Region 5 - Port of Indiana & Port of Detroit Focus (Phase II)

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Region 5 Objectives

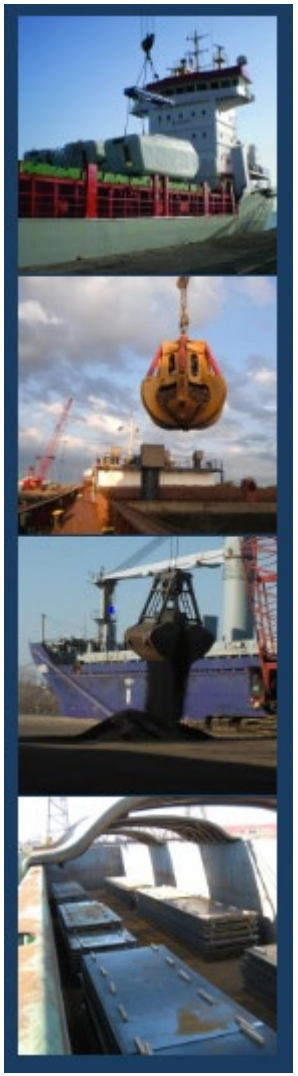
- Intended to provide focus and support to Region 5's Ports Initiative and Goods Movement initiatives
- Part of overall process to develop a community and port engagement strategy in Region 5 with a focus on direct project implementation
- Assist our regional partners identify and target equipment and vehicles that have air quality impacts tied to Regional port and goods movement activity.

Scope of Work (Phase II)

- Identification of Port of Indiana (Burns Harbor Terminal) and Port of Detroit (Nicholson Ecorse Terminal) Diesel Vehicle Inventories, Activities, and Distribution Links using available management and operations (M&O) funds:

- Phase 1 - inventory of diesel equipment at ports (equipment type, year, and relevant emissions information of all equipment located at the port or who move around exclusively (more than 75% of their usage time) within the port)

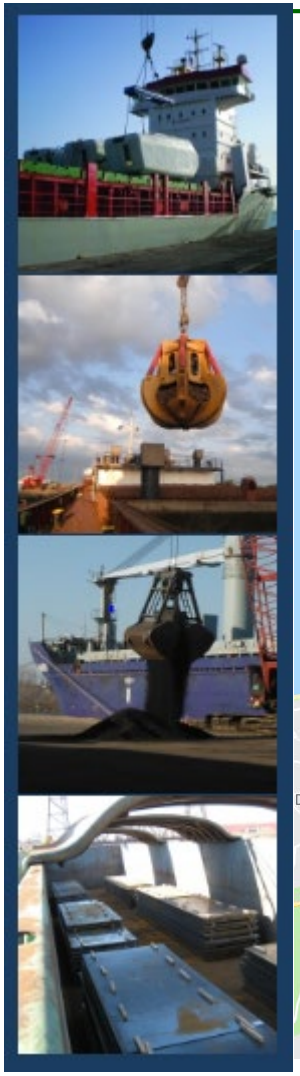
- Phase 2 – information regarding shipments from port terminals to the next link in the distribution chain of these goods for one month. Map out and tabulate the distance of shipments to get to the next distribution link

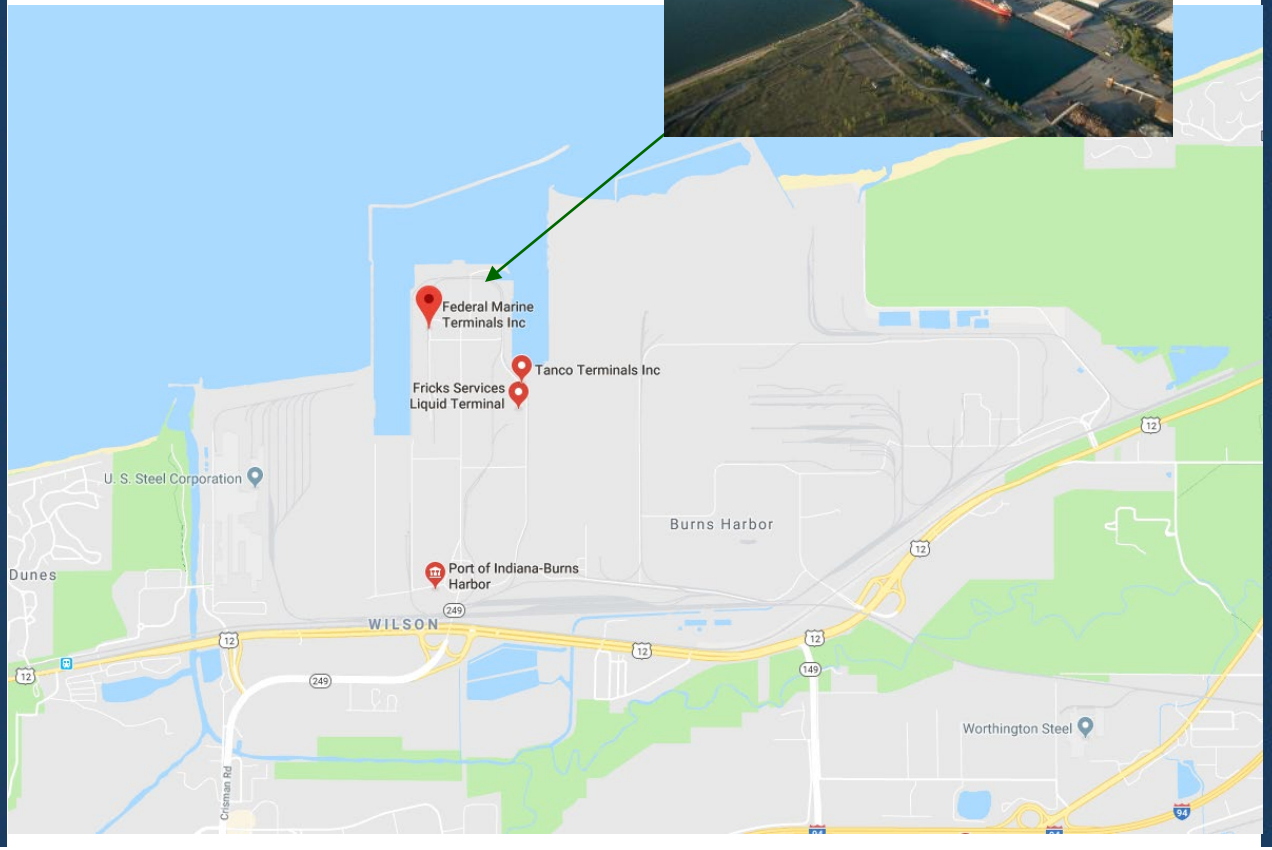


Burns Harbor Terminal (Port of Indiana)

- Located ~42 miles from downtown Chicago in the largest steel-producing region in North America. Home to 30 port companies, including 15 steel-related companies and 3 steel mills.
- Two Stevedoring companies (Federal Marine Terminals and Metro Ports) operate a range of machinery: crawler cranes, forklifts, loaders, trucks and other equipment.
- Handles iron, steel, grain, chemicals, fertilizers, limestone, coal, coke, salt and heavy lift cargo.
- 5,550 feet of docking berth
- 330,000 square feet of warehouse with loading dock space
- Rail access to all Class I railroads with switching provided by Norfolk Southern and linked to Chicago rail network

Burns Harbor Terminal (Port of Indiana)





Burns Harbor Terminal (Port of Indiana)

Ecorse Terminal (Port of Detroit)

- Located on the bank of the Strait of Detroit in Ecorse (just south of the Rouge River).
- Operates range of cargo handling equipment: forklifts, tractor-trailers, crawler cranes, gantry cranes, and a locomotive switcher.
- Terminal handles primarily steel cargos, such as steel slabs, hot and cold rolled steel coils, and steel plate.
- Maintains five operating berths with 3,400 feet of dock length
- Employs ~100 individuals year round and additional 250 individuals during the peak of the shipping season.
- 200,000 square feet of warehouse storage facilities
- 47 acres of outside storage space

Ecorse Terminal (Port of Detroit)

Ecorse Terminal (Port of Detroit)

Phase I – Diesel Vehicle Inventories

Burns Harbor Terminal (Port of Indiana)

Count	Equipment		Model Number	Model Year	Engine Manufacturer	Engine Rating		Emission Controls	Image Key
	Type	Manufacturer				HP	kW		
1	Container Machine	Hyster	H620B	1972	Detroit Diesel 6-cyl	300	234	Pre-Control	11
2	Crawler	Manitowoc	4100W s.2	1973	Cummins	333	248	Pre-Control	12
3	Crawler	Manitowoc	M2250 s.3	1999	Cummins	450	336	Tier 1	13
4	Crawler	Manitowoc	M2250 s.3	1999	Cummins	450	336	Tier 1	13
5	Forklift	Hyster	H60FT	2008	YANMAR 4TNE92-NMH	40	30	Tier 4	14
6	Forklift	Hyster	H80XM	2004	PERKINS 2158/2100	94(est)	70(est)	Tier 2	15
7	Forklift	Hyster	H80FT	2007	CUMMINS B 4.5 RGT	78	58	Tier 2	16
8	Forklift	Hyster	H110XL	1998	Cummins 4-cyl	78	58	Tier 1	17
9	Forklift	Hyster	H155XL	1998	PERKINS 1548/2400	100(est)	75(est)	Tier 1	18
10	Forklift	Hyster	H155XL	1995	PERKINS 1548/2400	100(est)	75(est)	Pre-Control	18
11	Forklift	Taylor	THD160	1998	CUMMINS B 3.9 C	99	74	Tier 1	9
12	Forklift	Taylor	TE360L	1997	CUMMINS B 5.9 C	160	119	Tier 1	19
13	Forklift	Hyster	H360XL2	1997	PERKINS 1554/2600	155	116	Tier 1	20
14	Forklift	Hyster	H360XL2	1997	PERKINS 1554/2600	155	116	Tier 1	20
15	Forklift	Taylor	TE360L	1998	CUMMINS B 5.9 C	160	119	Tier 1	19
16	Forklift	Hyster	H360XL2	1998	PERKINS 1929/2300	155	116	Tier 1	20
17	Forklift	Hyster	H360XL2	1998	PERKINS 1929/2300	155	116	Tier 1	20
18	Forklift	Hyster	H360XL2	1995	PERKINS 1552/2600	155	116	Tier 1	20
19	Forklift	Hyster	H360XL2	1998	PERKINS 1929/2300	155	116	Tier 1	20
20	Forklift	Hyster	H360HD	2005	CUMMINS QSB 5.9	160	119	Tier 2	20
21	Forklift	Hyster	H360HD	2006	CUMMINS QSB 5.9	160	119	Tier 2	20
22	Forklift	Hoist	P360 24	2015	Cummins 4-cyl	160	119	Tier 4	21
23	Forklift	Hyster	H360HD-2	2016	CUMMINS	160	119	Tier 4	20
24	Forklift	Hoist	P360 24	2015	Cummins 4-cyl	160	119	Tier 4	21
25	Forklift	Hyster	H360HD-2	2016	CUMMINS	160	119	Tier 4	20
26	Container Hoist	Hyster	H450H	2005	CUMMINS QSB 5.9	160	119	Tier 2	22
27	Forklift	Hyster	H550FS	1997	CUMMINS C 8.3 C	260	194	Tier 1	23
28	Forklift	Hyster	H550F	1998	CUMMINS C 8.3 C	260	194	Tier 1	23
29	Forklift	Hyster	H550F	1998	CUMMINS C 8.3 C	260	194	Tier 1	23
30	Forklift	Hyster	H550F	1999	CUMMINS C 8.3 C	260	194	Tier 1	23
31	Forklift	Hyster	H550HD	2017	Cummins	260	194	Tier 4	23
32	Forklift	Taylor	TE650L	1998	CUMMINS C 8.3 C	260	194	Tier 1	24
33	Forklift	Hyster	H700F	1997	CUMMINS C 8.3 C	260	194	Tier 1	25

Burns Harbor Terminal (Port of Indiana) (continued)

Count	Equipment Type	Equipment Manufacturer	Model Number	Model Year	Engine Manufacturer	Engine Rating HP	Engine Rating kW	Emission Controls	Image Key
34	Forklift	Hyster	H700FS	2007	CUMMINS QSC	260	194	Tier 3	25
35	Forklift	Hyster	H700FS	2007	CUMMINS QSC	260	194	Tier 3	25
36	Forklift	Hoist	P700	2015	Cummins	260	194	Tier 4	26
37	Forklift	Hoist	P700	2015	Cummins	260	194	Tier 4	26
38	Forklift	Taylor	TE925S	1993	Cummins	400(est)	298(est)	Pre-Control	27
39	Forklift	Taylor	TE925S	1991	CUMMINS NTA 855 C	400(est)	298(est)	Pre-Control	27
40	Truck	International	1954 Fuel Truck	1988		250	186	–	28
41	Generator	Honda	EX 3300	??	Honda	4	3	Tier 4?	29
42	Kawasaki Mule	Kawasaki	KAF 400 BEF	2014	Kawasaki	175(est)	130(est)	Tier 4	30
43	Kawasaki Mule	Kawasaki	KAF 400 BEF	2014	Kawasaki	175(est)	130(est)	Tier 4	30
44	Kawasaki Mule	Kawasaki	KAF 400 A	2015	Kawasaki	175(est)	130(est)	Tier 4	30
45	Light Plant	Allman	Light Plant	1999	Perkins	10(est)	7(est)	Pre-Control	31
46	Light Plant	Coleman	Light Plant	1989	Kubota	6(est)	4(est)	Pre-Control	32
47	Light Plant	Coleman	Light Plant	1989	Kubota	6(est)	4(est)	Pre-Control	32
48	Man Lift	JLG	800AJ	2002	Deutz	67	50	Tier 1	33
49	Pick-up Truck	Ford	F150	1993	Ford	220(est)	164(est)	–	--
50	Pick-up Truck	Toyota	Tacoma	2006	Toyota	188(est)	140(est)	–	--
51	Pick-up Truck	Ford	F150	2005	Ford	220(est)	164(est)	–	--
52	Pick-up Truck	Chevy	1500	1992	GM	180(est)	134(est)	–	--
53	Pick-up Truck	Ford	F150 4x4 SuperCab		Ford	220(est)	164(est)	–	--
54	Pick-up Truck	GMC	SIE	2014	GM	400(est)	298(est)	–	--
55	Pick-up Truck	Ford	F550 Super Duty	2008	Ford	325(est)	242(est)	–	--
56	Sweeper	Tennant	800	2005	CHEVY	58(est)	43(est)	Tier 2	34

Ecorse Terminal (Port of Detroit)
Nicholson Terminal & Dock Company

Count	Equipment Type	Equipment Manufacturer	Model Number	Model Year	Engine Manufacturer	Engine Rating HP	Engine Rating kW	Emission Controls	Image Key
1	Forklift	Taylor	TY520M	1978	Cummins 6-cyl	250	186	Pre-Control	1
2	Forklift	Taylor	THD-160	2003	Cummins 4-cyl	99	74	Tier 2	2
3	Forklift	Taylor	TE-650L	1998	Cummins 6-cyl	250	186	Tier 1	3
4	Forklift	Taylor	TE-300M	1985	Cummins 6-cyl	173	129	Pre-Control	4
5	Forklift	Taylor	TE155S	1989	Perkins 4-cyl	70(est)	52(est)	Pre-Control	5
6	Forklift	Taylor	TE520S	1995	Cummins 6-cyl	250	186	Pre-Control	6
7	Forklift	Hyster	H155XL2	1998	Perkins 6-cyl	90(est)	67(est)	Tier 1	7
8	Forklift	Hyster	H135XL	1994	Perkins 4-cyl	80	60	Pre-Control	8
9	Forklift	Taylor	THD-160	2004	Cummins 4-cyl	99	74	Tier 2	9
10	Forklift	Taylor	THD-160	2002	Cummins 4-cyl	99	74	Tier 2	9
11	Forklift	Taylor	THD-160	2002	Cummins 4-cyl	99	74	Tier 2	9
12	Forklift	Taylor	TE-650L	1991	Cummins 6-cyl	250	186	Pre-Control	10
13	Crawler	Manitowoc	M888	NA	Cummins	330	264	Pre-Control	35
14	Crawler	Manitowoc	M3900*	NA	Cummins	287	214	Pre-Control	36
15	Locomotive Switcher	EMD	SW1001	1980's	GM	1000	750	Pre-Control	37
16	Gantry Crane	Clyde	--	1966	Permanently removed from service...abandonded in place.				
17	Gantry Crane	American	--	1969	Permanently removed from service...abandonded in place.				

* Scheduled for removal Spring 2019

Phase II – Distribution Links

Table 1

BURNS HARBOR TERMINAL - DAILY TRUCK SHIPMENTS

OCTOBER, 2018

Day	Shipments	Day	Shipments	Day	Shipments	Day	Shipments	Day	Shipments
1	89	8	73	15	136	22	67	29	97
2	109	9	79	16	60	23	74	30	91
3	118	10	98	17	60	24	50	31	91
4	75	11	85	18	61	25	54		
5	64	12	81	19	48	26	45		
6	0	13	0	20	0	27	0		
7	0	14	0	21	0	28	0		

Table 2

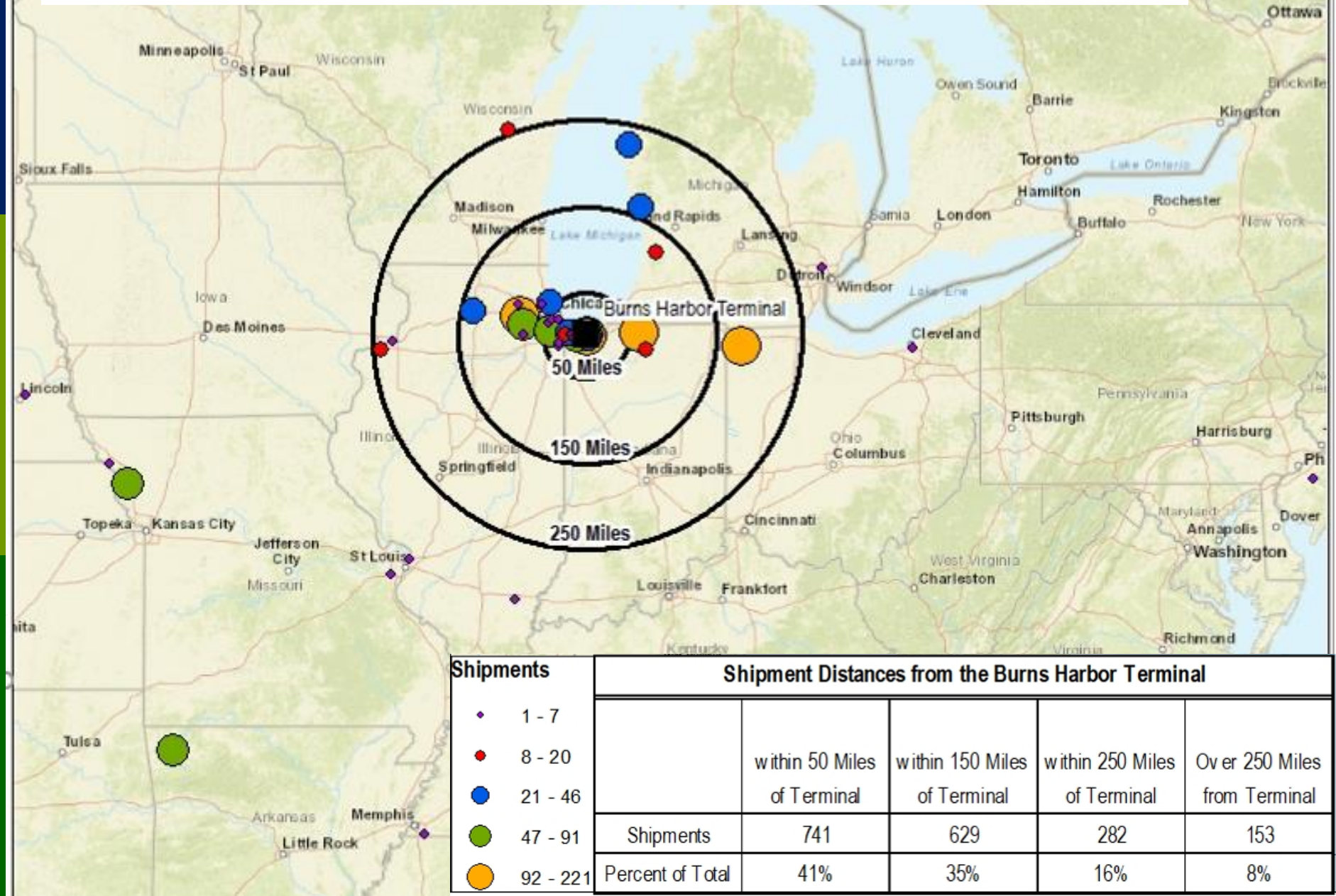
ECORSE TERMINAL - DAILY TRUCK SHIPMENTS

NOVEMBER, 2018

Day	Shipments	Day	Shipments	Day	Shipments	Day	Shipments	Day	Shipments
1	5	8	30	15	3	22	0	29	12
2	1	9	19	16	1	23	16	30	6
3	0	10	0	17	0	24	0		
4	0	11	0	18	0	25	0		
5	9	12	22	19	21	26	3		
6	18	13	16	20	17	27	3		
7	15	14	23	21	22	28	20		

Burns Harbor Terminal (Port of Indiana)

(Mid-West View)



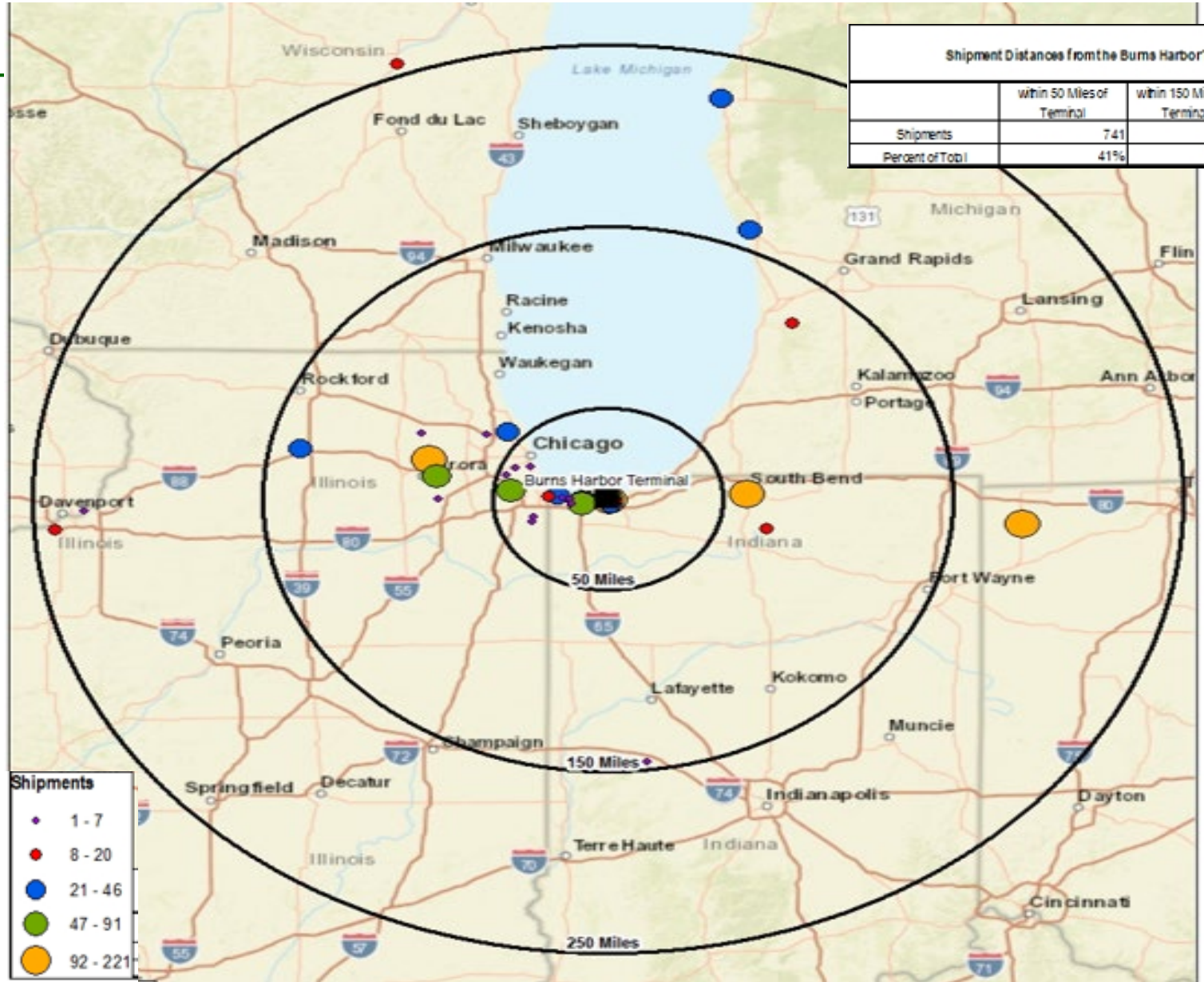
Shipments	
1 - 7	
8 - 20	
21 - 46	
47 - 91	
92 - 221	

Shipment Distances from the Burns Harbor Terminal

	within 50 Miles of Terminal	within 150 Miles of Terminal	within 250 Miles of Terminal	Over 250 Miles from Terminal
Shipments	741	629	282	153
Percent of Total	41%	35%	16%	8%

Burns Harbor Terminal (Port of Indiana)

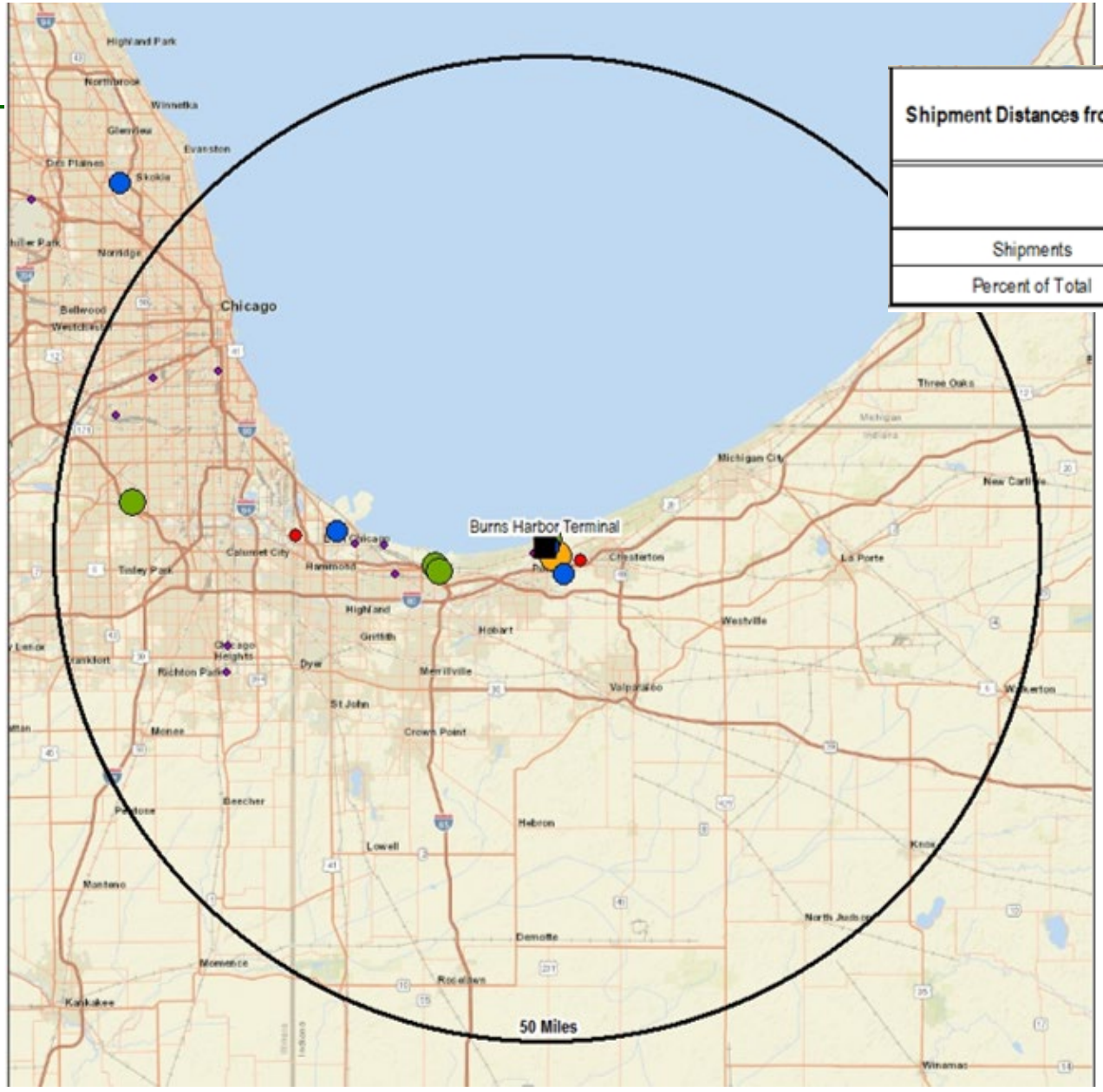
(Mid-West View)



Shipment Distances from the Burns Harbor Terminal			
	within 50 Miles of Terminal	within 150 Miles of Terminal	within 250 Miles of Terminal
Shipments	741	629	282
Percent of Total	41%	35%	16%

Burns Harbor Terminal (Port of Indiana)

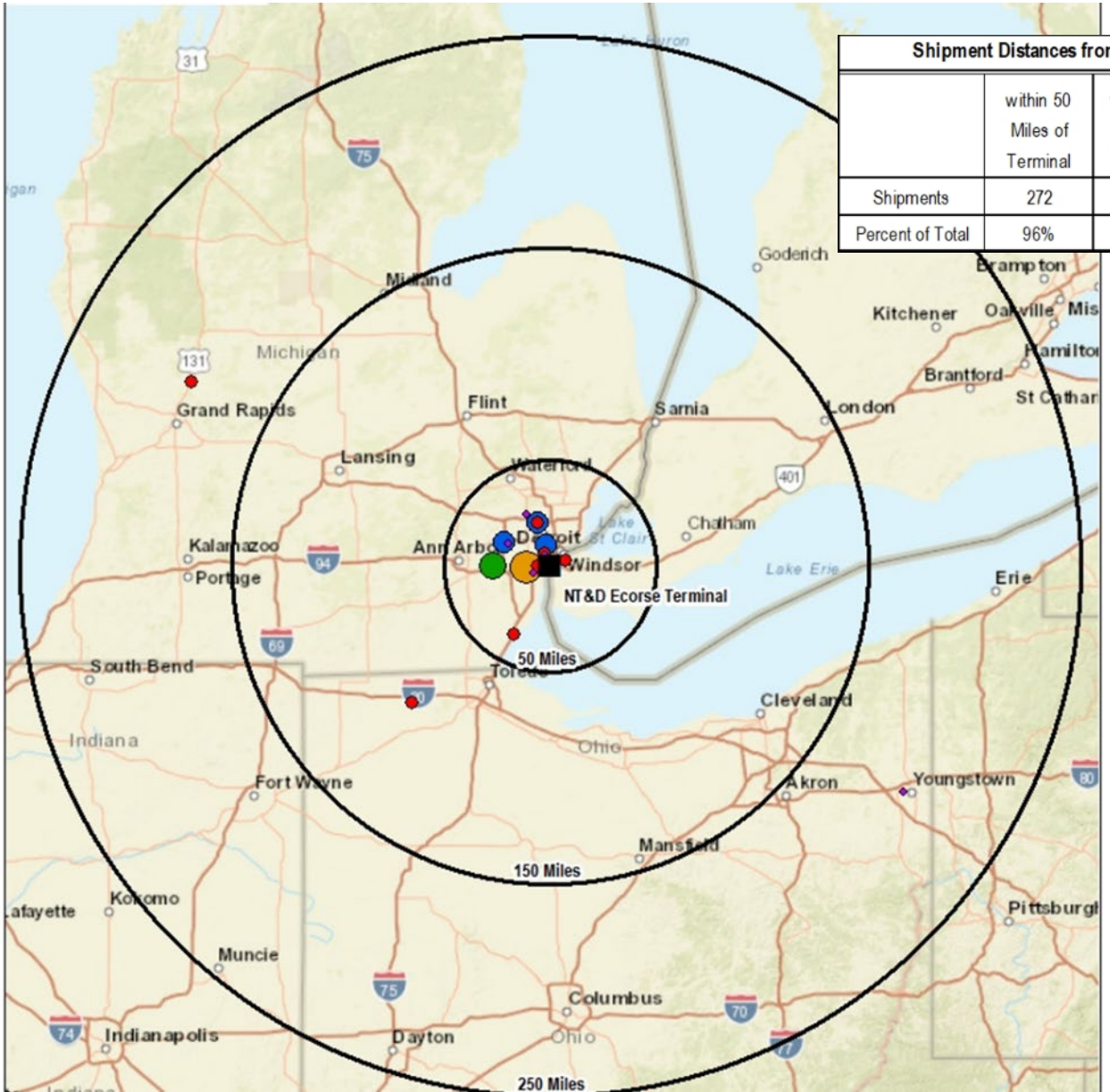
(City View)



Shipment Distances from the Burns Harbor Terminal	
	within 50 Miles of Terminal
Shipments	741
Percent of Total	41%

Ecorse Terminal (Port of Detroit)

(Mid-West View)



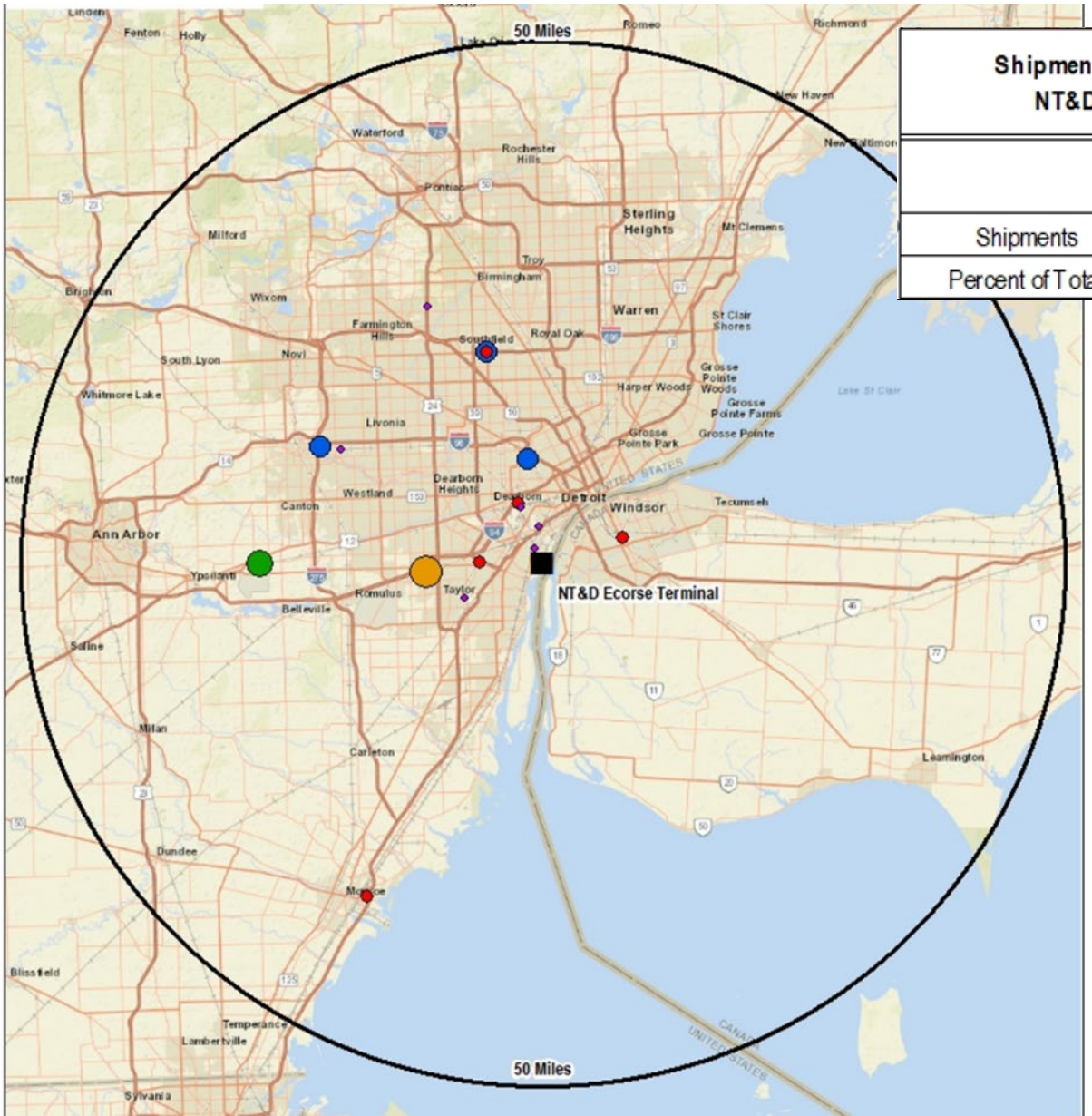
Shipment Distances from the NT&D Ecorse Terminal				
	within 50 Miles of Terminal	within 150 Miles of Terminal	within 250 Miles of Terminal	Total
Shipments	272	5	5	282
Percent of Total	96%	2%	2%	

Shipments

- 1 - 2
- 3 - 6
- 7 - 10
- 11 - 20
- 195

Ecorse Terminal (Port of Detroit)

(Mid-West View)



Shipment Distances from the NT&D Ecorse Terminal	
	within 50 Miles of Terminal
Shipments	272
Percent of Total	96%

Shipments

- 1 - 2
- 3 - 6
- 7 - 10
- 11 - 20
- 195

Region 5 Port Focus (Phase III)

- Support a Level 3 Performance Indicator for Terminals & Shipyards under the Green Marine Environmental Program at the *Port of Cleveland*.
- Assist our regional partners identify and target equipment and vehicles that have air quality impacts tied to Regional port and goods movement activity.

LEVEL 3

3.1. Complete an annual report on GHG emissions.
Note: The report only refers to GHG emissions resulting directly from the participant's activities.
Note: See Annex 1-A.

AND fulfill one of the following two criteria:

3.2. Within the last 5 years, complete a detailed inventory for all Port and terminal operator owned/leased, and operated fleets, such as vehicle, off-road, and locomotives.
Note: Include equipment's model year and engine's model year and/or emissions standard/tier, if available. Other data requirements may include hp and annual hours of operation.

OR

3.3. Implement a voluntary program to transition to lower emission equipment through cleaner fuels, engine repowers, or equipment replacements. This can be through direct incentives, rebates, or coordination of outside funding sources.

GREEN MARINE