

Project EW3
Construction Year 2015

Emission Calculations for Hydrocarbons

Equipment	HP	HR/YR	EF g/hp-hr^a	Grams/YR	Tons/YR
Specialized Railroad Equipment					
Ballast Regulators	300	480	0.701	100896	0.111
Ballast Tampers	466	480	0.622	139023	0.153
On Track Tie Handlers	125	240	0.779	23378	0.026
Portable Rail Drills	3	120	1.074	387	0.000
Portable Rail Grinders	1	120	1.074	129	0.000
Portable Rail Saws	1	120	1.074	129	0.000
Self-propelled Anchor Applicators	70	240	1.034	17378	0.019
Self-propelled Driver/Setters	100	240	1.077	25840	0.028
Self-propelled Track Brooms	185	480	0.701	62219	0.069
Tie Remover/Inserters	185	240	0.701	31110	0.034
Electric Welders	40	240	0.588	5646	0.006
General Construction Equipment					
Backhoes	400	960	0.593	227703	0.251
Air Compressors	100	480	0.314	15051	0.017
Cranes	100	480	0.259	12419	0.014
Excavators	500	120	0.160	9608	0.011
Loaders	250	120	0.593	17789	0.020
Lowboys	500	80	0.231	9259	0.010
Miscellaneous Equipment	150	240	0.245	8830	0.010
Rollers/Compactors	350	120	0.191	8031	0.009
Construction Trucks	400	960	0.149	57210	0.063
Construction Trucks	500	960	0.149	71512	0.079
	mph^b	HR/YR	EF g/mi^c	Grams/YR	Tons/YR
Light Duty Vehicles (LDGT) (On-site)	10	960	0.120	1152	0.001
Total Tons/Yr Construction Emissions					0.931

^a Emission factor taken from EPA's NONROAD 2008a model as summarized by CONSTILL1217.xls.
^b Traveling speed assumed to be 55 miles per hour for off-site vehicles and 10 miles per hour for on-site vehicles.
^c Emission factor taken from EPA's MOVES2010b model.

Project EW3
Construction Year 2015

Emission Calculations for Carbon Monoxide

Equipment	HP	HR/YR	EF g/hp-hr^a	Grams/YR	Tons/YR
Specialized Railroad Equipment					
Ballast Regulators	300	480	2.746	395473	0.436
Ballast Tampers	466	480	3.261	729510	0.804
On Track Tie Handlers	125	240	3.199	95962	0.106
Portable Rail Drills	3	120	7.275	2619	0.003
Portable Rail Grinders	1	120	7.275	873	0.001
Portable Rail Saws	1	120	7.275	873	0.001
Self-propelled Anchor Applicators	70	240	5.569	93559	0.103
Self-propelled Driver/Setters	100	240	6.169	148065	0.163
Self-propelled Track Brooms	185	480	2.746	243875	0.269
Tie Remover/Inserters	185	240	2.746	121937	0.134
Electric Welders	40	240	2.894	27785	0.031
General Construction Equipment					
Backhoes	400	960	2.116	812684	0.896
Air Compressors	100	480	2.858	137182	0.151
Cranes	100	480	1.733	83173	0.092
Excavators	500	120	0.886	53137	0.059
Loaders	250	120	2.116	63491	0.070
Lowboys	500	80	1.560	62391	0.069
Miscellaneous Equipment	150	240	1.106	39833	0.044
Rollers/Compactors	350	120	1.210	50811	0.056
Construction Trucks	400	960	0.637	244473	0.269
Construction Trucks	500	960	0.637	305591	0.337
	mph^b	HR/YR	EF g/mi^c	Grams/YR	Tons/YR
Light Duty Vehicles (LDGT) (On-site)	10	960	2.827	27139	0.030
Total Tons/Yr Construction Emissions					4.124

^a Emission factor taken from EPA's NONROAD 2008a model as summarized by CONSTILL1217.xls.
^b Traveling speed assumed to be 55 miles per hour for off-site vehicles and 10 miles per hour for on-site vehicles.
^c Emission factor taken from EPA's MOVES2010b model.

Project EW3
Construction Year 2015

Emission Calculations for Nitrogen Oxides

Equipment	HP	HR/YR	EF g/hp-hr ^a	Grams/YR	Tons/YR
Specialized Railroad Equipment					
Ballast Regulators	300	480	4.645	668939	0.737
Ballast Tampers	466	480	4.831	1080526	1.191
On Track Tie Handlers	125	240	4.904	147115	0.162
Portable Rail Drills	3	120	5.084	1830	0.002
Portable Rail Grinders	1	120	5.084	610	0.001
Portable Rail Saws	1	120	5.084	610	0.001
Self-propelled Anchor Applicators	70	240	5.348	89853	0.099
Self-propelled Driver/Setters	100	240	5.032	120779	0.133
Self-propelled Track Brooms	185	480	4.645	412513	0.455
Tie Remover/Inserters	185	240	4.645	206256	0.227
Electric Welders	40	240	4.634	44490	0.049
General Construction Equipment					
Backhoes	400	960	4.099	1573980	1.735
Air Compressors	100	480	3.240	155506	0.171
Cranes	100	480	2.951	141657	0.156
Excavators	500	120	2.220	133172	0.147
Loaders	250	120	4.099	122967	0.136
Lowboys	500	80	3.581	143251	0.158
Miscellaneous Equipment	150	240	2.827	101758	0.112
Rollers/Compactors	350	120	2.988	125477	0.138
Construction Trucks	400	960	1.627	624872	0.689
Construction Trucks	500	960	1.627	781090	0.861
Light Duty Vehicles (LDGT) (On-site)					
	mph ^b	HR/YR	EF g/mi ^c	Grams/YR	Tons/YR
	10	960	0.427	4099	0.005
Total Tons/Yr Construction Emissions					7.365

^a Emission factor taken from EPA's NONROAD 2008a model as summarized by CONSTILL1217.xls.

^b Traveling speed assumed to be 55 miles per hour for off-site vehicles and 10 miles per hour for on-site vehicles.

^c Emission factor taken from EPA's MOVES2010b model.

Project EW3
Construction Year 2015

Emission Calculations for Particulate Matter

Equipment	HP	HR/YR	EF g/hp-hr^a	Grams/YR	Tons/YR
Specialized Railroad Equipment					
Ballast Regulators	300	480	0.491	70756	0.078
Ballast Tampers	466	480	0.450	100718	0.111
On Track Tie Handlers	125	240	0.589	17663	0.019
Portable Rail Drills	3	120	0.776	279	0.000
Portable Rail Grinders	1	120	0.776	93	0.000
Portable Rail Saws	1	120	0.776	93	0.000
Self-propelled Anchor Applicators	70	240	0.855	14364	0.016
Self-propelled Driver/Setters	100	240	0.946	22714	0.025
Self-propelled Track Brooms	185	480	0.491	43633	0.048
Tie Remover/Inserters	185	240	0.491	21816	0.024
Electric Welders	40	240	0.499	4794	0.005
General Construction Equipment					
Backhoes	400	960	0.400	153635	0.169
Air Compressors	100	480	0.397	19067	0.021
Cranes	100	480	0.261	12550	0.014
Excavators	500	120	0.137	8220	0.009
Loaders	250	120	0.400	12003	0.013
Lowboys	500	80	0.218	8731	0.010
Miscellaneous Equipment	150	240	0.246	8859	0.010
Rollers/Compactors	350	120	0.173	7266	0.008
Construction Trucks	400	960	0.104	39962	0.044
Construction Trucks	500	960	0.104	49952	0.055
Light Duty Vehicles (LDGT) (On-site)					
	mph^b	HR/YR	EF g/mi^c	Grams/YR	Tons/YR
	10	960	0.040	384	0.000
Total Tons/Yr Construction Emissions					0.679

^a Emission factor taken from EPA's NONROAD 2008a model as summarized by CONSTILL1217.xls.
^b Traveling speed assumed to be 55 miles per hour for off-site vehicles and 10 miles per hour for on-site vehicles.
^c Emission factor taken from EPA's MOVES2010b model.

Project EW3
Construction Year 2015

Emission Calculations for Particulate Matter 2.5

Equipment	HP	HR/YR	EF g/hp-hr ^a	Grams/YR	Tons/YR
Specialized Railroad Equipment					
Ballast Regulators	300	480	0.477	68633	0.076
Ballast Tampers	466	480	0.437	97696	0.108
On Track Tie Handlers	125	240	0.571	17133	0.019
Portable Rail Drills	3	120	0.753	271	0.000
Portable Rail Grinders	1	120	0.753	90	0.000
Portable Rail Saws	1	120	0.753	90	0.000
Self-propelled Anchor Applicators	70	240	0.829	13933	0.015
Self-propelled Driver/Setters	100	240	0.918	22032	0.024
Self-propelled Track Brooms	185	480	0.477	42324	0.047
Tie Remover/Inserters	185	240	0.477	21162	0.023
Electric Welders	40	240	0.484	4650	0.005
General Construction Equipment					
Backhoes	400	960	0.400	153635	0.169
Air Compressors	100	480	0.385	18495	0.020
Cranes	100	480	0.254	12174	0.013
Excavators	500	120	0.133	7974	0.009
Loaders	250	120	0.388	11643	0.013
Lowboys	500	80	0.212	8469	0.009
Miscellaneous Equipment	150	240	0.239	8594	0.009
Rollers/Compactors	350	120	0.168	7048	0.008
Construction Trucks	400	960	0.101	38763	0.043
Construction Trucks	500	960	0.101	48454	0.053
Light Duty Vehicles (LDGT) (On-site)					
	mph ^b	HR/YR	EF g/mi ^c	Grams/YR	Tons/YR
	10	960	0.015	135	0.000
Total Tons/Yr Construction Emissions					0.663

^a Emission factor taken from EPA's NONROAD 2008a model as summarized by CONSTILL1217.xls.

^b Traveling speed assumed to be 55 miles per hour for off-site vehicles and 10 miles per hour for on-site vehicles.

^c Emission factor taken from EPA's MOVES2010b model.

Project EW3
Construction Year 2015

Emission Calculations for Sulfur Dioxide

Equipment	HP	HR/YR	EF g/hp-hr ^a	Grams/YR	Tons/YR
Specialized Railroad Equipment					
Ballast Regulators	300	480	0.005	766	0.001
Ballast Tampers	466	480	0.005	1194	0.001
On Track Tie Handlers	125	240	0.005	162	0.000
Portable Rail Drills	3	120	0.006	2	0.000
Portable Rail Grinders	1	120	0.006	1	0.000
Portable Rail Saws	1	120	0.006	1	0.000
Self-propelled Anchor Applicators	70	240	0.006	102	0.000
Self-propelled Driver/Setters	100	240	0.006	144	0.000
Self-propelled Track Brooms	185	480	0.005	472	0.001
Tie Remover/Inserters	185	240	0.005	236	0.000
Electric Welders	40	240	0.006	57	0.000
General Construction Equipment					
Backhoes	400	960	0.005	2024	0.002
Air Compressors	100	480	0.005	239	0.000
Cranes	100	480	0.005	233	0.000
Excavators	500	120	0.004	257	0.000
Loaders	250	120	0.005	158	0.000
Lowboys	500	80	0.005	181	0.000
Miscellaneous Equipment	150	240	0.004	161	0.000
Rollers/Compactors	350	120	0.004	187	0.000
Construction Trucks	400	960	0.004	1555	0.002
Construction Trucks	500	960	0.004	1944	0.002
	mph^b	HR/YR	EF g/mi^c	Grams/YR	Tons/YR
Light Duty Vehicles (LDGT) (On-site)	10	960	0.001	91	0.000
Total Tons/Yr Construction Emissions					0.009

^a Emission factor taken from EPA's NONROAD 2008a model as summarized by CONSTILL1217.xls.

^b Traveling speed assumed to be 55 miles per hour for off-site vehicles and 10 miles per hour for on-site vehicles.

^c Emission factor taken from EPA's MOVES2010b model.



Tier II Consultation Meeting

Minutes -October 24, 2013 and follow up phone call on November 1, 2013

Participants:

Michelle Allen	FHWA via phone
Reggie Arkell	FTA via phone
Patricia Berry,	CMAP
Bill Barbel	AECOM via phone
Mitch Barloga	NIRPC via phone
Frank Baukert	INDOT via phone
Claire Bozic	CMAP
Bruce Carmitchel	IDOT – Office of Planning & Programming
Teri Dixon	CMAP
John Donovan	FHWA
Gale Ferris	IDEM via phone
Matt Fuller	FHWA via phone
Kevin Garcia	NIRPC via phone
Jerry Halperin	INDOT via phone
Larry Heil	FHWA via phone
Greg Katter	INDOT via phone
Katie Kukielka	IDOT/AECOM
Alice Lovegrove	Parsons Brinckerhoff via phone
Kathy Luther	NIRPC via phone
Anthony Maietta	EPA Region 5
Adin McCann	HNTB
Jay Mitchell	INDOT via phone
Roy Nunnally	INDOT via phone
Steve Ott	Parson Brinckerhoff
Ross Patronsky	CMAP
Mark Pitstick	RTA
Curt Overcast	HDR via phone
Jim Pinkerton	INDOT via phone
Janice Reid	HDR
Mike Rogers	IEPA
Steve Schilke	IDOT
Ron Shimizu	Parsons Brinckerhoff
Chris Schmidt	IDOT – Office of Planning & Programming
Brian Smith	AECOM via phone
Steve Strains	NIRPC via phone
Ed Tadross	Parsons Brinckerhoff via phone
Samuel Tuck III	IDOT
Scott Weber	NIRPC via phone
Andrew Williams-Clark	CMAP
Yamilee Volcy	FHWA

1.0 Call to Order and Introductions

The meeting was called to order at 10:33 a.m.

2.0 Approval of Minutes – September 20, 2013

Approval of the September 20, 2013 minutes will be included on the agenda at next meeting.

3.0 Illiana PM_{2.5} Hot Spot Analysis

Ms. Lovegrove discussed the revised and expanded report which highlighted changes in the PM_{2.5} hot spot analysis report. The updated details include updating Tables 1 and 2, the preliminary projected 2040 and 2018 bi-directional AADT respectively. Ms. Lovegrove also wanted the committee's thoughts on two issues 1) monitors and 2) receptors. The Braidwood site was used as the background concentration monitor because it is more rural and more indicative of wind conditions, but Ms. Lovegrove said that the East Chicago monitor could be used also. The committee concurred that Braidwood was the appropriate site although consultants were willing to include East Chicago.

Mr. Patronsky asked which standard was being used for comparison – the 1997 or the 2012 standard. Mr. Maietta said that the standard in effect now (the 1997 standard) is the applicable one. The suggestion was made that the 2012 standard be acknowledged since it will be applicable in the very near future. Mr. Maietta stated that he will confirm this when he gets back to the office.

Mr. Pitstick asked if the AADT numbers were high end or low end estimates. Ms. Lovegrove said these were mid-range estimates. Ms. Lovegrove stated that tables 1 and 2 are based on certain segments and present the worst case truck traffic for PM_{2.5}.

Mr. Patronsky asked for a table or appendix that documents the origin of MOVES input files, including who provided each file and when it was provided. Mr. Shimizu stated that there is a draft technical report which includes this information. Ms. Lovegrove stated that in the current draft there are electronic files but that it is possible to add tables, so that it will be clear that these files exist and are available in more than one place.

Subsequent to the October 24 meeting the committee met on November 1, 2013. Those attending included: Patricia Berry-CMAP, Bill Barbel-AECOM via phone, Frank Baukert-INDOT via phone, Mitch Barloga-NIRPC via phone, Claire Bozic-CMAP, Teri Dixon-CMAP, John Donovan-FHWA, Gale Ferris-IDEM via phone, Matt Fuller-FHWA via phone, Jim Hargrove via phone, Alice Lovegrove-AECOM via phone, Michael Leslie-US EPA, Kathy Luther-NIRPC via phone, Steve Ott-Parsons Brinckerhoff via phone, Ross Patronsky-CMAP, Mike Rogers-IEPA via phone, Ron Shimizu-Parsons Brinckerhoff via phone, Chris Schmidt-IDOT via phone, Shawn Seals-IDEM via phone, Scott Weber-NIRPC via phone.

The team concurred on a motion from Chris Schmidt and seconded by Mike Rogers that the updated receptor maps submitted by the consultant were adequate. The next meeting was scheduled for November 22, 2013 and subsequently rescheduled for November 15, 2013.

4.0 PM_{2.5} Proposed Designation Boundaries

Mr. Rogers reviewed the Recommended Annual PM_{2.5} Nonattainment Area Designation in Illinois. The proposed nonattainment area boundary designations are out for a 30-day public comment period ending November 12, 2013. The state recommendation to US EPA will be in December 2013; the US EPA designation will be no later than December, 2014. Attainment is to be in 2021.

Mr. Zyznieuski observed that only one monitor in Chicago is over the 12.0 microgram per cubic meter standard and asked whether other counties could be designated as in attainment. Mr. Rogers replied that PM_{2.5} is a regional pollutant as well as a local pollutant, so areas that contribute to the nonattainment status are included as well.

5.0 Tracking Projects of Air Quality Concern (PAQC)

Mr. Zyznieuski stated that the CREATE EW3 freight project could be deleted from the list since a hot spot analysis is not required for freight projects.

In response to a question from Ms. Berry as to whether there had been any recent decisions on projects of air quality concern at District 1/FHWA coordination meetings, Mr. Donovan said he would forward the most recent minutes.

6.0 CREATE East-West Corridor From Argo Interlocking (Cook) to CP509 (Cook) EW-3 Pullman JCT (01-05-0012)- General Conformity Analysis

Ms. Reid asked if Cook County emission rates or project level rates should be used to estimate emission rates for light duty trucks. Mr. Overcast stated that the project includes one truck that is used approximately 960 hours per year. The consultant suggested that the national default emission rates for vehicle types 31 and 32 in Cook County could be used. Mr. Patronsky stated CMAP has no better data for light duty trucks although the age of the truck could be incorporated. Mr. Rogers confirmed that IEPA had no better data. The committee agreed by consensus that the default data could be used.

7.0 Major Capital Project Updates

The committee was reminded that Major Capital Project Updates are available on the Transportation Committee web page.

8.0 Other Business

There was no other business.

9.0 Public Comment

There was no public comment.

10.0 Next Meeting

The next meeting will be on call.

11.0 Adjournment

The meeting was adjourned at 11:51 a.m.

Tier II Consultation Team Members:

	CMAP		FHWA		FTA		IDOT
	IEPA		RTA		USEPA		

SAMPLE

References:

1. "CREATE Air Quality Methodology." Illinois Department of Transportation. April 2011.
2. "Emissions and Emission Factors for Diesel Construction Equipment and Diesel Railroad Maintenance Equipment for the Years 2012-2017." USEPA. March 2012.
3. "Motor Vehicle Emissions Simulator (MOVES)2010b." USEPA. June 2012.

SAMPLE