



Template for Evidence(s) UI GreenMetric Questionnaire

University : Universitas Muhammadiyah Semarang
Country : Semarang, Central Java, Indonesia
Web Address : <https://greenmetric.unimus.ac.id/>

[5] Transportation (TR)

[5.4] The total number of vehicles (cars and motorcycles) divided by total campus' Population (TR.1)

a. Number of cars actively used and managed by the university [5.1]

Universitas Muhammadiyah Semarang (UNIMUS) manages 26 active cars as shown in Figure 1 below, dominated by MPVs (9 Expander, 5 Innova), followed by sedans (4 Vios, 1 Civic). The cars also includes 3 minibuses (Canter, Elf, Hiace), 1 SUV (CRV), 1 shuttle, 1 pick-up truck, and 1 medium bus.

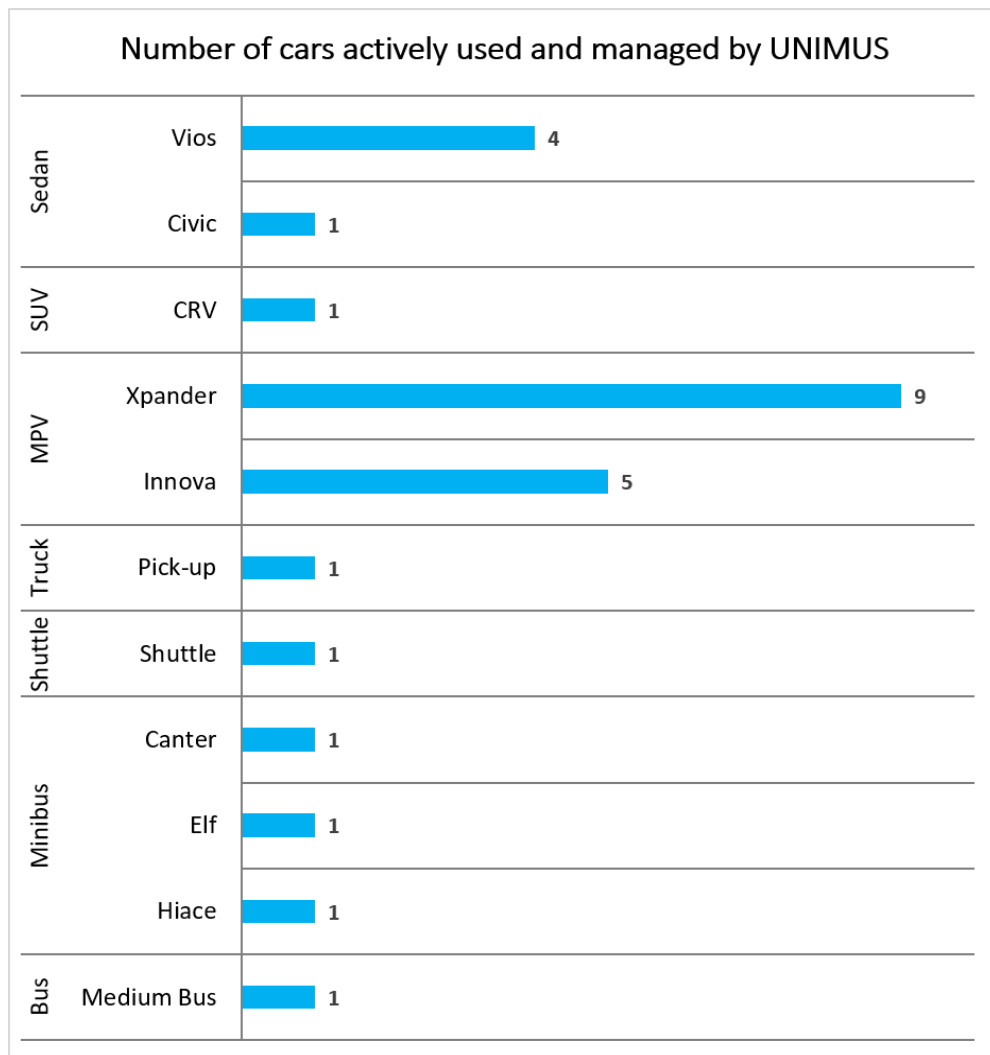


Figure 1. Number of cars actively used and managed by UNIMUS

b. Number of cars entering the university daily [5.2]

To obtain a representative estimate of campus transportation activity, vehicle data were collected using a **balanced sampling period** that included both active academic days and non-active academic periods, such as weekend, semester breaks, and national holidays. This approach minimizes bias caused by fluctuations in campus occupancy and activity levels, ensuring that the calculated average daily vehicle count more accurately reflects overall campus conditions throughout the year 2025. The detailed number of days for each period from 3 January 2025, to 31 December 2025, is presented in Figure 2 below. ([Survey report, 2026](#))

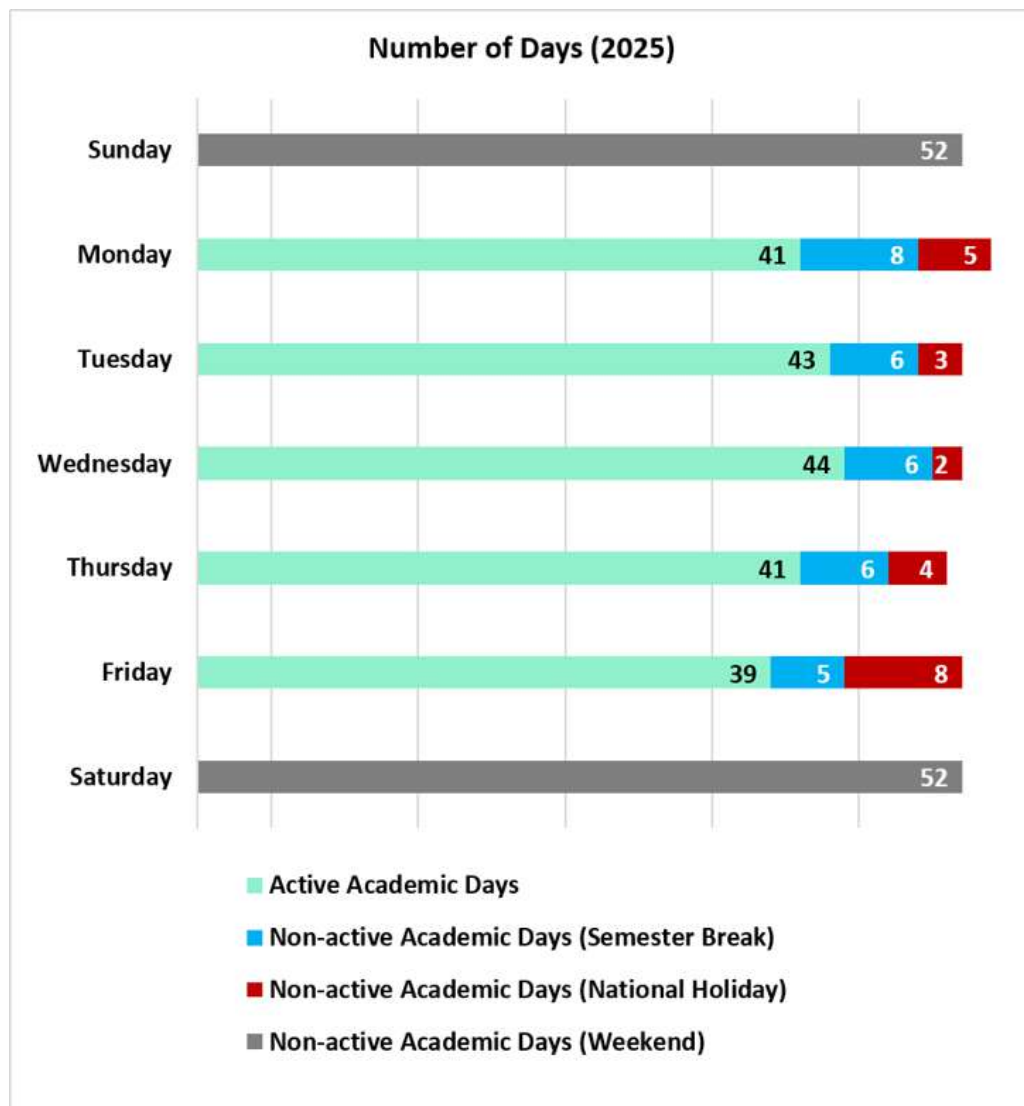


Figure 2. The detailed number of days (Sampling period)



The number of cars entering UNIMUS on a daily basis during the last 12 months (3 Januari 2025 – 31 December 2025) is shown in Figure 3 below.

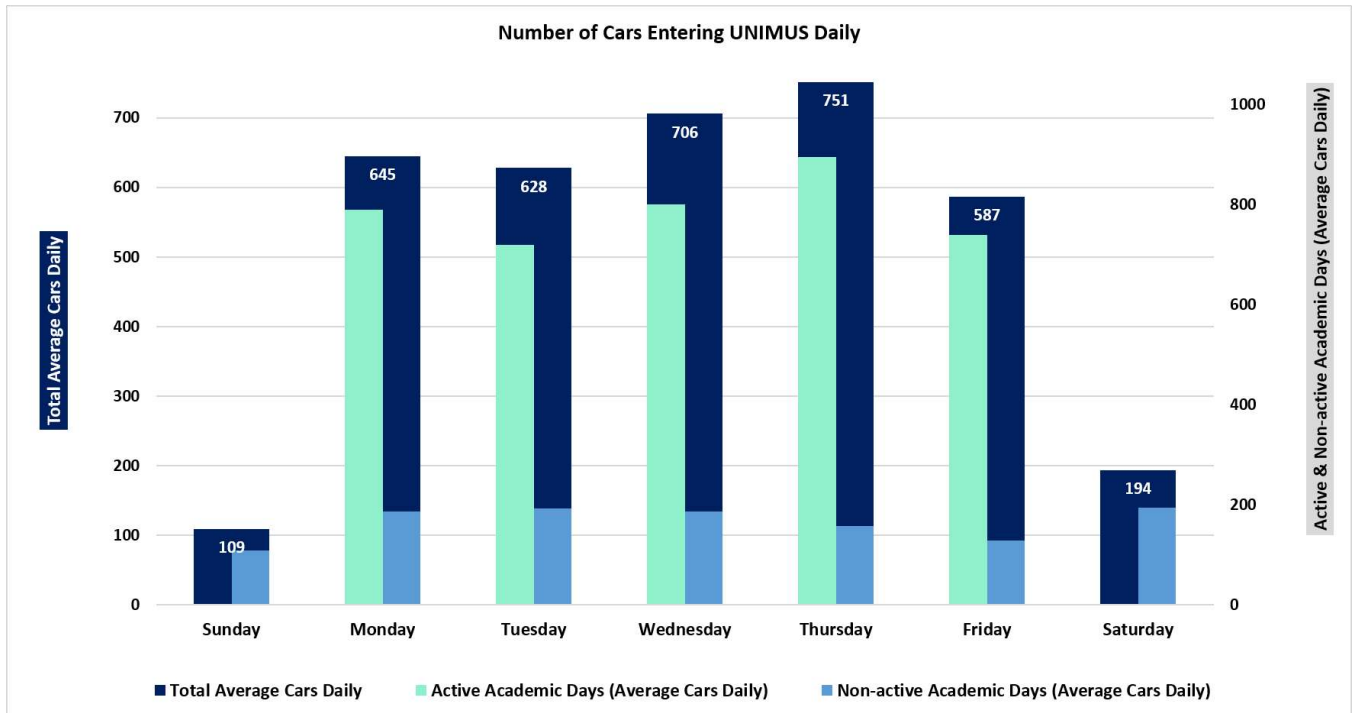


Figure 3. The average of cars entering UNIMUS daily in last 12 months

c. Number of motorcycles entering the university daily [5.3]

The number of motorcycles entering UNIMUS on a daily basis during the last 12 months (3 Januari 2025 – 31 December 2025) is shown in Figure 4 below.

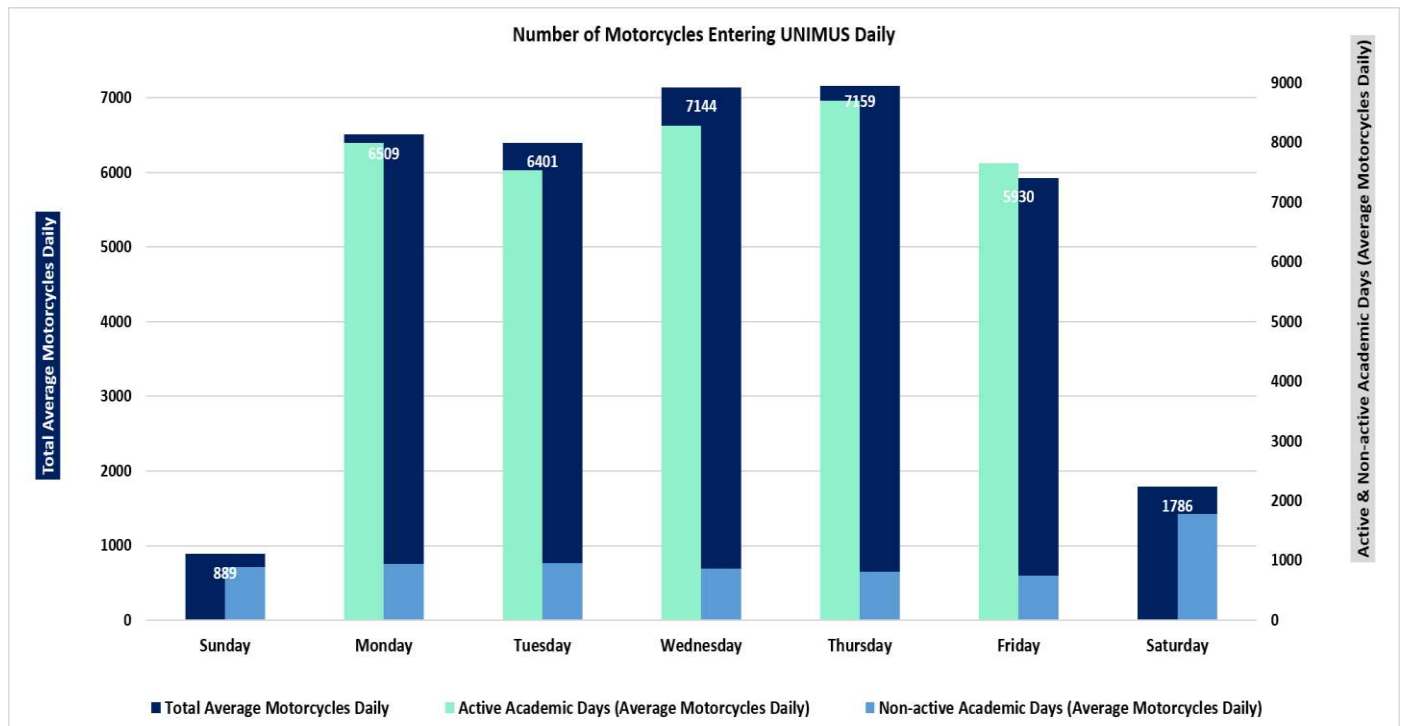


Figure 4. The average of motorcycles entering UNIMUS daily in last 12 months



d. The total number of vehicles (cars and motorcycles with combustion engines) divided by the total campus' population (TR.1)

The following data summarizes the number of vehicles entering Universitas Muhammadiyah Semarang (UNIMUS) on a daily basis during the last 12 months (3 Januari 2025 – 31 December 2025), alongside the total academic community population. The data were collected manually at the main gate of UNIMUS and UNIMUS Hospital, ensuring that all daily vehicle entries were recorded consistently throughout the observation period. The total number of vehicles and UNIMUS population is shown in Table 1 below.

Table 1. The total number of vehicles (cars and motorcycles with combustion engines) and the total UNIMUS' population

No.	Data	Total Number	
1	Number of cars actively used and managed by the university	26	5660
2	Number of cars entering the university daily	517	
3	Number of motorcycles entering the university daily	5117	
4	Total number of regular students	13719	14458
5	Total number of academic and administrative staff	739	

$$\text{TR.1(5.4)} = 5660 / 14458 \text{ (population)} = 0.391$$

Description:

The results show that, over the past 12 months (3 Januari 2025 – 31 December 2025), an average of 5660 vehicles entered UNIMUS daily, with motorcycles (5117 units) far outnumbering cars (517 units). When compared to the total UNIMUS population of **14458** people (regular students, academic and administrative staff), this equates to a ratio of approximately **0.391**.

Additional evidence link:

- https://drive.google.com/drive/folders/1gfm9m9wsJLOcQx_Yt7R_iErJXUiHp1Q2?usp=drive_link (UNIMUS Cars)
- https://drive.google.com/drive/folders/1EjZXXWPE9VVT6X8OtbQxhYTmJqud2f2G?usp=drive_link (Survey)



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[5] Transportation (TR)

[5.5] Shuttle Services (TR.2)

To support the mobility of the academic community of Universitas Muhammadiyah Semarang (UNIMUS) in traveling within the campus area to access various facilities, UNIMUS provides a shuttle service, as shown in Figure 1. This shuttle service consists of a small biodiesel-fueled bus, operated regularly by UNIMUS, and is available free of charge for all members of the UNIMUS academic community. The shuttle operates from Monday to Friday, with services in the morning, midday, and afternoon. At each of these times, the shuttle makes three trips. The detailed operating schedule of the shuttle can be seen in Figure 2. The detailed shuttle route can be seen in Figure 3.



Figure 1. Shuttle Service UNIMUS

Timetable of the UNIMUS' Shuttle			
Day	Trip		Number of trips
Monday	Morning	06.30 - 08.30	3
	Midday	11.00 - 13.00	3
	Afternoon	15.15 - 16.30	3
Tuesday	Morning	06.30 - 08.30	3
	Midday	11.00 - 13.00	3
	Afternoon	15.15 - 16.30	3
Wednesday	Morning	06.30 - 08.30	3
	Midday	11.00 - 13.00	3
	Afternoon	15.15 - 16.30	3
Thursday	Morning	06.30 - 08.30	3
	Midday	11.00 - 13.00	3
	Afternoon	15.15 - 16.30	3
Friday	Morning	06.30 - 08.30	3
	Midday	11.00 - 13.00	3
	Afternoon	15.15 - 16.30	3

Figure 2. Operating schedule of the shuttle

Details of the shuttle service, including its locations, coverage area, routes, and distribution to the various facilities within UNIMUS, can be seen in Figure 3.

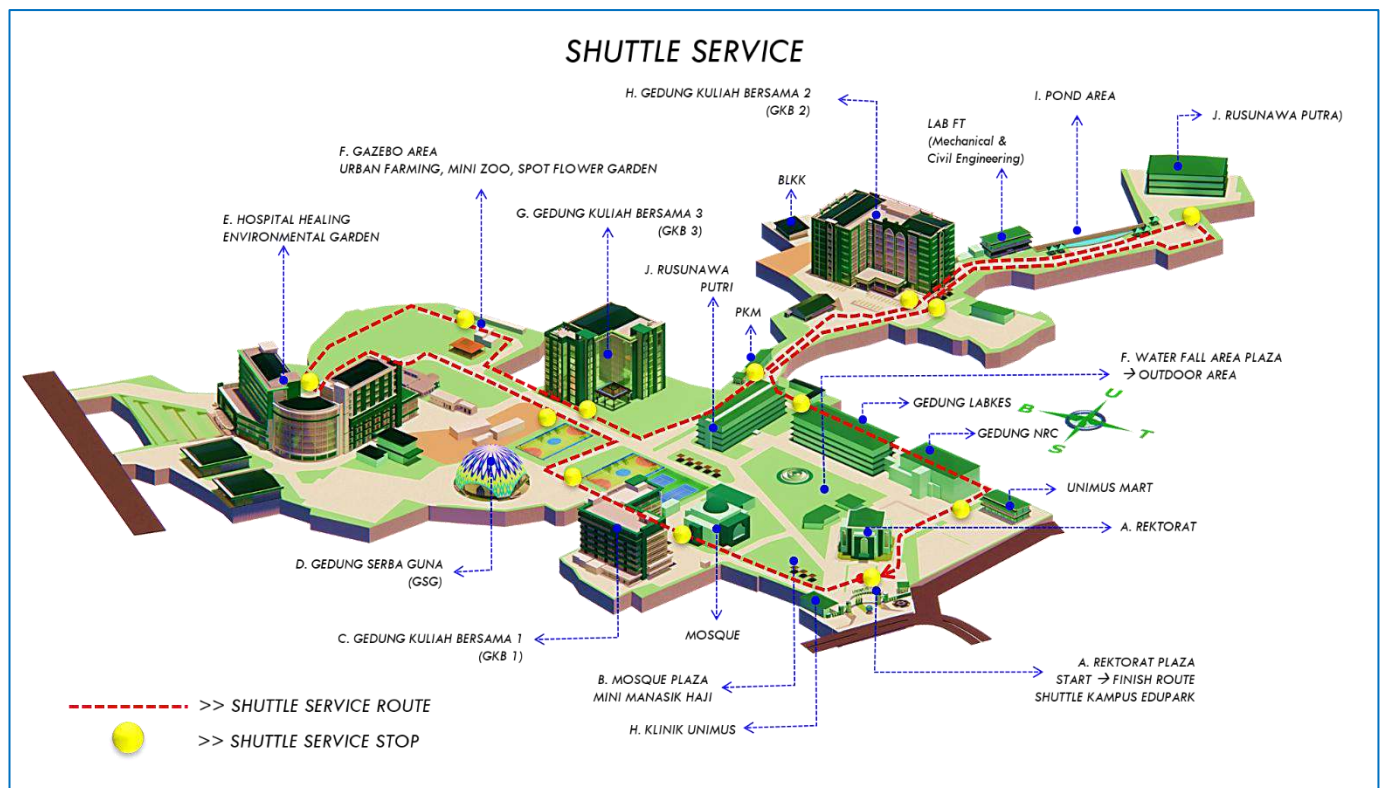


Figure 3. Shuttle' Location, area size, route, or distribution of facilities in UNIMUS

Additional evidence link:

https://drive.google.com/drive/folders/1SsM1sx6BAKbxRr_REcPs2iJ5giPgrPVU?usp=sharing

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[5] Transportation (TR)

[5.9] Zero Emission Vehicles (ZEV) availability on campus (TR.3)

A. UNIMUS ZERO EMISSION VEHICLES (ZEV)

Universitas Muhammadiyah Semarang (UNIMUS) provides Zero Emission Vehicles (ZEV) to facilitate the mobility of its academic community within the campus, enabling easy access to various facilities, as illustrated in Figure 1. The fleet consists of bicycles and electric bicycles (E-bikes), which are made available free of charge to all members of the academic community.



a. UNIMUS' Electric Bicycles



b. UNIMUS' Bicycles

Figure 1. UNIMUS' Zero Emission Vehicles (ZEV)



The total number of Zero Emission Vehicles (ZEV) provided by UNIMUS for its academic community is 55 units, consisting of 10 electric bicycles and 45 bicycles. These vehicles are available on campus every day for use by all members of the UNIMUS academic community.

Type of ZEV	Total number each vehicle
Electric Bicycles	10
Bicycles	45
Total	55

B. PRIVATELY OWNED ZERO EMISSION VEHICLES (ZEV)

On average, a total of 57 Zero Emission Vehicles (ZEV) owned personally by members of the UNIMUS academic community as well as by visitors enter the UNIMUS campus each day. Further details are presented in the table below. ([Survey report, 2026](#))

Day	Type of ZEV	Average per day	Total
Monday	Electric Motorcycles	25	65
	Electric Bicycles	18	
	Bicycles	16	
	Electric Cars	6	
Tuesday	Electric Motorcycles	24	62
	Electric Bicycles	19	
	Bicycles	14	
	Electric Cars	5	
Wednesday	Electric Motorcycles	24	63
	Electric Bicycles	18	
	Bicycles	17	
	Electric Cars	4	
Thursday	Electric Motorcycles	26	67
	Electric Bicycles	19	
	Bicycles	16	
	Electric Cars	6	
Friday	Electric Motorcycles	24	61
	Electric Bicycles	17	
	Bicycles	15	
	Electric Cars	5	
Saturday	Electric Motorcycles	16	45
	Electric Bicycles	14	
	Bicycles	11	
	Electric Cars	4	
Sunday	Electric Motorcycles	9	37
	Electric Bicycles	11	
	Bicycles	14	
	Electric Cars	3	
Average ZEV entering UNIMUS per day			57



[5.10] Average number of Zero Emission Vehicles (ZEV) on campus per day

The presence of Zero Emission Vehicles (ZEV) on the UNIMUS campus reflects both institutional support and individual initiatives in promoting environmentally friendly transportation. UNIMUS itself provides a fleet of 55 ZEV units, consisting of 45 bicycles and 10 electric bicycles, which are stationed on campus and available for daily use by the academic community. In addition, an average of 57 privately owned ZEV—belonging to members of the UNIMUS academic community as well as campus visitors—enter the campus each day. Taken together, this indicates that on a typical day, the UNIMUS campus accommodates around 112 ZEV in total.

A.	UNIMUS Zero Emission Vehicles (ZEV)	55 Unit/day
B.	Privately Owned Zero Emission Vehicles (ZEV)	57 Unit/day
Average ZEV on UNIMUS per day		112

[5.11] The total number of Zero Emission Vehicles (ZEV) divided by the total campus population (TR.4)

The average number of Zero Emission Vehicles (ZEV) on campus per day is **112** ZEV, consisting of 55 units provided directly by Universitas Muhammadiyah Semarang (UNIMUS) and an additional 57 privately owned ZEV that enter the campus daily, either from members of the academic community or visitors. When compared to the total campus population of **14458** individuals, this figure represents a ratio about **0.007756**.

Additional evidence link:

- https://drive.google.com/drive/folders/1eW8GOalzXVKnk6o1LTskl_yVrDRDQI9-?usp=drive_link (ZEV)
- https://drive.google.com/drive/folders/1EjZXXWPE9VVT6X8OtbQxhYTmJqud2f2G?usp=drive_link (Survey)
- https://drive.google.com/drive/folders/17izZri3UkBF3ngrC3dsMM3FPq8kYKdfd?usp=drive_link (Policies)

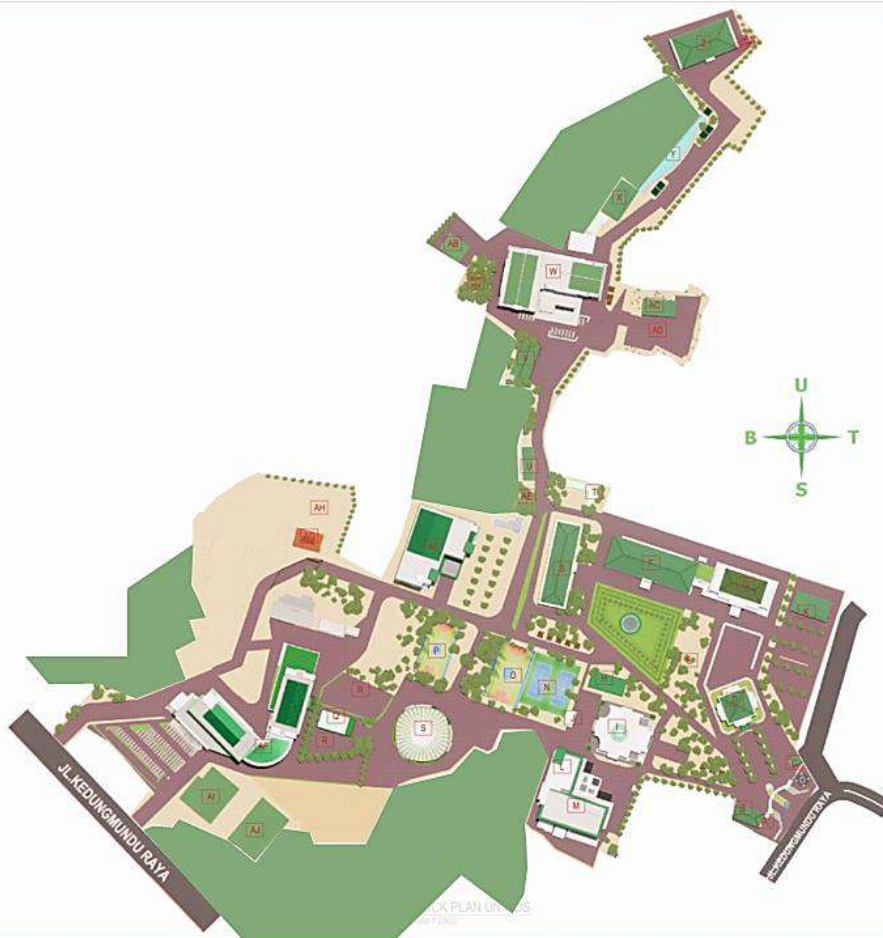


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[5] Transportation (TR)

[5.13] The ratio of the ground parking area to total campus area (TR.5)



- Total UNIMUS' main campus area: **21.2834** hectare = **212834** m²
- Total UNIMUS' parking area: **8278.60** m²

Parking area mapping : https://www.google.com/maps/d/viewer?mid=1ayuaeD9riwaif_aMXQ5br-jUKKr7IzU&ll=-7.020794095223879%2C110.46018974634038&z=17



Table of UNIMUS parking area

Name of the parking area	Area (m²)
Depan Rektorat	309.55
Depan Rektorat	135.88
Unimus Mart	542.37
Belakang Rektorat	191.43
Belakang Rektorat	497.28
Kantin	281.92
Samping Masjid	249.08
Belakang Masjid	213.45
FK & GKB 1	736.11
Rusunawa Putri	580.54
FKG, FKM, GKB 3	981.55
GSG	0.44
RS	1147.01
FT, MIPA, GKB 2	904.38
Samping GKB 2	441.82
Gudang UPPU	520.59
RS	123.83
Lab. FT	348.84
Rusunawa Putra	72.53
Total Luas Parkir	8278.60

$$\begin{aligned}
 \text{The ratio of the ground parking area to total campus area} &= \frac{\text{Total UNIMUS' parking area}}{\text{Total UNIMUS' main campus area}} \\
 &= \frac{8278.60 \text{ m}^2}{212834 \text{ m}^2} \\
 &= 3.89 \%
 \end{aligned}$$

Additional evidence link:

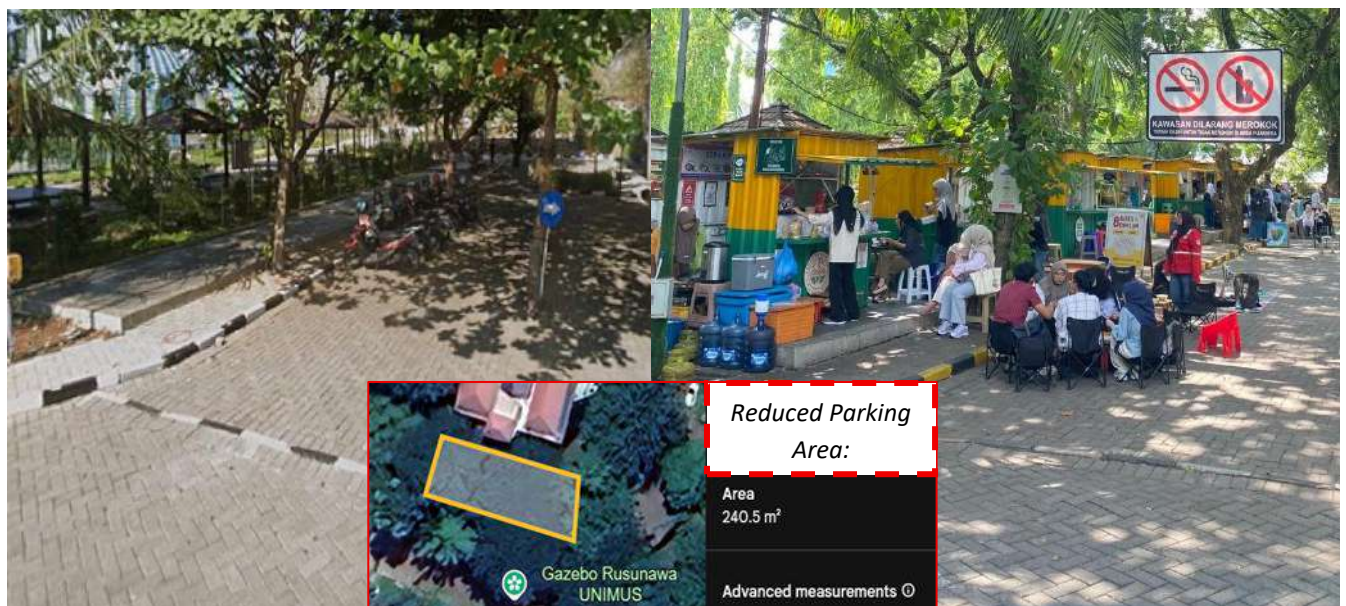
https://www.google.com/maps/d/viewer?mid=1ayuaeD9riwaif_aMXQ5br-jUKKr7IzU&ll=-7.020794095223879%2C110.46018974634038&z=17

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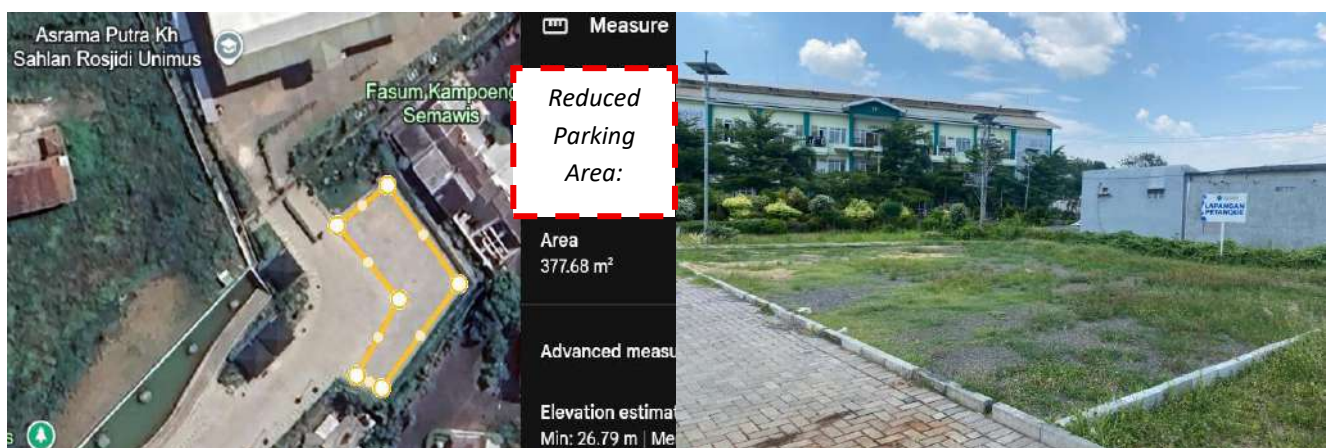
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[5] Transportation (TR)

[5.14] Program to limit or decrease the parking area on campus for the last 3 years (TR.6)



Before (Parking Area) → After (Food Court) - 2023



Before (Parking Area) → After (Petanque Field) - 2024

Figure 1. The conversion of parking spaces previously used for fuel-based vehicles into alternative campus facilities of UNIMUS



Figure 2. UNIMUS' Shuttle service



Figure 3. Limiting parking zone

Description:

Over the past three years, Universitas Muhammadiyah Semarang (UNIMUS) has implemented a range of transportation programs aimed at reducing dependence on fossil-fuel vehicles and gradually limiting the need for parking areas within the campus. One concrete measure has been the **conversion of parking areas previously**



designated for fuel-powered vehicles into alternative facilities, resulting in a total reduction of **618.18 m²**, as documented through before-and-after photographs in Figure 1.

In addition, UNIMUS provides a **campus shuttle service** and has introduced **parking zone restrictions at several strategic points** (Figure 2 and Figure 3). These policies are intended to control the number of fuel-powered vehicles entering the campus while encouraging the academic community to shift toward environmentally friendly modes of transportation.

UNIMUS has also issued a **circular on the availability and use of Zero Emission Vehicles (ZEVs)** owned by the university, such as bicycles and e-bikes, which are available **free of charge** for all members of the academic community for on-campus trips. This initiative is reinforced by a **directive to first-year students not to bring fuel-powered vehicles to campus**, instead recommending the use of public transportation for commuting and the shuttle service, ZEVs, or walking for internal mobility.

Furthermore, UNIMUS supports the reduction of parking demand through the **implementation of online classes** and Car Free Day, which decrease the frequency of commuting to campus. Awareness of sustainable transportation is also continuously promoted through official circulars commemorating **National Public Transportation Day (24 April)** and **National Walking Day (22 January)**.

Overall, this series of policies and programs demonstrates UNIMUS's strong commitment to creating a campus environment that is **eco-friendly, healthy, and oriented toward sustainable transportation**, while significantly reducing the demand for conventional motor vehicle parking space.

Parking Area Reduction:

- Parking Area in 2023 = **8896.78 m²**

- Parking Area in 2025 = **8278.60 m²**

Reduction for the last 3 years:

$$\begin{aligned} &= \left(\frac{\text{Parking Area in 2023} - \text{Parking Area in 2025}}{\text{Parking Area in 2023}} \right) \times 100\% \\ &= \left(\frac{8896.78 \text{ m}^2 - 8278.60 \text{ m}^2}{8896.78 \text{ m}^2} \right) \times 100\% \\ &= \mathbf{6.9\%} \end{aligned}$$

Additional evidence link:

- https://drive.google.com/drive/folders/1ggu0j0oPp4A4z_A-uZvR0zz5bCL8ok1M?usp=drive_link (Programs)
- https://drive.google.com/drive/folders/17izZri3UkBF3ngrC3dsMM3FPq8kYKdfd?usp=drive_link (Policies)

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[5] Transportation (TR)

[5.15] Number of initiatives to decrease private vehicles on campus (TR.7)

The following are a number of initiatives to decrease private vehicles on Universitas Muhammadiyah Semarang.



Figure 1. UNIMUS' Shuttle service

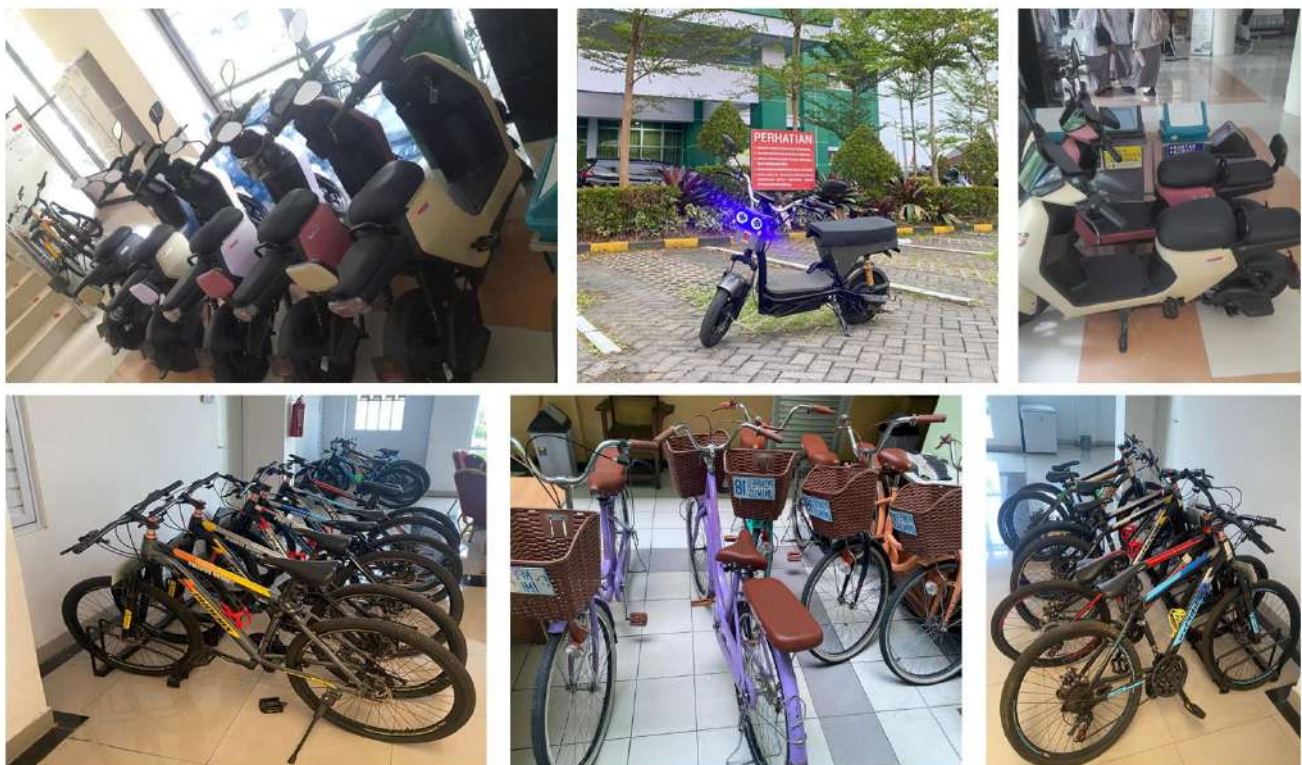


Figure 2. UNIMUS' ZEV



Figure 3. Limiting parking zone

Description:

Universitas Muhammadiyah Semarang (UNIMUS) has launched a series of initiatives to reduce the use of private fossil-fuel vehicles within the campus environment. One of the key measures is the provision of the **UNIMUS shuttle service**, which functions as a shared mode of transportation, thereby reducing the need for students and staff to bring private vehicles. This effort is further strengthened by the availability of **university-owned Zero Emission Vehicles (ZEVs)**, such as bicycles and e-bikes, which are provided free of charge for all members of the academic community for on-campus travel. The availability of these facilities has also been disseminated through official circulars, ensuring that their use is increasingly integrated into daily activities.

In addition to providing facilities, UNIMUS has implemented **policies restricting the use of fuel-powered vehicles**. Students residing in the university dormitories (both male and female) are prohibited from using such vehicles for internal campus mobility and are directed instead to utilize the shuttle service, ZEVs, or walk. A **similar policy applies to first-year students**, who are advised not to bring private vehicles to campus but rather to use public transportation for commuting and rely on the shuttle service, ZEVs, or walking for internal trips.

These initiatives are complemented by the adoption of **online classes** and **Car Free Day**, which directly reduce the frequency of commuting to campus. Furthermore, UNIMUS continues to foster collective awareness through official circulars commemorating **National Public Transportation Day** (24 April) and **National Walking Day** (22 January), which serve as opportunities for education and campaigns promoting a culture of sustainable transportation.

Overall, the combination of environmentally friendly facilities, regulatory measures limiting private vehicle use, and public awareness campaigns demonstrates UNIMUS's commitment to creating a greener, healthier, and emission-reduction-oriented campus environment.

Additional evidence link:

- https://drive.google.com/drive/folders/17izZr3UkBF3ngrC3dsMM3FPq8kYKdfd?usp=drive_link (Policies)

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[5] Transportation (TR)

[5.16] Pedestrian path on campus (TR.8)

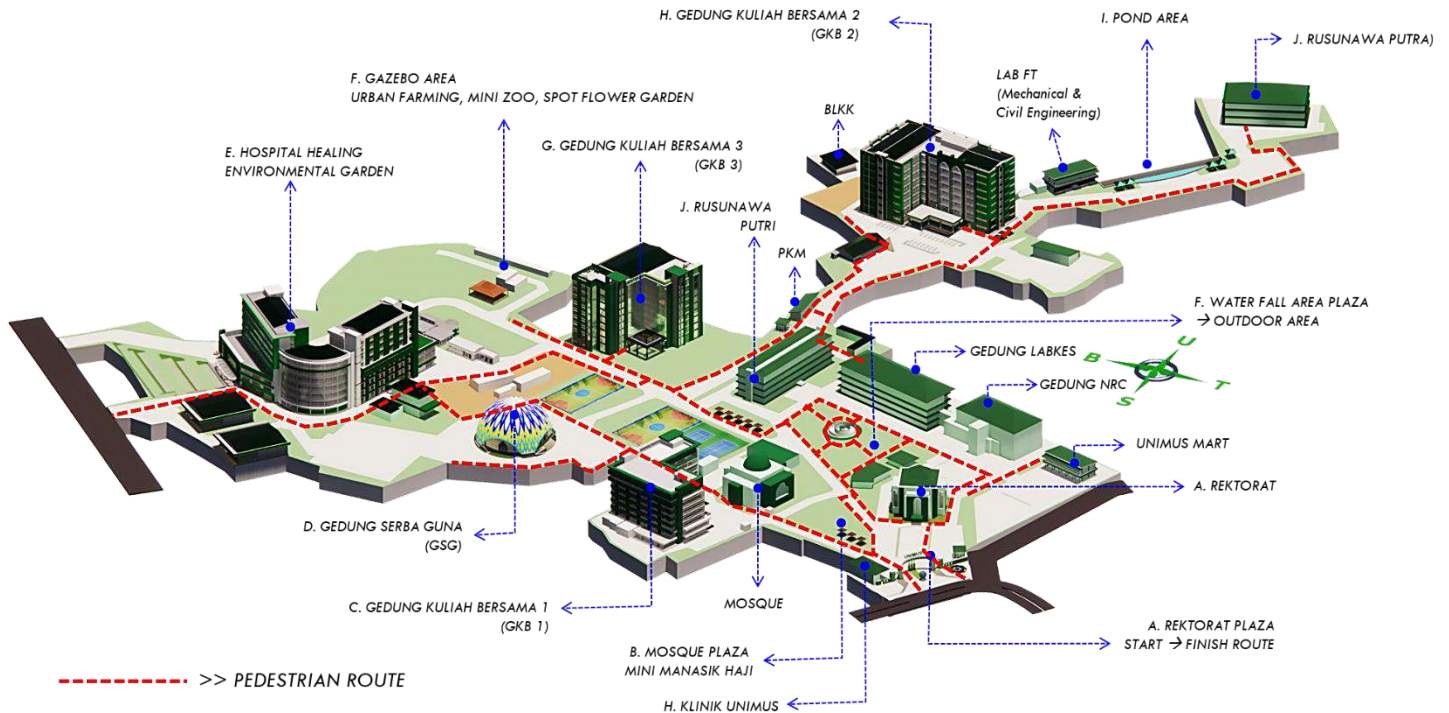


Pedestrian path (Universitas Muhammadiyah Semarang, Indonesia)



Pedestrian path (Universitas Muhammadiyah Semarang, Indonesia)

PEDESTRIAN ROUTE



Description:

UNIMUS has developed pedestrian paths that not only serve as mobility facilities but are also designed to reflect the principles of **safety, convenience, and inclusivity**. This infrastructure supports the creation of a pedestrian-friendly campus environment while encouraging a culture of sustainable transportation. The facilities take into account both technical and social aspects, ensuring that they can be optimally used by the entire academic community, including persons with disabilities.

Safety

- The pedestrian paths are **equipped with adequate lighting**, ensuring safety during nighttime use.
- The **separator between vehicle roads and pedestrian paths consists of height differences and painted curbs**, providing both visual and physical boundaries, even though it is not a hard barrier.
- Most paths are constructed with **non-slippery paving materials**, reducing the risk of slipping, especially in wet conditions.

Convenience

- **Each building on campus is connected by pedestrian paths**, facilitating mobility between facilities.
- **Trees are planted along the paths** to provide shade and comfort for pedestrians.
- **Location information and directional signs** are available to assist navigation within the campus.

Disabled-friendly

- The pedestrian paths are **designed to be disable-friendly**, ensuring accessibility for all users.
- They are equipped with **handrails at certain points** to support mobility.
- **Ramps and guiding blocks** are provided with designs that meet accessibility standards, making them suitable for individuals with physical disabilities and those with visual impairments.

Additional evidence link:

https://drive.google.com/drive/folders/1InVnI_OC2eFhLFy25frP_zSs3Q-9m23x?usp=drive_link (Pedestrian path)

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[5] Transportation (TR)

[5.18] Impact of Transportation programs in supporting the Sustainable Development Goals (SDGs)



UNIMUS Shuttle service



UNIMUS Electric Bicycles



UNIMUS' Bicycles



Description:

The transportation programs implemented by Universitas Muhammadiyah Semarang (UNIMUS) demonstrate a strong alignment with multiple Sustainable Development Goals (SDGs). UNIMUS's transportation programs contribute to **16** of the **17 SDGs**:

- **SDG 1 – No Poverty**
Free shuttle services, bicycles, and e-bikes reduce transportation costs for students and staff, ensuring affordable mobility.
- **SDG 2 – Zero Hunger**
By reallocating parking areas into alternative facilities, UNIMUS creates opportunities for green/open spaces that can support food security initiatives such as urban gardens.
- **SDG 3 – Good Health and Well-being**
By promoting walking, cycling, and the use of Zero Emission Vehicles (ZEV), UNIMUS encourages active mobility and reduces air pollution, thereby contributing to a healthier campus environment.
- **SDG 4 – Quality Education**
Free shuttle services, bicycles, and e-bikes ensure equitable access to campus facilities for all students and staff, regardless of economic background. The integration of sustainable transport policies into daily campus life also functions as a *living laboratory*, embedding sustainability values into the educational experience. Online classes further expand access and flexibility, supporting inclusive and quality education.
- **SDG 5 – Gender Equality**
Safe, free, and accessible transport options empower all genders equally, reducing barriers to participation in academic life.
- **SDG 6 – Clean Water and Sanitation**
Reduced fossil-fuel vehicle uses lowers risks of water contamination from oil leaks and runoff, indirectly supporting water quality.
- **SDG 7 – Affordable and Clean Energy**
The use of biodiesel-fueled shuttle buses and the provision of electric bicycles represent a transition toward cleaner energy sources in campus mobility.
- **SDG 8 – Decent Work and Economic Growth**
Efficient, low-cost transport supports productivity and reduces economic burdens on students and staff
- **SDG 9 – Industry, Innovation, and Infrastructure**
The reallocation of parking areas into alternative facilities and the establishment of shared shuttle services reflect innovative infrastructure planning that prioritizes sustainability.
- **SDG 10 – Reduced Inequalities**
Free access to transport ensures equal mobility opportunities for all members of the academic community
- **SDG 11 – Sustainable Cities and Communities**
UNIMUS reduces reliance on private fossil-fuel vehicles by providing free shuttle services, bicycles, and e-bikes, while also implementing parking restrictions. These measures foster a more sustainable and accessible campus community.
- **SDG 12 – Responsible Consumption and Production**
The shift from private vehicle use to shared and zero-emission transport modes illustrates responsible resource use and reduced environmental impact.



- **SDG 13 – Climate Action**

Through the reduction of fossil-fuel vehicle entry, the promotion of ZEVs, and the integration of online classes to reduce commuting, UNIMUS actively lowers greenhouse gas emissions and contributes to climate change mitigation.

- **SDG 15 – Life on Land**

Reduced parking areas and greener campus spaces support biodiversity and sustainable land use.

- **SDG 16 – Peace, Justice, and Strong Institutions**

Transparent policies (e.g., restrictions on fossil-fuel vehicles, official circulars) demonstrate accountable governance in sustainability.

- **SDG 17 – Partnerships for the Goals**

Awareness campaigns on National Public Transport Day and National Walking Day highlight UNIMUS's role in fostering collective responsibility and partnerships for sustainable mobility.

Overall, these integrated programs demonstrate UNIMUS's commitment to embedding sustainability principles into campus transportation, reducing emissions, cultivating a culture of environmentally responsible mobility, and ensuring equitable access to education.

Additional evidence link:

https://drive.google.com/drive/folders/1SsM1sx6BAKbxRr_REcPs2iJ5giPgrPVU?usp=drive_link (Shuttle service)

https://drive.google.com/drive/folders/1ppXDqh7-BtUyOj2d9RzDsHT6Tm-Fhtf?usp=drive_link (Policies)

https://drive.google.com/drive/folders/1eW8GOalzXVKnk6o1LTskl_yVrDRDQl9-?usp=drive_link (ZEV)

https://drive.google.com/drive/folders/1InVnI_OC2eFhLFy25frP_zSs3Q-9m23x?usp=drive_link (Pedestrian path)