To determine corridor freight for the N1, N2 and N7, the districts of South Africa are divided into five (5) zones, of which the first four are illustrated in Figure 1:

1. N1 Corridor;
2. N2 Corridor;
3. N7 Corridor;
4. Core Western Cape (districts within which freight movements are not considered to be on any of the national corridors);
5. Metropolitan (a combination of the Cape Town Metropolitan area and its peripheral areas); and
6. Non-corridor (any freight movement not clustered according to the cluster rules)

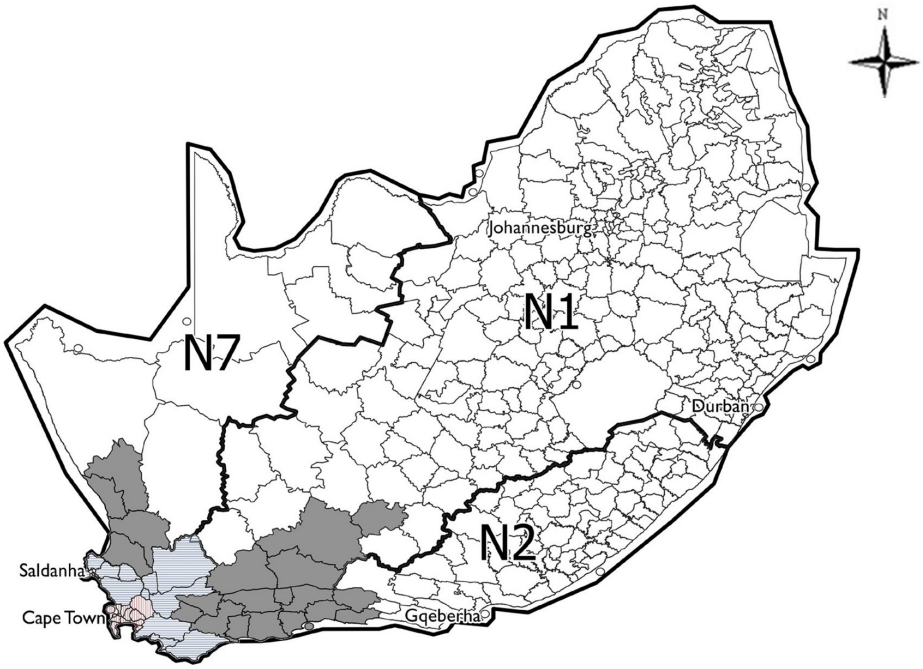

Figure 1: Corridor definitions for Western Cape freight

As shown in Figure 2, freight in the Core Western Cape zone is further sub-divided into Cape Town Metropolitan freight.

The Cape Town Metropolitan (Zone 5) freight is defined as freight that has its origin and destination inside the metropolitan areas.

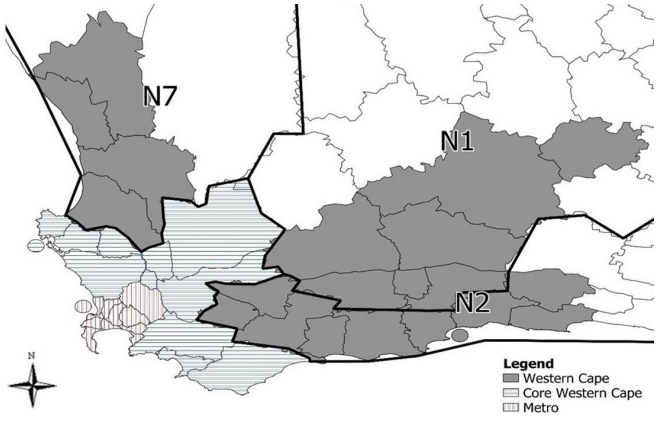

Figure 2: OD pairs for Cape Town Metropolitan freight

The Origin-Destination (OD) pairs are clustered into corridors by applying the following rules:

Cluster rules

- If the origin and destination are both within either the N1, N2 or N7 zones, the OD pair is assigned to that corridor.
- If the origin and destination are within different corridor zones, the OD pair is not assigned to a corridor.
- If the origin and destination are both within the core Western Cape zone, the OD pair is not assigned to a corridor.
- If either the origin or destination is within the core Western Cape zone, the OD pair is assigned to the corridor zone in which the non-core Western Cape origin or destination is.

Table 1 provides total road and rail freight in tonnes and tonne-kms, with the percentage split for each, per zonal grouping.

Table 1: Total road and rail freight in tonnes and tonne-kms per zone (2023)

	Total tonnes			Total Tonne-kms		
Zonal Grouping	**Road tonnes (million) (% of zone freight)**	**Rail tonnes (million) (% of zone freight)**	**Total (million)**	**Road tonne-kms (billion) (% of zone freight)**	**Rail tonne-kms (billion) (% of zone freight)**	**Total (billion)**
N1 Corridor traffic	30.3 (99.5%)	0.1 (0.5%)	30.4	41.9 (99.6%)	0.1 (0.4%)	42.1
N2 Corridor traffic	8.9 (99.8%)	0.01 (0.2%)	8.9	5.3 (99.9%)	0.01 (0.1%)	5.3
N7 Corridor traffic	4.5 (7.4%)	56.2 (92.6%)	60.7	2.5 (4.5%)	51.7 (95.5%)	54.2
Metropolitan traffic	26.1 (100.0%)	0.0 (0.0%)	26.1	0.5 (100.0%)	0.0 (0.0%)	0.5
Core Western Cape	8.6 (98.1%)	0.2 (1.9%)	8.8	0.6 (97.4%)	0.02 (2.6%)	0.6
Non-corridor traffic	9.1 (99.6%)	0.04 (0.4%)	9.1	10.2 (99.5%)	0.1 (0.5%)	10.3
Total	**87.5 (60.7%)**	**56.6 (39.3%)**	**144.1**	**61.1 (54.0%)**	**51.9 (46.0%)**	**113.1**

Table 2 provides total GFB[1] road and rail freight in tonnes and tonne-kms, with the percentage split for each, per zonal grouping.

Table 2: GFB road and rail freight in tonnes and tonne-kms per zone (2023)

	GFB Tonnes			GFB Tonne-kms		
Zonal Grouping	**Road tonnes (million) (% of zone freight)**	**Rail tonnes (million) (% of zone freight)**	**Total (million)**	**Road tonne-kms (billion) (% of zone freight)**	**Rail tonne-kms (billion) (% of zone freight)**	**Total (billion)**
N1 Corridor traffic	30.1 (99.5%)	0.1 (0.5%)	30.2	41.9 (99.6%)	0.1 (0.4%)	42.1
N2 Corridor traffic	8.0 (99.8%)	0.01 (0.2%)	8.0	5.3 (99.9%)	0.0 (0.1%)	5.3
N7 Corridor traffic	3.3 (86.4%)	0.5 (13.6%)	3.8	1.3 (84.7%)	0.2 (15.3%)	1.6
Metropolitan traffic	8.1 (100.0%)	0.0 (0.0%)	8.1	0.2 (100.0%)	0.0 (0.0%)	0.2
Core Western Cape	6.3 (97.4%)	0.2 (2.6%)	6.5	0.5 (96.8%)	0.0 (3.2%)	0.5
Non-corridor traffic	8.7 (99.6%)	0.04 (0.4%)	8.7	10.2 (99.5%)	0.1 (0.5%)	10.3
Total	**64.5 (98.7%)**	**0.9 (1.3%)**	**65.4**	**59.5 (99.2%)**	**0.5 (0.8%)**	**59.9**

Table 3 displays the GFB freight, excluding domestic iron ore and coal.

Table 3: GFB (also excluding domestic iron ore and coal) road and rail freight in tonnes and tonne-kms per zone (2023)

	GFB (also excluding domestic iron ore and coal) Tonnes			GFB (also excluding domestic iron ore and coal) Tonne-kms		
Zonal Grouping	**Road tonnes (million) (% of zone freight)**	**Rail tonnes (million) (% of zone freight)**	**Total (million)**	**Road tonne-kms (billion) (% of zone freight)**	**Rail tonne-kms (billion) (% of zone freight)**	**Total (billion)**
N1 Corridor traffic	29.1 (99.5%)	0.1 (0.5%)	29.3	40.5 (99.6%)	0.1 (0.4%)	40.7
N2 Corridor traffic	8.0 (99.8%)	0.01 (0.2%)	8.0	5.3 (99.9%)	0.0 (0.1%)	5.3
N7 Corridor traffic	3.2 (86.1%)	0.5 (13.9%)	3.7	1.3 (84.6%)	0.2 (15.4%)	1.6
Metropolitan traffic	8.1 (100.0%)	0.0 (0.0%)	8.1	0.2 (100.0%)	0.0 (0.0%)	0.2
Core Western Cape	5.7 (97.2%)	0.2 (2.8%)	5.8	0.5 (96.7%)	0.0 (3.3%)	0.5
Non-corridor traffic	7.8 (99.8%)	0.02 (0.2%)	7.8	9.0 (99.9%)	0.0 (0.1%)	9.0
Total	**61.9 (98.6%)**	**0.9 (1.4%)**	**62.8**	**56.9 (99.3%)**	**0.4 (0.7%)**	**57.3**

[1] GFB is defined as the competitive market consists of the total freight tonnes less iron ore exports, manganese exports, pipelines and, for the analysis that follows, stone and aggregate. The latter has been removed from the subsequent GFB analysis because it is typically a very short-distance movement of mostly construction aggregate, which is challenging to quantify and has extremely dispersed transport.

When compared to volumes of previous years, the rail tonnages on the N1 and N7 corridors show a negligible increase in the volumes of chemicals and metal products for machinery and electronic equipment within the N1 zonal grouping. GFB freight on the Core and N1 corridors grew by 1.5% and 1.3% respectively, while metropolitan corridors saw an increase of 12.5% compared to 2022 figures. In contrast, the N2 and N7 corridors decreased by 2.4% and 9.5%, respectively. The tonne-km view confirms a smaller rail market share, indicating that longer distance freight is increasingly being transported by road. This indicates that a long-distance market exists that could potentially benefit from rail's economies of scale, provided that rail operators can offer a competitive service.

Table 4 shows the breakdown of GFB (excluding road domestic iron ore and coal) road freight per zone. Note that 47.1% of this freight travels on the N1 road corridor, with an average distance travelled of 1 391 km.

Table 4: GFB (excluding road domestic iron ore and coal) road freight per zone (2023)

Zonal Grouping	Road tonnes (million)	Percentage of road traffic	Average Travel Distance (km)
N1 Corridor traffic	29.1	47.1%	1 391
N2 Corridor traffic	8.0	13.0%	659
N7 Corridor traffic	3.2	5.2%	409
Metropolitan traffic	8.1	13.0%	27
Core Western Cape	5.7	9.2%	83
Non-corridor traffic	7.8	12.6%	1 159
Total	**61.9**	**100.0%**	

Highlights

- For total freight touching the Western Cape, the N7 is the only corridor with significant rail volumes. However, this is primarily due to the dedicated iron ore corridor (i.e. iron ore and manganese exports).
- Corridor GFB freight is dominated by road, with: 99.5% market share on the N1 corridor; 99.8% market share on the N2 corridor and 86.1% market share on the N7 corridor.
- The average travel distance of road freight on the N1, N2, N7, Metropolitan and Core Western Cape corridor is 1 391 km, 659 km, 409 km, 27 km and 83 km respectively.
- Due to the low rail market share, modal shift opportunities exist for long-distance road freight in the Western Cape (more detail in Scenario 1: Modal shift).