

Case Study - Noida

New Okhla Industrial Development Authority (Noida) is one of the most important cities in the north Indian state of Uttar Pradesh. Noida is an integral part of the national capital region. Today it is considered the education and software hub of north India. Noida enjoys the status of an SEZ (special economic zone), which significantly helps take the business and manufacturing to an all-new high. The city has witnessed tremendous growth in infrastructure over the past two decades.

The Issues and challenges faced by Noida

The city is struggling with severe infrastructure issues, such as a lack of proper drainage system, bad roads, and high pollution levels, making it challenging for residents to lead a healthy life. Rapid urbanisation brings with it construction waste and piles of debris on the roads that form dust clouds. Almost 60% of the dust gets airborne while manually sweeping the roads and settles back on the streets. Cleaning hazardous dust particles such as PM10 and PM2.5 off the roads using brooms maximises the health risks to sanitation workers. Some of the other massive challenges include:

- Little attention to detail in cleaning activities across the city, such as central verge vegetation growth, road markings, city roads, and footpaths.
- Indiscipline amongst sanitation workers, regular absenteeism, non-usage of safety gears and uniforms, lack of accountability, and performance tracking results in inefficient service delivery.
- Irregular roads cleaning schedules lead to air pollution.
- Inefficient complaint redressal mechanism leads to delayed action to citizens' complaints.
- Sanitation workers face elevated risks while working on the roads without proper tools and equipment during peak traffic hours.

Our Objectives –

- To ensure an effective sweeping system in Noida.
- To mark beats in Noida through GIS-based mapping to eliminate the possibility of any area being left unexplored for sweeping.
- To create Noida's integrated mechanical and manual 'wall to wall' cleaning model for main roads of Phase-I, having a total length of 62.40 km.
- To bring accountability to the workforce who would give proper attention to the assigned area.
- To create a comprehensive monitoring system to keep track of every individual's work and a fleet for operational accuracy.
- To sweep roads, prune unwanted vegetation, wash footpaths, signboards, and statues using imported machines, and manually haul dust and hedges off the roads and road dividers.

Advantages We Deliver

With domain expertise for over 54 years, we endeavour to improve the life cycle of municipal infrastructure by integrating technological advancements within the existing system. We are committed to turning Swachh Bharat's dream into a reality. Our wide range of innovative and fully integrated municipal services has made us the preferred choice of municipal bodies across India.

Pioneering innovation in every aspect of the business, LSL offers specialised services, including maintenance of public utilities, solid waste management, and city infrastructure management. We are

serving Noida for **GIS-based Integrated Mechanical and Manual Sweeping** using best practices and effective decision-making tools.

- **Superior Cleaning** – We use the best-in-class imported machine Dulevo that minimises the dust cloud formation while sweeping the main roads of the phase-I area, having a total length of 62.40 km. We use power washing equipment to clean footpaths, signboards, and statues and mechanically prune hedges along the roadsides and road dividers to ensure superior city cleaning.
- **Maintain Cleaning Operations Data** – We continuously monitor the routes of sweeping machines and staff attendance using a real-time GIS tracking system to maintain cleaning operations data regularly.
- **Enhance Employee Safety** – While sanitation workers manually sweep the roads using brooms during peak traffic hours, they are more likely to encounter accidents. Mechanically sweeping roads and washing footpaths, signboards and statues using proper tools and equipment during peak traffic hours reduce the possibility of accidents.
- **Stray Animal Protection** – Roadside vegetation often makes the area an illegal garbage dumping place that may become a breeding ground for pests. It can further be harmful if stray animals eat or sleep on the vegetation infested with pests. We regularly prune the vegetation to ensure the safety of stray animals.
- **Ensure Better Public Health** – Dirty roads and roadsides are unsanitary and can attract unwanted pests that may spread diseases among the population. We mechanically and manually sweep roads and footpaths and regularly prune unwanted vegetation to ensure better public health.
- **Increase Productivity** – One mechanical sweeper can work equivalent to the human strength of 15-20 manual sweepers and can sweep approximately 10X times the area as compared to a manual sweeper; we ensure increased productivity using our machines while achieving superior performance cleaning.
- **Night-time Operations** – It allows for more efficient road sweeping and footpath washing without disruption to daytime traffic and ensures the safety of the sanitation workers.
- **Improve City Aesthetics** – Pruning hedges along the roadsides, cleaning footpaths, signboards and statues make the city look clean, contributes to citizens' pride, and helps boost the city's tourism.

GIS-Based Tracking System for Mechanical Sweeping

Operation Tracking

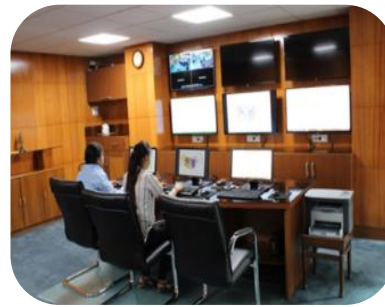


A complete route map of all vehicles is displayed as per working hours to ascertain coverage of all roads.



GPS device on the machine helps to identify speed graphics in case of over-speeding or vehicle standing idle. In case of deviations from the assigned route, SMS alerts are sent to official mobile numbers for immediate rectification.

Monitoring at Operation Command



The entire Cleaning System is monitored and tracked at the Operation Command Centre by LSL executives and MC representatives followed by the submission of reports to authorities.

GIS-Based Tracking System for Manual Sweeping



The entire city is divided into beats with specific colour coding for complete coverage.



All beats are segregated up to street level view and are enabled with colour coding for adequate area knowledge.



Field officers visit all beats and click real-time images, which are then uploaded on the tracking software for the command centre to verify.



All beats are marked with white balloons to show that work hasn't been commenced for the day.



Once the work is complete, all the white balloons in the respective beats turn green.

Project Details Chandigarh

| Sr No. | GIS-based Mechanised & Manual City Cleaning Project | Details |
|--------|---|--------------------|
| 1 | Name of the Nodal Agency for the Project | |
| 2 | Name of the Company | Lion Services Ltd. |
| 3 | Work Period Awarded for the Project | Five Years |
| 4 | Length of Roads Assigned of Phase - | 62 KM |
| 5 | Frequency of Mechanised Road Sweeping | Alternative Days |
| 6 | Frequency of Manual Road Sweeping | Daily |
| 7 | Frequency of Grass Cutting | On Need Basis |
| 8 | Frequency of Footpath Washing | Twice a Month |
| 9 | Frequency of Washing - Signboards & Statues | Twice a Month |