

TRAFFIC SURVEY REPORT

FOR

THE PROPOSED

MM FZE PORT PROJECT ESIA

1.0 Introduction

Traffic survey is an important aspect of traffic management system. Traffic surveys involve the counting of vehicular movement on a particular road of interest taken cognizance of the origin, destination, vehicle types and road conditions.

It is against this backdrop the MM Port FZE Environmental and Social Impact Assessment (ESIA) scope of work considered it an important aspect of the assessment study to benchmark the current traffic situation within the proposed project influence zone for the benefit of proper planning prior onboard the proposed Port facility in the existing Onne Port complex.

2.0 Methodology

The traffic count was conducted manually, using a traffic survey data sheet on an hourly basis from 6am to 8pm daily. Six (6) persons were stationed on a particular station, three (3) persons on the morning shift and three (3) others on the evening shift. One (1) person counting coming and the other one (1) person counting going vehicles, while the other one (1) person is on standby. The study was conducted for seven (7) days from 13/07/23 to 19/07/23. The counting stations established in the course of the assessment as stated below.

Table 1 Traffic Count location

Point ID	Counting route	GPS Coordinates		Road condition
TC1	East-West Highway by New Road Junction	N4°45'21.5"	E007°9'51.2"	Asphalt, dual carriage (2 lanes) with no shoulder approx. 12m wide each
TC2	NPA Dual Carriage way First Roundabout by Onne Health Centre	N4°44'58.6"	E007°9'20.4"	Asphalt, dual carriage (4 lanes) with no shoulder approx. 10.7m wide each

TC3	NPA Dual Carriage way, Second Roundabout by NAFCON Junction	N4°44'04.1"	E007° 9' 13.7"	Asphalt, dual carriage (4 lanes) with no shoulder approx. 10.7m wide each
TC4	NPA Main Entrance Gate	N4°43'10.4	E007° 9' 22.9	Asphalt, dual carriage (2 lanes) with no shoulder approx. 10m wide
TC5	WACT/OMT Entrance Off FOT Dual carriage Road	N4°40'39.1"	E007° 9' 05.7"	Asphalt, dual carriage (2 lanes) with no shoulder approx. 10.7m wide
TC6	New WACT/OMT Road under construction	N4°40'47."	E007° 8' 60.1"	Earth road with drainage approx. 10.7m wide
TC7	New WACT/OMT Road to Project site	N4°40'11.8	E007° 8'55.7	Narrow and untarred road



Map 1: Traffic count locations



Plate 1: East-West Highway by New Road Junction



Plate 2: NPA Dual Carriage way First Roundabout by Onne Health Centre



Plate 3: NPA Dual Carriage way, Second Roundabout by NAFCON Junction



Plate 4: NPA Main entrance Gate

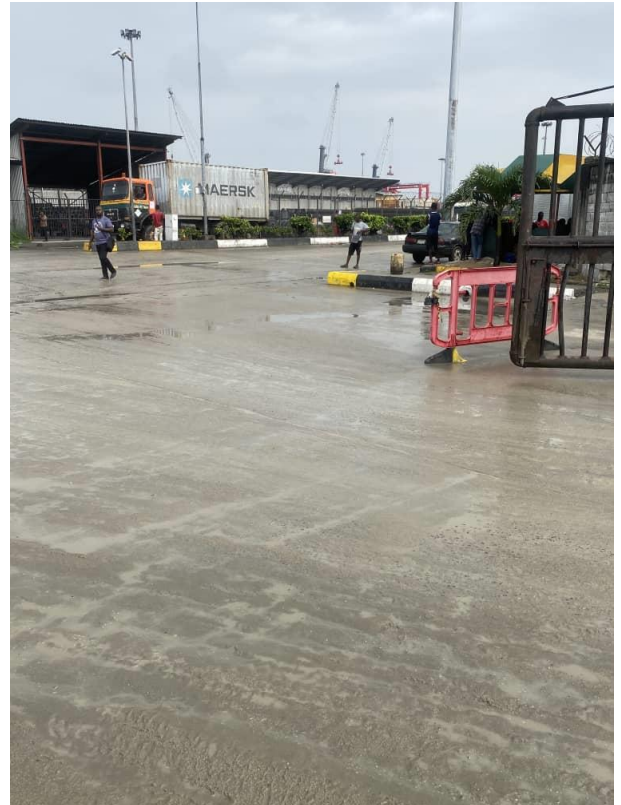


Plate 5: WACT/OMT Entrance Off FOT Dual carriage Road



Plate 6: New WACT/OMT Road under construction



Plate 7: New WACT/OMT Road to Project site

2.1 Vehicle category

Vehicle types were grouped into four (4) vehicle category according to international standards as stated below:

2.1.1 Motorcycles/Tricycles

A motorcycle (also called a motorbike, bike) is a two- or three-wheeled motor vehicle.¹ Motorcycle design varies greatly to suit a range of different purposes: long distance travel, navigating urban traffic, cruising, sport, racing and off-road riding.

2.1.2 Cars and Light Vans

A car is an automobile for carrying a limited number of passengers (not more than nine)². The original van was a large, covered wagon. A modern van is a kind of vehicle used for transporting goods or people. There are vans in all shapes and sizes, ranging from the classic van version of the tiny Mini to much larger vehicles such as cargo vans and other commercial transport vehicles. Vans run up to about 4 tons and are classified as Light or Medium Duty Trucks (North America) or Light Commercial Vehicles (Europe).

2.1.3 Medium and Heavy Goods Vehicles (Lorries and Trucks)

A large goods vehicle (LGV), also heavy goods vehicle (HGV), is the European Union term for any truck with a gross combination mass (GCM) of over 3,500 kilograms (7,716 lb). Sub-category N2 is used for vehicles between 3,500 kilograms (7,716 lb) and 12,000 kilograms (26,455 lb) and N3 for all goods vehicles over 12,000 kilograms

¹ Foale, Tony (2006). *Motorcycle Handling and Chassis Design*. Tony Foale Designs. pp. 4-1. [ISBN 978-84-933286-3-4](#).

² <http://www.merriam-webster.com/dictionary/passenger%20car>

(26,455 lb). The term Medium Goods Vehicle (MGV) is used within parts of the UK government to refer to goods vehicles of between 3.5 and 7.5 tonnes, which according to the European Union (EU) are also 'Large Goods Vehicles'.³

2.1.1.4 Buses and Coaches

A coach (also motor coach, often simply called a bus) is a type of bus used for conveying passengers on excursions and on longer distance inter-city bus service or even between countries. Unlike transit buses designed for shorter journeys, coaches often have a luggage hold that is separate from the passenger cabin and are normally equipped with facilities required for longer trips, including comfortable seats and sometimes a toilet. The term 'coach' was previously used for a horse-drawn carriage designed for the conveyance of more than one passenger, the passengers' luggage, and mail that is covered for protection from the elements. The term was applied to railway carriages in the 19th century, and later to motor coaches (buses).⁴

³ ["Towing trailers with medium sized vehicles between 3.5 and 7.5 tonnes". DirectGov.](#)

⁴ [en.wikipedia.org/wiki/Coach_\(bus\)](https://en.wikipedia.org/wiki/Coach_(bus))

3.0 Results and discussion

3.1 Survey Results

3.1.1 EAST-WEST HIGHWAY BY NEW ROAD JUNCTION (IN)

Table 2 and figure 1 present traffic situation on the East-West highway by the new road junction as surveyed 13th – 19th July 2023. The table presents the weekly traffic volume, while the figure presents the weekly based hourly average of traffic along the route. Table 2 revealed the highest traffic volume of 13977 was recorded on Wednesday, followed by Saturday with a traffic volume of 12569, while the least traffic volume of 7321 was recorded on Friday. The weekly based hourly average volume of traffic was peak between 8 – 9am morning hours with average count of 1414.9, while the lean period was observed between 6 – 7pm with average count of 513.7.

Table 2: Weekly traffic volume on East-West highway by the new road junction (in)

Category	Thursday 13/7/23	Friday 14/7/23	Saturday 15/7/23	Sunday 16/7/23	Monday 17/7/23	Tuesday 18/7/23	Wednesday 19/7/23
Cat 1 (Motorcycle/Keke)	2888	2653	3133	3074	3116	2907	3244
Cat 2 (Car and Light Vans)	4344	3281	7237	3640	4569	4833	9456
Cat 3 (Lorries and Trucks)	1462	1059	1436	947	1375	1365	922
Cat 4 (Buses and Coaches)	428	328	763	323	501	475	355
Total	9122	7321	12569	7984	9561	9580	13977

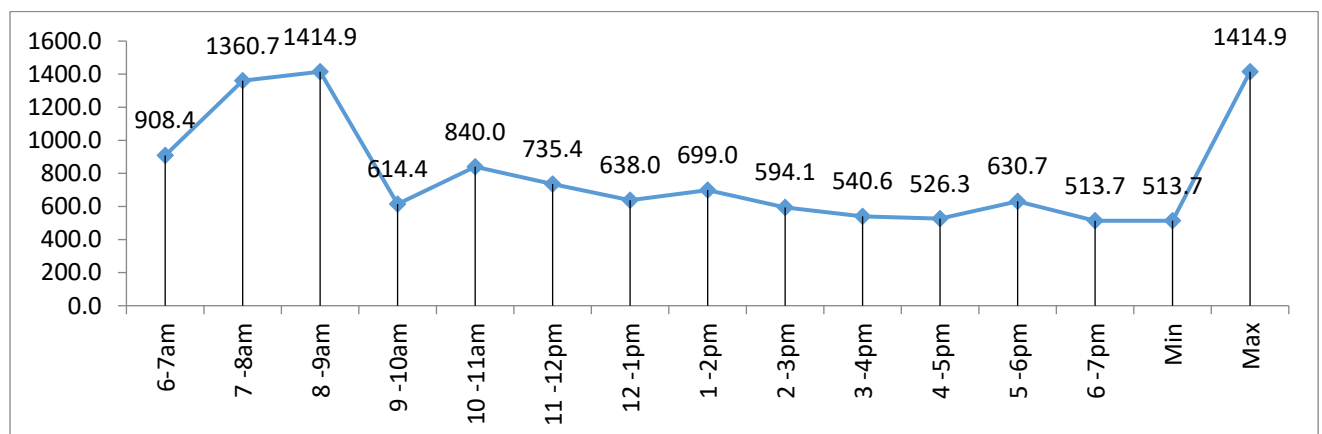


Figure 1: weekly average hourly traffic volume on East-West highway by the New road junction (in)

3.1.2 EAST-WEST HIGHWAY BY NEW ROAD JUNCTION (OUT)

Table 3 and figure 2 present traffic situation on the East-West highway by the new road junction (out) as surveyed 13th – 19th July 2023. The table presents the weekly traffic volume, while the figure presents the weekly based hourly average of traffic along the route. Table 3 revealed the highest traffic volume of 9168 was recorded on Wednesday, followed by Monday with a traffic volume of 9026, while the least traffic volume of 7101 was recorded on Friday. The weekly based hourly average volume of traffic peaked between 10 – 11am with an average count of 790.1, while the lean period was observed between 6–7pm with average count of 477.1 during the afternoon period.

Table 3: Weekly traffic volume on East-West highway by the new road junction (out)

Category	Thursday 13/7/23	Friday 14/7/23	Saturday 15/7/23	Sunday 16/7/23	Monday 17/7/23	Tuesday 18/7/23	Wednesday 19/7/23
Cat 1 (Motorcycle/Keke)	2879	2643	2924	2794	3228	2932	3270
Cat 2 (Car and Light Vans)	4166	2905	3767	3221	4281	4433	4642
Cat 3 (Lorries and Trucks)	1069	1218	1513	961	1008	995	944
Cat 4 (Buses and Coaches)	379	335	749	259	509	407	312
Total	8493	7101	8953	7235	9026	8767	9168

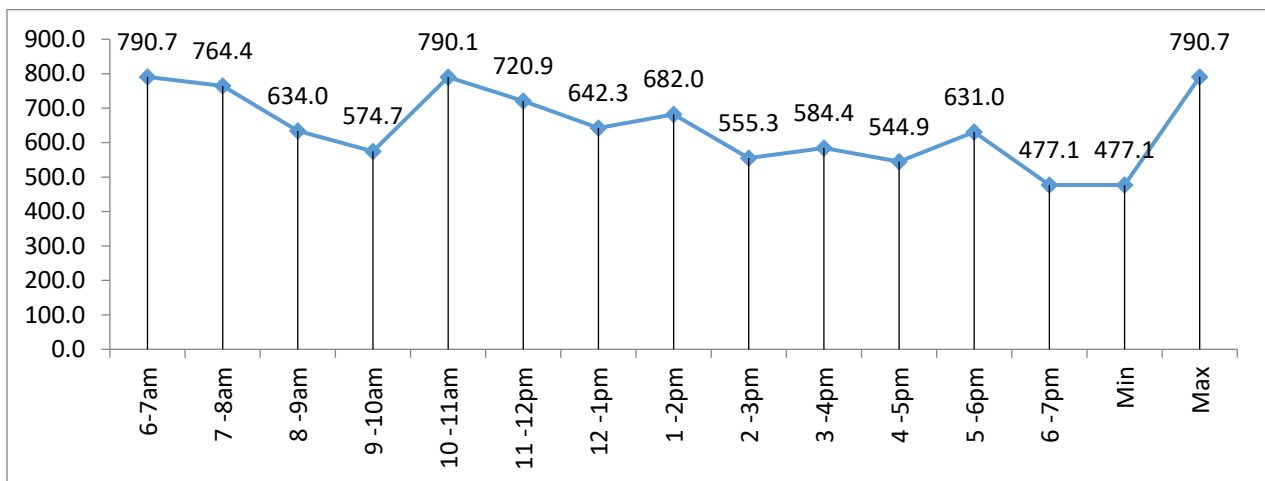


Figure 2: Weekly average hourly traffic volume on East-West highway by the new road junction (out)

3.1.3 NPA DUAL CARRIAGE WAY FIRST ROUNDABOUT BY ONNE HEALTH CENTRE (IN)

Table 4 and figure 3 present traffic situation on the NPA Dual carriage way around the first roundabout leading to Onne Port as surveyed 13th – 19th July 2023. The table presents the weekly traffic volume, while the figure presents the weekly based hourly average of traffic along the route. Table 4 revealed the highest traffic volume of 9352 was recorded on Saturday, followed by Wednesday with a traffic volume of 7732, while the least traffic volume of 2995 was recorded on Sunday. The weekly based hourly average volume of traffic peaked between 2 – 3pm afternoon hours with average count of 502.7, while the lean period was observed between 5- 6pm with average count of 383.1 in the evening hours.

Table 4: Weekly traffic volume on NPA Dual carriage way around the first roundabout (in)

Category	Thursday 13/7/23	Friday 14/7/23	Saturday 15/7/23	Sunday 16/7/23	Monday 17/7/23	Tuesday 18/7/23	Wednesday 19/7/23
Cat 1 (Motorcycle/Keke)	1704	3260	3319	1020	1805	2385	3053
Cat 2 (Car and Light Vans)	1519	1845	3142	1010	1740	1995	2451
Cat 3 (Lorries and Trucks)	228	1473	2088	735	1026	1015	1302
Cat 4 (Buses and Coaches)	157	478	803	230	565	600	926
Total	3608	7056	9352	2995	5136	5995	7732

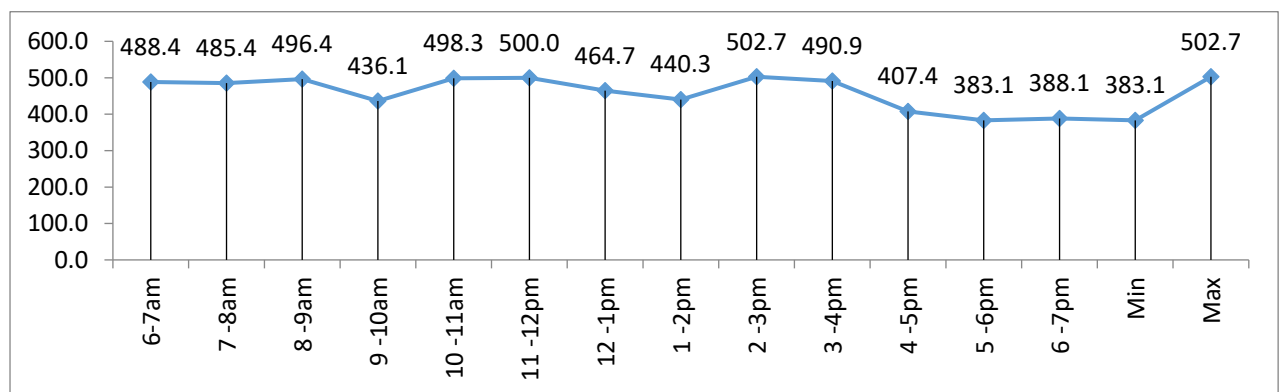


Figure 3: Weekly average hourly traffic volume on NPA Dual carriage way around the first roundabout (in)

3.1.4 NPA DUAL CARRIAGE WAY FIRST ROUNDABOUT BY ONNE HEALTH CENTRE (OUT)

Table 5 and figure 4 present traffic situation on the NPA Dual carriage way around the first roundabout leading out of Onne Port as surveyed 13th – 19th July 2023. The table presents the weekly traffic volume, while the figure presents the weekly based hourly average of traffic along the route. Table 5 revealed the highest traffic volume of 10213 was recorded on Saturday, followed by Friday with a traffic volume of 8596, while the least traffic volume of 3210 was recorded on Sunday. The weekly based hourly average volume of traffic was peak between 3 – 4pm with average count of 553.7, while the lean period was observed between 7-8am with average count of 414.0 still in the morning.

Table 5: weekly traffic volume on NPA Dual carriage way around the first roundabout (out)

Category	Thursday 13/7/23	Friday 14/7/23	Saturday 15/7/23	Sunday 16/7/23	Monday 17/7/23	Tuesday 18/7/23	Wednesday 19/7/23
Cat 1 (Motorcycle/Keke)	2159	3500	3638	1261	1570	2325	3055
Cat 2 (Car and Light Vans)	1825	2386	3273	819	1485	1730	2020
Cat 3 (Lorries and Trucks)	182	1617	2285	678	895	950	1340
Cat 4 (Buses and Coaches)	132	1093	1017	452	501	540	745
Total	2159	3500	3638	1261	1570	2325	3055

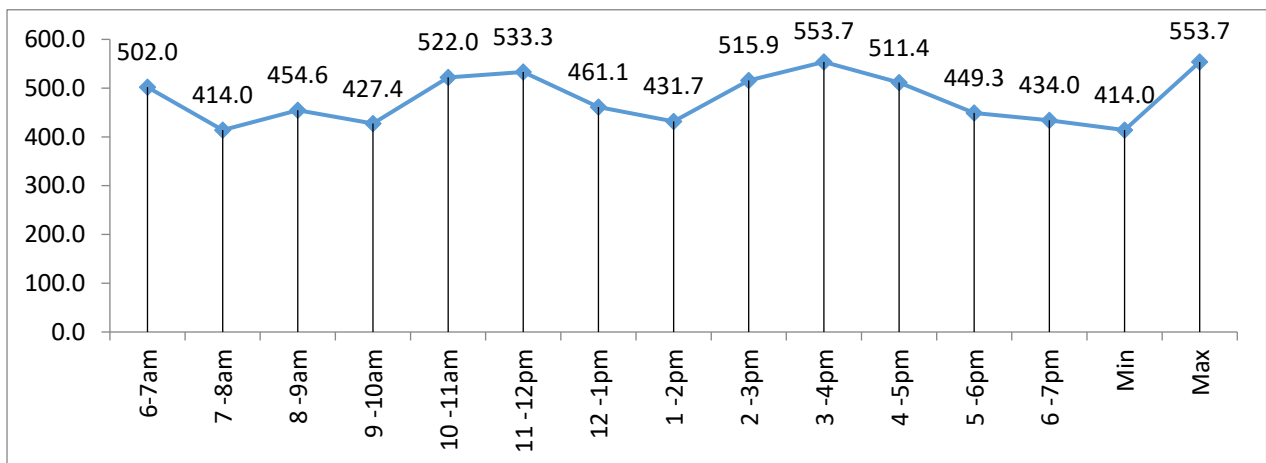


Figure 4: Weekly average hourly traffic volume on NPA Dual carriage way around the first roundabout (out)

3.1.5 NPA DUAL CARRIAGE WAY SECOND ROUNDABOUT BY NAFCON JUNCTION (IN)

Table 6 and figure 5 present traffic situation on the NPA Dual carriage way around the second roundabout (NAFCON Junction) leading to Onne Port as surveyed 13th – 19th July 2023. The table presents the weekly traffic volume, while the figure presents the weekly based hourly average of traffic along the route. Table 6 revealed the highest traffic volume of 6648 was recorded on Thursday, followed by Friday with a traffic volume of 6602, while the least traffic volume of 3905 was recorded on Sunday. The weekly based hourly average volume of traffic peaked between 12 – 1pm with an average count of 539.6, while the lean period was observed between 6–7pm with average count of 211.6 during the evening period.

Table 6: Weekly traffic volume on NPA Dual carriage way around the second roundabout (in)

Category	Thursday 13/7/23	Friday 14/7/23	Saturday 15/7/23	Sunday 16/7/23	Monday 17/7/23	Tuesday 18/7/23	Wednesday 19/7/23
Cat 1 (Motorcycle/Keke)	2494	2829	1964	1669	2285	2075	1875
Cat 2 (Car and Light Vans)	2533	2192	1829	1356	1626	1763	1280
Cat 3 (Lorries and Trucks)	1041	1367	728	744	645	1079	728
Cat 4 (Buses and Coaches)	580	214	90	136	162	128	134
Total	6648	6602	4611	3905	4718	5045	4017

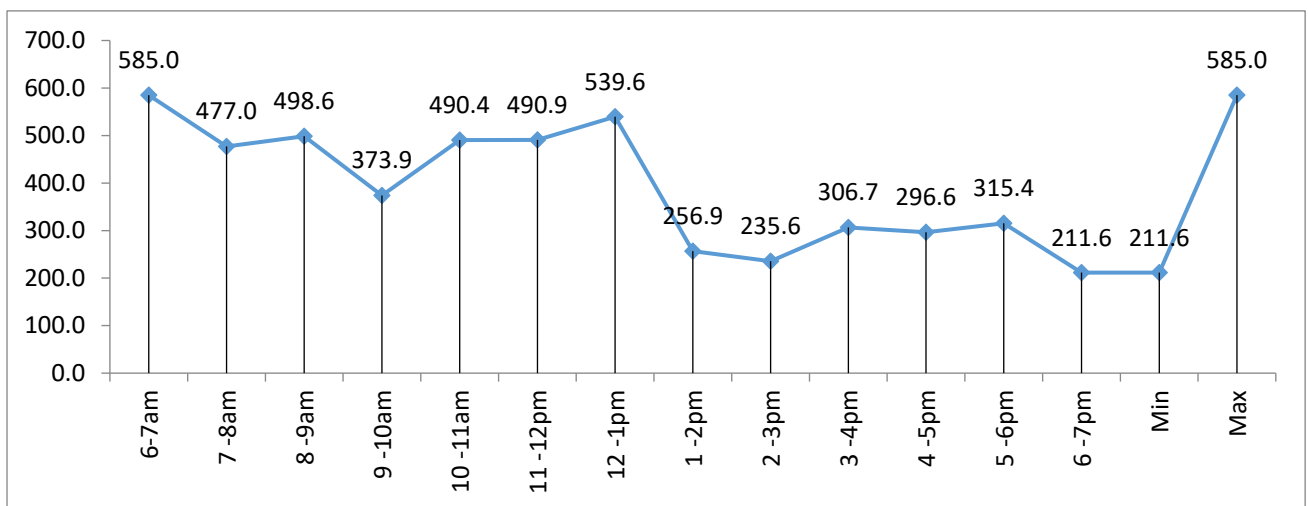


Figure 5: Weekly average hourly traffic volume on NPA Dual carriage way around the second roundabout (In)

3.1.6 NPA DUAL CARRIAGE WAY SECOND ROUNDABOUT BY NAFCON JUNCTION (OUT)

Table 7 and figure 6 present traffic situation NPA Dual carriage way around the second roundabout (NAFCON Junction) leading out of Onne Port as surveyed 13th – 19th July 2023. The table presents the weekly traffic volume, while the figure presents the weekly based hourly average of traffic along the route. Table 7 revealed the highest traffic volume of 7046 was recorded on Wednesday, followed by Thursday with a traffic volume of 6898, while the least traffic volume of 5753 was recorded on Sunday. The weekly based hourly average volume of traffic was peak between 10 – 11am with an average count of 585.1, while the lean period was observed between 6–7pm with average count of 438.9 during the evening period.

Table 7: Weekly traffic volume on NPA Dual carriage way around the second roundabout (out)

Category	Thursday 13/7/23	Friday 14/7/23	Saturday 15/7/23	Sunday 16/7/23	Monday 17/7/23	Tuesday 18/7/23	Wednesday 19/7/23
Cat 1 (Motorcycle/Keke)	3856	3752	3850	3835	3820	3741	3846
Cat 2 (Car and Light Vans)	2001	2123	2087	1550	2125	2053	2367
Cat 3 (Lorries and Trucks)	743	763	695	281	451	619	665
Cat 4 (Buses and Coaches)	298	177	172	87	141	167	168
Total	6898	6815	6804	5753	6537	6580	7046

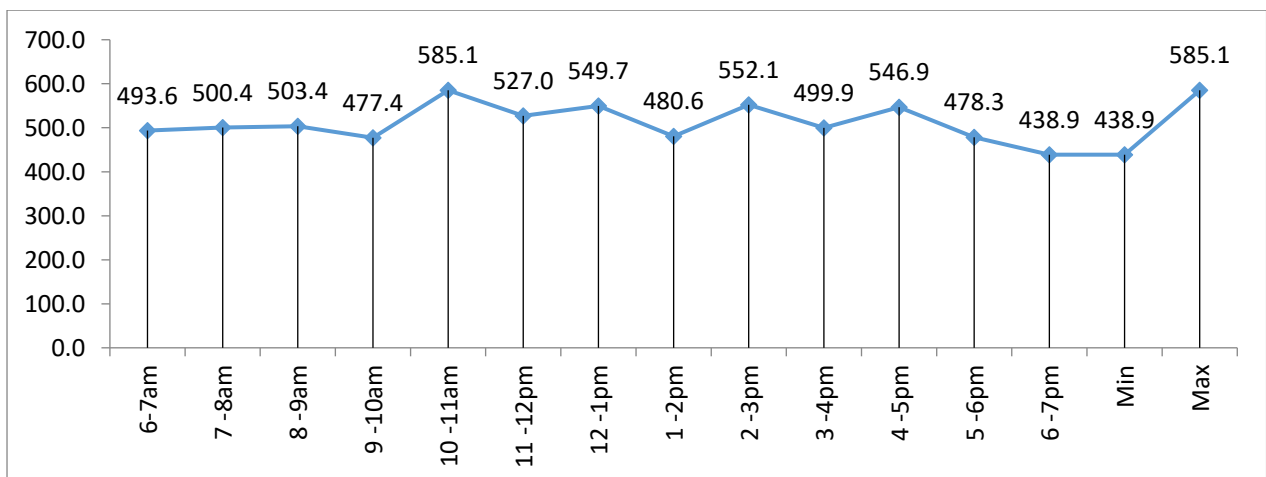


Figure 6: Weekly average hourly traffic volume on NPA Dual carriage way around the second roundabout (out)

3.1.7 NPA MAIN ENTRANCE GATE (IN)

Table 8 and figure 7 present traffic situation of vehicles entering the Onne Port complex as surveyed 13th – 19th July 2023. The table presents the weekly traffic volume, while the figure presents the weekly based hourly average of traffic along the route. Table 8 revealed the highest traffic volume of 5363 was recorded on Monday, followed by Friday with a traffic volume of 3415, while the least traffic volume 1359 was recorded on Sunday. The weekly average hourly volume of traffic was highest between 11-12am, in the morning, while the lean period was observed between 9 – 10am in the afternoon. See fig 1. General observation revealed that the traffic volume was largely dominated by category 2 and 3.

Table 8: Weekly traffic volume of vehicles entering NPA Main Entrance (In)

Category	Thursday 13/7/23	Friday 14/7/23	Saturday 15/7/23	Sunday 16/7/23	Monday 17/7/23	Tuesday 18/7/23	Wednesday 19/7/23
Cat 1 (Motorcycle/Keke)	145	162	142	164	104	156	166
Cat 2 (Car and Light Vans)	2027	2309	1143	824	3690	1698	1742
Cat 3 (Lorries and Trucks)	540	778	611	300	1296	721	735
Cat 4 (Buses and Coaches)	149	166	143	71	273	153	176
Total	2861	3415	2039	1359	5363	2728	2819

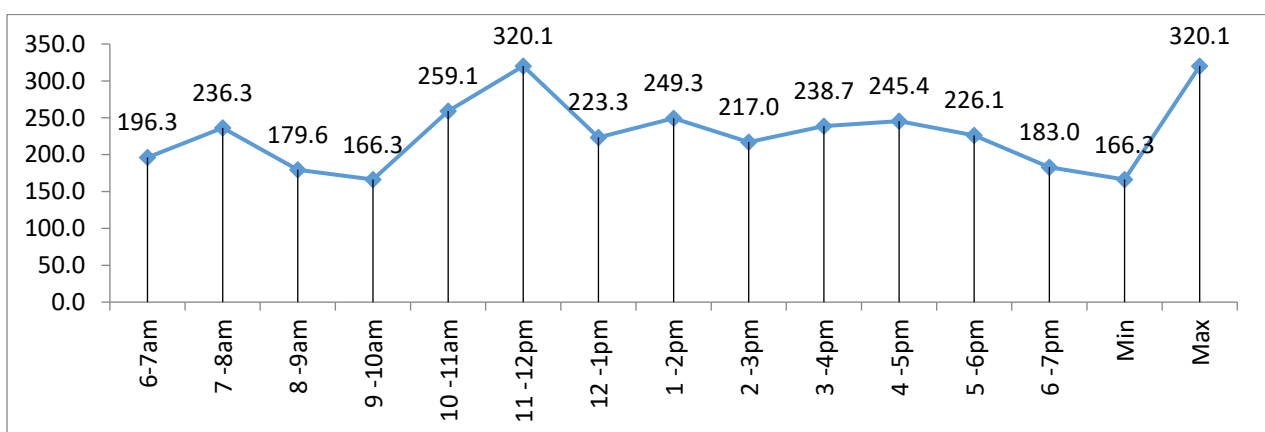


Figure 7: weekly average hourly traffic volume of vehicles entering NPA Main Entrance (In)

3.1.8 NPA MAIN ENTRANCE GATE (OUT)

Table 9 and figure 8 present traffic situation vehicles leaving the Onne Port complex as surveyed 13th - 19th July 2023. The table presents the weekly traffic volume, while the figure presents the weekly based hourly average of traffic along the route. Table 9 revealed the highest traffic volume of 3540 was recorded on Friday, followed by Tuesday with a traffic volume of 3128 while the least traffic volume 1302 was recorded on Sunday. The weekly average hourly volume of traffic was highest between 4 -5pm (345.4), while the lean period was observed between 8 -9am (117.0), in the morning (see figure 2).

Table 9: weekly traffic volume of vehicles leaving NPA Main Entrance (Out)

Category	Thursday 13/7/23	Friday 14/7/23	Saturday 15/7/23	Sunday 16/7/23	Monday 17/7/23	Tuesday 18/7/23	Wednesday 19/7/23
Cat 1 (Motorcycle/Keke)	292	338	302	184	227	251	341
Cat 2 (Car and Light Vans)	1460	2295	1129	771	1543	1908	1600
Cat 3 (Lorries and Trucks)	486	712	643	256	414	787	611
Cat 4 (Buses and Coaches)	172	195	104	91	78	182	233
Total	2410	3540	2178	1302	2262	3128	2785

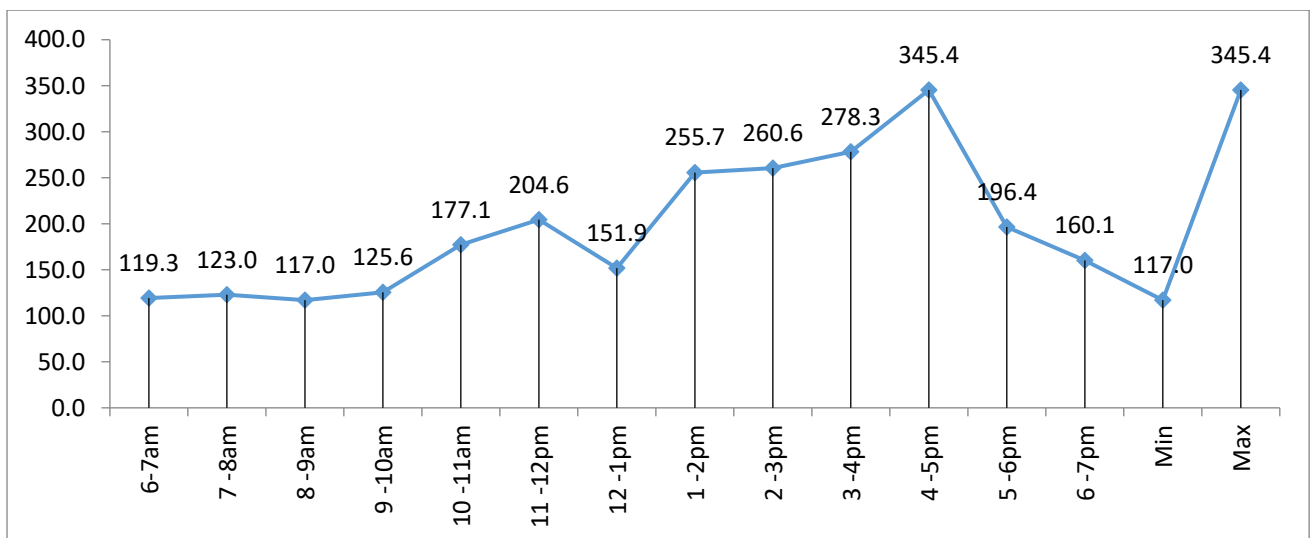


Figure 8: Weekly average hourly traffic volume of vehicles leaving NPA Main Entrance (Out)

3.1.9 WACT/OMT ENTRANCE GATE OFF FOT DUAL CARRIAGE ROAD (IN)

Table 10 and figure 9 present traffic situation from FOT Dual carriage road to WACT/OMT by the entrance gate as surveyed on 13th – 19th July 2023. The table presents the weekly traffic volume, while the figure presents the weekly based hourly average of traffic along the route. Table 10 revealed the highest traffic volume of 1371 was recorded on Monday, followed by Friday with a traffic volume of 1327, while the least traffic volume of 341 was recorded on Sunday. The weekly based hourly average volume of traffic was peak between 7 – 8am with average count of 102.9, while the lean period was observed between 9-10am with average count of 75.6 during the evening period.

Table 10: Weekly traffic volume from FOT Dual carriage road to WACT/OMT (in)

Category	Thursday 13/7/23	Friday 14/7/23	Saturday 15/7/23	Sunday 16/7/23	Monday 17/7/23	Tuesday 18/7/23	Wednesday 19/7/23
Cat 1 (Motorcycle/Keke)	147	178	104	80	234	129	147
Cat 2 (Car and Light Vans)	806	859	244	131	884	818	864
Cat 3 (Lorries and Trucks)	175	244	117	99	182	162	161
Cat 4 (Buses and Coaches)	46	46	46	31	71	89	53
Total	1174	1327	511	341	1371	1198	1225

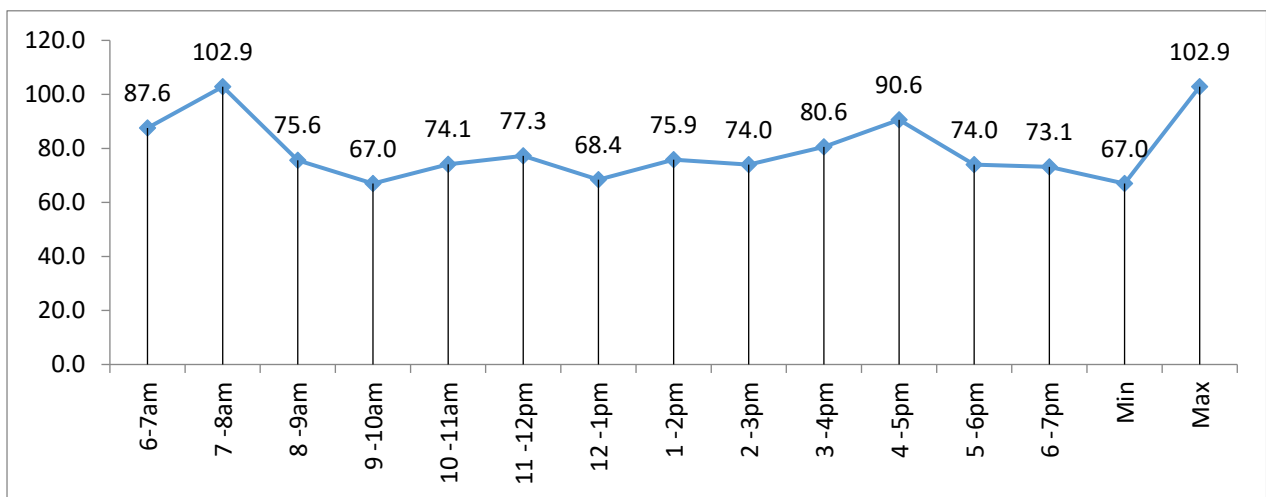


Figure 9: Weekly average hourly traffic volume from FOT Dual carriage road to WACT/OMT (In)

3.1.10 WACT/OMT ENTRANCE GATE OFF FOT DUAL CARRIAGE ROAD (OUT)

Table 11 and figure 10 present traffic situation from WACT/OMT into the FOT Dual carriage way leading Main NPA gate as surveyed on 13th – 19th July 2023. The table presents the weekly traffic volume, while the figure presents the weekly based hourly average of traffic along the route. Table 11 revealed the highest traffic volume of 1472 was recorded on Tuesday, followed by Monday with a traffic volume of 1447, while the least traffic volume of 383 was recorded on Sunday. The weekly based hourly average volume of traffic peaked between 2 – 3pm with average count of 109.2, while the lean period was observed between 9–10am with average count of 60.7 during the morning period.

Table 11: Weekly traffic volume from WACT/OMT into the FOT Dual carriage way (out)

Category	Thursday 13/7/23	Friday 14/7/23	Saturday 15/7/23	Sunday 16/7/23	Monday 17/7/23	Tuesday 18/7/23	Wednesday 19/7/23
Cat 1 (Motorcycle/Keke)	150	150	113	61	196	131	150
Cat 2 (Car and Light Vans)	854	507	289	166	778	861	732
Cat 3 (Lorries and Trucks)	339	197	251	145	432	404	391
Cat 4 (Buses and Coaches)	50	52	56	11	41	76	27
Total	1393	906	709	383	1447	1472	1300

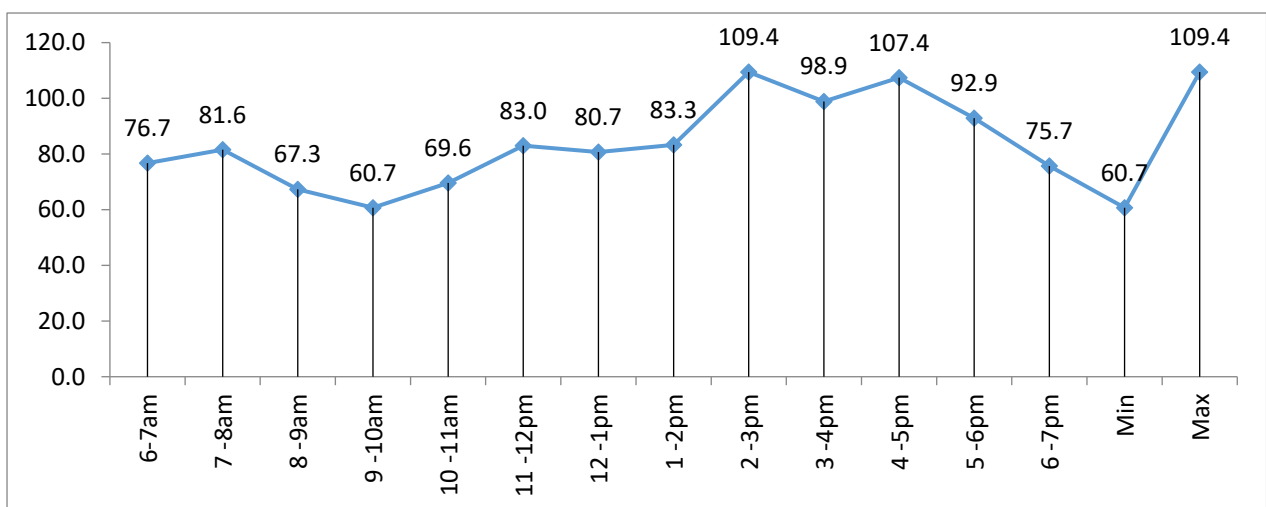


Figure 10: Weekly average hourly traffic volume from WACT/OMT into the FOT Dual carriage way (out)

3.1.11 NEW WACT/OMT ROAD UNDER CONSTRUCTION (IN)

Table 12 and figure 11 present traffic situation on the New WACT/OMT (In) as surveyed on 13th – 19th July 2023. The table presents the weekly traffic volume, while the figure presents the weekly based hourly average of traffic along the route. Table 11 revealed the highest traffic volume of 1125 was recorded on Monday, followed by Tuesday with a traffic volume of 1029, while the least traffic volume of 329 was recorded on Sunday. The weekly based hourly average volume of traffic was peak between 1 – 2pm with average count of 78.0, while the lean period was observed between 6–7am with average count of 32.6 during the morning period.

Table 12: Weekly traffic volume on the New WACT/OMT (In)

Category	Thursday 13/7/23	Friday 14/7/23	Saturday 15/7/23	Sunday 16/7/23	Monday 17/7/23	Tuesday 18/7/23	Wednesday 19/7/23
Cat 1 (Motorcycle/Keke)	145	130	84	61	126	168	216
Cat 2 (Car and Light Vans)	459	476	132	87	486	464	431
Cat 3 (Lorries and Trucks)	333	343	180	172	316	379	447
Cat 4 (Buses and Coaches)	19	17	26	9	17	18	31
Total	956	966	422	329	945	1029	1125

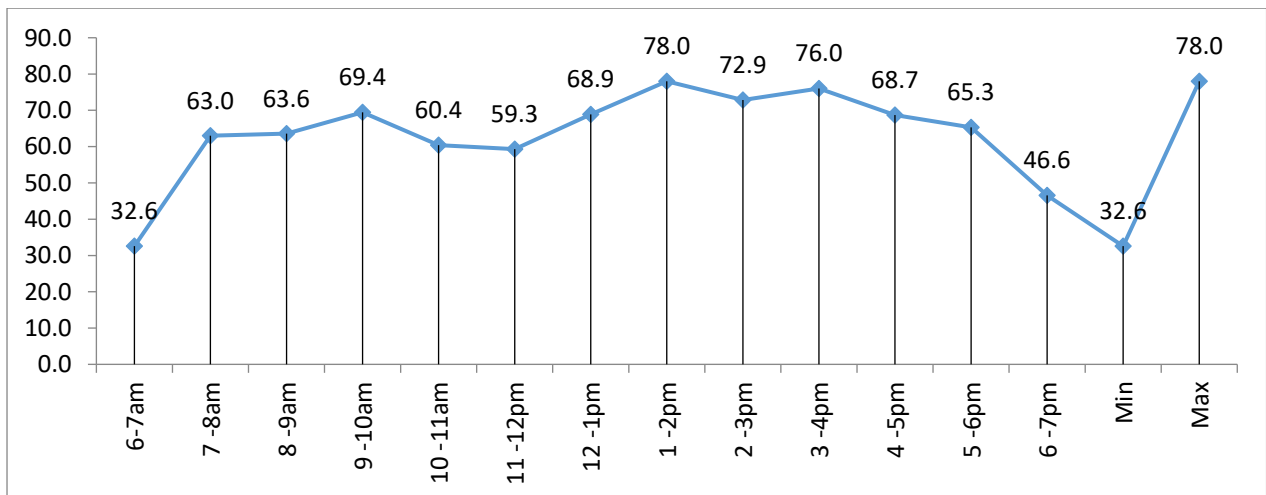


Figure 11: Weekly average hourly traffic volume on the New WACT/OMT (In)

3.1.12 NEW WACT/OMT ROAD UNDER CONSTRUCTION (OUT)

Table 13 and figure 12 present traffic situation on the New WACT/OMT (Out) as surveyed on 13th – 19th July 2023. The table presents the weekly traffic volume, while the figure presents the weekly based hourly average of traffic along the route. Table 13 revealed the highest traffic volume of 1232 was recorded on Wednesday, followed by Tuesday with a traffic volume of 1013, while the least traffic volume of 277 was recorded on Sunday. The weekly based hourly average volume of traffic was peak between 4 – 5pm with average count of 79.1, while the lean period was observed between 6–7am with average count of 29.7 during the morning period.

Table 13: Weekly traffic volume on the New WACT/OMT (Out)

Category	Thursday 13/7/23	Friday 14/7/23	Saturday 15/7/23	Sunday 16/7/23	Monday 17/7/23	Tuesday 18/7/23	Wednesday 19/7/23
Cat 1 (Motorcycle/Keke)	143	140	77	61	159	194	241
Cat 2 (Car and Light Vans)	483	515	152	101	535	520	571
Cat 3 (Lorries and Trucks)	257	220	136	108	213	264	403
Cat 4 (Buses and Coaches)	18	9	18	7	39	35	17
Total	901	884	383	277	946	1013	1232

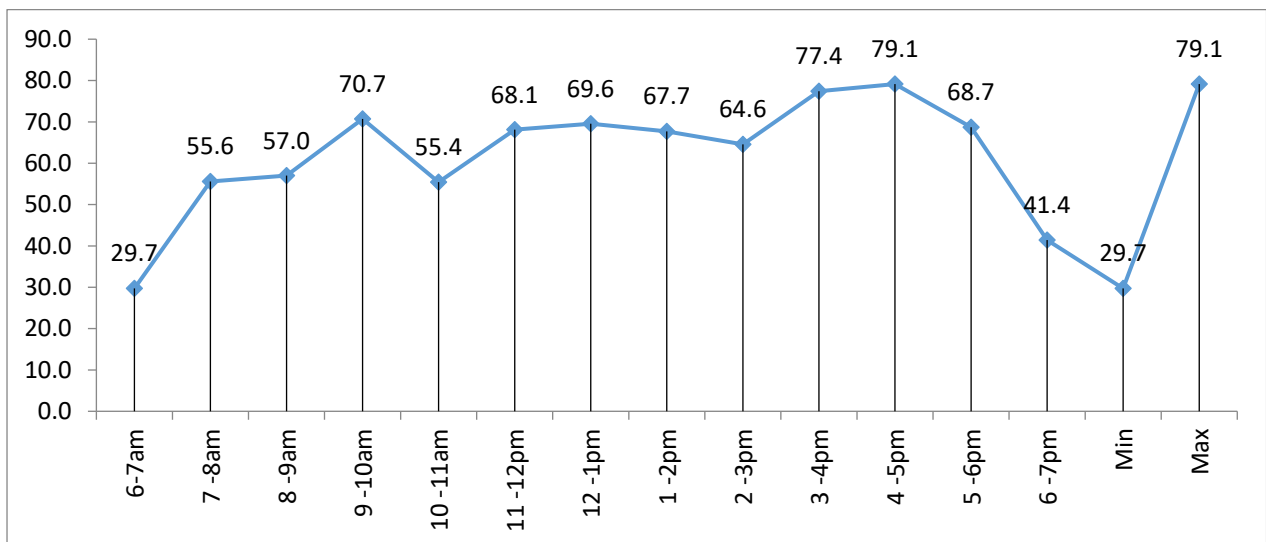


Figure 12: Weekly average hourly traffic volume on the New WACT/OMT (Out)

3.1.13 NEW WACT/OMT ROAD TO PROJECT SITE (IN)

Table 14 and figure 13 present traffic situation on the New WACT/OMT to MM Port Project site as surveyed 13th – 19th July 2023. The table presents the weekly traffic volume, while the figure presents the weekly based hourly average of traffic along the route. Table 14 revealed the highest traffic volume of 11 was recorded on Friday, followed by Tuesday with a traffic volume of 10, while the least traffic volume 1 was recorded on Saturday. The weekly based hourly average volume of traffic was peak between 4 – 5pm with average count of 1.0, while the lean period was observed between 12-1pm with average count of 0.0 in the afternoon.

Table 14: weekly traffic volume on the New WACT/OMT to MM Port Project site (In)

Category	Thursday 13/7/23	Friday 14/7/23	Saturday 15/7/23	Sunday 16/7/23	Monday 17/7/23	Tuesday 18/7/23	Wednesday 19/7/23
Cat 1 (Motorcycle/Keke)	2	4	1	0	0	3	1
Cat 2 (Car and Light Vans)	1	4	0	4	5	7	3
Cat 3 (Lorries and Trucks)	1	3	0	1	1	0	0
Cat 4 (Buses and Coaches)	2	0	0	0	0	0	0
Total	6	11	1	5	6	10	4

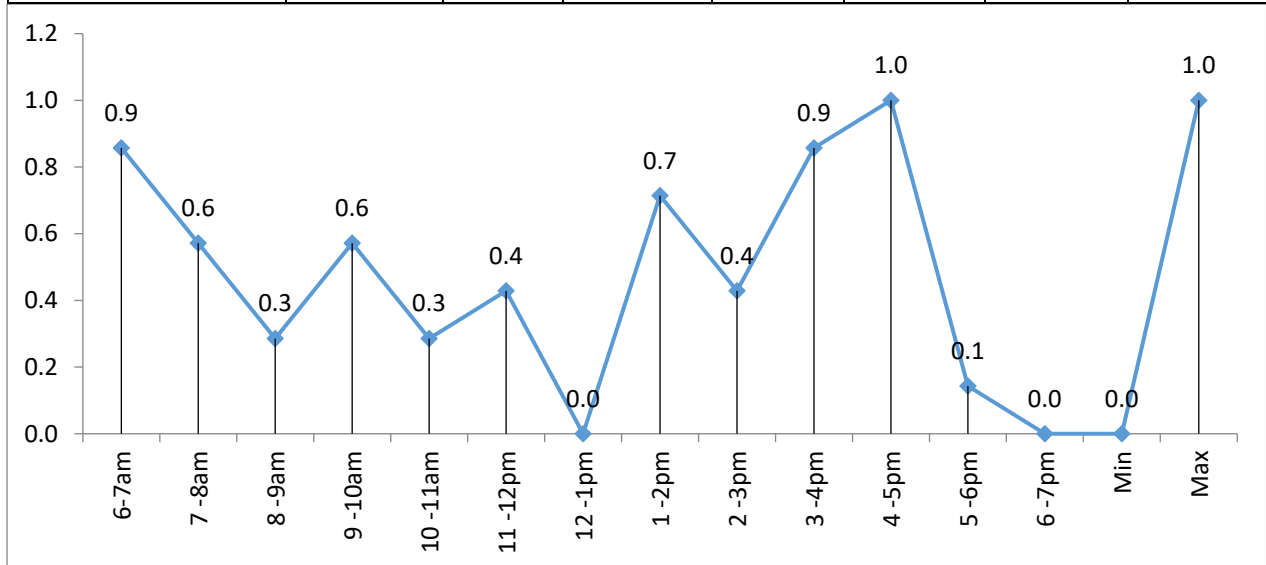


Figure 13: Weekly average hourly traffic volume from WACT to Project Site

3.1.14 NEW WACT/OMT ROAD TO PROJECT SITE (OUT)

Table 15 and figure 14 present traffic situation leaving the Project site to the New WACT/OMT as surveyed 13th - 19th July 2023. The table presents the weekly traffic volume, while the figure presents the weekly based hourly average of traffic along the route. Table 15 revealed the highest traffic volume of 8 was recorded on Saturday, followed by Monday, Tuesday, and Friday, with a traffic volume of 7, while the least traffic volume of 4 was recorded on Thursday. The weekly based hourly average volume of traffic peaked between 3 - 4pm in the evening with average count of 1.1, while the lean period was observed between 10 - 11am with average count of 0.0 in the afternoon.

Table 15: weekly traffic volume from Project site to the New WACT/OMT (Out)

Category	Thursday 13/7/23	Friday 14/7/23	Saturday 15/7/23	Sunday 16/7/23	Monday 17/7/23	Tuesday 18/7/23	Wednesday 19/7/23
Cat 1 (Motorcycle/Keke)	1	4	3	0	0	1	0
Cat 2 (Car and Light Vans)	2	2	4	4	5	6	3
Cat 3 (Lorries and Trucks)	1	1	1	1	2	0	2
Cat 4 (Buses and Coaches)	0	0	0	0	0	0	0
Total	4	7	8	5	7	7	5

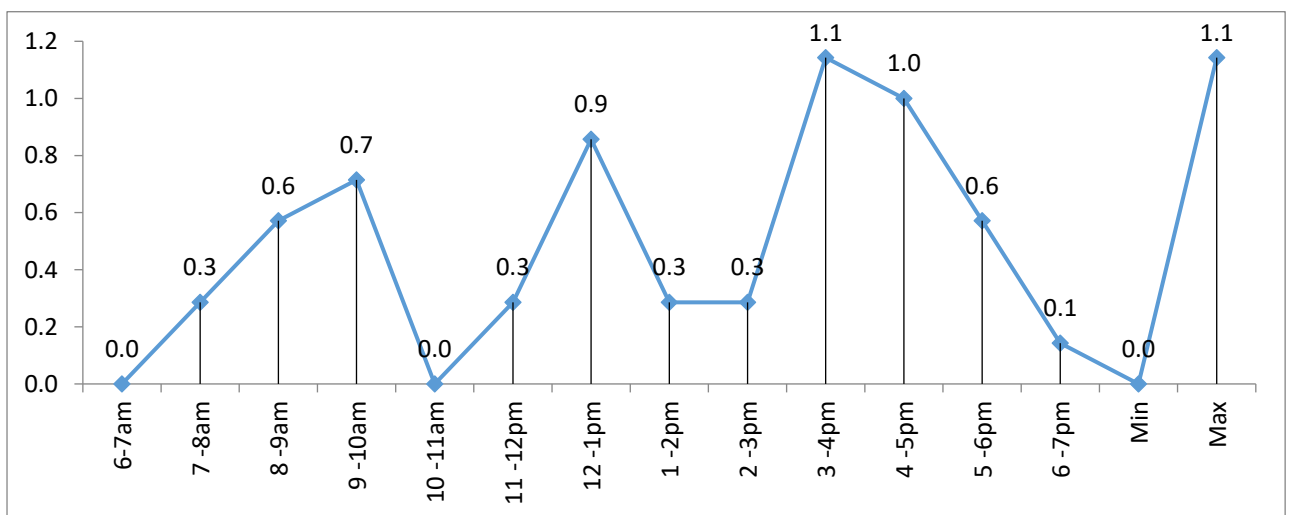


Figure 14: weekly average hourly traffic volume from Project site to the New WACT/OMT (Out)

4.0 Impacts Assessment

Implementation of the proposed MM Port FZE may lead to the following impact both during construction and operation phase of the project.

- Reduction of access to road transport
- Increase in volume of traffic.
- Alteration to the composition of traffic.
- Reduction in road traffic flow.
- Increase in journey time.
- Decrease in road safety.

Moreso, these impacts are qualified to be Negative, Direct, Long-term, Reversible, and incremental as state in table 10 below:

Consequence of impacts

The potential consequence of an impact depends on two things:

- The magnitude of the potential changes to the environment, caused by a hazard; and
- The level of sensitivity of the receiving environment.

The potential consequences of social (traffic) impacts can be described in the following manner:

Table 7: Interaction Matrix of Receptor Sensitivity and Magnitude of Change, Showing Resultant Effects

Receptor Sensitivity	Level of Change		
	Low	Medium	High
Low	Trivial effect	Slight effect	Substantial effect
Medium	Slight effect	Substantial effect	Big effect
High	Substantial effect	Big effect	Massive effect

(Source: Shell (2005))

Table 8 Levels of Effect and Potential Consequences

Levels of Effect	Potential Consequences
Massive	Extreme
Big	Great
Substantial	Considerable
Slight	Little
Trivial	Hardly any

(Source: Shell (2005))

Hardly any – A trivial effect on the social environment is one which causes almost no nuisance or damage in the neighborhood. The local culture and lifestyle as well as the social infrastructure are somewhat negatively affected, but the effect is only temporary. The impact could result in some disagreement with stakeholder groups, but relationships are likely to remain strong.

Little - A slight effect on the social environment, which causes temporary changes in the way of life of the neighborhood. The local culture and societal structure are negatively affected. There is disagreement with stakeholder groups, but the relationship remains fairly strong.

Great - A big effect on the social environment. There is permanent disruption to communal lifestyle. The local culture and the societal structure suffer greatly. There now is a fundamental disagreement between the company and its stakeholders that destabilizes the company-stakeholder relationship. This may affect the speed and effectiveness of future decision-making processes.

Extreme - A massive effect on the social environment. There is sustained large disruption of, and changes to, the lifestyle of a neighborhood, leading to a reduction in quality of life. Impacts have become a concern for all stakeholder groups. There is irreversible damage to social structure, traditional culture, and infrastructure, as well as total breakdown of stakeholder relationships. The rating or risk assessment of potential impacts may be done numerically or qualitatively.

Qualitative Risk Assessment

Table 9 shows a qualitative risk assessment matrix. In this method a Risk Assessment Matrix (RAM) is employed with *likelihood* plotted on the y-axis and *consequence* on the x-axis. The cells of this matrix, representing possible combinations of *likelihood* and *consequence*, give the levels of impact significance as judged by experts. For instance, an impact judged to have a *low* likelihood of occurrence but of *great* potential consequence will have a *minor* significance rating.

Table 9 : Qualitative Impact Assessment Matrix

Likelihood	Potential consequences					
		Negative				
	Positive	Hardly any	Little	Considerable	Great	Extreme
High		Moderate	Moderate	Major	Major	Major
Medium high		Minor	Moderate	Moderate	Major	Major
Medium		Minor	Minor	Moderate	Moderate	Major
Medium low		Negligible	Minor	Minor	Moderate	Moderate
Low		Negligible	Negligible	Minor	Minor	Moderate

(Source: Shell (2005))

Table 10: Traffic Impacts Qualification and Rating for both construction & operation

Project Activity	Sensitivity	Impact Description	Qualification	Likelihood	Consequence	Impact Rating
Site preparation, Construction, and Operation	Access to road transport	1. Reduction of access to road transport	- Negative - Direct - Long term - Reversible - Incremental	Medium High	Considerable	Moderate
	Road traffic Volume	2. Increase in volume of road traffic	- Negative - Direct - Long term - Reversible - Incremental	Medium High	Considerable	Moderate
	Composition of road traffic	3. Alteration of the composition of traffic	- Negative - Direct - Long term - Reversible - Incremental	Medium	Little	Minor
	Road traffic flow	4. Reduction in road traffic flow	- Negative - Direct - Long term - Reversible - Incremental	Medium High	Little	Moderate
	Mean Journey time	5. Increase in mean journey time	- Negative - Direct - Long term - Reversible - Incremental	Medium High	Little	Moderate
	Road safety	6. Decrease in road safety	- Negative - Direct - Long term - Reversible - Incremental	Medium	Little	Minor

Table 11 Traffic Impacts Mitigation Framework

S/No.	Impact Description	Gross Rating	Mitigation /Enhancement	Net Rating	Responsible party
1.	Reduction of Access to Transport	Moderate	M.1 Schedule much of vehicular movement during observed off-peak periods. Make more use of Sundays as the survey has shown that there is relatively light traffic on that day.	Minor	EPC Contractor during construction MM FZE during operation
2.	Increase in Traffic Volumes	Moderate	M.2 Carry out major movements at night possibly with armed escorts.	Minor	“
3.	Reduction in Traffic Flow	Moderate	M.3 Apply mitigations M1 and M2.	Minor	“
4	Increase in journey time	Moderate	M.4 Apply mitigations 1, 2, to reduce journey time.	Minor	“

4.0 Conclusion

Traffic survey of study area has been conducted in line with international best practice of using trained and experienced personnel, use of adequate data collection material and timing of 7days weekly and 14 hours’ daily. The survey presents weekly traffic volume in four (4) vehicle categories and weekly based hourly average volume of traffic along all the surveyed routes. Thus, the findings of this survey are a veritable tool to understanding the baseline traffic situation along the surveyed route and also as for journey management purposes during construction and operation of the MM Port FZE Facility.