

# Appendix B

Air Quality Analysis Supportive Files

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# Appendix B-1

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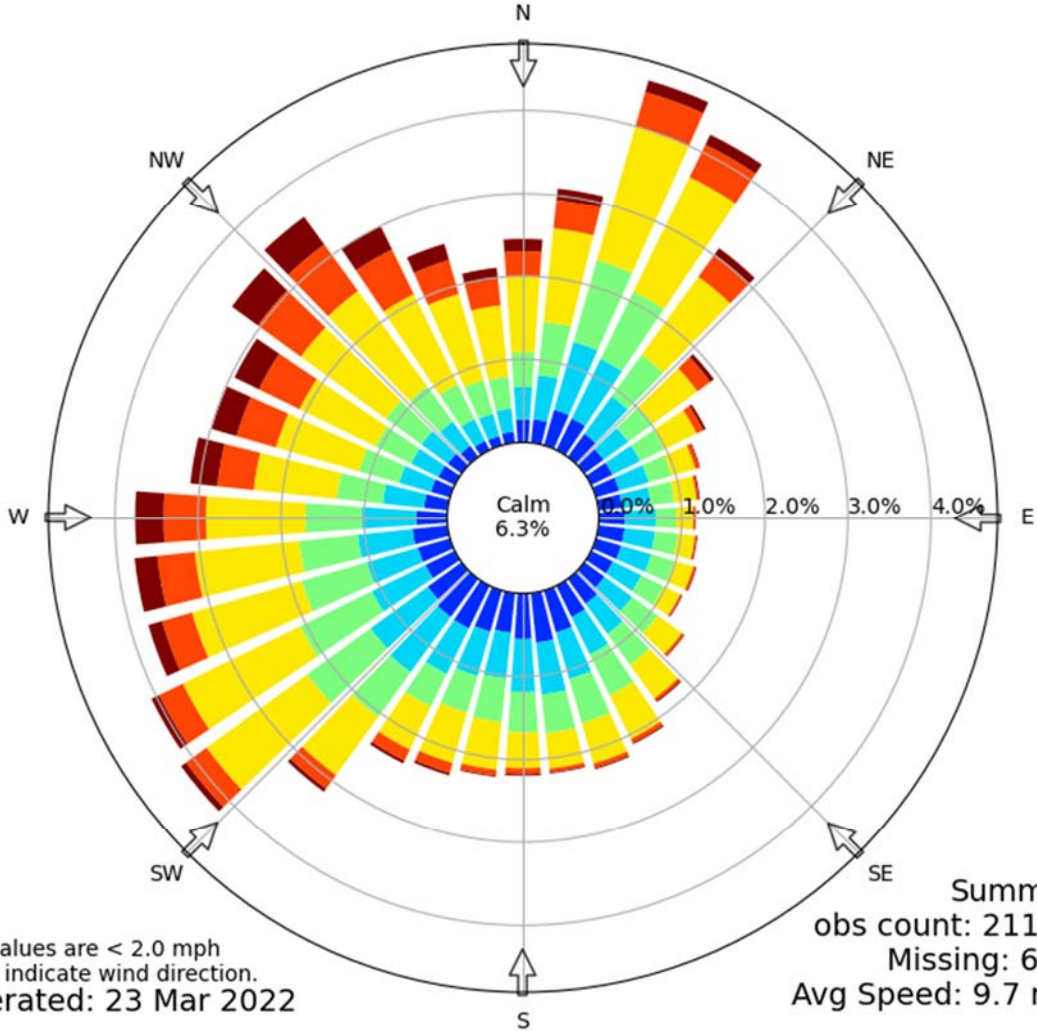
20-Year Newark Liberty International Airport Wind Rose

### 20 Year Wind Rose



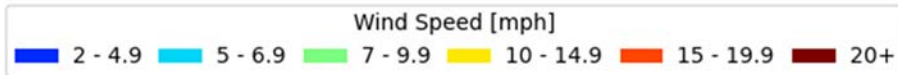
[EWR] NEWARK INTL AIRPORT  
Windrose Plot

Time Bounds: 01 Jan 2001 01:51 AM - 31 Dec 2021 11:51 PM America/New\_York



Calm values are < 2.0 mph  
Arrows indicate wind direction.  
Generated: 23 Mar 2022

Summary  
obs count: 211412  
Missing: 6326  
Avg Speed: 9.7 mph



## Appendix B-2

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2050 No Action Microscale Hot-Spot Assessment Results

**2050 No Action Alternative  
Microscale Air Quality Assessment Modeling Results**

Pollutant	Averaging Period	Units	Background Concentration <sup>1</sup>	Max Modeled Concentration	Total Concentration	NAAQS	Exceedance YES/NO
CO	1-hour	ppm	2.7	0.60	3.30	35	NO
	8-hour		2.10	0.27	2.37	9	NO
PM <sub>2.5</sub>	24-hour	µg/m <sup>3</sup>	22.00	3.19	25.19	35	NO
	Annual		8.70	1.28	9.98	12	NO

Notes:

<sup>1</sup>Background concentrations represent USEPA Design Values from the 2020 Design Values Reports. Although 2021 Design Values are available, Design Values used to establish total pollutant concentrations must coincide with the latest available quality assured meteorological data set from NJDEP, which is 2016-2020.

	1-hr			8-hr		
	Max Conc.	X	Y	Max Conc.	X	Y
CO_AM_2016_East1.8	0.579734	575450	4504900	0.239716	575575	4504850
CO_AM_2017_East1.8	0.537931	575450	4504900	0.239926	575670	4504808
CO_AM_2018_East1.8	0.573359	575450	4504900	0.269126	575450	4504900
CO_AM_2019_East1.8	0.564710	575450	4504900	0.228416	575709	4504872
CO_AM_2020_East1.8	0.586079	575450	4504900	0.256142	575450	4504900
CO_PM_2016_East1.8	0.452426	575450	4504900	0.191296	575670	4504808
CO_PM_2017_East1.8	0.426721	575450	4504900	0.190128	575670	4504808
CO_PM_2018_East1.8	0.424556	575450	4504900	0.188675	575450	4504900
CO_PM_2019_East1.8	0.422716	575709	4504872	0.183364	575709	4504872
CO_PM_2020_East1.8	0.463871	575450	4504900	0.211495	575450	4504900
CO_AM_2016_East2nd	0.589812	575450	4504900	0.238183	575691	4504885
CO_AM_2017_East2nd	0.546927	575450	4504900	0.229512	575670	4504808
CO_AM_2018_East2nd	0.583791	575450	4504900	0.253984	575450	4504900
CO_AM_2019_East2nd	0.573158	575450	4504900	0.229319	575691	4504885
CO_AM_2020_East2nd	0.596705	575450	4504900	0.251211	575575	4504850
CO_PM_2016_East2nd	0.458544	575450	4504900	0.176180	575670	4504808
CO_PM_2017_East2nd	0.436884	575450	4504900	0.185741	575691	4504885
CO_PM_2018_East2nd	0.431909	575450	4504900	0.186972	575691	4504885
CO_PM_2019_East2nd	0.430774	575709	4504872	0.186184	575691	4504885
CO_PM_2020_East2nd	0.470947	575450	4504900	0.210967	575575	4504850

	Annual			24-hr		
	Max Conc.	X	Y	Max Conc.	X	Y
PM2.5_East1.8	1.282170	575670	4504808	3.186440	575670	4504808
PM2.5_East2nd	1.121460	575691	4504885	2.884770	575875	4504625

## Appendix B-3

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2050 Proposed Action Microscale Hot-Spot Assessment Results

**2050 Proposed Action Alternative  
Microscale Air Quality Assessment Modeling Results**

Pollutant	Averaging Period	Units	Background Concentration <sup>1</sup>	Max Modeled Concentration	Total Concentration	NAAQS	Exceedance YES/NO
CO	1-hour	ppm	2.7	0.62	3.32	35	NO
	8-hour		2.10	0.28	2.38	9	NO
PM <sub>2.5</sub>	24-hour	µg/m <sup>3</sup>	22.00	3.68	25.68	35	NO
	Annual		8.70	1.43	10.13	12	NO

Notes:

<sup>1</sup>Background concentrations represent USEPA Design Values from the 2020 Design Values Reports. Although 2021 Design Values are available, Design Values used to establish total pollutant concentrations must coincide with the latest available quality assured meteorological data set from NJDEP, which is 2016-2020.

	1-hr			8-hr		
	Max Conc.	X	Y	Max Conc.	X	Y
CO_AM_2016_East1.8	0.574004	575670	4504808	0.263662	575950	4504550
CO_AM_2017_East1.8	0.547512	575670	4504808	0.264646	575670	4504808
CO_AM_2018_East1.8	0.538014	575670	4504808	0.279714	575670	4504808
CO_AM_2019_East1.8	0.561953	575709	4504872	0.246011	575950	4504550
CO_AM_2020_East1.8	0.604414	575709	4504872	0.268611	575670	4504808
CO_PM_2016_East1.8	0.533035	575670	4504808	0.227865	575670	4504808
CO_PM_2017_East1.8	0.509469	575950	4504550	0.227284	575670	4504808
CO_PM_2018_East1.8	0.482510	575691	4504885	0.224330	575691	4504885
CO_PM_2019_East1.8	0.540743	575691	4504885	0.220069	575691	4504885
CO_PM_2020_East1.8	0.591236	575709	4504872	0.246075	575670	4504808
CO_AM_2016_East2nd	0.567010	575670	4504808	0.254124	575875	4504625
CO_AM_2017_East2nd	0.553688	575950	4504550	0.249252	575875	4504625
CO_AM_2018_East2nd	0.542681	575670	4504808	0.260870	575800	4504700
CO_AM_2019_East2nd	0.572187	575709	4504872	0.242390	575775	4504725
CO_AM_2020_East2nd	0.615805	575709	4504872	0.249648	575670	4504808
CO_PM_2016_East2nd	0.527902	575670	4504808	0.221805	575775	4504725
CO_PM_2017_East2nd	0.516778	575950	4504550	0.220965	575775	4504725
CO_PM_2018_East2nd	0.494526	575691	4504885	0.224957	575691	4504885
CO_PM_2019_East2nd	0.550952	575691	4504885	0.222592	575691	4504885
CO_PM_2020_East2nd	0.602457	575709	4504872	0.234961	575670	4504808

	Annual			24-hr		
	Max Conc.	X	Y	Max Conc.	X	Y
PM2.5_East1.8	1.430900	575670	4504808	3.675540	575950	4504550
PM2.5_East2nd	1.331320	575775	4504725	3.551480	575875	4504625

# Appendix B-4

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2050 No Action & 2050 Proposed Action Regional MSAT/GHG Emissions



**MSATs**

Pollutant	Total Emissions (kilograms)		
	2050 No Build	2050 Build	% Change
Benzene	765.32	766.19	0.11%
Naphthalene Particle + Naphthalene Gas	38.05	38.09	0.11%
1,3 Butadiene	0.00	0.00	0.00%
Formaldehyde	826.10	826.22	0.01%
Acetaldehyde	723.08	723.08	0.00%
Acrolein	37.28	37.29	0.05%
Ethyl Benzene	352.18	352.50	0.09%
POM	16.00	16.02	0.12%
DPM	2030.06	2009.37	-1.02%

**CO2e**

Pollutant	Total Emissions (metric tons)		
	2050 No Action	2050 Proposed Action	% Change
CO2e	627,654.37	628,737.08	0.17%

# Appendix B-5

2028 & 2029 Construction-Related Emission Spreadsheets

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**Newark Bay Bridge Replacement**  
2028 and 2029 Construction-Related Emissions

<b>NBHCE</b>		
<b>Annual Emissions (tons/year)</b>		
Pollutant	2028	2029
CO	5.8313	11.722
NOx	19.143	34.480
VOC	0.94184	1.7548
PM10	11.360	12.018
PM2.5	1.7421	2.3287
CO2e	5,358.5	11,647
<b>Total Emissions</b>	<b>5,398</b>	<b>11,709</b>

Emissions	2028	2028	2028	2028	2029	2029	2029	2029
	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall
<b>Crews Working Per Quarter</b>								
Demolition Crew	0	0	0	0	1	1	1	1
Pile Driving Crew	0	0	0	0	0	0	0	0
Cofferdam Sheeting Crew	0	0	0	0	1	1	1	1
Civil Crew	0	0	0	0	0	0	0	0
Drilled Shaft Crew	0	0	0	0	1	1	1	1
Pinegrade Crew	0	0	0	0	0	0	0	0
Labor Crew	0	0	0	0	0	0	0	0
Carpenter Crew	0	0	0	1	0	0	0	0
Lather Crew	0	1	0	0	0	0	0	0
Excavation Crew	0	0	0	0	0	0	0	1
Concrete Pour Crew	1	1	1	1	1	0	0	0
Steel Erection Crew	0	0	0	0	1	1	0	0
Temporary Trestle Construction	0	0	0	1	1	0	0	0
Paving Crew	0	0	0	0	0	0	0	0

<b>Working Hours Per Quarter (Assuming 8 Hours of Work per Day)</b>								
Working Hours	704	720	720	696	696	720	720	696







# Newark Bay Bridge Replacement 2028 and 2029 Construction-Related Emissions

GWP	Pollutant
25	CH4
1	CO2
298	N2O

CO2e Nonroad emissions calculated from CH4 (GWP = 25), CO2 (GWP = 1), and N2O (GWP = 298)

		CO2e Nonroad Emissions Per Crew Per Quarter (Metric Tons)							
		2028				2029			
CO2e	Demolition Crew	0.0000	0.0000	0.0000	0.0000	981.10	1014.94	1014.94	981.10
CO2e	Pile Driving Crew	0.0000	0.0000	0.0000	0.0000	500.36	500.38	517.64	0.0000
CO2e	Cofferdam Sheeting Crew	0.0000	0.0000	0.0000	0.0000	288.32	298.26	298.26	288.32
CO2e	Civil Crew	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CO2e	Drilled Shaft Crew	0.0000	0.0000	0.0000	0.0000	359.26	371.64	371.64	359.26
CO2e	Finegrade Crew	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CO2e	Labor Crew	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CO2e	Carpenter Crew	0.0000	0.0000	0.0000	0.0000	529.55	0.0000	0.0000	0.0000
CO2e	Lather Crew	0.0000	547.81	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CO2e	Excavation Crew	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	60.257
CO2e	Concrete Pour Crew	602.63	616.33	616.33	595.79	595.80	0.0000	0.0000	0.0000
CO2e	Steel Erection Crew	0.0000	0.0000	0.0000	0.0000	523.00	541.03	0.0000	0.0000
CO2e	Temporary Trestle Construction	0.0000	0.0000	0.0000	0.0000	128.10	128.10	132.52	0.0000
CO2e	Paving Crew	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

		CO2e Onroad Emissions Per Crew Per Quarter (Metric Tons)							
		2028				2029			
CO2e	Demolition Crew	0.0000	0.0000	0.0000	0.0000	38.074	39.387	41.014	38.074
CO2e	Pile Driving Crew	0.0000	0.0000	0.0000	0.0000	29.972	29.492	30.509	0.0000
CO2e	Cofferdam Sheeting Crew	0.0000	0.0000	0.0000	0.0000	20.910	21.631	23.257	20.910
CO2e	Civil Crew	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CO2e	Drilled Shaft Crew	0.0000	0.0000	0.0000	0.0000	20.910	21.631	23.257	20.910
CO2e	Finegrade Crew	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CO2e	Labor Crew	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CO2e	Carpenter Crew	0.0000	0.0000	0.0000	0.0000	29.830	0.0000	0.0000	0.0000
CO2e	Lather Crew	0.0000	30.859	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CO2e	Excavation Crew	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	38.074
CO2e	Concrete Pour Crew	39.108	39.998	41.653	38.665	38.074	0.0000	0.0000	0.0000
CO2e	Steel Erection Crew	0.0000	0.0000	0.0000	0.0000	29.351	30.364	0.0000	0.0000
CO2e	Temporary Trestle Construction	0.0000	0.0000	0.0000	0.0000	21.280	20.910	21.631	0.0000
CO2e	Paving Crew	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

		CO2e Emissions Per Crew Per Quarter (Metric Tons)							
		2028				2029			
CO2e	Demolition Crew	0.0000	0.0000	0.0000	0.0000	1019.18	1054.32	1055.95	1019.18
CO2e	Pile Driving Crew	0.0000	0.0000	0.0000	0.0000	530.33	529.87	548.15	0.0000
CO2e	Cofferdam Sheeting Crew	0.0000	0.0000	0.0000	0.0000	309.23	319.89	321.52	309.23
CO2e	Civil Crew	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CO2e	Drilled Shaft Crew	0.0000	0.0000	0.0000	0.0000	380.17	393.28	394.90	380.17
CO2e	Finegrade Crew	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CO2e	Labor Crew	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CO2e	Carpenter Crew	0.0000	0.0000	0.0000	0.0000	559.38	0.0000	0.0000	0.0000
CO2e	Lather Crew	0.0000	578.67	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CO2e	Excavation Crew	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	98.33
CO2e	Concrete Pour Crew	641.74	656.33	657.98	634.45	633.87	0.0000	0.0000	0.0000
CO2e	Steel Erection Crew	0.0000	0.0000	0.0000	0.0000	552.35	571.40	0.0000	0.0000
CO2e	Temporary Trestle Construction	0.0000	0.0000	0.0000	0.0000	149.38	149.01	154.15	0.0000
CO2e	Paving Crew	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

**Newark Bay Bridge Replacement**  
2028 and 2029 Construction-Related Emissions

Watercraft Equipment Used Per Quarter								
	2028				2029			
Tugboat				1	2	0	0	0
Work Boat				2	2	0	0	0
Barge w Aux Eng.				1	2	0	0	0

Watercraft Average Installed Propulsion Power (Kilowatts)								
	2028				2029			
Tugboat	1,559	1,559	1,559	1,559	1,559	1,559	1,559	1,559
Work Boat	1,037	1,037	1,037	1,037	1,037	1,037	1,037	1,037
Barge w Aux Eng.	622	622	622	622	622	622	622	622

Watercraft CO Emission Rates								
	2028				2029			
Tugboat	0.8275	0.8275	0.8275	0.8275	0.8275	0.8275	0.8275	0.8275
Work Boat	0.6060	0.6060	0.6060	0.6060	0.6060	0.6060	0.6060	0.6060
Barge w Aux Eng.	0.4916	0.4916	0.4916	0.4916	0.4916	0.4916	0.4916	0.4916

Watercraft CO Emissios (Grams)								
	2028				2029			
Tugboat	0	0	0	897,890	1,795,781	0	0	0
Work Boat	0	0	0	874,821	874,821	0	0	0
Barge w Aux Eng.	0	0	0	212,804	425,609	0	0	0

Watercraft CO Emissios (US Tons)								
	2028				2029			
Tugboat	0.0000	0.0000	0.0000	0.98975	1.9795	0.000	0.000	0.000
Work Boat	0.0000	0.0000	0.0000	0.96432	0.96432	0.000	0.000	0.000
Barge w Aux Eng.	0.0000	0.0000	0.0000	0.23458	0.46915	0.000	0.000	0.000
<b>Total</b>				<b>2.1887</b>	<b>3.4130</b>			



**Newark Bay Bridge Replacement**  
2028 and 2029 Construction-Related Emissions

Watercraft NOx Emission Rates								
	2028				2029			
Tugboat	3.6938	3.6938	3.6938	3.6938	3.6938	3.6938	3.6938	3.6938
Work Boat	3.0145	3.0145	3.0145	3.0145	3.0145	3.0145	3.0145	3.0145
Barge w Aux Eng.	2.9470	2.9470	2.9470	2.9470	2.9470	2.9470	2.9470	2.9470

Watercraft NOx Emissios (Grams)								
	2028				2029			
Tugboat	0	0	0	4,008,037	8,016,073	0	0	0
Work Boat	0	0	0	4,351,460	4,351,460	0	0	0
Barge w Aux Eng.	0	0	0	1,275,805	2,551,610	0	0	0

Watercraft NOx Emissios (US Tons)								
	2028				2029			
Tugboat	0.000000	0.000000	0.000000	4.4181	8.8362	0.000000	0.000000	0.000000
Work Boat	0.000000	0.000000	0.000000	4.7967	4.7967	0.000000	0.000000	0.000000
Barge w Aux Eng.	0.000000	0.000000	0.000000	1.4063	2.8127	0.000000	0.000000	0.000000
<b>Total</b>				10.621	16.446			

Watercraft VOC Emission Rates								
	2028				2029			
Tugboat	0.082485	0.082485	0.082485	0.082485	0.082485	0.082485	0.082485	0.082485
Work Boat	0.083502	0.083502	0.083502	0.083502	0.083502	0.083502	0.083502	0.083502
Barge w Aux Eng.	0.088939	0.088939	0.088939	0.088939	0.088939	0.088939	0.088939	0.088939

Watercraft VOC Emissios (Grams)								
	2028				2029			
Tugboat	0	0	0	89,502	179,003	0	0	0
Work Boat	0	0	0	120,535	120,535	0	0	0
Barge w Aux Eng.	0	0	0	38,503	77,006	0	0	0



**Newark Bay Bridge Replacement**  
2028 and 2029 Construction-Related Emissions

Watercraft PM2.5 Emissios (Grams)	2028				2029			
	Tugboat	0	0	0	79,755	159,510	0	0
Work Boat	0	0	0	85,816	85,816	0	0	0
Barge w Aux Eng.	0	0	0	25,510	51,021	0	0	0

Watercraft PM2.5 Emissios (US Tons)	2028				2029			
	Tugboat	0.000000	0.000000	0.000000	0.087915	0.175829	0.000000	0.000000
Work Boat	0.000000	0.000000	0.000000	0.094595	0.094595	0.000000	0.000000	0.000000
Barge w Aux Eng.	0.000000	0.000000	0.000000	0.028120	0.056240	0.000000	0.000000	0.000000
<b>Total</b>				0.210630	0.326665			

Watercraft Load Factors	
Tugboat	0.5
Work Boat	0.45
Barge w Aux Eng.	0.43

Watercraft CH4 Emission Rates	2028				2029			
	Tugboat	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031
Work Boat	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038
Barge w Aux Eng.	0.0039	0.0039	0.0039	0.0039	0.0039	0.0039	0.0039	0.0039

Watercraft CH4 Emissios (Grams)	2028				2029			
	Tugboat	0	0	0	1,695	3,391	0	0
Work Boat	0	0	0	2,472	2,472	0	0	0
Barge w Aux Eng.	0	0	0	732	1,463	0	0	0

**Newark Bay Bridge Replacement**  
2028 and 2029 Construction-Related Emissions

3.19 Carbon Content Factor (g CO<sub>2</sub>/g fuel) for diesel

Watercraft CO <sub>2</sub> Emission Rates	2028				2029			
	Tugboat	679.47	679.47	679.47	679.47	679.47	679.47	679.47
Work Boat	679.47	679.47	679.47	679.47	679.47	679.47	679.47	679.47
Barge w Aux Eng.	679.47	679.47	679.47	679.47	679.47	679.47	679.47	679.47

Watercraft CO <sub>2</sub> Emissios (Grams)	2028				2029			
	Tugboat	0	0	0	368,634,218	737,268,436	0	0
Work Boat	0	0	0	441,367,948	441,367,948	0	0	0
Barge w Aux Eng.	0	0	0	126,484,808	252,969,616	0	0	0

0.000156 N<sub>2</sub>O Conversion Factor (g N<sub>2</sub>O/g fuel) for C1 and C2 engines

Watercraft N <sub>2</sub> O Emission Rates	2028				2029			
	Tugboat	0.0332	0.0332	0.0332	0.0332	0.0332	0.0332	0.0332
Work Boat	0.0332	0.0332	0.0332	0.0332	0.0332	0.0332	0.0332	0.0332
Barge w Aux Eng.	0.0332	0.0332	0.0332	0.0332	0.0332	0.0332	0.0332	0.0332

Watercraft N <sub>2</sub> O Emissios (Grams)	2028				2029			
	Tugboat	0	0	0	18,027	36,055	0	0
Work Boat	0	0	0	21,584	21,584	0	0	0
Barge w Aux Eng.	0	0	0	6,185	12,371	0	0	0

**Newark Bay Bridge Replacement**  
2028 and 2029 Construction-Related Emissions

<b>Watercraft CO2e Emissios (Grams)</b>									
	<b>2028</b>				<b>2029</b>				
Tugboat	0.0000	0.0000	0.0000	374,048,725	748,097,450	0.0000	0.0000	0.0000	
Work Boat	0.0000	0.0000	0.0000	447,861,821	447,861,821	0.0000	0.0000	0.0000	
Barge w Aux Eng.	0.0000	0.0000	0.0000	128,346,366	256,692,732	0.0000	0.0000	0.0000	
<b>Watercraft CO2e Emissios (Metric Tons)</b>									
	<b>2028</b>				<b>2029</b>				
Tugboat	0.000000	0.000000	0.000000	374.05	748.10	0.000000	0.000000	0.000000	
Work Boat	0.000000	0.000000	0.000000	447.86	447.86	0.000000	0.000000	0.000000	
Barge w Aux Eng.	0.000000	0.000000	0.000000	128.35	256.69	0.000000	0.000000	0.000000	
<b>Total</b>				950.26	1,452.7				

# Appendix B-6

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FY 2022-2025 Transportation Improvement Program Project Listing

**NS9801 Two Bridges Road Bridge and West Belt Extension**

Project Source	Exempt?	Exempt Category	Reg Sig?	Scenario Yr	Modeled
			N	2022	Y

Two Bridges Road over the Pompton River and West Belt Highway Extension in Lincoln Park Borough and Wayne Township is a tri-county project with Passaic county as the lead. Two Bridges Road bridge is structurally deficient and functionally obsolete. Alternatives will be examined to replace the structure and provide a missing link for the West Belt Highway by relocating or realigning the bridge. - Completion Date 2022.

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**TPK22100 TPK Newark Bay - Hudson County Extension Mainline Widening Program**

Project Source	Exempt?	Exempt Category	Reg Sig?	Scenario Yr	Modeled
AUTH_NJTA	N		Y	2030	Y

The New Jersey Turnpike Authority is proposing to reconstruct and widen the 8.1 mile Newark Bay-Hudson County Extension (NB-HCE) from New Jersey Turnpike Interchange 14 in Newark to Jersey Avenue in Jersey City. The main components of the Program are From Interchange 14 to Interchange 14A, replacing bridges and widening the roadway to four lanes in each direction plus full shoulders, including the Newark Bay Bridge over the Newark Bay From Interchange 14A to Interchange 14C, replacing bridges and widening the roadway to three lanes in each direction plus full shoulder ;From Interchange 14C to Jersey Avenue, replacing the viaduct structure and providing full shoulders.

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**TPK22101 TPK Westerly Alignment Mainline Widening Between Southern Mixing Bowl - 15W and Replacement of Laderman Bridge**

Project Source	Exempt?	Exempt Category	Reg Sig?	Scenario Yr	Modeled
AUTH_NJTA	N		Y		Y

This project plans to dualize the Laderman Memorial Bridge by constructing a new bridge adjacent to the existing bridge. The existing Laderman Memorial Bridge will be reconstructed with full shoulders.

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