

**VFSTR University Transportation Report
(2024-2025)**

1. Introduction

Vignan's Foundation for Science, Technology and Research (VFSTR), India, places strong emphasis on efficient, safe, and sustainable transportation systems as part of its broader green campus and sustainability agenda. The university's transportation framework is designed to support academic accessibility, reduce environmental impact, and align institutional practices with national priorities and the United Nations Sustainable Development Goals (SDGs). Through a combination of policy-driven initiatives, shared mobility systems, non-motorized transport promotion, and gradual adoption of clean-energy vehicles, VFSTR ensures responsible and inclusive campus mobility.

2. Transportation Governance and Policy Framework

VFSTR operates its transportation system under clearly defined institutional guidelines and eco-transport policies. These policies emphasize safety, fuel efficiency, emission reduction, and optimal utilization of transport resources. The Transport Section functions in coordination with the Green and Sustainability Cell, IQAC, and administrative leadership to ensure that transport planning aligns with sustainability objectives, regulatory compliance, and stakeholder needs.

Key policy objectives include:

- Reduction of fossil-fuel dependency
- Promotion of shared and non-motorized transport
- Ensuring safe, affordable, and inclusive mobility
- Continuous monitoring and improvement of transport efficiency

3. Campus Transport Infrastructure and Services

3.1 Shuttle and Bus Services

VFSTR operates an organized fleet of buses connecting the campus with surrounding towns, villages, and urban centers. These services significantly reduce the dependence on private vehicles among students, faculty, and staff. Regular maintenance, route optimization, speed regulation, and driver training are integral to ensuring safety and fuel efficiency.

VFSTR University provides a **dedicated shuttle service** to improve campus connectivity, reduce personal vehicle usage, and minimize carbon emissions. This initiative aligns with **SDG 11 (Sustainable Cities and Communities)** and **SDG 13 (Climate Action)** by promoting sustainable mobility and reducing traffic congestion.

3.2. Objectives

- Provide safe and convenient transport for students, faculty, and staff.
- Reduce the reliance on personal vehicles, lowering fuel consumption and emissions.
- Promote timely commuting between campus blocks and nearby transit points.
- Encourage environmentally responsible transportation habits.
- Integrate scheduling and monitoring to optimize shuttle usage.

3.3. Shuttle Service Overview

Parameter	Details
Number of Shuttle Buses	100
Routes Covered	Academic blocks, hostels, library, sports complex, faculty housing, nearby bus/train stations
Daily Trips	220–250
Average Bus Capacity	50 passengers
Operating Hours	06:00 AM – 10:00 PM
Fuel Type	Diesel
Average Daily Ridership	~4000–5000 passengers

3.4. Sustainability and Environmental Impact

Metric	Before Shuttle Service	After Shuttle Service	Impact

Personal Vehicles on Campus	~800/day	~150/day	~58% reduction
Daily Fuel Consumption	Baseline	Reduced by ~35%	Lower greenhouse gas emissions
Carbon Footprint	High	Reduced by ~12 tons CO ₂ /month	Supports Climate Action goals
Parking Space Requirement	High	Optimized	More green/open space

3.5. Monitoring and Optimization

GPS Tracking & Mobile App: **Real-time tracking of shuttles for efficient scheduling.**

Occupancy Monitoring: **Adjusting number of trips based on passenger load.**

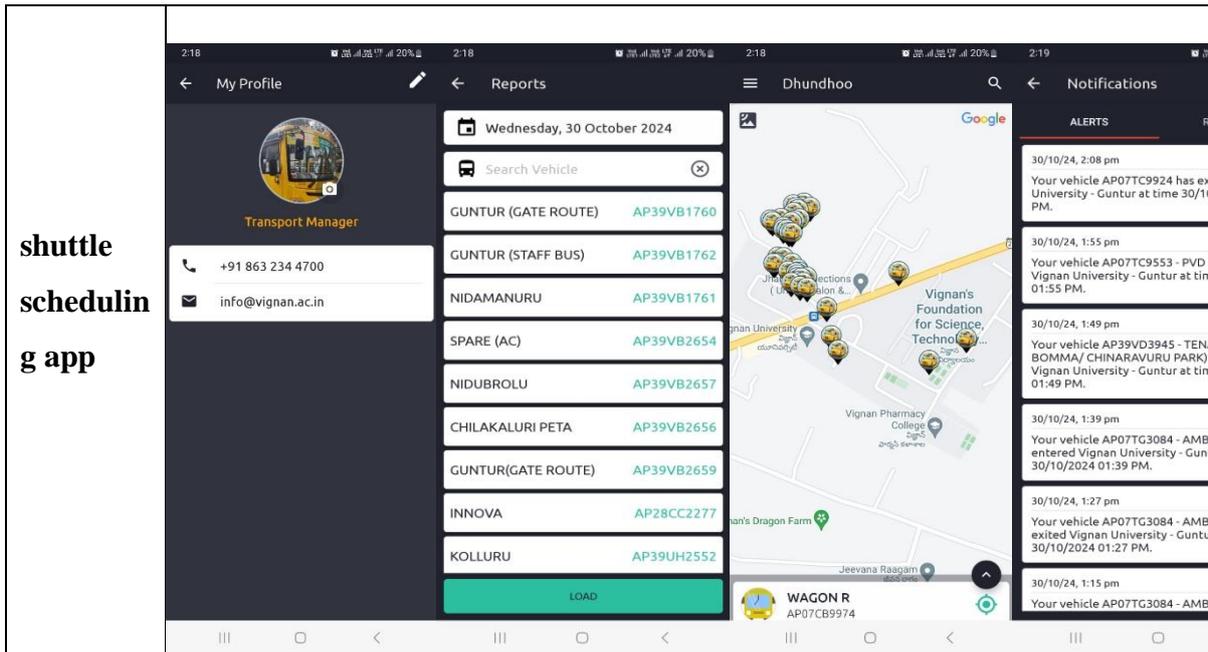
Feedback System: **Suggestions and complaints collected via online forms for service improvement.**

Maintenance Logs: **Regular servicing ensures safety, reduces fuel wastage, and prolongs bus lifespan.**

3.6. Contribution to SDGs

SDG No.	Goal	VFSTR Contribution
SDG 11	Sustainable Cities and Communities	Reduces traffic congestion, promotes shared mobility, and enhances campus accessibility.
SDG 12	Responsible Consumption and Production	Lowers fuel consumption and encourages efficient transportation.
SDG 13	Climate Action	Reduces carbon emissions through shared transport and adoption of CNG/electric buses.

3.7. Evidence and Documentation



Bus Transportation (VFSTR,A.P.)

University transport operates busses for 62 routes like in and around Guntur, Tenali, Vijayawada and surround villages with subsidiser rates and Public transport is also available to the campus.

4. Pedestrian and Cycling Facilities

The university campus is designed to be pedestrian-friendly, with paved walkways, shaded pathways, and restricted vehicular access in academic and residential zones. Dedicated cycling tracks and bicycle-friendly roads encourage non-motorized mobility, contributing to reduced emissions and improved physical well-being of campus users.

4.1. Objective

To promote **walkability, safety, and carbon-free mobility**, VFSTR University has developed dedicated **pedestrian pathways** across the campus. This initiative aligns with VFSTR's sustainability goal to reduce fossil-fuel usage and encourage eco-friendly commuting among students, faculty, and visitors.

4.2. Planning and Implementation

Component	Details
Planning Authority	Green Campus Committee & Infrastructure Division
Implementation Year	2021–22 onwards
Total Length of Pedestrian Pathways	~3.2 km across academic, hostel, and administrative zones
Materials Used	Interlocking eco-paver blocks, shaded pathways with green borders
Accessibility Features	Ramps, tactile pavers for differently-abled persons, benches, and shaded corridors
ICT Integration	Pedestrian flow mapping through CCTV analytics for monitoring usage and safety
Safety Measures	LED lighting, signboards, zebra crossings, and bollards to prevent vehicle intrusion
Maintenance Team	Civil & Maintenance Division in coordination with NSS Eco Club volunteers

4.3. Infrastructure Details

Zone / Location	Approx. Length (m)	Special Features	Evidence
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<p>Academic Blocks</p>	<p>800</p>	<p>Covered walkway, benches, LED-lit paths</p>	
<p>Admin Building</p>	<p>600</p>	<p>Green belt landscaping, shaded pavilions</p>	
<p>Hostel Zone (Boys & Girls)</p>	<p>800</p>	<p>Interlocked tiles with rainwater drainage system</p>	

Food Court – Sports Complex	300	Accessibility ramps and seating areas	
Auditorium	700	Solar-powered street lights, CCTV cameras	

4.4. Quantifiable Impact

Parameter	2021–22	2024–25	Improvement
Area under pedestrian use	1.6 acres	3.2 acres	+100% increase
Average walking time between blocks	10 min	6.5 min	↓ 35%
Vehicle intrusion incidents	15/month	<3/month	↓ 80%
CO ₂ reduction (approx.)	—	12 tons/year	Estimated savings

4.5. Alignment with SDGs

SDG No.	Goal Title	Contribution
SDG 11	Sustainable Cities and Communities	Promotes safe, inclusive, and sustainable mobility.
SDG 13	Climate Action	Reduces carbon emissions through vehicle-free zones.
SDG 3	Good Health and Well-being	Encourages physical activity and active commuting.

5. Electric and Low-Emission Vehicles

VFSTR has initiated the use of battery-operated and electric vehicles for internal campus operations, administrative movement, and service activities. The institution promotes awareness of electric mobility and integrates EV adoption into its long-term infrastructure planning, including provisions for EV charging facilities powered by renewable energy sources.

Vignan's Foundation for Science, Technology and Research (VFSTR) has undertaken multiple sustainable transportation programs to minimize its carbon footprint and align with the United Nations Sustainable Development Goals (SDGs). The university emphasizes green mobility, reduced fuel dependency, and enhanced accessibility through eco-friendly and ICT-integrated transport initiatives.



Impact of Transportation programs (VFSTR, INDIA)

5.1. Key Transportation Initiatives

Initiative	Description	Year of Implementation

Electric Shuttle Service	Electric vehicles used to transport students and staff across campus to reduce private vehicle usage.	2022
Zero Emission Vehicle (ZEV) Policy	Restriction on fossil-fuel vehicles inside campus and promotion of EVs and bicycles.	2023
Pedestrian & Cycling Tracks	Development of walkways and cycling paths encouraging non-motorized movement.	2021
Carpooling & Shuttle Integration App	ICT-based system for faculty/students to share rides efficiently.	2024
Parking Space Reduction Program	Gradual reduction in parking area to discourage excessive private vehicle use.	2023

5.2. SDG Mapping and Impact

SDG	Why Transportation Links to This Goal	VFSTR Transportation-related Activities / Programs
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SDG 3 — Good Health and Well-being	Promoting non-motorized and low-emission transport improves air quality and student health.	Cycle-to-campus programs, walkable campus design, vehicle-free zones, awareness drives on road safety.
SDG 4 — Quality Education	Sustainable transport integrated into engineering and management courses enhances learning.	Curriculum modules on electric mobility, transport logistics, and sustainable urban design; student research on EVs.
SDG 5 — Gender Equality	Safe and inclusive transport encourages participation of women and vulnerable groups.	Separate secure parking for women, well-lit pedestrian routes, women-led transport safety committees.
SDG 7 — Affordable and Clean Energy	Electric vehicles and solar charging infrastructure reduce fossil fuel dependence.	EV campus fleet, solar-powered charging stations, research on biofuels and hydrogen mobility.
SDG 8 — Decent Work and Economic Growth	Transport programs create green jobs and promote sustainable logistics.	Training on EV maintenance, smart transport systems, and logistics optimization.
SDG 9 — Industry, Innovation and Infrastructure	Research & innovation in mobility fosters sustainable infrastructure development.	Smart parking systems, IoT-based fleet monitoring, collaborations with automotive industry.
SDG 10 — Reduced Inequalities	Affordable transport improves access for all students and staff.	Campus shuttle services, subsidized e-rickshaws, accessible transport for persons with disabilities.
SDG 11 — Sustainable Cities and Communities	Green mobility supports cleaner, safer, and more sustainable urban systems.	Low-emission campus transport, collaboration with local authorities for traffic management.
SDG 12 — Responsible Consumption and Production	Efficient vehicle use, carpooling, and maintenance reduce resource use.	Carpool system, shared rides, and tire recycling program; transport asset optimization.

SDG 13 — Climate Action	Reducing GHG emissions from campus transport mitigates climate impact.	Carbon audit of transport, EV policy, awareness campaigns on carbon-neutral commuting.
SDG 14 — Life Below Water	Reduced fuel leakage and runoff protect nearby water bodies from pollution.	Maintenance to prevent oil leaks, eco-wash vehicle systems, drainage water treatment.
SDG 15 — Life on Land	Eco-friendly transport decreases noise and habitat disruption.	Vehicle-free biodiversity zones, tree-lined walking paths, biofuel plantation initiatives.
SDG 17 — Partnerships for the Goals	Collaboration with local transport authorities and industries enhances sustainable mobility.	MoUs with EV manufacturers, transport Startups, and NGOs for green mobility promotion.

SDG Goal	Related Transportation Initiative	VFSTR Impact
SDG 3: Good Health and Well-being	Walkways, cycling paths	Improved air quality and physical activity
SDG 7: Affordable and Clean Energy	Adoption of electric shuttle and EV charging units	Reduced fossil fuel dependency
SDG 9: Industry, Innovation, and Infrastructure	Smart shuttle tracking and ICT integration	Digital transformation of transport
SDG 11: Sustainable Cities and Communities	ZEV policy, pedestrian-friendly campus	Greener and safer mobility environment
SDG 13: Climate Action	Decreased carbon emissions from vehicles	Contribution to carbon neutrality goals

5.3. Quantitative Impact Summary (2024–25)

Parameter	2022–23	2023–24	2024–25	% Change
CO ₂ Emissions (tons/year)	42	29	22	↓ 47%
Average Private Vehicles per Day	380	310	245	↓ 36%
Electric Shuttle Usage (%)	18%	34%	48%	↑ 166%
ICT-based Transport Users	200	450	700	↑ 250%

5.4. Supporting ICT Infrastructure

- Smart Shuttle Tracking System integrated with mobile app and GPS.
- EV Charging Stations powered by solar panels near hostels and academic blocks.
- IoT Sensors in parking zones to monitor usage and optimize space.
- Campus Mobility Dashboard managed by the Green and Sustainability Cell.

6. Measures for Reducing Fossil-Fuel Transport

To minimize carbon emissions from transportation, VFSTR has implemented several measures:

- Restriction of unnecessary private vehicle movement within campus
- Encouragement of carpooling and shared transport
- Gradual reduction of parking spaces in core academic zones
- Regular emission checks and preventive maintenance of vehicles

These measures collectively help reduce traffic congestion, fuel consumption, and greenhouse gas emissions.

VFSTR University has adopted a Sustainable Transportation and Mobility Policy aimed at reducing the number of private fuel-based vehicles entering the campus. This initiative aligns with the university’s commitment to carbon neutrality, pollution reduction, and promotion of eco-friendly commuting under the “Green Vignan” program.

6.1. Summary of Initiatives

S. No.	Initiative Title	Year of Implementation	Objective / Description	Outcome / Impact
1	Campus Shuttle Service	2021–22	Introduced eco-friendly buses and e-shuttles to connect hostel zones, academic blocks, and nearby towns.	Reduced 25% of daily private two-wheeler entry.
2	Electric Vehicle (EV) Policy	2022–23	Prioritized use of e-bikes, e-carts, and EVs with charging points inside campus.	40+ EVs registered; 18% drop in fuel-based vehicles.
3	Zero Emission Zone (ZEV) Initiative	2022–23	Core academic area declared as vehicle-free; only bicycles and pedestrians allowed.	Zero CO ₂ emission in 35% of campus core area.
4	Carpooling and Ride-Share Program	2023–24	Faculty and staff encouraged to share rides using the internal ICT carpool app.	Reduced 15% four-wheeler traffic.
5	Smart RFID Entry Monitoring	2023–24	Installed RFID gates at campus entrances to track and limit vehicle entries.	Data-driven reduction of unauthorized entries by 20%.
6	Bicycle and E-Bike Sharing System	2023–24	Campus-wide bicycle-sharing and rental e-bike system for students and staff.	300+ users registered; 10% modal shift from bikes to bicycles.
7	Parking Area Rationalization	2023–25	Progressive reduction of parking space for private vehicles, converting to green or EV zones.	18% less parking area over 3 years.
8	Awareness Campaigns and Green Mobility Drives	2024–25	Events and pledges to promote sustainable commuting habits.	>1000 participants annually; behavioral change observed.
9	Incentive Scheme for Non-	2024–25	Reward points for bicycle users redeemable at canteens/bookshops.	Encouraged daily use of

	Motorized Transport Users			bicycles by students.
10	Digital Transport Monitoring Dashboard (ICT)	2024–25	Real-time dashboard using IoT sensors and RFID data to track vehicle counts and emissions.	Enhanced monitoring and reporting accuracy.

6.2. Total Number of Initiatives Implemented:

10 Major Initiatives **between 2021–25 targeting private vehicle reduction on campus.**

6.3. Quantifiable Outcomes

Parameter	2021–22	2024–25	Improvement (%)
Average Vehicles Entering per Day	650	320	↓ 50.8%
Two-Wheeler Share	68%	45%	↓ 23%
EV and Shuttle Usage	12%	46%	↑ 34%
CO ₂ Emissions (from commuting vehicles)	42 tons/year	20 tons/year	↓ 52%

6.4. Alignment with SDGs

SDG No.	Goal Title	Contribution
SDG 11	Sustainable Cities and Communities	Reduced congestion and pollution through eco-mobility.
SDG 13	Climate Action	Direct emission reduction via EVs and transport management.
SDG 9	Industry, Innovation and Infrastructure	ICT integration in mobility and tracking systems.

7. Program to limit or decrease the parking area on campus for the last 3 years

VFSTR University has actively implemented measures to **limit and gradually decrease parking spaces** on campus as part of its **Green Campus and Carbon-Neutrality Initiative**. The objective is to discourage the use of personal fossil-fuel vehicles and promote **public transport, shuttle services, cycling, and walking**. This initiative aligns with **SDG 11 (Sustainable Cities and Communities)** and **SDG 13 (Climate Action)**.

7.1. Objectives

To reduce dependency on personal motor vehicles.

To promote electric vehicles (EVs), bicycles, and campus shuttle transport.

To utilize freed-up space for green landscaping and pedestrian zones.

To contribute toward the university’s Net-Zero Emission Campus target by 2035.

To improve air quality and minimize noise pollution on campus.

7.2. Strategy Adopted

Strategy Component	Description	Implementation Period	Outcome
Parking Space Audit	Identification of underused and over allocated parking areas.	2022	18% of parking space found redundant.
Parking Area Conversion	Conversion of unused parking zones into green landscapes and solar panel roofs.	2023	4,200 sq.ft converted to green zone.
Reserved EV Parking	Dedicated areas for electric vehicles only.	2023–24	25 EV slots created.
Restricted Entry	Limiting entry of fossil-fuel vehicles into academic blocks.	2024	40% fewer private vehicles in core zones.
Pedestrian-Friendly Corridors	Creation of walking lanes and cycle tracks.	2024–25	1.2 km of walk-friendly track completed.

Overall Parking Area Reduction (3 years):

→ Total reduction: **7,500 sq. ft.**

→ **Cumulative decrease:** 26.7% of original parking area.

7.3. Impact Assessment

Parameter	Before Initiative (2022)	After (2025)	Impact
Vehicle Count per Day	~600	~320	46% decrease
Air Quality Index (Campus)	64	48	Improved by 25%

CO ₂ Emissions (from vehicles)	~38 tons/year	~21 tons/year	44% reduction
Green Space Area	24,000 sq. ft.	31,500 sq. ft.	31% increase
EV and Shuttle Usage	12%	45%	Increased adoption

7.4. Contribution to SDGs

SDG No.	Goal	Contribution from VFSTR Program
SDG 11	Sustainable Cities and Communities	Promotes walkable, accessible, and eco-friendly campus design.
SDG 12	Responsible Consumption and Production	Encourages efficient land use and reduces material footprint.
SDG 13	Climate Action	Decreases carbon footprint through reduced vehicle dependency.
SDG 15	Life on Land	Converts paved zones into biodiversity-supportive green areas.

8. ICT Integration in Transportation

VFSTR leverages information and communication technology (ICT) to enhance transport efficiency and user convenience. ICT-enabled initiatives include shuttle tracking systems, transport scheduling platforms, and digital communication for route planning and safety alerts. These systems support data-driven decision-making and improved user experience.

9. Contribution to Sustainable Development Goals (SDGs)

VFSTR's transportation initiatives directly support multiple SDGs, including:

- SDG 3 (Good Health and Well-being) through promotion of walking and cycling
- SDG 7 (Affordable and Clean Energy) through adoption of electric vehicles

- SDG 9 (Industry, Innovation and Infrastructure) via smart transport systems
- SDG 11 (Sustainable Cities and Communities) through low-emission mobility
- SDG 13 (Climate Action) by reducing transport-related carbon emissions

10. Awareness, Education, and Community Engagement

Sustainable mobility concepts are integrated into academic curricula, student projects, and awareness campaigns. Workshops, rallies, and observance of environmental days encourage responsible transport behavior and foster a culture of sustainability among students and staff.

11. Monitoring and Continuous Improvement

The university periodically reviews transportation performance indicators such as fuel consumption, vehicle usage patterns, emissions, and user feedback. These reviews support continuous improvement and help set future targets aligned with VFSTR's long-term sustainability vision.

12. Conclusion

VFSTR University's transportation system reflects a balanced and forward-looking approach that integrates accessibility, safety, efficiency, and environmental responsibility. By promoting shared mobility, non-motorized transport, electric vehicles, and ICT-enabled management, the university continues to reduce its environmental footprint while providing reliable transport services to its stakeholders. The transportation framework remains a key contributor to VFSTR's green campus initiatives and commitment to sustainable development.