

## Project Level PM10 Project of Air Quality Concern Memo

To: Beverly Chenausky, Assistant Environmental Administrator  
Arizona Department of Transportation (ADOT)

From: Allison Fluitt, P.E., AICP  
Kimley-Horn and Associates, Inc.

Date: November 28, 2023

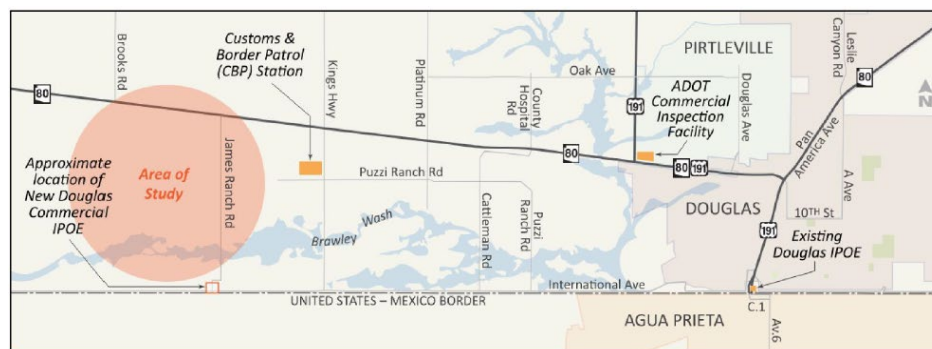
Subject: Douglas Commercial International Port of Entry Connector Road  
Federal Project No.: 999-A(561)T  
ADOT Project No.: F0534, 103686

The following memo is to aid in determining if a project that is administered using Federal Highway Administration (FHWA) and/or Federal Transit Administration (FTA) funding requires a quantitative PM10 hot-spot analysis.

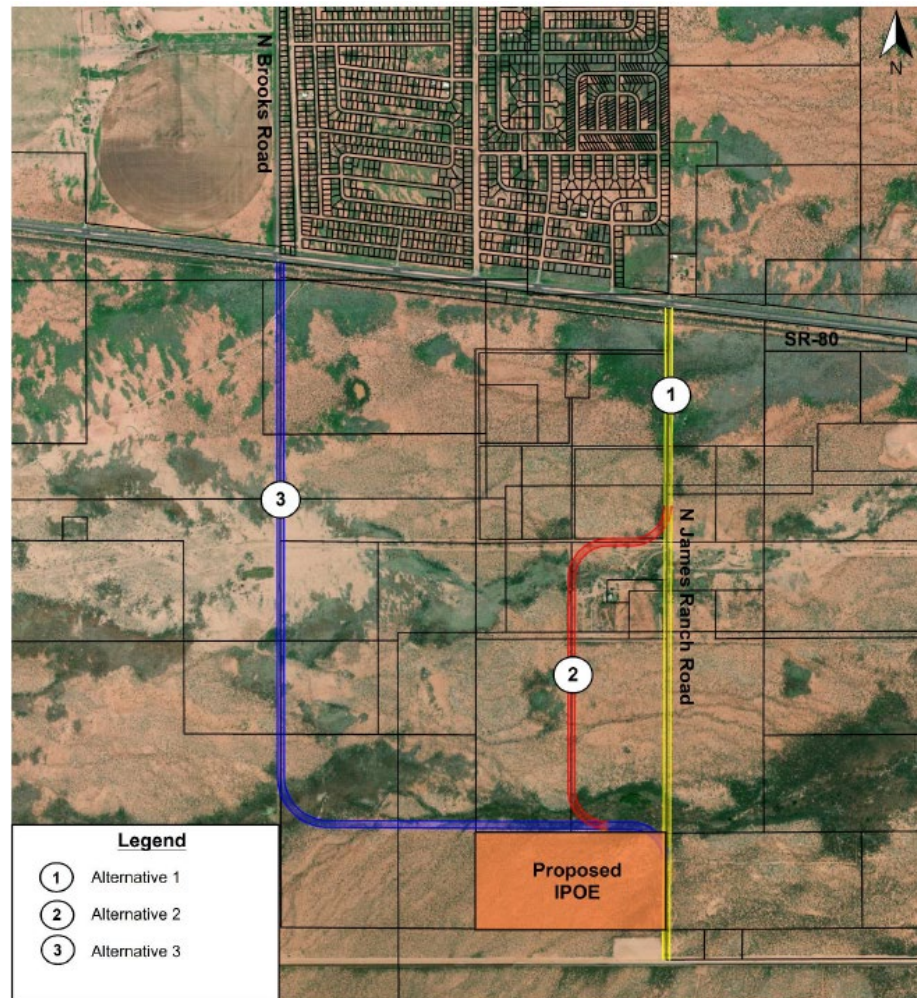
### *Project Setting and Description*

This PM10 Memo was developed to support the Design Concept Report (DCR) for a connector road between the proposed Douglas Commercial International Port of Entry (IPOE) at the United States (U.S.)-Mexico border and Arizona State Route 80 (SR 80). The project is in the ADOT Southeast District in Cochise County west of Douglas, Arizona and is anticipated to open in 2028.

There are three alignment alternatives currently being considered for the proposed connector road west of United States Route 191 (US 191), two of which intersect SR 80 at James Ranch Road and one of which intersects SR 80 at Brooks Road. The project vicinity is shown in **Figure 1**, and the three alignment alternatives are shown in **Figure 2**. For the purposes of this report, the preferred alignment alternative for the connector road is assumed to intersect SR 80 at the existing SR 80 / James Ranch Road intersection. The results of the analysis at the SR 80 / James Ranch Road intersection are anticipated to be similar at the SR 80 / Brooks Road intersection if the preferred alignment alternative for the connector road intersects SR 80 at Brooks Road instead of James Ranch Road.



**Figure 1. Project Vicinity Map**



**Figure 2. Connector Road Alignment Alternatives Map**

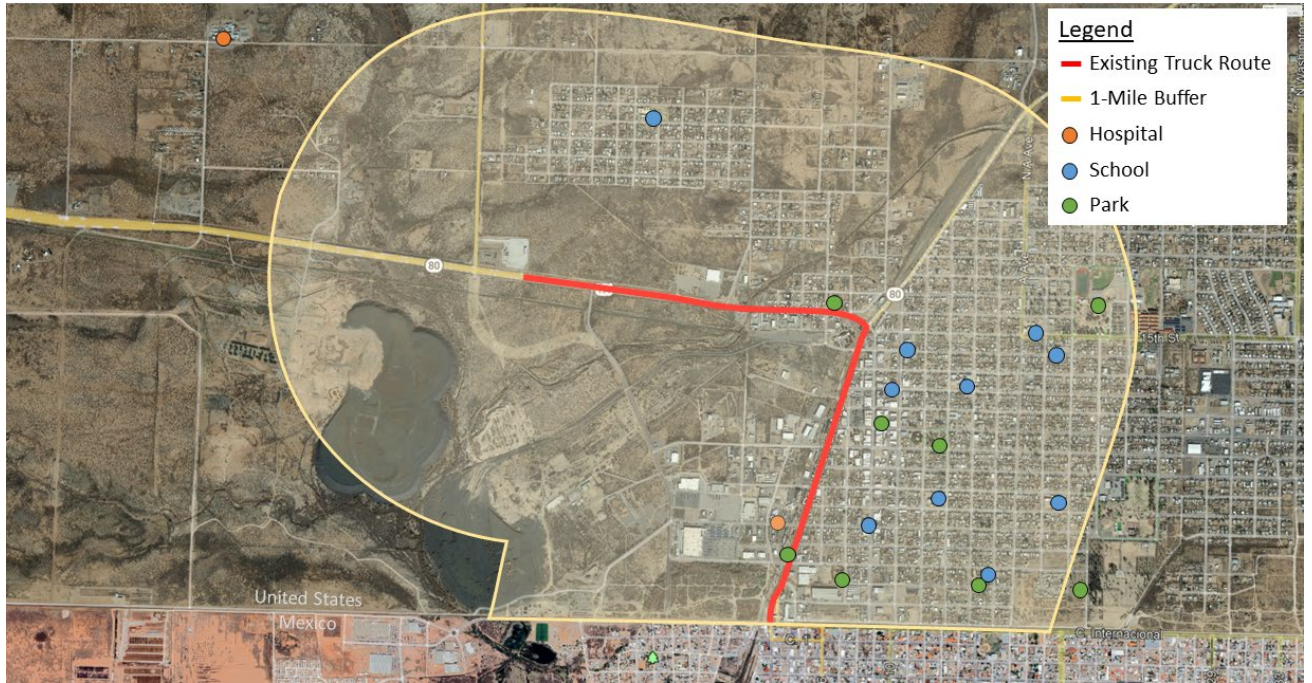
The existing IPOE accommodates both commercial and passenger traffic. Trucks entering or exiting the existing IPOE must travel through the City of Douglas on US 191. The current route has 10 schools, 1 healthcare facility, and 7 parks, as well as numerous playgrounds and civic uses within a one-mile radius.

**Figure 3** shows the route between the current commercial IPOE and the ADOT Commercial Weigh Station.

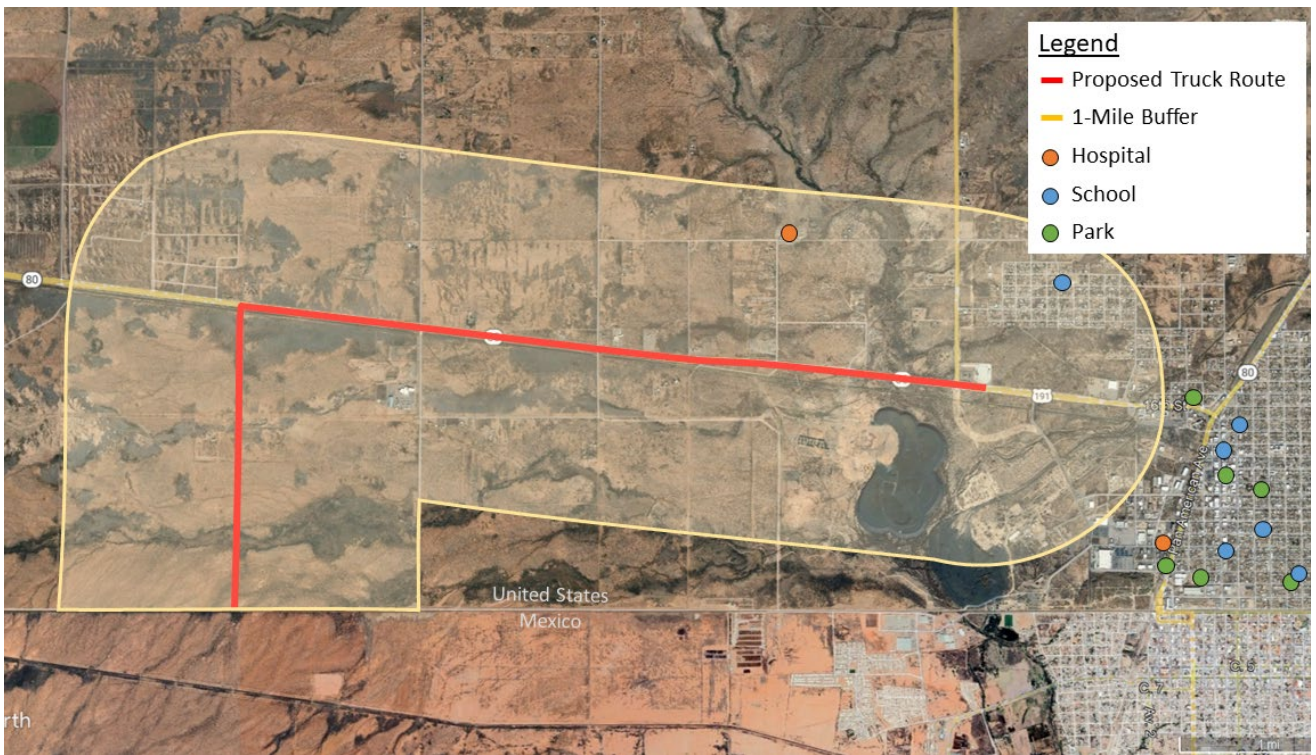
The proposed Douglas Commercial IPOE Connector Road falls entirely outside the Douglas municipal limits. One school and one healthcare facility fall within a one-mile radius of the proposed facility. As a result of the relocated Commercial IPOE and the proposed connector road, there will not be any commercial traffic going through the IPOE within the City of Douglas, with all commercial traffic redirected to a rural area. The routing of commercial traffic onto this proposed connector road will result in a reduction in congestion on US 191 through the City of Douglas.



**Figure 4** shows the route between the proposed connector road and the ADOT Commercial Weigh Station.



**Figure 3. Existing Truck Traffic Route**



**Figure 4. Proposed Truck Traffic Route**

The Paul Spur/Douglas planning area is currently in nonattainment for large particulates, otherwise known as PM10. This area was designated as a moderate nonattainment area on Oct. 31, 1990 ([55 FR 45799](#)). The Paul Spur/Douglas PM10 nonattainment area is located along the Mexico-United States boarder in Cochise County. The Arizona Department of Environmental Quality (ADEQ) maintains two active air quality monitoring stations in the Paul Spur/Douglas PM10 nonattainment area:

- AQS Site ID 04-003-0011 – Paul Spur Chemical Lime Plant
- AQS Site ID 04-003-1005 – Douglas Red Cross

The Paul Spur/Douglas PM10 nonattainment area and the locations of the two PM10 monitoring stations are shown in **Figure 5. Table 1** shows the 24-hour PM10 monitoring data for the last three full years for 2020 through 2022 and 2023 through September 30, 2023.



**Figure 5. Connector Road Alignment Alternatives Map**



**Table 1: Paul Spur/Douglas PM10 Monitoring Data (2020-2023)**

Year	PM10 Annual Mean Concentration (ug/m <sup>3</sup> )		PM10 Maximum Concentration (ug/m <sup>3</sup> )		Number of Days Exceeding NAAQS	
	Paul Spur	Douglas	Paul Spur	Douglas	Paul Spur	Douglas
2020	22.4	28.7	154	129	1	0
2021	21.3	31.9	161	107	1	0
2022	18.8	26.2	91	130	0	0
2023 <sup>1</sup>	19.0	27.7	99	155	0	1

1 – Partial year data through September 30, 2023

Source: <https://www.epa.gov/outdoor-air-quality-data/interactive-map-air-quality-monitors>

Annual and maximum PM10 concentrations for the Paul Spur Chemical Lime Plant monitoring station (ID 04-003-0011) have generally decreased over the past four years. The average PM10 concentration for the Douglas Red Cross monitoring station (ID 04-003-1005) has been steady over time, ranging between 26.3 and 31.9 ug/m<sup>3</sup>. The maximum concentration for this monitoring station was steady for 2020 through 2022 but had one day of exceedance of the NAAQS for PM10 in 2023.

As an isolated rural nonattainment area, the Paul Spur/Douglas planning area is subject to a regional air quality conformity process. The planned Douglas Commercial Port of Entry Connector Road is likely to be classified as regionally significant and is not within a conforming Transportation Improvement Program (TIP). The area also does not have motor vehicle emissions budgets (MVEBs) established within the State Implementation Plan (SIP). An interagency consultation group was established to help guide the development of the air quality analysis, consisting of members from:

- Arizona Department of Transportation (ADOT)
- Arizona Department of Environmental Quality (ADEQ)
- Federal Highway Administration (FHWA)
- Environmental Protection Agency (EPA)
- General Services Administration (GSA)
- Customs and Border Protection (CBP)

### **Project Assessment**

There are six project types for which may require a quantitative hot-spot analysis of local particulate emissions in nonattainment or maintenance areas. The following compares the proposed Douglas Commercial Port of Entry Connector Road project to these six project types to determine if a hot-spot analysis is required. If the proposed project is not considered a project of local air quality concern and a hot-spot analysis is not required for the proposed project, a qualitative analysis will be completed instead.

#### ***New Highway Capacity***

#### **Is this a new highway project that has a significant number of diesel vehicles?**

The proposed project includes a new roadway that connects the proposed Douglas Commercial IPOE to SR 80 at the existing intersection with James Ranch Road. In the summary tables and traffic study, the new roadway is referred to as James Ranch Road. Based on the traffic study completed for the

proposed project, the average annual daily traffic (AADT) on the new roadway is projected to be 6,300 in 2028 and 19,200 in 2050. The projected truck percentages for 2028 and 2050 are 30% and 24%, respectively. The truck percentages and corresponding AADT volumes are provided in **Table 2** through **Table 5**. This proposed commercial IPOE will relocate trucks from the existing Douglas Port of Entry within the Douglas city limits to the proposed location outside the city. In both 2028 and 2050, the introduction of this project results in no more than a 10% increase in truck volumes to the existing network. As a result of the relocation of commercial trips to the new Commercial IPOE, this project will move truck traffic from relatively high-density populated areas within the Douglas city limits to a rural location west of the city.

**Table 2: Existing and 2028 Truck Percentages for SR 80/James Ranch Road**

Location	Existing				No-Build (2028)				Build (2028)				Difference (2028 Build - No-Build)			
		Total Truck %	Medium Vehicle %	Heavy Vehicle %		Total Truck %	Medium Vehicle %	Heavy Vehicle %		Total Truck %	Medium Vehicle %	Heavy Vehicle %		Total Truck %	Medium Vehicle %	Heavy Vehicle %
James Ranch Road south of SR 80		0%	0%	0%		2%	0%	2%		30%	5%	25%		28%	5%	23%
James Ranch Road north of SR 80		0%	0%	0%		2%	0%	2%		2%	0%	2%		0%	0%	0%
SR 80 west of James Ranch Road		11%	6%	5%		11%	6%	5%		18%	6%	12%		7%	0%	7%
SR 80 east of James Ranch Road		11%	6%	5%		11%	6%	5%		21%	5%	15%		10%	-1%	10%

Source: *City of Douglas International Port of Entry Connector Road Final Traffic Report*, prepared in June 2023 by Kimley-Horn, and associated traffic analysis.

**Table 3: Existing and 2028 AADT for SR 80/James Ranch Road**

Location	Existing				No-Build (2028)				Build (2028)				Difference (2028 Build - No-Build)			
	AADT	Total Trucks	Medium Vehicles	Heavy Vehicles	AADT	Total Trucks	Medium Vehicles	Heavy Vehicles	AADT	Total Trucks	Medium Vehicles	Heavy Vehicles	AADT	Total Trucks	Medium Vehicles	Heavy Vehicles
James Ranch Road south of SR 80	0	0	0	0	300	6	0	6	6,300	1,883	322	1,561	6,000	1,877	322	1,555
James Ranch Road north of SR 80	0	0	0	0	300	6	0	6	300	6	0	6	0	0	0	0
SR 80 west of James Ranch Road	5,667	623	340	283	6,700	705	381	324	8,000	1,407	441	966	1,300	702	60	642
SR 80 east of James Ranch Road	5,667	623	340	283	6,700	715	387	328	13,200	2,713	725	1,988	6,500	1,998	338	1,660

Source: *City of Douglas International Port of Entry Connector Road Final Traffic Report*, prepared in June 2023 by Kimley-Horn, and associated traffic analysis.

**Table 4: 2050 Truck Percentages for SR 80/James Ranch Road**

Location	No-Build (2050)				Build (2050)				Difference (2050 Build - No-Build)			
		Total Truck %	Medium Vehicle %	Heavy Vehicle %		Total Truck %	Medium Vehicle %	Heavy Vehicle %		Total Truck %	Medium Vehicle %	Heavy Vehicle %
James Ranch Road south of SR 80		2%	0%	2%		24%	6%	19%		22%	6%	17%
James Ranch Road north of SR 80		2%	0%	2%		2%	0%	2%		0%	0%	0%
SR 80 west of James Ranch Road		10%	6%	5%		17%	6%	11%		7%	0%	6%
SR 80 east of James Ranch Road		11%	6%	5%		20%	6%	14%		9%	0%	9%

Source: *City of Douglas International Port of Entry Connector Road Final Traffic Report*, prepared in June 2023 by Kimley-Horn, and associated traffic analysis.

**Table 5: 2050 AADT for SR 80/James Ranch Road**

Location	No-Build (2050)				Build (2050)				Difference (2050 Build - No-Build)			
	AADT	Total Trucks	Medium Vehicles	Heavy Vehicles	AADT	Total Trucks	Medium Vehicles	Heavy Vehicles	AADT	Total Trucks	Medium Vehicles	Heavy Vehicles
James Ranch Road south of SR 80	700	14	0	14	19,200	4,629	1,075	3,554	18,500	4,615	1,075	3,540
James Ranch Road north of SR 80	700	14	0	14	700	14	0	14	0	0	0	0
SR 80 west of James Ranch Road	10,500	1,091	587	504	14,100	2,381	790	1,591	3,600	1,290	203	1,087
SR 80 east of James Ranch Road	10,500	1,110	600	510	30,500	5,989	1,730	4,259	20,000	4,879	1,130	3,749

Source: *City of Douglas International Port of Entry Connector Road Final Traffic Report*, prepared in June 2023 by Kimley-Horn, and associated traffic analysis.

### Expanded Highway Capacity

#### Is this an expanded highway project that has a significant increase in the number of diesel vehicles?

It is expected that all commercial vehicles entering the United States will be required to go through the ADOT Commercial Inspection Facility. This facility is currently located on the northeast corner of the intersection of SR 80 and US 191, which is east of the connector road. Therefore, this project is expected to increase the AADT and truck percentage on SR 80 between the proposed connector road and US 191. The AADT on SR 80 is projected to increase from 6,400 to 12,600 in 2028 and from 10,000 to 29,500 in 2050 from No-Build to Build. The Existing and No-Build truck percentage on

SR 80 is 11%. In the Build scenarios, the truck percentages are project to increase to 23% in 2028 and 21% in 2050. The truck percentages and corresponding AADT volumes are provided in **Table 6** through **Table 9**. SR 80 has sufficient capacity for the No-Build and Build scenarios and no improvements are recommended to expand the capacity as part of this project. The increase in truck volumes on SR 80 between the connector road and the ADOT Commercial Inspection Facility will correspond to fewer truck volumes at the existing port and within the Douglas city limits.

**Table 6: Existing and 2028 Truck Percentages for SR 80/US 191**

Location	Existing				No-Build (2028)				Build (2028)				Difference (2028 Build - No-Build)			
		Total Truck %	Medium Vehicle %	Heavy Vehicle %		Total Truck %	Medium Vehicle %	Heavy Vehicle %		Total Truck %	Medium Vehicle %	Heavy Vehicle %		Total Truck %	Medium Vehicle %	Heavy Vehicle %
Chino Road south of SR 80		0%	0%	0%		0%	0%	0%		5%	0%	5%		5%	0%	5%
US 191 north of SR 80		11%	7%	4%		11%	7%	4%		27%	6%	21%		16%	-1%	17%
SR 80 west of US 191		11%	7%	4%		11%	7%	4%		23%	6%	17%		12%	-1%	13%
SR 80 east of US 191		11%	7%	4%		11%	7%	4%		15%	8%	7%		4%	1%	3%

Source: *City of Douglas International Port of Entry Connector Road Final Traffic Report*, prepared in June 2023 by Kimley-Horn, and associated traffic analysis.

**Table 7: Existing and 2028 AADT for SR 80/US 191**

Location	Existing				No-Build (2028)				Build (2028)				Difference (2028 Build - No-Build)			
	AADT	Total Trucks	Medium Vehicles	Heavy Vehicles	AADT	Total Trucks	Medium Vehicles	Heavy Vehicles	AADT	Total Trucks	Medium Vehicles	Heavy Vehicles	AADT	Total Trucks	Medium Vehicles	Heavy Vehicles
Chino Road south of SR 80	0	0	0	0	0	0	0	0	3,500	167	0	167	3,500	167	0	167
US 191 north of SR 80	3,681	405	221	184	5,000	550	350	200	6,900	1,841	395	1,446	1,900	1,291	45	1,246
SR 80 west of US 191	5,667	623	340	283	6,400	704	448	256	12,600	2,849	750	2,099	6,200	2,145	302	1,843
SR 80 east of US 191	8,941	984	805	179	9,400	1034	658	376	11,900	1,829	962	867	2,500	795	304	491

Source: *City of Douglas International Port of Entry Connector Road Final Traffic Report*, prepared in June 2023 by Kimley-Horn, and associated traffic analysis.



**Table 8: 2050 Truck Percentages for SR 80/US 191**

Location	No-Build (2050)				Build (2050)				Difference (2050 Build - No-Build)			
		Total Truck %	Medium Vehicle %	Heavy Vehicle %		Total Truck %	Medium Vehicle %	Heavy Vehicle %		Total Truck %	Medium Vehicle %	Heavy Vehicle %
Chino Road south of SR 80		0%	0%	0%		5%	0%	5%		5%	0%	5%
US 191 north of SR 80		11%	7%	4%		24%	6%	18%		13%	-1%	14%
SR 80 west of US 191		11%	7%	4%		21%	6%	15%		10%	-1%	11%
SR 80 east of US 191		11%	7%	4%		17%	8%	9%		6%	1%	5%

Source: *City of Douglas International Port of Entry Connector Road Final Traffic Report*, prepared in June 2023 by Kimley-Horn, and associated traffic analysis.

**Table 9: 2050 AADT for SR 80/US 191**

Location	No-Build (2050)				Build (2050)				Difference (2050 Build - No-Build)			
	AADT	Total Trucks	Medium Vehicles	Heavy Vehicles	AADT	Total Trucks	Medium Vehicles	Heavy Vehicles	AADT	Total Trucks	Medium Vehicles	Heavy Vehicles
Chino Road south of SR 80	0	0	0	0	5,400	257	0	257	5,400	257	0	257
US 191 north of SR 80	7,700	847	539	308	11,900	2,844	704	2,140	4,200	1,997	165	1,832
SR 80 west of US 191	10,000	1,100	700	400	29,500	6,185	1,777	4,408	19,500	5,085	1,077	4,008
SR 80 east of US 191	14,500	1,595	1,015	580	28,000	4,667	2,102	2,564	13,500	3,072	1,087	1,984

Source: *City of Douglas International Port of Entry Connector Road Final Traffic Report*, prepared in June 2023 by Kimley-Horn, and associated traffic analysis.

### *Projects with Congested Intersections*

**Is this a project that affects a congested intersection (LOS D or greater) that has a significant number of diesel trucks, OR will change LOS to D or greater because of an increase in traffic volumes from a significant number of diesel trucks related to the project?**

The existing intersection of SR 80 and James Ranch Road has two-way stop control (TWSC) for James Ranch Road. In the Existing and 2028 No-Build scenarios, the worst movement at this intersection operates at a level of service (LOS) B. After reviewing the results of the traffic analysis and considering other potential factors, ADOT determined that signalized traffic control is the preferred intersection alternative in the 2028 Build and 2050 Build scenarios. Diagrams showing the

signalized intersection geometry with 2050 Build AM and PM peak hour traffic volumes are shown in **Figure 6** and **Figure 7**, respectively. In all Build scenarios, the intersection is expected to operate at LOS C or better.

All intersections on James Ranch Road south of SR 80 associated with the proposed commercial IPOE are anticipated to operate as well as or better than the intersection of SR 80 and James Ranch Road due to the lower traffic volumes expected at these intersections.

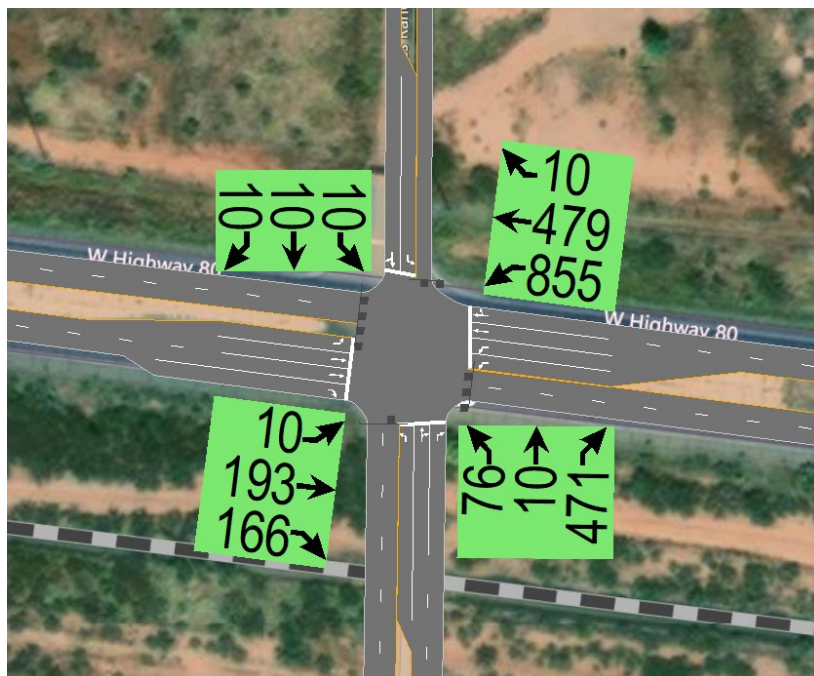
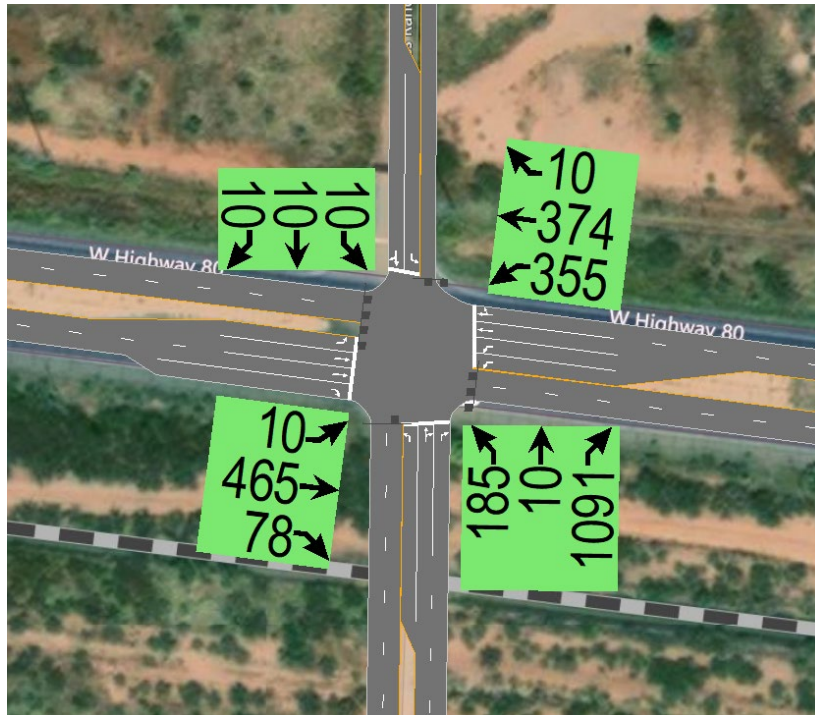


Figure 6. 2050 Build AM Signalized Intersection Alternative



**Figure 7. 2050 Build PM Signalized Intersection Alternative**

The intersection of SR 80 and US 191/Chino Road is signalized and operates/is expected to operate at LOS A in all scenarios except the 2050 Build scenario, where it is expected to operate at LOS C.

The existing, 2028 No-Build, and 2028 Build LOS fall below (i.e., are less congested than) LOS defined as congested by the EPA. Intersection LOS by scenario is shown in **Table 10** and **Table 11**.

**Table 10: SR 80 at James Ranch Road Intersection Level of Service by Scenario**

Intersection	Existing (TWSC)*		No-Build TWSC (2028)*		No-Build TWSC (2050)*		Build Signalized (2028)		Build Signalized (2050)	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
	LOS	LOS	LOS	LOS	LOS	LOS	LOS	LOS	LOS	LOS
SR 80 at James Ranch Road	B	B	B	B	C	C	A	B	C	C

\* TWSC values represent worst movement LOS instead of overall intersection LOS

Source: *City of Douglas International Port of Entry Connector Road Final Traffic Report*, prepared in June 2023 by Kimley-Horn, and associated traffic analysis.



**Table 11: SR 80 at US 191/Chino Road Intersection Level of Service by Scenario**

Intersection	Existing		No-Build (2028)		No-Build (2050)		Build (2028)		Build (2050)	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
	LOS	LOS	LOS	LOS	LOS	LOS	LOS	LOS	LOS	LOS
SR 80 at US 191/Chino Road	A	A	A	A	A	A	A	A	C	C

Source: *City of Douglas International Port of Entry Connector Road Final Traffic Report*, prepared in June 2023 by Kimley-Horn, and associated traffic analysis.

#### *New Bus and Rail Terminals*

**Does the project involve construction of a new bus or intermodal terminal that accommodates a significant number of diesel vehicles?**

This project does not involve construction of a new bus or intermodal terminal.

#### *Expanded Bus and Rail Terminals*

**Does the project involve an existing bus or intermodal terminal that has a large vehicle fleet where the number of diesel buses (or trains) increases by 50% or more, as measured by arrivals?**

This project does not involve an existing bus or intermodal terminal.

#### *Projects Affecting PM Sites of Violation or Possible Violation*

**Does the project affect locations, areas or categories of sites that are identified in the PM10 or PM2.5 applicable plan or implementation plan submissions, as appropriate, as sites of violation or potential violation?**

There is no established implementation plan for this area. Therefore, this project does not affect locations, areas, or categories of sites of violation or potential violation.

#### **POAQC Determination**

Based on the above information, this project is not a Project of Air Quality Concern (POAQC). This project will, in effect, move truck traffic from relatively high-density populated areas within the Douglas city limits to a rural location west of the city. Although the truck percentages on the proposed connector road and SR 80 will be at or over 20%, the overall truck/diesel vehicle volume is not expected to be significant when compared to the levels listed in the guidance.