of the Earth and produce other changes of climate.
- The atmospheric concentrations of the greenhouse gases carbon dioxide, methane, and nitrous oxide (N₂O), among others, have grown significantly: by about 30, 145, and 15%, respectively (values for 1992). These trends can be attributed largely to human activities, mostly fossil fuel use, land-use change, and agriculture.
- Many greenhouse gases remain in the atmosphere for a long time (for carbon dioxide and nitrous oxide, many decades to centuries). As a result of this, if carbon dioxide emissions were maintained at near current (1994) levels, they would lead to a nearly constant rate of increase in atmospheric concentrations for at least two centuries, reaching about 500 ppmv (approximately twice the pre-industrial concentration of 280 ppmv) by the end of the 21st century.
- Tropospheric aerosols resulting from combustion of fossil fuels, biomass burning, and other sources have led to a negative radiative forcing, which, while focused in particular regions and subcontinental areas, can have continental to hemispheric effects on climate patterns. In contrast to the long-lived greenhouse gases, anthropogenic aerosols are very short-lived in the atmosphere; hence, their radiative forcing adjusts rapidly to increases or decreases in emissions.
- Our ability from the observed climate record to quantify the human influence on global climate is currently limited because the expected signal is still emerging from the noise of natural variability, and because there are uncertainties in key factors. These include the magnitude and patterns of long-term natural variability and the time-evolving pattern of forcing by, and response to, changes in concentrations of greenhouse gases and aerosols, and land-surface changes. Nevertheless, the balance of evidence suggests that there is a discernible human influence on global climate.
- The IPCC has developed a range of scenarios, IS92a-f, for future greenhouse gas and aerosol precursor emissions based on assumptions concerning population and economic growth, land use, technological changes, energy availability, and fuel mix during the period 1990 to 2100. Through understanding of the global carbon cycle and of atmospheric chemistry, these emissions can be used to project atmospheric concentrations of greenhouse gases and aerosols and the perturbation of natural radiative forcing. Climate models can then be used to develop projections of future climate.
- Estimates of the rise in global average surface air temperature by 2100 relative to 1990 for the IS92 scenarios range from 1 to 3.5°C. In all cases the average rate of warming would probably be greater than any seen in the last 10 000 years. Regional temperature changes could differ substantially from the global mean and the actual annual to decadal changes would include considerable natural variability. A general warming is expected to lead to an increase in the occurrence of extremely hot days and a decrease in the occurrence of extremely cold days.
- Average sea level is expected to rise as a result of thermal expansion of the oceans and melting of glaciers and ice-sheets. Estimates of the sea level rise by 2100 relative to 1990 for the IS92 scenarios range from 15 to 95 cm.
- Warmer temperatures will lead to a more vigorous hydrological cycle; this translates into prospects for more severe droughts and/or floods in some places and less severe droughts and/or floods in other places. Several models indicate an increase in precipitation intensity, suggesting a possibility for more extreme rainfall events.

Water vapour, SO_x (which forms sulfate particles), and soot⁵ play both direct and indirect roles in climate change and ozone chemistry.

3. How are Aviation Emissions Projected to Grow in the Future?

Global passenger air travel, as measured in revenue passenger-km, is projected to grow by about 5% per year between 1990 and 2015, whereas total aviation fuel use—including passenger, freight, and military⁶—is projected to increase by 3% per year, over the same period, the difference being due largely to improved aircraft efficiency. Projections beyond this time are more

uncertain so a range of future unconstrained emission scenarios is examined in this report (see Table 1 and Figure 1). All of these scenarios assume that technological improvements leading to reduced emissions per revenue passenger-km will continue in the future and that optimal use of airspace availability (i.e.,

⁵ Airborne sulfate particles and soot particles are both examples of aerosols. Aerosols are microscopic particles suspended in air.

⁶ The historical breakdown of aviation fuel burn for civil (passenger plus cargo) and military aviation was 64 and 36%, respectively, in 1976, and 82 and 18%, respectively, in 1992. These are projected to change to 93 and 7%, respectively, in 2015, and to 97 and 3%, respectively, in 2050.

Table 1: Summary of future global aircraft scenarios used in this report.

Scenario name	Avg. traffic growth per year (1990–2050) ¹	Avg. annual growth rate of fuel burn (1990–2050) ²	Avg. annual economic growth rate	Avg. annual population growth rate	Ratio of traffic (2050/1990)	Ratio of fuel burn (2050/1990)	Notes
Fa1	3.1%	1.7%	2.9% 1990–2025 2.3% 1990–2100	1.4% 1990–2025 0.7% 1990–2100	6.4	2.7	Reference scenario developed by ICAO Forecasting and Economic Support Group (FESG); mid-range economic growth from IPCC (1992); technology for both improved fuel efficiency and NO _x reduction
Fa1H	3.1%	2.0%	2.9% 1990–2025 2.3% 1990–2100	1.4% 1990–2025 0.7% 1990–2100	6.4	3.3	Fa1 traffic and technology scenario with a fleet of supersonic aircraft replacing some of the subsonic fleet
Fa2	3.1%	1.7%	2.9% 1990–2025 2.3% 1990–2100	1.4% 1990–2025 0.7% 1990–2100	6.4	2.7	Fa1 traffic scenario; technology with greater emphasis on NO _x reduction, but slightly smaller fuel efficiency improvement
Fc1	2.2%	0.8%	2.0% 1990–2025 1.2% 1990–2100	1.1% 1990–2025 0.2% 1990–2100	3.6	1.6	FESG low-growth scenario; technology as for Fa1 scenario
Fe1	3.9%	2.5%	3.5% 1990–2025 3.0% 1990–2100	1.4% 1990–2025 0.7% 1990–2100	10.1	4.4	FESG high-growth scenario; technology as for Fa1 scenario
Eab	4.0%	3.2%			10.7	6.6	Traffic-growth scenario based on IS92a developed by Environmental Defense Fund (EDF); technology for very low NO _x assumed
Edh	4.7%	3.8%			15.5	9.4	High traffic-growth EDF scenario; technology for very low NO _x assumed

¹Traffic measured in terms of revenue passenger-km.²All aviation (passenger, freight, and military).

ideal air traffic management) is achieved by 2050. If these improvements do not materialize then fuel use and emissions will be higher. It is further assumed that the number of aircraft as well as the number of airports and associated infrastructure will continue to grow and not limit the growth in demand for air travel. If the infrastructure was not available, the growth of traffic reflected in these scenarios would not materialize.

IPCC (1992)⁷ developed a range of scenarios, IS92a-f, of future greenhouse gas and aerosol precursor emissions based on assumptions concerning population and economic growth,

land use, technological changes, energy availability, and fuel mix during the period 1990 to 2100. Scenario IS92a is a mid-range emissions scenario. Scenarios of future emissions are not predictions of the future. They are inherently uncertain because they are based on different assumptions about the future, and

⁷ IPCC, 1992: *Climate Change 1992: The Supplementary Report to the IPCC Scientific Assessment* [Houghton, J.T., B.A. Callander, and S.K.Varney (eds.)]. Cambridge University Press, Cambridge, UK, 200 pp.

the longer the time horizon the more uncertain these scenarios become. The aircraft emissions scenarios developed here used the economic growth and population assumptions found in the IS92 scenario range (see Table 1 and Figure 1). In the following sections, scenario Fa1 is utilized to illustrate the possible effects of aircraft and is called the reference scenario. Its assumptions are linked to those of IS92a. The other aircraft emissions scenarios were built from a range of economic and population projections from IS92a-e. These scenarios represent a range of plausible growth for aviation and provide a basis for sensitivity analysis for climate modeling. However, the high growth scenario Edh is believed to be less plausible and the low growth scenario Fc1 is likely to be exceeded given the present state of the industry and planned developments.

4. What are the Current and Future Impacts of Subsonic Aviation on Radiative Forcing and UV Radiation?

The summary of radiative effects resulting from aircraft engine emissions is given in Figures 2 and 3. As shown in Figure 2, the uncertainty associated with several of these effects is large.

4.1 Carbon Dioxide

Emissions of carbon dioxide by aircraft were 0.14 Gt C/year in 1992. This is about 2% of total anthropogenic carbon dioxide emissions in 1992 or about 13% of carbon dioxide emissions from all transportation sources. The range of scenarios considered here projects that aircraft emissions of carbon dioxide will continue to grow and by 2050 will be 0.23 to 1.45 Gt C/year. For the reference scenario (Fa1) this emission increases 3-fold

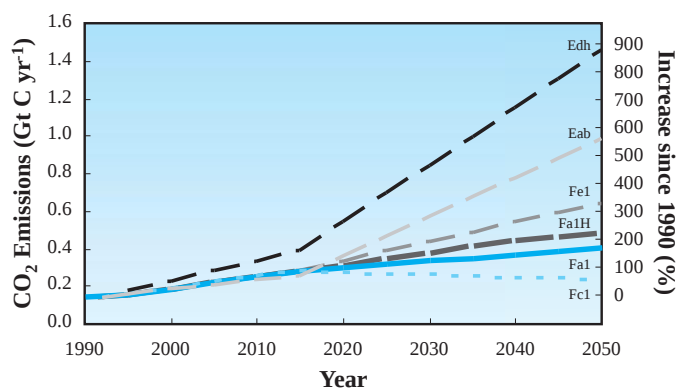


Figure 1: Total aviation carbon dioxide emissions resulting from six different scenarios for aircraft fuel use. Emissions are given in Gt C [or billion (10^9) tonnes of carbon] per year. To convert Gt C to Gt CO_2 multiply by 3.67. The scale on the righthand axis represents the percentage growth from 1990 to 2050. Aircraft emissions of carbon dioxide represent 2.4% of total fossil fuel emissions of carbon dioxide in 1992 or 2% of total anthropogenic carbon dioxide emissions. (Note: Fa2 has not been drawn because the difference from scenario Fa1 would not be discernible on the figure.)

by 2050 to 0.40 Gt C/year, or 3% of the projected total anthropogenic carbon dioxide emissions relative to the mid-range IPCC emission scenario (IS92a). For the range of scenarios, the range of increase in carbon dioxide emissions to 2050 would be 1.6 to 10 times the value in 1992.

Concentrations of and radiative forcing from carbon dioxide today are those resulting from emissions during the last 100 years or so. The carbon dioxide concentration attributable to aviation in the 1992 atmosphere is 1 ppmv, a little more than 1% of the total anthropogenic increase. This percentage is lower than the percentage for emissions (2%) because the emissions occurred only in the last 50 years. For the range of scenarios in Figure 1, the accumulation of atmospheric carbon dioxide due to aircraft over the next 50 years is projected to increase to 5 to 13 ppmv. For the reference scenario (Fa1) this is 4% of that from all human activities assuming the mid-range IPCC scenario (IS92a).

4.2 Ozone

The NO_x emissions from subsonic aircraft in 1992 are estimated to have increased ozone concentrations at cruise altitudes in northern mid-latitudes by up to 6%, compared to an atmosphere without aircraft emissions. This ozone increase is projected to rise to about 13% by 2050 in the reference scenario (Fa1). The impact on ozone concentrations in other regions of the world is substantially less. These increases will, on average, tend to warm the surface of the Earth.

Aircraft emissions of NO_x are more effective at producing ozone in the upper troposphere than an equivalent amount of emission at the surface. Also increases in ozone in the upper troposphere are more effective at increasing radiative forcing than increases at lower altitudes. Due to these increases the calculated total ozone column in northern mid-latitudes is projected to grow by approximately 0.4 and 1.2% in 1992 and 2050, respectively. However, aircraft sulfur and water emissions in the stratosphere tend to deplete ozone, partially offsetting the NO_x -induced ozone increases. The degree to which this occurs is, as yet, not quantified. Therefore, the impact of subsonic aircraft emissions on stratospheric ozone requires further evaluation. The largest increases in ozone concentration due to aircraft emissions are calculated to occur near the tropopause where natural variability is high. Such changes are not apparent from observations at this time.

4.3 Methane

In addition to increasing tropospheric ozone concentrations, aircraft NO_x emissions are expected to decrease the concentration of methane, which is also a greenhouse gas. These reductions in methane tend to cool the surface of the Earth. The methane concentration in 1992 is estimated here to be about 2% less than that in an atmosphere without aircraft. This aircraft-induced reduction of methane concentration is much smaller than the observed overall 2.5-fold increase since pre-industrial

times. Uncertainties in the sources and sinks of methane preclude testing the impact of aviation on methane concentrations with atmospheric observations. *In the reference scenario (Fa1) methane would be about 5% less than that calculated for a 2050 atmosphere without aircraft.*

Changes in tropospheric ozone are mainly in the Northern Hemisphere, while those of methane are global in extent so that, even though the global average radiative forcings are of similar magnitude and opposite in sign, the latitudinal structure of the forcing is different so that the net regional radiative effects do not cancel.

4.4 Water Vapour

Most subsonic aircraft water vapour emissions are released in the troposphere where they are rapidly removed by precipitation

within 1 to 2 weeks. A smaller fraction of water vapour emissions is released in the lower stratosphere where it can build up to larger concentrations. Because water vapor is a greenhouse gas, these increases tend to warm the Earth's surface, though for subsonic aircraft this effect is smaller than those of other aircraft emissions such as carbon dioxide and NO_x .

4.5 Contrails

In 1992, aircraft line-shaped contrails are estimated to cover about 0.1% of the Earth's surface on an annually averaged basis with larger regional values. Contrails tend to warm the Earth's surface, similar to thin high clouds. The contrail cover is projected to grow to 0.5% by 2050 in the reference scenario (Fa1), at a rate which is faster than the rate of growth in aviation fuel consumption. This faster growth in contrail cover is expected because air traffic will increase mainly in the upper troposphere where contrails form preferentially, and may also occur as a result of improvements in aircraft fuel efficiency. Contrails are triggered from the water vapour emitted by aircraft and their optical properties depend on the particles emitted or formed in the aircraft plume and on the ambient atmospheric conditions. The radiative effect of contrails depends on their optical properties and global cover, both of which are uncertain. Contrails have been observed as line-shaped clouds

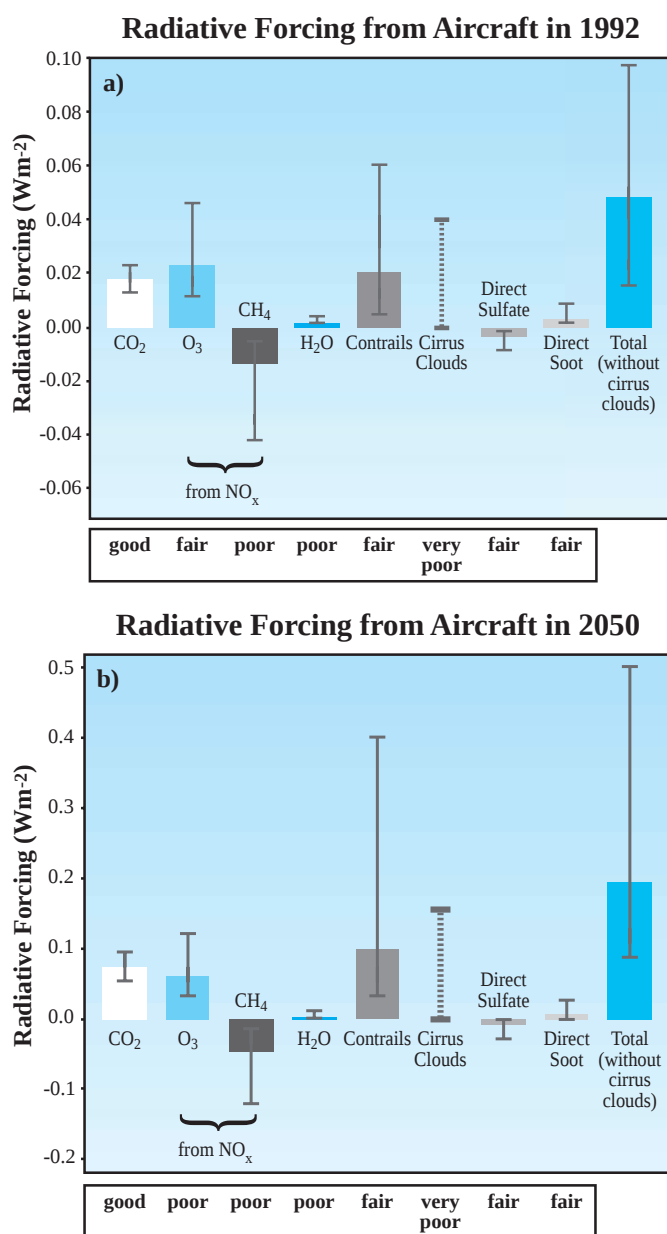


Figure 2: Estimates of the globally and annually averaged radiative forcing (Wm^{-2}) (see Footnote 4) from subsonic aircraft emissions in 1992 (2a) and in 2050 for scenario Fa1 (2b). The scale in Figure 2b is greater than the scale in 2a by about a factor of 4. The bars indicate the best estimate of forcing while the line associated with each bar is a two-thirds uncertainty range developed using the best knowledge and tools available at the present time. (The two-thirds uncertainty range means that there is a 67% probability that the true value falls within this range.) The available information on cirrus clouds is insufficient to determine either a best estimate or an uncertainty range; the dashed line indicates a range of possible best estimates. The estimate for total forcing does not include the effect of changes in cirrus cloudiness. The uncertainty estimate for the total radiative forcing (without additional cirrus) is calculated as the square root of the sums of the squares of the upper and lower ranges for the individual components. The evaluations below the graph (“good,” “fair,” “poor,” “very poor”) are a relative appraisal associated with each component and indicate the level of scientific understanding. It is based on the amount of evidence available to support the best estimate and its uncertainty, the degree of consensus in the scientific literature, and the scope of the analysis. This evaluation is separate from the evaluation of uncertainty range represented by the lines associated with each bar. This method of presentation is different and more meaningful than the confidence level presented in similar graphs from *Climate Change 1995: The Science of Climate Change*.

by satellites over heavy air traffic areas and covered on average about 0.5% of the area over Central Europe in 1996 and 1997.

4.6 Cirrus Clouds

Extensive cirrus clouds have been observed to develop after the formation of persistent contrails. Increases in cirrus cloud cover (beyond those identified as line-shaped contrails) are found to be positively correlated with aircraft emissions in a limited number of studies. About 30% of the Earth is covered with cirrus cloud. On average an increase in cirrus cloud cover tends to warm the surface of the Earth. An estimate for aircraft-induced cirrus cover for the late 1990s ranges from 0 to 0.2% of the surface of the Earth. For the Fa1 scenario, this may possibly increase by a factor of 4 (0 to 0.8%) by 2050; however, the mechanisms associated with increases in cirrus cover are not well understood and need further investigation.

4.7 Sulfate and Soot Aerosols

The aerosol mass concentrations in 1992 resulting from aircraft are small relative to those caused by surface sources. Although aerosol accumulation will grow with aviation fuel use, aerosol mass concentrations from aircraft in 2050 are projected to remain small compared to surface sources. Increases in soot tend to warm while increases in sulfate tend to cool the Earth's surface. The direct radiative forcing of sulfate and soot aerosols from aircraft is small compared to those of other aircraft emissions. Because aerosols influence the formation of clouds, the accumulation of aerosols from aircraft may play a role in enhanced cloud formation and change the radiative properties of clouds.

4.8 What are the Overall Climate Effects of Subsonic Aircraft?

The climate impacts of different anthropogenic emissions can be compared using the concept of radiative forcing. The best estimate of the radiative forcing in 1992 by aircraft is 0.05 Wm^{-2} or about 3.5% of the total radiative forcing by all anthropogenic activities. For the reference scenario (Fa1), the radiative forcing by aircraft in 2050 is 0.19 Wm^{-2} or 5% of the radiative forcing in the mid-range IS92a scenario (3.8 times the value in 1992). According to the range of scenarios considered here, the forcing is projected to grow to 0.13 to 0.56 Wm^{-2} in 2050, which is a factor of 1.5 less to a factor of 3 greater than that for Fa1 and from 2.6 to 11 times the value in 1992. These estimates of forcing combine the effects from changes in concentrations of carbon dioxide, ozone, methane, water vapour, line-shaped contrails, and aerosols, but do not include possible changes in cirrus clouds.

Globally averaged values of the radiative forcing from different components in 1992 and in 2050 under the reference scenario (Fa1) are shown in Figure 2. Figure 2 indicates the best

estimates of the forcing for each component and the two-thirds uncertainty range.⁸ The derivation of these uncertainty ranges involves expert scientific judgment and may also include objective statistical models. The uncertainty range in the radiative forcing stated here combines the uncertainty in calculating the atmospheric change to greenhouse gases and aerosols with that of calculating radiative forcing. For additional cirrus clouds, only a range for the best estimate is given; this is not included in the total radiative forcing.

The state of scientific understanding is evaluated for each component. This is not the same as the confidence level expressed in previous IPCC documents. This evaluation is separate from the uncertainty range and is a relative appraisal of the scientific understanding for each component. The evaluation is based on the amount of evidence available to support the best estimate and its uncertainty, the degree of consensus in the scientific literature, and the scope of the analysis. The total radiative forcing under each of the six scenarios for the growth of aviation is shown in Figure 3 for the period 1990 to 2050.

The total radiative forcing due to aviation (without forcing from additional cirrus) is likely to lie within the range from 0.01 to 0.1 Wm^{-2} in 1992, with the largest uncertainties coming from contrails and methane. Hence the total radiative forcing may be about two times larger or five times smaller than the best estimate. For any scenario at 2050, the uncertainty range of radiative forcing is slightly larger than for 1992, but the largest variations of projected radiative forcing come from the range of scenarios.

Over the period from 1992 to 2050, the overall radiative forcing by aircraft (excluding that from changes in cirrus

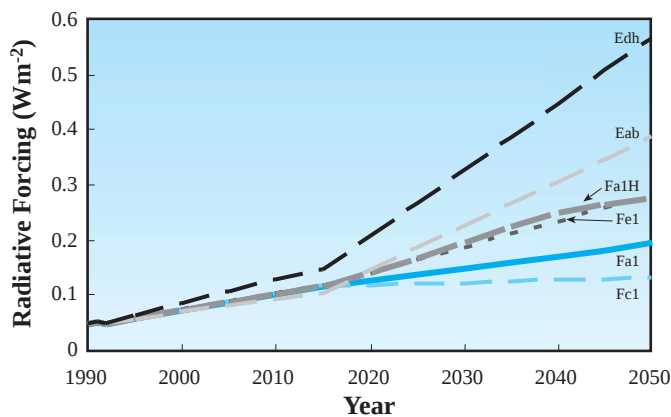


Figure 3: Estimates of the globally and annually averaged total radiative forcing (without cirrus clouds) associated with aviation emissions under each of six scenarios for the growth of aviation over the time period 1990 to 2050. (Fa2 has not been drawn because the difference from scenario Fa1 would not be discernible on the figure.)

⁸ The two-thirds uncertainty range means there is a 67% probability that the true value falls within this range.

clouds) for all scenarios in this report is a factor of 2 to 4 larger than the forcing by aircraft carbon dioxide alone. The overall radiative forcing for the sum of all human activities is estimated to be at most a factor of 1.5 larger than that of carbon dioxide alone.

The emissions of NO_x cause changes in methane and ozone, with influence on radiative forcing estimated to be of similar magnitude but of opposite sign. However, as noted above, the geographical distribution of the aircraft ozone forcing is far more regional than that of the aircraft methane forcing.

The effect of aircraft on climate is superimposed on that caused by other anthropogenic emissions of greenhouse gases and particles, and on the background natural variability. The radiative forcing from aviation is about 3.5% of the total radiative forcing in 1992. It has not been possible to separate the influence on global climate change of aviation (or any other sector with similar radiative forcing) from all other anthropogenic activities. Aircraft contribute to global change approximately in proportion to their contribution to radiative forcing.

4.9 What are the Overall Effects of Subsonic Aircraft on UV-B?

Ozone, most of which resides in the stratosphere, provides a shield against solar ultraviolet radiation. The erythemal dose rate, defined as UV irradiance weighted according to how effectively it causes sunburn, is estimated to be decreased by aircraft in 1992 by about 0.5% at 45°N in July. For comparison, the calculated increase in the erythemal dose rate due to observed ozone depletion is about 4% over the period 1970 to 1992 at 45°N in July.⁹ The net effect of subsonic aircraft appears to be an increase in column ozone and a decrease in UV radiation, which is mainly due to aircraft NO_x emissions. Much smaller changes in UV radiation are associated with aircraft contrails, aerosols, and induced cloudiness. In the Southern Hemisphere, the calculated effects of aircraft emission on the erythemal dose rate are about a factor of 4 lower than for the Northern Hemisphere.

For the reference scenario (Fa1), the change in erythemal dose rate at 45°N in July in 2050 compared to a simulation with no aircraft is -1.3% (with a two-thirds uncertainty range from -0.7 to -2.6%). For comparison, the calculated change in the erythemal dose rate due to changes in the concentrations of trace species, other than those from aircraft, between 1970 to 2050 at 45°N is about -3%, a decrease that is the net result of two opposing effects: (1) the incomplete recovery of stratospheric ozone to 1970 levels because of the persistence of long-lived halogen-containing compounds, and (2) increases in projected surface emissions of shorter lived pollutants that produce ozone in the troposphere.

5. What are the Current and Future Impacts of Supersonic Aviation on Radiative Forcing and UV Radiation?

One possibility for the future is the development of a fleet of second generation supersonic, high speed civil transport (HSCT) aircraft, although there is considerable uncertainty whether any such fleet will be developed. These supersonic aircraft are projected to cruise at an altitude of about 19 km, about 8 km higher than subsonic aircraft, and to emit carbon dioxide, water vapour, NO_x , SO_x , and soot into the stratosphere. NO_x , water vapour, and SO_x from supersonic aircraft emissions all contribute to changes in stratospheric ozone. The radiative forcing of civil supersonic aircraft is estimated to be about a factor of 5 larger than that of the displaced subsonic aircraft in the Fa1H scenario. The calculated radiative forcing of supersonic aircraft depends on the treatment of water vapour and ozone in models. This effect is difficult to simulate in current models and so is highly uncertain.

Scenario Fa1H considers the addition of a fleet of civil supersonic aircraft that was assumed to begin operation in the year 2015 and grow to a maximum of 1 000 aircraft by the year 2040. For reference, the civil subsonic fleet at the end of the year 1997 contained approximately 12 000 aircraft. In this scenario, the aircraft are designed to cruise at Mach 2.4, and new technologies are assumed that maintain emissions of 5 g NO_2 per kg fuel (lower than today's civil supersonic aircraft which have emissions of about 22 g NO_2 per kg fuel). These supersonic aircraft are assumed to replace part of the subsonic fleet (11%, in terms of emissions in scenario Fa1). Supersonic aircraft consume more than twice the fuel per passenger-km compared to subsonic aircraft. *By the year 2050, the combined fleet (scenario Fa1H) is projected to add a further 0.08 Wm^{-2} (42%) to the 0.19 Wm^{-2} radiative forcing from scenario Fa1 (see Figure 4). Most of this additional forcing is due to accumulation of stratospheric water vapour.*

The effect of introducing a civil supersonic fleet to form the combined fleet (Fa1H) is also to reduce stratospheric ozone and increase erythemal dose rate. The maximum calculated effect is at 45°N where, in July, the ozone column change in 2050 from the combined subsonic and supersonic fleet relative to no aircraft is -0.4%. The effect on the ozone column of the supersonic component by itself is -1.3% while the subsonic component is +0.9%.

The combined fleet would change the erythemal dose rate at 45°N in July by +0.3% compared to the 2050 atmosphere without aircraft. The two-thirds uncertainty range for the combined fleet is -1.7% to +3.3%. This may be compared to the projected change of -1.3% for Fa1. Flying higher leads to larger ozone column decreases, while flying lower leads to smaller ozone column decreases and may even result in an ozone column increase for flight in the lowermost stratosphere. In addition, emissions from supersonic aircraft in the Northern Hemisphere stratosphere may be transported to the Southern Hemisphere where they cause ozone depletion.

⁹ This value is based on satellite observations and model calculations. See **WMO**, 1999: *Scientific Assessment of Ozone Depletion: 1998*. Report No. 44, Global Ozone Research and Monitoring Project, World Meteorological Organization, Geneva, Switzerland, 732 pp.

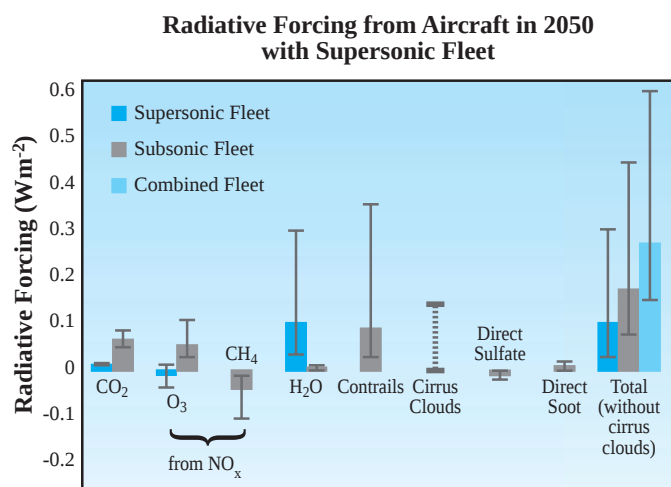


Figure 4: Estimates of the globally and annually averaged radiative forcing from a combined fleet of subsonic and supersonic aircraft (in Wm^{-2}) due to changes in greenhouse gases, aerosols, and contrails in 2050 under the scenario Fa1H. In this scenario, the supersonic aircraft are assumed to replace part of the subsonic fleet (11%, in terms of emissions in scenario Fa1). The bars indicate the best estimate of forcing while the line associated with each bar is a two-thirds uncertainty range developed using the best knowledge and tools available at the present time. (The two-thirds uncertainty range means that there is a 67% probability that the true value falls within this range.) The available information on cirrus clouds is insufficient to determine either a best estimate or an uncertainty range; the dashed line indicates a range of possible best estimates. The estimate for total forcing does not include the effect of changes in cirrus cloudiness. The uncertainty estimate for the total radiative forcing (without additional cirrus) is calculated as the square root of the sums of the squares of the upper and lower ranges. The level of scientific understanding for the supersonic components are carbon dioxide, “good;” ozone, “poor;” and water vapour, “poor.”

6. What are the Options to Reduce Emissions and Impacts?

There is a range of options to reduce the impact of aviation emissions, including changes in aircraft and engine technology, fuel, operational practices, and regulatory and economic measures. These could be implemented either singly or in combination by the public and/or private sector. Substantial aircraft and engine technology advances and the air traffic management improvements described in this report are already incorporated in the aircraft emissions scenarios used for climate change calculations. Other operational measures, which have the potential to reduce emissions, and alternative fuels were not assumed in the scenarios. Further technology advances have the potential to provide additional fuel and emissions reductions. In practice, some of the improvements are expected to take place for commercial reasons. The timing and scope of regulatory, economic, and other options may affect the introduction of improvements and may affect demand

for air transport. Mitigation options for water vapour and cloudiness have not been fully addressed.

Safety of operation, operational and environmental performance, and costs are dominant considerations for the aviation industry when assessing any new aircraft purchase or potential engineering or operational changes. The typical life expectancy of an aircraft is 25 to 35 years. These factors have to be taken into account when assessing the rate at which technology advances and policy options related to technology can reduce aviation emissions.

6.1 Aircraft and Engine Technology Options

Technology advances have substantially reduced most emissions per passenger-km. However, there is potential for further improvements. Any technological change may involve a balance among a range of environmental impacts.

Subsonic aircraft being produced today are about 70% more fuel efficient per passenger-km than 40 years ago. The majority of this gain has been achieved through engine improvements and the remainder from airframe design improvement. A 20% improvement in fuel efficiency is projected by 2015 and a 40 to 50% improvement by 2050 relative to aircraft produced today. The 2050 scenarios developed for this report already incorporate these fuel efficiency gains when estimating fuel use and emissions. Engine efficiency improvements reduce the specific fuel consumption and most types of emissions; however, contrails may increase and, without advances in combustor technology, NO_x emissions may also increase.

Future engine and airframe design involves a complex decision-making process and a balance of considerations among many factors (e.g., carbon dioxide emissions, NO_x emissions at ground level, NO_x emissions at altitude, water vapour emissions, contrail/cirrus production, and noise). These aspects have not been adequately characterized or quantified in this report.

Internationally, substantial engine research programmes are in progress, with goals to reduce Landing and Take-off cycle (LTO) emissions of NO_x by up to 70% from today’s regulatory standards, while also improving engine fuel consumption by 8 to 10%, over the most recently produced engines, by about 2010. Reduction of NO_x emissions would also be achieved at cruise altitude, though not necessarily by the same proportion as for LTO. Assuming that the goals can be achieved, the transfer of this technology to significant numbers of newly produced aircraft will take longer—typically a decade. Research programmes addressing NO_x emissions from supersonic aircraft are also in progress.

6.2 Fuel Options

There would not appear to be any practical alternatives to kerosene-based fuels for commercial jet aircraft for the next

several decades. Reducing sulfur content of kerosene will reduce SO_x emissions and sulfate particle formation.

Jet aircraft require fuel with a high energy density, especially for long-haul flights. Other fuel options, such as hydrogen, may be viable in the long term, but would require new aircraft designs and new infrastructure for supply. Hydrogen fuel would eliminate emissions of carbon dioxide from aircraft, but would increase those of water vapour. The overall environmental impacts and the environmental sustainability of the production and use of hydrogen or any other alternative fuels have not been determined.

The formation of sulfate particles from aircraft emissions, which depends on engine and plume characteristics, is reduced as fuel sulfur content decreases. While technology exists to remove virtually all sulfur from fuel, its removal results in a reduction in lubricity.

6.3 Operational Options

Improvements in air traffic management (ATM) and other operational procedures could reduce aviation fuel burn by between 8 and 18%. The large majority (6 to 12%) of these reductions comes from ATM improvements which it is anticipated will be fully implemented in the next 20 years. All engine emissions will be reduced as a consequence. In all aviation emission scenarios considered in this report the reductions from ATM improvements have already been taken into account. The rate of introduction of improved ATM will depend on the implementation of the essential institutional arrangements at an international level.

Air traffic management systems are used for the guidance, separation, coordination, and control of aircraft movements. Existing national and international air traffic management systems have limitations which result, for example, in holding (aircraft flying in a fixed pattern waiting for permission to land), inefficient routings, and sub-optimal flight profiles. These limitations result in excess fuel burn and consequently excess emissions.

For the current aircraft fleet and operations, addressing the above-mentioned limitations in air traffic management systems could reduce fuel burned in the range of 6 to 12%. It is anticipated that the improvement needed for these fuel burn reductions will be fully implemented in the next 20 years, provided that the necessary institutional and regulatory arrangements have been put in place in time. The scenarios developed in this report assume the timely implementation of these ATM improvements, when estimating fuel use.

Other operational measures to reduce the amount of fuel burned per passenger-km include increasing load factors (carrying more passengers or freight on a given aircraft), eliminating non-essential weight, optimizing aircraft speed, limiting the use of auxiliary power (e.g., for heating, ventilation),

and reducing taxiing. The potential improvements in these operational measures could reduce fuel burned, and emissions, in the range 2 to 6%.

Improved operational efficiency may result in attracting additional air traffic, although no studies providing evidence on the existence of this effect have been identified.

6.4 Regulatory, Economic, and Other Options

Although improvements in aircraft and engine technology and in the efficiency of the air traffic system will bring environmental benefits, these will not fully offset the effects of the increased emissions resulting from the projected growth in aviation. Policy options to reduce emissions further include more stringent aircraft engine emissions regulations, removal of subsidies and incentives that have negative environmental consequences, market-based options such as environmental levies (charges and taxes) and emissions trading, voluntary agreements, research programmes, and substitution of aviation by rail and coach. Most of these options would lead to increased airline costs and fares. Some of these approaches have not been fully investigated or tested in aviation and their outcomes are uncertain.

Engine emissions certification is a means for reducing specific emissions. The aviation authorities currently use this approach to regulate emissions for carbon monoxide, hydrocarbons, NO_x , and smoke. The International Civil Aviation Organization has begun work to assess the need for standards for aircraft emissions at cruise altitude to complement existing LTO standards for NO_x and other emissions.

Market-based options, such as environmental levies (charges and taxes) and emissions trading, have the potential to encourage technological innovation and to improve efficiency, and may reduce demand for air travel. Many of these approaches have not been fully investigated or tested in aviation and their outcomes are uncertain.

Environmental levies (charges and taxes) could be a means for reducing growth of aircraft emissions by further stimulating the development and use of more efficient aircraft and by reducing growth in demand for aviation transportation. Studies show that to be environmentally effective, levies would need to be addressed in an international framework.

Another approach that could be considered for mitigating aviation emissions is emissions trading, a market-based approach which enables participants to cooperatively minimize the costs of reducing emissions. Emissions trading has not been tested in aviation though it has been used for sulfur dioxide (SO_2) in the United States of America and is possible for ozone-depleting substances in the Montreal Protocol. This approach is one of the provisions of the Kyoto Protocol where it applies to Annex B Parties.

Voluntary agreements are also currently being explored as a means of achieving reductions in emissions from the aviation

sector. Such agreements have been used in other sectors to reduce greenhouse gas emissions or to enhance sinks.

Measures that can also be considered are removal of subsidies or incentives which would have negative environmental consequences, and research programmes.

Substitution by rail and coach could result in the reduction of carbon dioxide emissions per passenger-km. The scope for this reduction is limited to high density, short-haul routes, which could have coach or rail links. Estimates show that up to 10% of the travelers in Europe could be transferred from aircraft to high-speed trains. Further analysis, including trade-offs between a wide range of environmental effects (e.g., noise exposure, local air quality, and global atmospheric effects) is needed to explore the potential of substitution.

7. Issues for the Future

This report has assessed the potential climate and ozone changes due to aircraft to the year 2050 under different scenarios. It recognizes that the effects of some types of aircraft emissions are well understood. It also reveals that the effects of others are not, because of the many scientific uncertainties. There has been a steady improvement in characterizing the potential impacts of human activities, including the effects of aviation on the global atmosphere. The report has also examined technological advances, infrastructure improvements, and regulatory or market-based measures to reduce aviation emissions. Further work is required to reduce scientific and other uncertainties, to understand better the options for reducing emissions, to better inform decisionmakers, and to improve the understanding of the social and economic issues associated with the demand for air transport.

There are a number of key areas of scientific uncertainty that limit our ability to project aviation impacts on climate and ozone:

- The influence of contrails and aerosols on cirrus clouds
- The role of NO_x in changing ozone and methane concentrations
- The ability of aerosols to alter chemical processes
- The transport of atmospheric gases and particles in the upper troposphere/lower stratosphere
- The climate response to regional forcings and stratospheric perturbations.

There are a number of key socio-economic and technological issues that need greater definition, including *inter alia* the following:

- Characterization of demand for commercial aviation services, including airport and airway infrastructure constraints and associated technological change
- Methods to assess external costs and the environmental benefits of regulatory and market-based options
- Assessment of the macroeconomic effects of emission reductions in the aviation industry that might result from mitigation measures
- Technological capabilities and operational practices to reduce emissions leading to the formation of contrails and increased cloudiness
- The understanding of the economic and environmental effects of meeting potential stabilization scenarios (for atmospheric concentrations of greenhouse gases), including measures to reduce emissions from aviation and also including such issues as the relative environmental impacts of different transportation modes.

LIST OF IPCC OUTPUTS

I. IPCC FIRST ASSESSMENT REPORT, 1990

- a) **CLIMATE CHANGE — The IPCC Scientific Assessment.** The 1990 report of the IPCC Scientific Assessment Working Group (*also in Chinese, French, Russian and Spanish*).
- b) **CLIMATE CHANGE — The IPCC Impacts Assessment.** The 1990 report of the IPCC Impacts Assessment Working Group (*also in Chinese, French, Russian and Spanish*).
- c) **CLIMATE CHANGE — The IPCC Response Strategies.** The 1990 report of the IPCC Response Strategies Working Group (*also in Chinese, French, Russian and Spanish*).
- d) **Overview and Policymaker Summaries, 1990.**

Emissions Scenarios (prepared by the IPCC Response Strategies Working Group), 1990.

Assessment of the Vulnerability of Coastal Areas to Sea Level Rise — A Common Methodology, 1991.

II. IPCC SUPPLEMENT, 1992

- a) **CLIMATE CHANGE 1992 — The Supplementary Report to the IPCC Scientific Assessment.** The 1992 report of the IPCC Scientific Assessment Working Group.
- b) **CLIMATE CHANGE 1992 — The Supplementary Report to the IPCC Impacts Assessment.** The 1992 report of the IPCC Impacts Assessment Working Group.

CLIMATE CHANGE: The IPCC 1990 and 1992 Assessments — IPCC First Assessment Report Overview and Policymaker Summaries, and 1992 IPCC Supplement (*also in Chinese, French, Russian and Spanish*).

Global Climate Change and the Rising Challenge of the Sea. Coastal Zone Management Subgroup of the IPCC Response Strategies Working Group, 1992.

Report of the IPCC Country Study Workshop, 1992.

Preliminary Guidelines for Assessing Impacts of Climate Change, 1992.

III. IPCC SPECIAL REPORT, 1994

CLIMATE CHANGE 1994 — Radiative Forcing of Climate Change and An Evaluation of the IPCC IS92 Emission Scenarios.

IV. IPCC SECOND ASSESSMENT REPORT, 1995

- a) **CLIMATE CHANGE 1995 — The Science of Climate Change** (including Summary for Policymakers). Report of IPCC Working Group I, 1995.
- b) **CLIMATE CHANGE 1995 — Scientific-Technical Analyses of Impacts, Adaptations and Mitigation of Climate Change** (including Summary for Policymakers). Report of IPCC Working Group II, 1995.

- c) **CLIMATE CHANGE 1995 — The Economic and Social Dimensions of Climate Change** (including Summary for Policymakers). Report of IPCC Working Group III, 1995.
- d) **The IPCC Second Assessment Synthesis of Scientific-Technical Information Relevant to Interpreting Article 2 of the UN Framework Convention on Climate Change**, 1995.

(Please note: the IPCC Synthesis and the three Summaries for Policymakers have been published in a single volume and are also available in Arabic, Chinese, French, Russian and Spanish.)

V. IPCC METHODOLOGIES

- a) **IPCC Guidelines for National Greenhouse Gas Inventories** (3 volumes), 1994 (*also in French, Russian and Spanish*).
- b) **IPCC Technical Guidelines for Assessing Climate Change Impacts and Adaptations**, 1995 (*also in Arabic, Chinese, French, Russian and Spanish*).
- c) **Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories** (3 volumes), 1996.

VI. IPCC TECHNICAL PAPERS

TECHNOLOGIES, POLICIES AND MEASURES FOR MITIGATING CLIMATE CHANGE — IPCC Technical Paper 1, 1996 (*also in French and Spanish*).

AN INTRODUCTION TO SIMPLE CLIMATE MODELS USED IN THE IPCC SECOND ASSESSMENT REPORT — IPCC Technical Paper 2, 1997 (*also in French and Spanish*).

STABILIZATION OF ATMOSPHERIC GREENHOUSE GASES: PHYSICAL, BIOLOGICAL AND SOCIO-ECONOMIC IMPLICATIONS — IPCC Technical Paper 3, 1997 (*also in French and Spanish*).

IMPLICATIONS OF PROPOSED CO₂ EMISSIONS LIMITATIONS — IPCC Technical Paper 4, 1997 (*also in French and Spanish*).

VII. IPCC SPECIAL REPORT, 1997

THE REGIONAL IMPACTS OF CLIMATE CHANGE: AN ASSESSMENT OF VULNERABILITY (including Summary for Policymakers, which is available in Arabic, Chinese, English, French, Russian and Spanish).
A Special Report of IPCC Working Group II, 1997.

VIII. IPCC SPECIAL REPORT, 1999

AVIATION AND THE GLOBAL ATMOSPHERE (including Summary for Policymakers, which is available in Arabic, Chinese, English, French, Russian and Spanish).
A Special Report of IPCC Working Groups I and II, 1999.

EXHIBIT

7

