APPENDIX J

Traffic and Air Data

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	12/23/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	No Action - Santa Teresa; I-10 North_NB	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	2953	Heavy Vehicle Adjustment Factor (f_{HV})	0.796
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1974
Total Trucks, %	25.60	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.82

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	64.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.6
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	12/23/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	No Action - Santa Teresa; I-10 North_SB	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	2435	Heavy Vehicle Adjustment Factor (f_{HV})	0.796
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1627
Total Trucks, %	25.60	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.68

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	70.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.0
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	10/1/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	No Action - Santa Teresa; I-10 South_NB	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	3860	Heavy Vehicle Adjustment Factor (f_{HV})	0.870
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2360
Total Trucks, %	14.90	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.98

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	43.2
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	12/23/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	No Action - Santa Teresa; I-10 South_SB	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	3527	Heavy Vehicle Adjustment Factor (f_{HV})	0.870
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2156
Total Trucks, %	14.90	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.90

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	60.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	35.8
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	10/23/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	No Action - Santa Teresa; SH 178 E of Westside Dr_EB	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	60.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	934	Heavy Vehicle Adjustment Factor (f_{HV})	0.915
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	543
Total Trucks, %	9.30	Capacity (c), pc/h/ln	2300
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2300
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2300
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.24

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	60.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	9.0
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	60.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	10/23/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	No Action - Santa Teresa; SH 178 E of Westside Dr_WB	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	60.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	968	Heavy Vehicle Adjustment Factor (f_{HV})	0.915
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	562
Total Trucks, %	9.30	Capacity (c), pc/h/ln	2300
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2300
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2300
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.24

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	60.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	9.4
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	60.0		

HCS Two-Lane Highway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	10/23/2024
Agency	Tetra Tech Inc	Analysis Year	2024
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	No Action - Tornillo; FM 3380 North_NB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	55	Access Point Density, pts/mi	0.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	110	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	5.50
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.06

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	62.5
Speed Slope Coefficient (m)	3.94858	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.27501	PF Power Coefficient (p)	0.76776
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	0.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	61.9

Vehicle Results			
Average Speed, mi/h	61.9	Percent Followers, %	20.8
Segment Travel Time, minutes	0.97	Adj. Follower Density, followers/mi/ln	0.4
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	26	0.00	0.4	A

HCS Two-Lane Highway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	10/23/2024
Agency	Tetra Tech Inc	Analysis Year	2024
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	No Action - Tornillo; FM 3380 North_SB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	55	Access Point Density, pts/mi	0.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	83	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	5.50
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.05

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	62.5
Speed Slope Coefficient (m)	3.94858	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.27501	PF Power Coefficient (p)	0.76776
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	0.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	62.5

Vehicle Results			
Average Speed, mi/h	62.5	Percent Followers, %	17.2
Segment Travel Time, minutes	0.96	Adj. Follower Density, followers/mi/ln	0.2
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	20	0.00	0.2	A

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	12/23/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	No Action - Tornillo; I-10 East_EB	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1309	Heavy Vehicle Adjustment Factor (f_{HV})	0.734
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	948
Total Trucks, %	36.20	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.40

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	12.6
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	12/23/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	No Action - Tornillo; I-10 East_WB	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1120	Heavy Vehicle Adjustment Factor (f_{HV})	0.734
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	812
Total Trucks, %	36.20	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.34

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	10.8
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	12/23/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	No Action - Tornillo; I-10 West_EB	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1123	Heavy Vehicle Adjustment Factor (f_{HV})	0.733
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	815
Total Trucks, %	36.40	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.34

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	10.9
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	12/23/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	No Action - Tornillo; I-10 West_WB	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1359	Heavy Vehicle Adjustment Factor (f_{HV})	0.733
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	986
Total Trucks, %	36.40	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.41

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	13.1
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Facilities Report

Project Information

Analyst	Philip N. Utubor P.E.	Date	12/23/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	Peak Hour
Facility Name	I-10 (North)_NB Mainlane	Units	U.S. Customary
Project Description	No Action - Ysleta;		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	1
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	1.00		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-10 (North)_NB Mainlane	5280	4

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.917	10240	9200	1.11	51.1	45.0	F

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	2348	2207	6.80	170.11	51.1	45.0	41.3	1.20	F

Facility Overall Results

Space Mean Speed, mi/h	51.1	Average Density, veh/mi/ln	41.3
Average Travel Time, min	1.20	Average Density, pc/mi/ln	45.0
Total VMT, veh-mi/AP	2348	Total VHD, veh-h	6.80
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	170.11

HCS Freeway Facilities Report

Project Information

Analyst	Philip N. Utubor P.E.	Date	12/23/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	Peak Hour
Facility Name	I-10 (North)_SB Mainlane	Units	U.S. Customary
Project Description	No Action - Ysleta;		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	1
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	1.00		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-10 (North)_SB Mainlane	5280	4

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.917	11318	9200	1.23	51.1	45.0	F

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	2595	2439	7.52	188.03	51.1	45.0	41.3	1.20	F

Facility Overall Results

Space Mean Speed, mi/h	51.1	Average Density, veh/mi/ln	41.3
Average Travel Time, min	1.20	Average Density, pc/mi/ln	45.0
Total VMT, veh-mi/AP	2595	Total VHD, veh-h	7.52
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	188.03

HCS Freeway Facilities Report

Project Information

Analyst	Philip N. Utubor P.E.	Date	12/23/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	Peak Hour
Facility Name	I-10 (South)_NB Mainlane	Units	U.S. Customary
Project Description	No Action - Ysleta;		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	1
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	1.00		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-10 (South)_NB Mainlane	5280	4

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.873	8646	9200	0.94	54.3	39.8	E

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	1887	1774	3.30	82.53	54.3	39.8	34.7	1.10	F

Facility Overall Results

Space Mean Speed, mi/h	54.3	Average Density, veh/mi/ln	34.7
Average Travel Time, min	1.10	Average Density, pc/mi/ln	39.8
Total VMT, veh-mi/AP	1887	Total VHD, veh-h	3.30
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	82.53

HCS Freeway Facilities Report

Project Information

Analyst	Philip N. Utubor P.E.	Date	12/23/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	Peak Hour
Facility Name	I-10 (South)_SB Mainlane	Units	U.S. Customary
Project Description	No Action - Ysleta;		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	1
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	1.00		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-10 (South)_SB Mainlane	5280	4

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.873	7184	9200	0.78	59.3	30.3	D

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	1568	1474	0.31	7.71	59.3	30.3	26.5	1.00	E

Facility Overall Results

Space Mean Speed, mi/h	59.3	Average Density, veh/mi/ln	26.5
Average Travel Time, min	1.00	Average Density, pc/mi/ln	30.3
Total VMT, veh-mi/AP	1568	Total VHD, veh-h	0.31
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	7.71

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	12/23/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	Peak Hour
Project Description	No Action - Ysleta; Loop 375 East_EB	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	60.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	3475	Heavy Vehicle Adjustment Factor (f_{HV})	0.907
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2038
Total Trucks, %	10.20	Capacity (c), pc/h/ln	2300
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2300
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2300
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.89

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	36.1
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	60.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	12/23/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	Peak Hour
Project Description	No Action - Ysleta; Loop 375 East_WB	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	60.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	2295	Heavy Vehicle Adjustment Factor (f_{HV})	0.907
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1346
Total Trucks, %	10.20	Capacity (c), pc/h/ln	2300
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2300
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2300
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.59

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	60.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.4
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	60.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	12/23/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	Peak Hour
Project Description	No Action - Ysleta; Loop 375 West_EB	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	60.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	4007	Heavy Vehicle Adjustment Factor (f_{HV})	0.938
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2272
Total Trucks, %	6.60	Capacity (c), pc/h/ln	2300
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2300
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2300
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.99

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	43.9
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	60.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	12/23/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	No Action - Ysleta; Loop 375 West_WB	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	60.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	3199	Heavy Vehicle Adjustment Factor (f_{HV})	0.938
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1814
Total Trucks, %	6.60	Capacity (c), pc/h/ln	2300
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2300
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2300
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.79

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	59.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.6
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	60.0		

HCS Freeway Facilities Report

Project Information

Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	Peak Hour
Facility Name	I-10 (East of US 54)_EB Mainlane	Units	U.S. Customary
Project Description	No Action - BOTA;		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	1
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	1.00		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-10 (East of US 54)_EB Mainlane	5280	4

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.920	11871	9200	1.29	51.1	45.0	F

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	2730	2567	7.91	197.84	51.1	45.0	41.4	1.20	F

Facility Overall Results

Space Mean Speed, mi/h	51.1	Average Density, veh/mi/ln	41.4
Average Travel Time, min	1.20	Average Density, pc/mi/ln	45.0
Total VMT, veh-mi/AP	2730	Total VHD, veh-h	7.91
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	197.84

HCS Freeway Facilities Report

Project Information

Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	Peak Hour
Facility Name	I-10 (West of US 54)_WB Mainlane	Units	U.S. Customary
Project Description	No Action - BOTA;		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	1
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	1.00		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-10 (West of US 54)_WB Mainlane	5280	4

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.924	10748	9200	1.17	51.1	45.0	F

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	2483	2334	7.20	179.91	51.1	45.0	41.6	1.20	F

Facility Overall Results

Space Mean Speed, mi/h	51.1	Average Density, veh/mi/ln	41.6
Average Travel Time, min	1.20	Average Density, pc/mi/ln	45.0
Total VMT, veh-mi/AP	2483	Total VHD, veh-h	7.20
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	179.91

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	10/1/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	No Action Alternative - BOTA; I-110 NB Mainlane	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	55.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	2873	Heavy Vehicle Adjustment Factor (f_{HV})	0.966
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1582
Total Trucks, %	3.50	Capacity (c), pc/h/ln	2250
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2250
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2250
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.70

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.8
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	10/1/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	No Action Alternative - BOTA; I-110 SB Mainlane	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	55.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1773	Heavy Vehicle Adjustment Factor (f_{HV})	0.966
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	976
Total Trucks, %	3.50	Capacity (c), pc/h/ln	2250
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2250
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2250
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.43

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.7
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	10/1/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	No Action Alternative - BOTA; US 54 NB Mainlane	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	60.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	3479	Heavy Vehicle Adjustment Factor (f_{HV})	0.961
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	963
Total Trucks, %	4.10	Capacity (c), pc/h/ln	2300
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2300
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2300
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.42

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	60.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	16.0
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	60.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	10/1/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	No Action Alternative - BOTA; US 54 SB Mainlane	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	60.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	3863	Heavy Vehicle Adjustment Factor (f_{HV})	0.961
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1069
Total Trucks, %	4.10	Capacity (c), pc/h/ln	2300
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2300
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2300
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.46

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	60.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.8
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	60.0		

HCS Freeway Facilities Report

Project Information

Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	Peak Hour
Facility Name	I-10 (East of US 54)_EB Mainlane	Units	U.S. Customary
Project Description	Alternative 1a w/Trucks - BOTA;		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	1
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	1.00		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-10 (East of US 54)_EB Mainlane	5280	4

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.920	11839	9200	1.29	51.1	45.0	F

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	2723	2560	7.89	197.32	51.1	45.0	41.4	1.20	F

Facility Overall Results

Space Mean Speed, mi/h	51.1	Average Density, veh/mi/ln	41.4
Average Travel Time, min	1.20	Average Density, pc/mi/ln	45.0
Total VMT, veh-mi/AP	2723	Total VHD, veh-h	7.89
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	197.32

HCS Freeway Facilities Report

Project Information

Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	Peak Hour
Facility Name	I-10 (East of US 54)_WB Mainlane	Units	U.S. Customary
Project Description	Alternative 1a w/Trucks - BOTA;		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	1
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	1.00		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-10 (East of US 54)_WB Mainlane	5280	4

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.920	11767	9200	1.28	51.1	45.0	F

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	2707	2544	7.84	196.12	51.1	45.0	41.4	1.20	F

Facility Overall Results

Space Mean Speed, mi/h	51.1	Average Density, veh/mi/ln	41.4
Average Travel Time, min	1.20	Average Density, pc/mi/ln	45.0
Total VMT, veh-mi/AP	2707	Total VHD, veh-h	7.84
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	196.12

HCS Freeway Facilities Report

Project Information

Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	Peak Hour
Facility Name	I-10 (West of US 54)_EB Mainlane	Units	U.S. Customary
Project Description	Alternative 1a w/Trucks - BOTA;		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	1
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	1.00		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-10 (West of US 54)_EB Mainlane	5280	4

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.924	10588	9200	1.15	51.1	45.0	F

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	2446	2299	7.09	177.23	51.1	45.0	41.6	1.20	F

Facility Overall Results

Space Mean Speed, mi/h	51.1	Average Density, veh/mi/ln	41.6
Average Travel Time, min	1.20	Average Density, pc/mi/ln	45.0
Total VMT, veh-mi/AP	2446	Total VHD, veh-h	7.09
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	177.23

HCS Freeway Facilities Report

Project Information

Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	Peak Hour
Facility Name	I-10 (West of US 54)_EB Mainlane	Units	U.S. Customary
Project Description	Alternative 1a w/Trucks - BOTA;		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	1
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	1.00		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-10 (West of US 54)_WB Mainlane	5280	4

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.924	10747	9200	1.17	51.1	45.0	F

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	2483	2334	7.20	179.89	51.1	45.0	41.6	1.20	F

Facility Overall Results

Space Mean Speed, mi/h	51.1	Average Density, veh/mi/ln	41.6
Average Travel Time, min	1.20	Average Density, pc/mi/ln	45.0
Total VMT, veh-mi/AP	2483	Total VHD, veh-h	7.20
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	179.89

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	Alternative 1a w/Truck - BOTA; I-110 NB Mainlane	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	55.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	2858	Heavy Vehicle Adjustment Factor (f_{HV})	0.966
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1574
Total Trucks, %	3.50	Capacity (c), pc/h/ln	2250
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2250
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2250
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.70

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.6
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	Alternative 1a w/Truck - BOTA; I-110 SB Mainlane	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	55.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1777	Heavy Vehicle Adjustment Factor (f_{HV})	0.966
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	978
Total Trucks, %	3.50	Capacity (c), pc/h/ln	2250
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2250
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2250
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.43

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.8
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	Alternative 1a w/Truck - BOTA; US 54 NB Mainlane	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	60.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	3481	Heavy Vehicle Adjustment Factor (f_{HV})	0.961
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	963
Total Trucks, %	4.10	Capacity (c), pc/h/ln	2300
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2300
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2300
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.42

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	60.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	16.0
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	60.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	Alternative 1a w/Truck - BOTA; US 54 SB Mainlane	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	60.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	3867	Heavy Vehicle Adjustment Factor (f_{HV})	0.961
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1070
Total Trucks, %	4.10	Capacity (c), pc/h/ln	2300
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2300
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2300
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.47

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	60.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.8
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	60.0		

HCS Freeway Facilities Report

Project Information

Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	Peak Hour
Facility Name	I-10 (East of US 54)_EB Mainlane	Units	U.S. Customary
Project Description	Alternative 1a w/o Trucks - BOTA;		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	1
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	1.00		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-10 (East of US 54)_EB Mainlane	5280	4

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.920	11857	9200	1.29	51.1	45.0	F

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	2727	2564	7.90	197.61	51.1	45.0	41.4	1.20	F

Facility Overall Results

Space Mean Speed, mi/h	51.1	Average Density, veh/mi/ln	41.4
Average Travel Time, min	1.20	Average Density, pc/mi/ln	45.0
Total VMT, veh-mi/AP	2727	Total VHD, veh-h	7.90
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	197.61

HCS Freeway Facilities Report

Project Information

Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	Peak Hour
Facility Name	I-10 (East of US 54)_WB Mainlane	Units	U.S. Customary
Project Description	Alternative 1a w/o Trucks - BOTA;		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	1
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	1.00		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-10 (East of US 54)_WB Mainlane	5280	4

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.920	11851	9200	1.29	51.1	45.0	F

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	2726	2562	7.90	197.52	51.1	45.0	41.4	1.20	F

Facility Overall Results

Space Mean Speed, mi/h	51.1	Average Density, veh/mi/ln	41.4
Average Travel Time, min	1.20	Average Density, pc/mi/ln	45.0
Total VMT, veh-mi/AP	2726	Total VHD, veh-h	7.90
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	197.52

HCS Freeway Facilities Report

Project Information

Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	Peak Hour
Facility Name	I-10 (West of US 54)_EB Mainlane	Units	U.S. Customary
Project Description	Alternative 1a w/o Trucks - BOTA;		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	1
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	1.00		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-10 (West of US 54)_EB Mainlane	5280	4

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.924	10621	9200	1.15	51.1	45.0	F

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	2454	2306	7.11	177.79	51.1	45.0	41.6	1.20	F

Facility Overall Results

Space Mean Speed, mi/h	51.1	Average Density, veh/mi/ln	41.6
Average Travel Time, min	1.20	Average Density, pc/mi/ln	45.0
Total VMT, veh-mi/AP	2454	Total VHD, veh-h	7.11
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	177.79

HCS Freeway Facilities Report

Project Information

Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	Peak Hour
Facility Name	I-10 (West of US 54)_EB Mainlane	Units	U.S. Customary
Project Description	Alternative 1a w/o Trucks - BOTA;		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	1
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	1.00		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-10 (West of US 54)_WB Mainlane	5280	4

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.924	10758	9200	1.17	51.1	45.0	F

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	2485	2336	7.20	180.07	51.1	45.0	41.6	1.20	F

Facility Overall Results

Space Mean Speed, mi/h	51.1	Average Density, veh/mi/ln	41.6
Average Travel Time, min	1.20	Average Density, pc/mi/ln	45.0
Total VMT, veh-mi/AP	2485	Total VHD, veh-h	7.20
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	180.07

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	Alternative 1a w/o Truck - BOTA; I-110 NB Mainlane	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	55.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	2908	Heavy Vehicle Adjustment Factor (f_{HV})	0.966
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1602
Total Trucks, %	3.50	Capacity (c), pc/h/ln	2250
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2250
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2250
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.71

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.1
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	Alternative 1a w/o Truck - BOTA; I-110 SB Mainlane	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	55.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1924	Heavy Vehicle Adjustment Factor (f_{HV})	0.966
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1060
Total Trucks, %	3.50	Capacity (c), pc/h/ln	2250
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2250
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2250
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.47

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.3
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	Alternative 1a w/o Truck - BOTA; US 54 NB Mainlane	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	60.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	3486	Heavy Vehicle Adjustment Factor (f_{HV})	0.961
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	965
Total Trucks, %	4.10	Capacity (c), pc/h/ln	2300
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2300
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2300
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.42

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	60.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	16.1
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	60.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	Alternative 1a w/o Truck - BOTA; US 54 SB Mainlane	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	60.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	3863	Heavy Vehicle Adjustment Factor (f_{HV})	0.961
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1069
Total Trucks, %	4.10	Capacity (c), pc/h/ln	2300
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2300
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2300
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.46

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	60.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.8
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	60.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	10/1/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	Alternative 4 - Santa Teresa; I-10 North_NB	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	2956	Heavy Vehicle Adjustment Factor (f_{HV})	0.796
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1976
Total Trucks, %	25.60	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.82

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	64.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.6
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	Alternative 4 - Santa Teresa; I-10 North_SB	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	2440	Heavy Vehicle Adjustment Factor (f_{HV})	0.796
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1630
Total Trucks, %	25.60	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.68

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	70.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.1
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	10/1/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	Alternative 4 - Santa Teresa; I-10 South_NB	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	3865	Heavy Vehicle Adjustment Factor (f_{HV})	0.870
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2363
Total Trucks, %	14.90	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.98

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	43.4
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	Alternative 4 - Santa Teresa; I-10 South_SB	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	3533	Heavy Vehicle Adjustment Factor (f_{HV})	0.870
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2160
Total Trucks, %	14.90	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.90

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	60.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	35.9
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	10/1/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	Alternative 4 - Santa Teresa; SH 178 E of Westside Dr_EB	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	60.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	938	Heavy Vehicle Adjustment Factor (f_{HV})	0.915
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	546
Total Trucks, %	9.30	Capacity (c), pc/h/ln	2300
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2300
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2300
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.24

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	60.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	9.1
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	60.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	10/1/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	Alternative 4 - Santa Teresa; SH 178 E of Westside Dr_WB	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	60.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	971	Heavy Vehicle Adjustment Factor (f_{HV})	0.915
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	564
Total Trucks, %	9.30	Capacity (c), pc/h/ln	2300
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2300
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2300
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.25

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	60.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	9.4
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	60.0		

HCS Two-Lane Highway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	10/1/2024
Agency	Tetra Tech Inc	Analysis Year	2024
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	Alternative 4 - Tornillo; FM 3380 North_NB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	55	Access Point Density, pts/mi	0.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	113	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	5.50
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.07

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	62.5
Speed Slope Coefficient (m)	3.94858	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.27501	PF Power Coefficient (p)	0.76776
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	0.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	61.9

Vehicle Results			
Average Speed, mi/h	61.9	Percent Followers, %	21.2
Segment Travel Time, minutes	0.97	Adj. Follower Density, followers/mi/ln	0.4
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	27	0.00	0.4	A

HCS Two-Lane Highway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	10/1/2024
Agency	Tetra Tech Inc	Analysis Year	2024
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	Alternative 4 - Tornillo; FM 3380 North_SB	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	55	Access Point Density, pts/mi	0.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	86	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	5.50
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.05

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	62.5
Speed Slope Coefficient (m)	3.94858	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.27501	PF Power Coefficient (p)	0.76776
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	0.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	62.5

Vehicle Results			
Average Speed, mi/h	62.5	Percent Followers, %	17.6
Segment Travel Time, minutes	0.96	Adj. Follower Density, followers/mi/ln	0.2
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	20	0.00	0.2	A

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	Alternative 4 - Tornillo; I-10 East_EB	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1309	Heavy Vehicle Adjustment Factor (f_{HV})	0.734
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	948
Total Trucks, %	36.20	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.40

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	12.6
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	Alternative 4 - Tornillo; I-10 East_WB	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1120	Heavy Vehicle Adjustment Factor (f_{HV})	0.734
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	812
Total Trucks, %	36.20	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.34

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	10.8
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	Alternative 4 - Tornillo; I-10 West_EB	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1125	Heavy Vehicle Adjustment Factor (f_{HV})	0.733
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	816
Total Trucks, %	36.40	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.34

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	10.9
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	Alternative 4 - Tornillo; I-10 West_WB	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	75.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1362	Heavy Vehicle Adjustment Factor (f_{HV})	0.733
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	988
Total Trucks, %	36.40	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.41

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	13.2
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	Alternative 4 - Ysleta; Loop 375 West_WB	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	60.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	3200	Heavy Vehicle Adjustment Factor (f_{HV})	0.938
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1814
Total Trucks, %	6.60	Capacity (c), pc/h/ln	2300
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2300
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2300
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.79

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	59.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.6
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	60.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	Peak Hour
Project Description	Alternative 4 - Ysleta; Loop 375 West_EB	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	60.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	4010	Heavy Vehicle Adjustment Factor (f_{HV})	0.938
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2274
Total Trucks, %	6.60	Capacity (c), pc/h/ln	2300
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2300
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2300
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.99

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	43.9
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	60.0		

HCS Freeway Facilities Report

Project Information

Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	Peak Hour
Facility Name	I-10 (North)_NB Mainlane	Units	U.S. Customary
Project Description	Alternative 4 - Ysleta;		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	1
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	1.00		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-10 (East of US 54)_EB Mainlane	5280	4

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.917	10209	9200	1.11	51.1	45.0	F

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	2341	2200	6.78	169.60	51.1	45.0	41.3	1.20	F

Facility Overall Results

Space Mean Speed, mi/h	51.1	Average Density, veh/mi/ln	41.3
Average Travel Time, min	1.20	Average Density, pc/mi/ln	45.0
Total VMT, veh-mi/AP	2341	Total VHD, veh-h	6.78
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	169.60

HCS Freeway Facilities Report

Project Information

Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	Peak Hour
Facility Name	I-10 (North)_SB Mainlane	Units	U.S. Customary
Project Description	Alternative 4 - Ysleta;		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	1
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	1.00		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-10 (East of US 54)_EB Mainlane	5280	4

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.917	11318	9200	1.23	51.1	45.0	F

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	2595	2439	7.52	188.03	51.1	45.0	41.3	1.20	F

Facility Overall Results

Space Mean Speed, mi/h	51.1	Average Density, veh/mi/ln	41.3
Average Travel Time, min	1.20	Average Density, pc/mi/ln	45.0
Total VMT, veh-mi/AP	2595	Total VHD, veh-h	7.52
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	188.03

HCS Freeway Facilities Report

Project Information

Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	Peak Hour
Facility Name	I-10 (South)_NB Mainlane	Units	U.S. Customary
Project Description	Alternative 4 - Ysleta;		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	1
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	1.00		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-10 (South)_NB Mainlane	5280	4

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.873	8648	9200	0.94	54.3	39.8	E

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	1888	1774	3.30	82.56	54.3	39.8	34.7	1.10	F

Facility Overall Results

Space Mean Speed, mi/h	54.3	Average Density, veh/mi/ln	34.7
Average Travel Time, min	1.10	Average Density, pc/mi/ln	39.8
Total VMT, veh-mi/AP	1888	Total VHD, veh-h	3.30
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	82.56

HCS Freeway Facilities Report

Project Information

Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	Peak Hour
Facility Name	I-10 (South)_SB Mainlane	Units	U.S. Customary
Project Description	Alternative 4 - Ysleta;		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	1
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	1.00		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-10 (South)_SB Mainlane	5280	4

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.873	7188	9200	0.78	59.3	30.3	D

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	1569	1475	0.31	7.72	59.3	30.3	26.5	1.00	E

Facility Overall Results

Space Mean Speed, mi/h	59.3	Average Density, veh/mi/ln	26.5
Average Travel Time, min	1.00	Average Density, pc/mi/ln	30.3
Total VMT, veh-mi/AP	1569	Total VHD, veh-h	0.31
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	7.72

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	Peak Hour
Project Description	Alternative 4 - Ysleta; Loop 375 East_EB	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	60.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	3487	Heavy Vehicle Adjustment Factor (f_{HV})	0.907
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2045
Total Trucks, %	10.20	Capacity (c), pc/h/ln	2300
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2300
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2300
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.89

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	36.3
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	60.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	Peak Hour
Project Description	Alternative 4 - Ysleta; Loop 375 East_WB	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	60.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	2296	Heavy Vehicle Adjustment Factor (f_{HV})	0.907
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1346
Total Trucks, %	10.20	Capacity (c), pc/h/ln	2300
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2300
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2300
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.59

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	60.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.4
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	60.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	Peak Hour
Project Description	Alternative 4 - BOTA;	Units	U.S. Customary
Segment Number	1	Segment Name	I-10 (East of US 54)_EB Mainlane
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data			
Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	5280	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	60.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	10235	Heavy Vehicle Adjustment Factor (f_{HV})	0.920
Peak Hour Factor (PHF)	1.00	Flow Rate (v_p), pc/h/ln	2781
Total Trucks, %	8.70	Capacity (c), pc/h/ln	2300
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2300
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2300
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	1.21

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	45.0
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	60.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	Peak Hour
Project Description	Alternative 4 - BOTA;	Units	U.S. Customary
Segment Number	1	Segment Name	I-10 (East of US 54)_WB Mainlane
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data			
Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	5280	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	60.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	10166	Heavy Vehicle Adjustment Factor (f_{HV})	0.920
Peak Hour Factor (PHF)	1.00	Flow Rate (v_p), pc/h/ln	2762
Total Trucks, %	8.70	Capacity (c), pc/h/ln	2300
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2300
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2300
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	1.20

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	45.0
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	60.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	Peak Hour
Project Description	Alternative 4 - BOTA;	Units	U.S. Customary
Segment Number	1	Segment Name	I-10 (West of US 54)_EB Mainlane
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data			
Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	5280	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	60.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	9193	Heavy Vehicle Adjustment Factor (f_{HV})	0.924
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2646
Total Trucks, %	8.20	Capacity (c), pc/h/ln	2300
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2300
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2300
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	1.15

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	45.0
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	60.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	Peak Hour
Project Description	Alternative 4 - BOTA;	Units	U.S. Customary
Segment Number	1	Segment Name	I-10 (West of US 54)_WB Mainlane
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data			
Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	5280	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	60.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	9334	Heavy Vehicle Adjustment Factor (f_{HV})	0.924
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2687
Total Trucks, %	8.20	Capacity (c), pc/h/ln	2300
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2300
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2300
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	1.17

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	45.0
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	60.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	10/1/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	Alternative 4 - BOTA; I-110 NB Mainlane	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	55.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	2860	Heavy Vehicle Adjustment Factor (f_{HV})	0.966
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1575
Total Trucks, %	3.50	Capacity (c), pc/h/ln	2250
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2250
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2250
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.70

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.6
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	12/18/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	Alternative 4 - BOTA; I-110 SB Mainlane	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	55.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	55.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	1761	Heavy Vehicle Adjustment Factor (f_{HV})	0.966
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	970
Total Trucks, %	3.50	Capacity (c), pc/h/ln	2250
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2250
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2250
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.43

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.6
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	55.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	10/1/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	Alternative 4 - BOTA; US 54 NB Mainlane	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	60.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	3479	Heavy Vehicle Adjustment Factor (f_{HV})	0.961
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	963
Total Trucks, %	4.10	Capacity (c), pc/h/ln	2300
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2300
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2300
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.42

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	60.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	16.0
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	60.0		

HCS Basic Freeway Report

Project Information			
Analyst	Philip N. Utubor P.E.	Date	10/1/2024
Agency	Tetra Tech Inc	Analysis Year	2029
Jurisdiction	El Paso, TX	Time Analyzed	
Project Description	Alternative 4 - BOTA; US 54 SB Mainlane	Units	U.S. Customary

Geometric Data			
Number of Lanes (N), ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	60.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000

Demand and Capacity			
Demand Volume (V), veh/h	3867	Heavy Vehicle Adjustment Factor (f_{HV})	0.961
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1070
Total Trucks, %	4.10	Capacity (c), pc/h/ln	2300
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2300
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2300
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.47

Speed and Density			
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	60.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.8
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	60.0		

Alternate 1a
Summary of Estimated Construction Emissions (tons per year)

Project Location	CO	NO_x	SO_2	VOC	HAPs	PM_{10}	$PM_{2.5}$	CO_2	CH_4
Fugitive Dust						1.37	0.14		
Non-Road Equipment Engines	2.14	1.30	0.01	0.24	0.00	0.05	0.05	624.43	0.02
On-Road Engines	0.02	0.01	0.00	0.00	0.00	0.00	0.00	9.79	0.00
Project Construction Totals	**2.16**	**1.32**	**0.01**	**0.24**	**0.00**	**1.42**	**0.18**	**634.22**	**0.02**

NOTE: “0.00” indicates emissions are <0.01 tons.
NOTE: Sums in table are based on Excel spreadsheet/multiple decimal places, and may differ from sums added from table due to rounding.
NOTE: Emissions are in tons for the entire project.

Alternate 1a
Construction Fugitive Dust Emissions

Emissions Type & Project Location	Acres Affected	Duration (months)	Emission Factor (ton/acre-month) [1]		Dust Control Efficiency[3]	Uncontrolled Emissions (tons)		Controlled Emissions (tons)	
			PM_{10}	$PM_{2.5}$ [2]		PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
Construction[4]									
All Locations	12.00	6.5	1.10E-01	1.10E-02	84%	8.58	0.86	1.37	0.14
					SUB TOTAL:	8.58	0.86	1.37	0.14

1. WRAP Fugitive Dust Handbook, Contess Environmental, September 2006, Table 3-2, Level 1, average conditions
2. PM2.5/PM10 = 0.10 (WRAP Fugitive Dust Handbook, Section 3.4.1, pg 3-11)
3. For construction, water and other approved dust suppressants would be used at construction sites has a control efficiency of 84% (WRAP Fugitive Dust Handbook, p3). For wind erosion, water and other approved dust suppressants would be used at construction sites has a control efficiency of 90% (WRAP Fugitive Dust Handbook, p3).
4. Wind erosion of exposed areas (seeded land, stripped or graded overburden) = 0.38 ton TSP/acre/yr (WRAP Fugitive Dust Handbook, Table 11-6). PM10/TSP = 0.5, PM2.5/PM10 = 0.15, (WRAP Fugitive Dust Handbook, Section 7-2). Emission factor (0.38 ton TSP/acre/yr) converted from ton/acre-year to ton/acre-month by dividing by 12.
5. Wind erosion of exposed areas (seeded land, stripped or graded overburden) = 0.38 ton TSP/acre/yr (WRAP Fugitive Dust Handbook,
6. Wind erosion of exposed areas (seeded land, stripped or graded overburden) = 0.38 ton TSP/acre/yr (WRAP Fugitive Dust Handbook, Table 11-6). PM10/TSP = 0.5, PM2.5/PM10 = 0.15, (WRAP Fugitive Dust Handbook, Section 7-2). Emission factor (0.38 ton TSP/acre/yr) converted from ton/acre-year to ton/acre-month by dividing by 12.

NOTE: Project is estimated to take one year or less; thus emissions presented are also in tons per year.

Alternate 1a
Nonroad Pollutant Emissions

Equipment Type[1]	Engine Rating (hp)[1]	Operating Hours[1] (hr)	Pollutant Emission Factor[2] (lb/hr)											Pollutant Emissions (tons/yr)										
			CO	NO_x	SO_2	VOC	HAPs[6]	PM_{10}[3]	$PM_{2.5}$[3]	CO_2	CH_4	N_2O[4]	CO_2e[5]	CO	NO_x	SO_2	VOC	HAPs[6]	PM_{10}\	$PM_{2.5}$	CO_2	CH_4	N_2O	CO_2e
Dump Truck	500	300	0.5319	0.3878	0.0027	0.1183	0.0013	0.0135	0.0131	272.3338	0.0107	0.0000	272.60	0.0798	0.0582	0.0004	0.0177	0.0002	0.0020	0.0020	40.8501	0.0016	0.0000	40.89
Excavator	250	600	0.3210	0.2222	0.0018	0.0647	0.0007	0.0074	0.0072	158.6827	0.0058	0.0000	158.83	0.0963	0.0667	0.0005	0.0194	0.0002	0.0022	0.0022	47.6048	0.0018	0.0000	47.65
Front End Loaders	500	300	0.4654	0.4455	0.0023	0.1034	0.0012	0.0164	0.0159	237.0083	0.0093	0.0000	237.24	0.0698	0.0668	0.0003	0.0155	0.0002	0.0025	0.0024	35.5512	0.0014	0.0000	35.59
Generators	120	3650	0.4585	0.3022	0.0009	0.0340	0.0004	0.0122	0.0118	77.9494	0.0031	0.0000	78.03	0.8367	0.5515	0.0017	0.0620	0.0007	0.0223	0.0216	142.2577	0.0056	0.0000	142.40
Mechanic Rig	500	300	0.5512	0.1622	0.0031	0.0706	0.0008	0.0058	0.0057	311.3086	0.0064	0.0000	311.47	0.0827	0.0243	0.0005	0.0106	0.0001	0.0009	0.0008	46.6963	0.0010	0.0000	46.72
Off-Road Trucks	500	1500	0.5319	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00	0.3989	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00
Side Boom	250	100	0.2316	0.2705	0.0013	0.0544	0.0006	0.0094	0.0092	112.1589	0.0049	0.0000	112.28	0.0116	0.0135	0.0001	0.0027	0.0000	0.0005	0.0005	5.6079	0.0002	0.0000	5.61
Tandem Truck	500	400	0.5319	0.3878	0.0027	0.1183	0.0013	0.0135	0.0131	272.3338	0.0107	0.0000	272.60	0.1064	0.0776	0.0005	0.0237	0.0003	0.0027	0.0026	54.4668	0.0021	0.0000	54.52
Welding Rig	500	3000	0.3040	0.2969	0.0016	0.0585	0.0007	0.0095	0.0092	167.5988	0.0053	0.0000	167.73	0.4561	0.4454	0.0025	0.0878	0.0010	0.0142	0.0138	251.3982	0.0079	0.0000	251.60
Total Emissions														**2.14**	**1.30**	**0.01**	**0.24**	**0.00**	**0.05**	**0.05**	**624.43**	**0.02**	**0.00**	**624.97**

1. Equipment type, quantity, and operating hours were provided by client. HP rating based on data provided by client and available emission factors, if no HP rating provided "composite" HP rating was used.
2. Emission factors for the land-based nonroad engines were estimated using SCAB Fleet Average Emission Factors 2025 emission model providing a conservative estimate.
   Emission Factors for each vehicle type (ton/VMT) are derived from CARB's Web Database http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/off-road-mobile-source-emission-factors Accessed February 2024.
3. All PM emissions to be less than 10 microns in diameter and PM2.5 factors are 97% of PM10 factors per EPA guidance ("Exhaust and Crankcase Emission
   Factors for Nonroad Engine Modeling - Compression-Ignition," EPA420-R-10-018/NR-009d, July 2010; and "Exhaust Emission Factors for Nonroad Engine Modeling - Spark-Ignition," EPA420-R-10-019/NR-010f, July 2010).
4. N2O emission factor conservatively presumed to be equal to CH4 emission factor as SCAB Fleet Average Emission Factors did not provide an N2O factor for nonroad engines.
5. The global warming potentials used for CO2, CH4, and N2O are 1, 25, and 298, respectively.
6. Hazardous Air Pollutant (HAP) emission factors are based on AP-42, Chapter 3.3 (revised 10/96) and Chapter 1.3 (revised 5/10) for metal HAP.

Alternate 1a
On-Road Vehicle Pollutant Emissions

Vehicle	Vehicle Category Code[1]	Vehicle Miles Traveled (VMT)[1]	Emission Factor (pound/VMT)[2]											Emissions (tons per year)										
			CO	NO_x	SO_2	VOC	HAPs[4]	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	CO_2e [3]	CO	NO_x	SO_2	VOC	HAPs[4]	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	CO_2e [3]
Commuter Vehicles																								
Passenger Vehicle	PV2025	10,000	3.43E-03	2.88E-04	1.07E-05	4.35E-04	1.45E-05	9.68E-05	6.42E-05	1.11E+00	3.64E-05	0.00E+00	1.11E+00	0.0171	0.0014	0.0001	0.0022	0.0001	0.0005	0.0003	5.5539	0.0002	0.0000	5.5585
Pickup Trucks - Gasoline	PV2025	800	3.43E-03	2.88E-04	1.07E-05	4.35E-04	1.45E-05	9.68E-05	6.42E-05	1.11E+00	3.64E-05	0.00E+00	1.11E+00	0.0014	0.0001	0.0000	0.0002	0.0000	0.0000	0.0000	0.4443	0.0000	0.0000	0.4447
Onsite Vehicles																								
Gasoline Fueled																								
Pickup Truck	HHDT	1,800	4.79E-03	1.10E-02	4.11E-05	9.61E-04	3.20E-05	5.54E-04	4.26E-04	4.22E+00	4.45E-05	0.00E+00	4.22E+00	0.0043	0.0099	0.0000	0.0009	0.0000	0.0005	0.0004	3.7937	0.0000	0.0000	3.7947
TOTAL														**0.02**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**9.79**	**0.00**	**0.00**	**9.80**

1. Vehicle Categories and total project distance were provided by client.
2. Emission Factors for each vehicle type (pound/VMT) are derived from CARB's Web Database http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/emfac-2007-(v2-3)-emission-factors-(on-road) Accessed February 2024.
3. The global warming potentials used for CO2, CH4, and N2O are 1, 25, and 298, respectively.
4. Hazardous Air Pollutant (HAP) emission factors are based on AP-42, Chapter 3.3 (revised 10/96) and Chapter 1.3 (revised 5/10) for metal HAP.

Alternate 4
Summary of Estimated Construction Emissions (tons per year)

Project Location	CO	NO_x	SO_2	VOC	HAPs	PM_{10}	$PM_{2.5}$	CO_2	CH_4
Fugitive Dust						0.46	0.05		
Non-Road Equipment Engines	1.97	1.19	0.01	0.21	0.00	0.04	0.04	534.53	0.02
On-Road Engines	0.02	0.01	0.00	0.00	0.00	0.00	0.00	9.79	0.00
Project Construction Totals	**1.99**	**1.20**	**0.01**	**0.21**	**0.00**	**0.50**	**0.09**	**544.32**	**0.02**

NOTE: “0.00” indicates emissions are <0.01 tons.
NOTE: Sums in table are based on Excel spreadsheet/multiple decimal places, and may differ from sums added from table due to rounding.
NOTE: Emissions are in tons for the entire project.

Alternate 4
Construction Fugitive Dust Emissions

Emissions Type & Project Location	Acres Affected	Duration (months)	Emission Factor (ton/acre-month) [1]		Dust Control Efficiency[3]	Uncontrolled Emissions (tons)		Controlled Emissions (tons)	
			PM_{10}	$PM_{2.5}$ [2]		PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
Construction[4]									
All Locations	4.00	6.5	1.10E-01	1.10E-02	84%	2.86	0.29	0.46	0.05
					SUB TOTAL:	2.86	0.29	0.46	0.05

1. WRAP Fugitive Dust Handbook, Contess Environmental, September 2006, Table 3-2, Level 1, average conditions
2. PM2.5/PM10 = 0.10 (WRAP Fugitive Dust Handbook, Section 3.4.1, pg 3-11)
3. For construction, water and other approved dust suppressants would be used at construction sites has a control efficiency of 84% (WRAP Fugitive Dust Handbook, p3). For wind erosion, water and other approved dust suppressants would be used at construction sites has a control efficiency of 90% (WRAP Fugitive Dust Handbook, p3).
4. Wind erosion of exposed areas (seeded land, stripped or graded overburden) = 0.38 ton TSP/acre/yr (WRAP Fugitive Dust Handbook, Table 11-6). PM10/TSP = 0.5, PM2.5/PM10 = 0.15, (WRAP Fugitive Dust Handbook, Section 7-2). Emission factor (0.38 ton TSP/acre/yr) converted from ton/acre-year to ton/acre-month by dividing by 12.
5. Wind erosion of exposed areas (seeded land, stripped or graded overburden) = 0.38 ton TSP/acre/yr (WRAP Fugitive Dust Handbook,
6. Wind erosion of exposed areas (seeded land, stripped or graded overburden) = 0.38 ton TSP/acre/yr (WRAP Fugitive Dust Handbook, Table 11-6). PM10/TSP = 0.5, PM2.5/PM10 = 0.15, (WRAP Fugitive Dust Handbook, Section 7-2). Emission factor (0.38 ton TSP/acre/yr) converted from ton/acre-year to ton/acre-month by dividing by 12.

NOTE: Project is estimated to take one year or less; thus emissions presented are also in tons per year.

Alternate 4
Nonroad Pollutant Emissions

Equipment Type[1]	Engine Rating (hp)[1]	Operating Hours[1] (hr)	Pollutant Emission Factor[2] (lb/hr)											Pollutant Emissions (tons/yr)										
			CO	NO_x	SO_2	VOC	HAPs[6]	PM_{10}[3]	$PM_{2.5}$[3]	CO_2	CH_4	N_2O[4]	CO_2e[5]	CO	NO_x	SO_2	VOC	HAPs[6]	PM_{10}\	$PM_{2.5}$	CO_2	CH_4	N_2O	CO_2e
Dump Truck	500	200	0.5319	0.3878	0.0027	0.1183	0.0013	0.0135	0.0131	272.3338	0.0107	0.0000	272.60	0.0532	0.0388	0.0003	0.0118	0.0001	0.0014	0.0013	27.2334	0.0011	0.0000	27.26
Excavator	250	500	0.3210	0.2222	0.0018	0.0647	0.0007	0.0074	0.0072	158.6827	0.0058	0.0000	158.83	0.0803	0.0556	0.0004	0.0162	0.0002	0.0019	0.0018	39.6707	0.0015	0.0000	39.71
Front End Loaders	500	150	0.4654	0.4455	0.0023	0.1034	0.0012	0.0164	0.0159	237.0083	0.0093	0.0000	237.24	0.0349	0.0334	0.0002	0.0078	0.0001	0.0012	0.0012	17.7756	0.0007	0.0000	17.79
Generators	120	3650	0.4585	0.3022	0.0009	0.0340	0.0004	0.0122	0.0118	77.9494	0.0031	0.0000	78.03	0.8367	0.5515	0.0017	0.0620	0.0007	0.0223	0.0216	142.2577	0.0056	0.0000	142.40
Mechanic Rig	500	150	0.5512	0.1622	0.0031	0.0706	0.0008	0.0058	0.0057	311.3086	0.0064	0.0000	311.47	0.0413	0.0122	0.0002	0.0053	0.0001	0.0004	0.0004	23.3481	0.0005	0.0000	23.36
Off-Road Trucks	500	1500	0.5319	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00	0.3989	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00
Side Boom	250	100	0.2316	0.2705	0.0013	0.0544	0.0006	0.0094	0.0092	112.1589	0.0049	0.0000	112.28	0.0116	0.0135	0.0001	0.0027	0.0000	0.0005	0.0005	5.6079	0.0002	0.0000	5.61
Tandem Truck	500	200	0.5319	0.3878	0.0027	0.1183	0.0013	0.0135	0.0131	272.3338	0.0107	0.0000	272.60	0.0532	0.0388	0.0003	0.0118	0.0001	0.0014	0.0013	27.2334	0.0011	0.0000	27.26
Welding Rig	500	3000	0.3040	0.2969	0.0016	0.0585	0.0007	0.0095	0.0092	167.5988	0.0053	0.0000	167.73	0.4561	0.4454	0.0025	0.0878	0.0010	0.0142	0.0138	251.3982	0.0079	0.0000	251.60
Total Emissions														**1.97**	**1.19**	**0.01**	**0.21**	**0.00**	**0.04**	**0.04**	**534.53**	**0.02**	**0.00**	**534.99**

1. Equipment type, quantity, and operating hours were provided by client. HP rating based on data provided by client and available emission factors, if no HP rating provided "composite" HP rating was used.
2. Emission factors for the land-based nonroad engines were estimated using SCAB Fleet Average Emission Factors 2025 emission model providing a conservative estimate.
   Emission Factors for each vehicle type (ton/VMT) are derived from CARB's Web Database http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/off-road-mobile-source-emission-factors Accessed February 2024.
3. All PM emissions to be less than 10 microns in diameter and PM2.5 factors are 97% of PM10 factors per EPA guidance ("Exhaust and Crankcase Emission
   Factors for Nonroad Engine Modeling - Compression-Ignition," EPA420-R-10-018/NR-009d, July 2010; and "Exhaust Emission Factors for Nonroad Engine Modeling - Spark-Ignition," EPA420-R-10-019/NR-010f, July 2010).
4. N2O emission factor conservatively presumed to be equal to CH4 emission factor as SCAB Fleet Average Emission Factors did not provide an N2O factor for nonroad engines.
5. The global warming potentials used for CO2, CH4, and N2O are 1, 25, and 298, respectively.
6. Hazardous Air Pollutant (HAP) emission factors are based on AP-42, Chapter 3.3 (revised 10/96) and Chapter 1.3 (revised 5/10) for metal HAP.

Alternate 4
On-Road Vehicle Pollutant Emissions

Vehicle	Vehicle Category Code[1]	Vehicle Miles Traveled (VMT)[1]	Emission Factor (pound/VMT)[2]										Emissions (tons per year)									
			CO	NO_x	SO_2	VOC	HAPs[4]	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	CO_2e [3]	CO	NO_x	SO_2	VOC	HAPs[4]	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	CO_2e [3]
Commuter Vehicles																								
Passenger Vehicle	PV2025	10,000	3.43E-03	2.88E-04	1.07E-05	4.35E-04	1.45E-05	9.68E-05	6.42E-05	1.11E+00	3.64E-05	0.00E+00	1.11E+00	0.0171	0.0014	0.0001	0.0022	0.0001	0.0005	0.0003	5.5539	0.0002	0.0000	5.5585
Pickup Trucks - Gasoline	PV2025	800	3.43E-03	2.88E-04	1.07E-05	4.35E-04	1.45E-05	9.68E-05	6.42E-05	1.11E+00	3.64E-05	0.00E+00	1.11E+00	0.0014	0.0001	0.0000	0.0002	0.0000	0.0000	0.0000	0.4443	0.0000	0.0000	0.4447
Onsite Vehicles																								
Gasoline Fueled																								
Pickup Truck	HHDT	1,800	4.79E-03	1.10E-02	4.11E-05	9.61E-04	3.20E-05	5.54E-04	4.26E-04	4.22E+00	4.45E-05	0.00E+00	4.22E+00	0.0043	0.0099	0.0000	0.0009	0.0000	0.0005	0.0004	3.7937	0.0000	0.0000	3.7947
TOTAL														**0.02**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**9.79**	**0.00**	**0.00**	**9.80**

1. Vehicle Categories and total project distance were provided by client.
2. Emission Factors for each vehicle type (pound/VMT) are derived from CARB's Web Database http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/emfac-2007-(v2-3)-emission-factors-(on-road) Accessed February 2024.
3. The global warming potentials used for CO2, CH4, and N2O are 1, 25, and 298, respectively.
4. Hazardous Air Pollutant (HAP) emission factors are based on AP-42, Chapter 3.3 (revised 10/96) and Chapter 1.3 (revised 5/10) for metal HAP.

GSA BOTA Modernization

Traffic and Air Quality Analyses

“80%”Scenario NB Open Booths assumed by alternative

NB Open Booths for Privately-Owned Vehicles			
Hour	Alternative 1a with Trucks (out of 20 lanes)	Alternative 1a without Trucks (out of 22 lanes	Alternative 4 No Trucks (out of 35 lanes)
0-1 am	7	8	13
1-2 am	6	6	10
2-3 am	4	5	8
3-4 am	4	5	8
4-5 am	9	9	15
5-6 am	9	9	15
6-7 am	16	17	28
7-8 am	16	17	28
8-9 am	16	17	28
9-10 am	16	17	28
10-11 am	14	16	25
11-12 pm	14	16	25
12-1 pm	14	16	25
1-2 pm	14	16	25
2-3 pm	14	16	25
3-4 pm	14	16	25
4-5 pm	14	16	25
5-6 pm	13	14	23
6-7 pm	13	14	23
7-8 pm	13	14	23
8-9 pm	13	14	23
9-10 pm	13	14	23
10-11 pm	9	9	15
11-12 am	6	6	10

NB Open Booths for Commercial Vehicles			
Hour	Alternative 1a with Trucks (out of 10)	Alternative 1a without Trucks	Alternative 4 (No Trucks)
6-7 am	2	N/A	N/A
7-8 am	3	N/A	N/A
8-9 am	7	N/A	N/A
9-10 am	7	N/A	N/A
10-11 am	5	N/A	N/A
11-12 pm	5	N/A	N/A
12-1 pm	3	N/A	N/A
1-2 pm	5	N/A	N/A

“80%” Scenario / Traffic by Border Crossing

Alternative 1a with trucks						
Crossing	SB POV	SB PED	SB TRK	NB POV	NB PED	NB TRK
Tornillo	1231	26	25	1577	27	59
Zaragoza	9012	3668	2408	9429	4265	1794
BOTA	17876	2637	850	14467	2955	1703
Stanton	5297	1894	0	2144	0	0
PDN	0	10507	0	6275	11484	0
SantaTeresa	2677	3	521	2209	4	274
Total	36093	18736	3804	36101	18736	3830

Alternative 1a with no trucks						
Crossing	SB POV	SB PED	SB TRK	NB POV	NB PED	NB TRK
Tornillo	1166	26	29	1577	27	139
Zaragoza	8093	3621	3041	9241	4219	2870
BOTA	20336	2642	0	14810	2959	0
Stanton	4347	1895	0	2120	0	0
PDN	0	10507	0	6275	11484	0
SantaTeresa	2252	3	734	2197	5	792
Total	36193	18695	3804	36220	18695	3801

“80%” Scenario / Traffic by Border Crossing

Alternative 4						
Crossing	**SB POV**	**SB PED**	**SB TRK**	**NB POV**	**NB PED**	**NB TRK**
Tornillo	1231	26	29	1349	26	139
Zaragoza	9095	3535	3041	8618	3925	2870
BOTA	18035	2690	0	17480	3080	0
Stanton	5307	1758	0	631	0	0
PDN	0	10507	0	6275	11484	0
SantaTeresa	2700	3	734	1875	4	792
Total	36368	18519	3804	36228	18519	3801

“50%” Scenario NB Open Booths assumed by alternative

NB Open Booths for Privately Owned Vehicles			
Hour	Alternative 1a with Trucks (out of 20 lanes)	Alternative 1a without Trucks (out of 22 lanes	Alternative 4 No Trucks (out of 35 lanes)
0-1 am	5	5	8
1-2 am	4	4	6
2-3 am	3	3	5
3-4 am	3	3	5
4-5 am	5	6	9
5-6 am	5	6	9
6-7 am	10	11	17
7-8 am	10	11	17
8-9 am	10	11	17
9-10 am	10	11	17
10-11 am	9	10	16
11-12 pm	9	10	16
12-1 pm	9	10	16
1-2 pm	9	10	16
2-3 pm	9	10	16
3-4 pm	9	10	16
4-5 pm	9	10	16
5-6 pm	8	9	14
6-7 pm	8	9	14
7-8 pm	8	9	14
8-9 pm	8	9	14
9-10 pm	8	9	14
10-11 pm	5	6	9
11-12 am	4	4	6

NB Open Booths for Commercial Vehicles			
Hour	Alternative 1a with Trucks (out of 10)	Alternative 1a without Trucks	Alternative 4 (No Trucks)
6-7 am	1	N/A	N/A
7-8 am	2	N/A	N/A
8-9 am	5	N/A	N/A
9-10 am	5	N/A	N/A
10-11 am	4	N/A	N/A
11-12 pm	4	N/A	N/A
12-1 pm	2	N/A	N/A
1-2 pm	4	N/A	N/A

“50 %” Scenario / Traffic by Border Crossing

Alternative 1a with trucks						
Crossing	**SB POV**	**SB PED**	**SB TRK**	**NB POV**	**NB PED**	**NB TRK**
Tornillo	1231	26	25	1577	27	51
Zaragoza	9012	3662	2408	10477	4437	1820
BOTA	17550	2644	850	9462	3112	1662
Stanton	5297	2223	0	5582	0	0
PDN	0	10507	0	6275	11484	0
SantaTeresa	2677	3	521	2387	4	300
Total	35767	19065	3804	35761	19065	3833

Alternative 4						
Crossing	**SB POV**	**SB PED**	**SB TRK**	**NB POV**	**NB PED**	**NB TRK**
Tornillo	1231	26	29	1456	27	138
Zaragoza	9133	3392	3040	9819	4061	2869
BOTA	17962	2195	0	14055	2582	0
Stanton	5325	2170	0	2398	0	0
PDN	0	10658	0	6310	11771	0
SantaTeresa	2676	4	736	2216	5	793
Total	36327	18446	3805	36253	18446	3800

Alternative 1a w/o Trucks PENDING

Regional VMT & Emissions Modeling

Scenario "80%"

		Vehicle-Miles-Traveled			NOx			VOC			CO2			CO			PM10			PM2.5		
		Vehicle-Miles-Traveled	TOTAL	% Change	kg/ day	TOTAL(kg/day)	% Change	kg/ day	TOTAL	% Change	kg/ day	TOTAL	% Change	kg/ day	TOTAL	% Change	kg/ day	TOTAL	% Change	kg/ day	TOTAL	% Change
	El Paso	560,334			324			169			255,244			1,893			102			27		
Baseline 2024	Juarez	626,266	1,210,332	-	406	746	-	280	458.11	-	354,798	622,242	-	2,841	4,829	-	337	447	-	82	111	-
	El Paso	581,679			335			176			265,645			1,957			108			29		
Alt 1a with Trucks	Juarez	631,130	1,237,065	2.21%	410	760	1.97%	282	467.74	2.10%	358,185	636,306	2.26%	2,868	4,921	1.91%	341	458	2.43%	83	113.8	2.42%
	El Paso	580,933			335			176			265,282			1,954			107			28		
Alt 1a without Trucks	Juarez	631,089	1,236,262	2.14%	411	761	2.04%	283	468.53	2.27%	359,250	637,022	2.38%	2,876	4,927	2.03%	342	458	2.35%	83	113.6	2.32%
	El Paso	585,158			337			177			267,220			1,968			110			29		
Alt 4	Juarez	635,503	1,245,074	2.87%	413	765	2.60%	284	470.59	2.72%	360,484	640,258	2.90%	2,886	4,951	2.54%	342	461	3.03%	83	114.4	3.02%

Regional VMT & Emissions Modeling

Scenario "50%"

		Vehicle-Miles-Traveled			NOx			VOC			CO2			CO			PM10			PM2.5		
		Vehicle-Miles-Traveled	TOTAL	% Change	kg/day	TOTAL(kg/day)	% Change	kg/day	TOTAL	% Change	kg/day	TOTAL	% Change	kg/day	TOTAL	% Change	kg/day	TOTAL	% Change	kg/day	TOTAL	% Change
	El Paso	560,334			324.5			169			255,244			1,893			102			27		
Baseline 2024	Juarez	626,266	1,210,332	-	406.4	746	-	280	458	-	354,798	622,242	-	2,841	4,829	-	337	447	-	82	111	-
	El Paso	581,596			336.0			177			266,714			1,963			110		2.81%	29		
Alt 1a with Trucks	Juarez	624,581	1,230,301	1.65%	408.2	759	1.81%	281	467	2.02%	355,638	634,799	2.02%	2,847	4,906	1.60%	341	460		83	114.1	2.75%
	El Paso																					
Alt 1a without Trucks	Juarez	PENDING																				
	El Paso	584,469			336.8			177			266,906			1,966			109		2.59%	29		
Alt 4	Juarez	625,989	1,234,667	2.01%	408.7	760	1.99%	281	467	2.00%	356,019	635,384	2.11%	2,849	4,912	1.72%	341	459		83	113.9	2.58%

Idling Emissions from Vehicles at border crossings

SCENARIO "80%" Idling emissions

BASELINE 2024	Idling Emissions (kg/day)					
	NOx	VOC	CO2	CO	PM10	PM2.5
SANTA TERESA	47	9	15,420	85	1	1
PASO DEL NORTE	44	15	23,399	161	1	1
STANTON	16	5	7,212	94	0.3	0.2
BOTA	192	38	61,694	713	5	5
YSLETA-ZARAGOZA	272	40		405	9	8
TORNILLO	18	7	10,489	60	0	0
TOTAL	589	112	189,196	1517	17	16

Alt 1a w/o Trucks	Idling Emissions (kg/day)					
	NOx	VOC	CO2	CO	PM10	PM2.5
SANTA TERESA	54	9	19,620	80	2	2
PASO DEL NORTE	44	14	23,140	161	1	1
STANTON	10	3	3,758	59	0.1	0.1
BOTA	164	47	73,107	901	3	3
YSLETA-ZARAGOZA	305	40	73,234	385	10	9
TORNILLO	19	7	10,491	59	0	0
TOTAL	596	120	203,349	1645	17	15

Alt 1a WITH TRUCKS	Idling Emissions (kg/day)					
	NOx	VOC	CO2	CO	PM10	PM2.5
SANTA TERESA	38	8	18,133	79	1.1	1.0
PASO DEL NORTE	44	14	23,269	161	0.9	0.8
STANTON	11	4	5,206	68	0.2	0.2
BOTA	254	43	71,015	803	7.4	8.8
YSLETA-ZARAGOZA	237	36	64,014	376	7.6	7.0
TORNILLO	18	7	10,512	60	0.3	0.3
TOTAL	603	111	192,150	1547	17.6	18.1

Alt 4	Idling Emissions (kg/day)					
	NOx	VOC	CO2	CO	PM10	PM2.5
SANTA TERESA	55	9	20,008	82	2	2
PASO DEL NORTE	44	14	23,269	161	1	1
STANTON	9	3	4,154	54	0.1	0.1
BOTA	108	27	41,441	690	2	2
YSLETA-ZARAGOZA	306	41	73,975	392	10	9
TORNILLO	18	6	9,893	55	0	0
TOTAL	540	100	172,740	1434	15	14

SCENARIO "50" Idling emissions

BASELINE 2024	Idling Emissions (kg/day)					
	NOx	VOC	CO2	CO	PM10	PM2.5
SANTA TERESA	47.2	9.1	15,420	84.6	1.4	1.3
PASO DEL NORTE	44.0	14.5	23,399	161.4	0.9	0.8
STANTON	15.6	5.0	7,212	94.2	0.3	0.2
BOTA	191.6	37.6	61,694	712.6	5.2	4.7
YSLETA-ZARAGOZA	272.3	39.6	70,982	404.6	8.9	8.2
TORNILLO	18.1	6.6	10,489	59.6	0.3	0.3
TOTAL	589	112	189,196	1517	17.0	15.5

Alt 1a w/o Trucks	Idling Emissions (kg/day)					
	NOx	VOC	CO2	CO	PM10	PM2.5
SANTA TERESA	PENDING					
PASO DEL NORTE						
STANTON						
BOTA						
YSLETA-ZARAGOZA						
TORNILLO						
TOTAL						

Alt 1a WITH TRUCKS	Idling Emissions (kg/day)					
	NOx	VOC	CO2	CO	PM10	PM2.5
SANTA TERESA	39	8	18,681	82	1.1	1.0
PASO DEL NORTE	44	14	23,269	161	0.9	0.8
STANTON	16	5	7,611	99	0.3	0.2
BOTA	259	38	67,092	727	7.8	7.1
YSLETA-ZARAGOZA	240	37	65,909	393	7.6	7.0
TORNILLO	18	7	10,512	60	0.3	0.3
TOTAL	616	110	193,074	1522	18.1	16.5

Alt 4	Idling Emissions (kg/day)					
	NOx	VOC	CO2	CO	PM10	PM2.5
SANTA TERESA	56	10	20,950	86	1.8	1.6
PASO DEL NORTE	44	15	23,399	161	0.9	0.8
STANTON	12	4	5,399	71	0.2	0.2
BOTA	133	38	59,578	786	2.4	2.2
YSLETA-ZARAGOZA	310	42	76,382	412	10.4	9.5
TORNILLO	19	6	10,283	57	0.4	0.3
TOTAL	574	114	195,991	1574	16.0	14.7

Overall Modeled Regional (Macro) and Idling (Simulation) Emissions

		Regional & Idling Daily Emissions Impact (kg/day)					
SCENARIO "80"	Vehicle-Miles-Traveled	NOx	VOC	CO2	CO	PM10	PM2.5
Baseline 2024	1,210,332	1,334 -	570 -	811,438 -	6,346 -	464 -	127 -
Alt 1a with Trucks	1,237,065	1,348 1.03%	570 0%	815,979 0.56%	6,371 0.40%	467 0.61%	130 2.38%
Alt 1a without Trucks	1,236,262	1,341 0.54%	579 1.57%	827,881 2.03%	6,475 2.03%	466 0.33%	127 0.00%
Alt 4	1,245,074	1,290 -3.32%	561 -1.59%	800,444 -1.35%	6,288 -0.91%	467 0.70%	126 -0.27%

		Regional & Idling Daily Emissions Impact (kg/day)					
SCENARIO "50"	Vehicle-Miles-Traveled	NOx	VOC	CO2	CO	PM10	PM2.5
Baseline 2024	1,210,332	1,334 -	570 -	811,438 -	6,346 -	464 -	127 -
Alt 1a with Trucks	1,230,301	1,375 3.03%	578 1.29%	827,873 2.03%	6,428 1.29%	478 2.94%	131 3.19%
Alt 1a without Trucks	PENDING						
Alt 4	1,234,667	1,334 0.02%	582 1.97%	831,375 2.46%	6,486 2.22%	475 2.29%	129 1.57%

Technical Memorandum - Draft

DATE: December,2, 2024

SUBJECT: BOTA traffic and air quality analyses

FROM: Claudia Valles/ Senior Environmental Planner
Jennifer Moreno Transportation Planner

TO: Eduardo Calvo/ Executive Director
Salvador Gonzalez-Ayala/ Manager Travel Research and Model Development

Purpose

The El Paso MPO conducted a traffic and air quality (emissions) analyses data and models for the region that include all six border crossings within the MPO region. The 50,80,100 percent scenarios are intended to provide sensitivity analysis on potential staffing level.

Baseline Scenario

Baseline 2024						
Crossing	SB POV	SB PED	SB TRK	NB POV	NB PED	NB TRK
Tornillo	1231	26	25	1577	27	50
Zaragoza	9083	3425	2408	10347	4170	2550
BOTA	17834	2197	850	10563	2627	570
Stanton	5319	2289	0	4990	0	0
PDN	0	10658	0	6310	11771	0
Santa Teresa	2661	4	521	2341	5	630
Total	36128	18600	3804	36130	18600	3800

1.Scenario “50%”

The following table are the number of open booths consider under the 50% scenario for each alternative. The distribution of percentages is based on the actual percentages obtained from CBP data from April 13 to April 26 during weekdays applied to the number of lanes consider in the design.

Scenario “50%” Northbound POV Open booths

NB Open Booths for Privately Owned Vehicles			
Hour	Alternative 1a with Trucks (out of 20 lanes)	Alternative 1a without Trucks (out of 22 lanes)	Alternative 4 No Trucks (out of 35 lanes)
0-1 am	5	5	8
1-2 am	4	4	6
2-3 am	3	3	5

3-4 am	3	3	5
4-5 am	5	6	9
5-6 am	5	6	9
6-7 am	10	11	17
7-8 am	10	11	17
8-9 am	10	11	17
9-10 am	10	11	17
10-11 am	9	10	16
11-12 pm	9	10	16
12-1 pm	9	10	16
1-2 pm	9	10	16
2-3 pm	9	10	16
3-4 pm	9	10	16
4-5 pm	9	10	16
5-6 pm	8	9	14
6-7 pm	8	9	14
7-8 pm	8	9	14
8-9 pm	8	9	14
9-10 pm	8	9	14
10-11 pm	5	6	9
11-12 am	4	4	6

Scenario “50%” Northbound Commercial Vehicles Open booths

NB Open Booths for Commercial Vehicles			
Hour	**Alternative 1a with Trucks (out of 10)**	**Alternative 1a without Trucks**	**Alternative 4 (No Trucks)**
6-7 am	1	N/A	N/A
7-8 am	2	N/A	N/A
8-9 am	5	N/A	N/A
9-10 am	5	N/A	N/A
10-11 am	4	N/A	N/A
11-12 pm	4	N/A	N/A
12-1 pm	2	N/A	N/A
1-2 pm	4	N/A	N/A

Traffic flow distribution modelled under "50%"

Cross border traffic flows are estimated using the iTDM tool for each alternative. The tables on this section present the daily traffic of each border crossing by direction, southbound (SB) or northbound (NB), and by mode auto (POV), pedestrian (PED) and commercial vehicles (TRK).

Alternative 1a with trucks						
Crossing	**SB POV**	**SB PED**	**SB TRK**	**NB POV**	**NB PED**	**NB TRK**
Tornillo	1,231	26	25	1,577	27	51
Zaragoza	9,012	3,662	2,408	10,477	4,437	1,820
BOTA	17,550	2,644	850	9,462	3,112	1,662
Stanton	5,297	2,223	0	5,582	0	0
PDN	0	10,507	0	6,275	11,484	0
Santa Teresa	2,677	3	521	2,387	4	300
Total	35,767	19,065	3,804	35,761	19,065	3,833

Daily Traffic Modelled at 50% Alt 1a with trucks

Alternative 4 with no trucks						
Crossing	**SB POV**	**SB PED**	**SB TRK**	**NB POV**	**NB PED**	**NB TRK**
Tornillo	1,080	26	29	1,577	27	139
Zaragoza	8,310	3,668	3,041	10,045	4,346	2,870
BOTA	19,951	2,641	0	10,612	2,995	0
Stanton	4,347	2,011	0	5,124	0	0
PDN	0	10,507	0	6,275	11,484	0
Santa Teresa	2,243	3	734	2,332	5	792
Total	35,930	18,857	3,804	35,965	18,857	3,801

Daily Crossings Modelled at 50% Alt 1a without trucks

Alternative 4 with no trucks						
Crossing	**SB POV**	**SB PED**	**SB TRK**	**NB POV**	**NB PED**	**NB TRK**
Tornillo	1,231	26	29	1,456	27	138
Zaragoza	9,133	3,392	3,040	9,819	4,061	2,869
BOTA	17,962	2,195	0	14,055	2,582	0
Stanton	5,319	2,170	0	2,398	0	0
PDN	0	10,658	0	6,310	11,771	0
Santa Teresa	2,661	4	736	2,216	5	793
Total	36,306	18,446	3,805	36,253	18,446	3,800

Daily Crossings Modelled at 50% Alt 4

Idling Emissions by border crossing

SCENARIO "50" Idling emissions						
BASELINE 2024	Idling Emissions (kg/day)					
	NOx	VOC	CO2	CO	PM10	PM2.5
SANTA TERESA	47.2	9.1	15,420	84.6	1.4	1.3
PASO DEL NORTE	44.0	14.5	23,399	161.4	0.9	0.8
STANTON	15.6	5.0	7,212	94.2	0.3	0.2
BOTA	191.6	37.6	61,694	712.6	5.2	4.7
YSLETA-ZARAGOZA	272.3	39.6	70,982	404.6	8.9	8.2
TORNILLO	18.1	6.6	10,489	59.6	0.3	0.3
TOTAL	589	112	189,196	1517	17.0	15.5

Alt 1a w/o Trucks	Idling Emissions (kg/day)					
	NOx	VOC	CO2	CO	PM10	PM2.5
SANTA TERESA	55.0	9.2	20,007	81.9	1.7	1.6
PASO DEL NORTE	43.7	14.4	23,269.1	160.5	0.9	0.8
STANTON	14.3	4.6	6,626.1	86.86	0.2	0.2
BOTA	140	41	64,383	806	2.7	2.5
YSLETA-ZARAGOZA	309	41.3	75,228	402.3	10.3	9.5
TORNILLO	18	6.3	10175	56.9	0.4	0.3
TOTAL	580	117	199,690	1,594	16	15

Alt 1a WITH TRUCKS	Idling Emissions (kg/day)					
	NOx	VOC	CO2	CO	PM10	PM2.5
SANTA TERESA	39	8	18,681	82	1.1	1.0
PASO DEL NORTE	44	14	23,269	161	0.9	0.8
STANTON	16	5	7,611	99	0.3	0.2
BOTA	259	38	67,092	727	7.8	7.1
YSLETA-ZARAGOZA	240	37	65,909	393	7.6	7.0
TORNILLO	18	7	10,512	60	0.3	0.3
TOTAL	616	110	193,074	1522	18.1	16.5

Alt 4	Idling Emissions (kg/day)					
	NOx	VOC	CO2	CO	PM10	PM2.5
SANTA TERESA	56	10	20,950	86	1.8	1.6
PASO DEL NORTE	44	15	23,399	161	0.9	0.8
STANTON	12	4	5,399	71	0.2	0.2
BOTA	133	38	59,578	786	2.4	2.2
YSLETA-ZARAGOZA	310	42	76,382	412	10.4	9.5
TORNILLO	19	6	10,283	57	0.4	0.3
TOTAL	574	114	195,991	1574	16.0	14.7

Regional Analysis

The regional analysis corresponds to the vehicle-miles-traveled for each scenario. With this data is possible to obtain the daily regional emissions.

		Scenario "50%"																				
		Vehicle-Miles-Traveled			NOx			VOC			CO2			CO			PM10			PM2.5		
		Vehicle-Miles-Traveled	TOTAL	% Change	kg/day	OTAL(kg/da	% Change	kg/day	TOTAL	% Change	kg/day	TOTAL	% Change	kg/day	TOTAL	% Change	kg/day	TOTAL	% Change	kg/day	TOTAL	% Change
	El Paso	560,334			324.5			169			255,244			1,893			102			27		
Baseline 2024	Juarez	626,266	1,210,332	-	406.4	746	-	280	458	-	354,798	622,242	-	2,841	4,829	-	337	447	-	82	111	-
	El Paso	581,596			336.0			177			266,714			1,963			110		2.81%	29		
Alt 1a with Trucks	Juarez	624,581	1,230,301	1.65%	408.2	759	1.81%	281	467	2.02%	355,638	634,799	2.02%	2,847	4,906	1.60%	341	460		83	114.1	2.75%
	El Paso	578,707			333.4			175.2			264,233			1,947			107			28		
Alt 1a without Trucks	Juarez	620,929	1,223,629	1.10%	406.4	755	1.22%	280	464	1.34%	354,208	630,810	1.38%	2,836	4,879	1.03%	340	456	1.83%	83	113	1.79%
	El Paso	584,469			336.8			177			266,906			1,966			109		2.59%	29		
Alt 4	Juarez	625,989	1,234,667	2.01%	408.7	760	1.99%	281	467	2.00%	356,019	635,384	2.11%	2,849	4,912	1.72%	341	459		83	113.9	2.58%

Combination of Regional emissions and IBC's Idling emissions Analysis

		Regional & Idling Daily Emissions Impact (kg/day)					
SCENARIO "50"	Vehicle-Miles-Traveled	NOx	VOC	CO2	CO	PM10	PM2.5
Baseline 2024	1,210,332	1,334 -	570 -	811,438 -	6,346 -	464 -	127 -
Alt 1a with Trucks	1,230,301	1,375 3.03%	578 1.29%	827,873 2.03%	6,428 1.29%	478 2.94%	131 3.19%
Alt 1a without Trucks	1,223,629	1,335 0.02%	581 1.87%	830,501 2.35%	6,473 2.00%	472 1.62%	128 1.11%
Alt 4	1,234,667	1,334 0.02%	582 1.97%	831,375 2.46%	6,486 2.22%	475 2.29%	129 1.57%

2. Scenario "80%"

Under this scenario, the percentage distribution assigned was based on the percentage of open booths throughout the day by hour. The percentage was applied base don the number of lanes proposed in the design.

Scenario "80%" Northbound POV Open booths

NB Open Booths for Privately-Owned Vehicles			
Hour	Alternative 1a with Trucks (out of 20 lanes)	Alternative 1a without Trucks (out of 22 lanes	Alternative 4 No trucks (out of 35 lanes)
0-1 am	7	8	13
1-2 am	6	6	10
2-3 am	4	5	8
3-4 am	4	5	8
4-5 am	9	9	15
5-6 am	9	9	15
6-7 am	16	17	28
7-8 am	16	17	28
8-9 am	16	17	28
9-10 am	16	17	28
10-11 am	14	16	25
11-12 pm	14	16	25
12-1 pm	14	16	25
1-2 pm	14	16	25
2-3 pm	14	16	25
3-4 pm	14	16	25
4-5 pm	14	16	25
5-6 pm	13	14	23
6-7 pm	13	14	23
7-8 pm	13	14	23
8-9 pm	13	14	23
9-10 pm	13	14	23
10-11 pm	9	9	15
11-12 am	6	6	10

Scenario “80%” Northbound Commercial Vehicles Open booths

NB Open Booths for Commercial Vehicles			
Hour	Alternative 1a with Trucks (out of 10)	Alternative 1a without Trucks	Alternative 4 (No Trucks)
6-7 am	2	N/A	N/A
8-9 am	7	N/A	N/A
9-10 am	7	N/A	N/A
10-11 am	5	N/A	N/A
11-12 pm	5	N/A	N/A
12-1 pm	3	N/A	N/A
1-2 pm	5	N/A	N/A

Traffic flow distribution modelled under "80%"

Alternative 1a with trucks						
Crossing	**SB POV**	**SB PED**	**SB TRK**	**NB POV**	**NB PED**	**NB TRK**
Tornillo	1,231	26	25	1,577	27	59
Zaragoza	9,012	3,668	2,408	9,429	4,265	1,794
BOTA	17,876	2,637	850	14,467	2,955	1,703
Stanton	5,297	1,894	0	2,144	0	0
PDN	0	10,507	0	6,275	11,484	0
Santa Teresa	2,677	3	521	2,209	4	274
Total	36,093	18,736	3,804	36,101	18,736	3,830

Daily Crossings Modelled at 80% Alt 1a with trucks

Alternative 1a with no trucks						
Crossing	**SB POV**	**SB PED**	**SB TRK**	**NB POV**	**NB PED**	**NB TRK**
Tornillo	1,166	26	29	1,577	27	139
Zaragoza	8,093	3,621	3,041	9,241	4,219	2,870
BOTA	20,336	2,642	0	14,810	2,959	0
Stanton	4,347	1,895	0	2,120	0	0
PDN	0	10,507	0	6,275	11,484	0
Santa Teresa	2,252	3	734	2,197	5	792
Total	36,193	18,695	3,804	36,220	18,695	3,801

Daily Crossings Modelled at 80% Alt 1a without trucks

Alternative 4 with no trucks						
Crossing	**SB POV**	**SB PED**	**SB TRK**	**NB POV**	**NB PED**	**NB TRK**
Tornillo	1,231	26	29	1,349	26	139
Zaragoza	9,095	3,535	3,041	8,618	3,925	2,870
BOTA	18,035	2,690	0	17,480	3,080	0
Stanton	5,307	1,758	0	631	0	0
PDN	0	10,507	0	6,275	11,484	0
Santa Teresa	2,700	3	734	1,875	4	792
Total	36,368	18,519	3,804	36,228	18,519	3,801

Daily Crossings Modelled at 80% Alt 4

Idling Emissions by border crossing

SCENARIO "80%" Idling emissions						
	Idling Emissions (kg/day)					
BASELINE 2024	NOx	VOC	CO2	CO	PM10	PM2.5
SANTA TERESA	47	9	15,420	85	1	1
PASO DEL NORTE	44	15	23,399	161	1	1
STANTON	16	5	7,212	94	0.3	0.2
BOTA	192	38	61,694	713	5	5
YSLETA-ZARAGOZA	272	40	70,982	405	9	8
TORNILLO	18	7	10,489	60	0	0
TOTAL	589	112	189,196	1517	17	16

	Idling Emissions (kg/day)					
Alt 1a w/o Trucks	NOx	VOC	CO2	CO	PM10	PM2.5
SANTA TERESA	54	9	19,620	80	2	2
PASO DEL NORTE	44	14	23,140	161	1	1
STANTON	10	3	3,758	59	0.1	0.1
BOTA	164	47	73,107	901	3	3
YSLETA-ZARAGOZA	305	40	73,234	385	10	9
TORNILLO	19	7	10,491	59	0	0
TOTAL	596	120	203,349	1645	17	15

	Idling Emissions (kg/day)					
Alt 1a WITH TRUCKS	NOx	VOC	CO2	CO	PM10	PM2.5
SANTA TERESA	38	8	18,133	79	1.1	1.0
PASO DEL NORTE	44	14	23,269	161	0.9	0.8
STANTON	11	4	5,206	68	0.2	0.2
BOTA	254	43	71,015	803	7.4	8.8
YSLETA-ZARAGOZA	237	36	64,014	376	7.6	7.0
TORNILLO	18	7	10,512	60	0.3	0.3
TOTAL	603	111	192,150	1547	17.6	18.1

	Idling Emissions (kg/day)					
Alt 4	NOx	VOC	CO2	CO	PM10	PM2.5
SANTA TERESA	55	9	20,008	82	2	2
PASO DEL NORTE	44	14	23,269	161	1	1
STANTON	9	3	4,154	54	0.1	0.1
BOTA	108	27	41,441	690	2	2
YSLETA-ZARAGOZA	306	41	73,975	392	10	9
TORNILLO	18	6	9,893	55	0	0
TOTAL	540	100	172,740	1434	15	14

Regional Analysis

The regional analysis corresponds to the vehicle-miles-traveled for each scenario. With this data is possible to obtain the daily regional emissions.

		Scenario "80%"																				
		Vehicle-Miles-Traveled			NOx			VOC			CO2			CO			PM10			PM2.5		
		Vehicle-Miles-Traveled	Total	% Change	kg/day	Total	% Change	kg/day	Total	% Change	kg/day	Total	% Change	kg/day	TOTAL	% Change	kg/day	Total	% Change	kg/day	Total	% Change
Baseline 2024	El Paso	560,334			324			169			255,244			1,893			102			27		
	Juarez	626,266	1,210,332	-	406	746	-	280	458.11	-	354,798	622,242	-	2,841	4,829	-	337	447	-	82	111	-
Alt 1a with Trucks	El Paso	581,679			335			176			265,645			1,957			108			29		
	Juarez	631,130	1,237,065	2.21%	410	760	1.97%	282	467.74	2.10%	358,185	636,306	2.26%	2,868	4,921	1.91%	341	458	2.43%	83	113.8	2.42%
Alt 1a without Trucks	El Paso	580,933			335			176			265,282			1,954			107			28		
	Juarez	631,089	1,236,262	2.14%	411	761	2.04%	283	468.53	2.27%	359,250	637,022	2.38%	2,876	4,927	2.03%	342	458	2.35%	83	113.6	2.32%
Alt 4	El Paso	585,158			337			177			267,220			1,968			110			29		
	Juarez	635,503	1,245,074	2.87%	413	765	2.60%	284	470.59	2.72%	360,484	640,258	2.90%	2,886	4,951	2.54%	342	461	3.03%	83	114.4	3.02%

Combination of Regional emissions and IBC's Idling emissions Analysis

		Regional & Idling Daily Emissions Impact (kg/day)					
SCENARIO "80"	Vehicle-Miles-Traveled	NOx	VOC	CO2	CO	PM10	PM2.5
Baseline 2024	1,210,332	1,334 -	570 -	811,438 -	6,346 -	464 -	127 -
Alt 1a with Trucks	1,237,065	1,348 1.03%	570 0%	815,979 0.56%	6,371 0.40%	467 0.61%	130 2.38%
Alt 1a without Trucks	1,236,262	1,341 0.54%	579 1.57%	827,881 2.03%	6,475 2.03%	466 0.33%	127 0.00%
Alt 4	1,245,074	1,290 -3.32%	561 -1.59%	800,444 -1.35%	6,288 -0.91%	467 0.70%	126 -0.27%

Row Labels	Average of Commerical Lane Wait Time (minutes)	Average of Express Commerical Lane Wait Time (minutes)	Average of Non-DCL Lane Passenger Wait Time (minutes)	Average of DCL Lane Wait Time (minutes)
CBP-EL PASO, YSLETA PORT ENTRY	13.3	6.9	18.8	2.2
CBP-TORNILLO FABENS	0.0	0.0	7.4	0.0
EL PASO, BOTA POE	4.9	3.2	26.5	0.0
EL PASO, PASO DEL NORTE POE	0.0	0.0	17.9	0.0
EL PASO, POE STANTON ST DCL	0.0	0.0	0.0	3.0
SANTA TERESA, PASSENGER OPS	17.2	0.0	23.1	0.0

These percentages are directly calculated from the number of booths open from April 13-April 26, 2024, only during weekdays at BOTA NB POV

	HOUR	% of booths opened for POV of 14 lanes
0	12-1 am	36%
1	1-2 am	29%
2	2-3 am	21%
3	3-4 am	21%
4	4-5 am	43%
5	5-6 am	43%
6	6-7 am	79%
7	7-8 am	79%
8	8-9 am	79%
9	9-10 am	79%
10	10-11 am	71%
11	11-12 pm	71%
12	12-13 pm	71%
13	13-14 pm	71%
14	14-15 pm	71%
15	15-16 pm	71%
16	16-17 pm	71%
17	17-18 pm	64%
18	18-19 pm	64%
19	19-20 pm	64%
20	20-21pm	64%
21	21-22 pm	64%
22	22-23 pm	43%
23	23-Midnight	29%