APPENDIX

Independent Drivers Guild Methodology

We are committed to maximum transparency in our process. All datasets produced at any step of this analysis can be made available upon request. This enables DOT, researchers, and the public to review, rework, and build upon our data.

Data Sources

Our analysis integrated multiple datasets from the City of New York:

- **NYC Street Centerline** (Department of Information Technology and Telecommunications) – Defines street geometries and attributes.
- **MapPLUTO v25** (Department of City Planning) – Segment-level land use and ownership.
- **Bus Stops and Routes** (NYC Open Data / Department of Transportation) – Locations of MTA bus infrastructure.
- **Traffic Counts** (Annual Average Daily Traffic, NYC DOT) – Estimated daily traffic volumes.
- **Public Restrooms** (Department of Parks and Recreation) – Locations of publicly accessible restrooms.
- **Privately Owned Public Spaces** (NYC Department of City Planning) – Locations of additional restrooms.
- **Existing FHV Relief Stands** (NYC DOT) – Official stand locations and capacities.

Driver Survey Data (Independent Drivers Guild) – Preferred rest, food, and prayer locations from nearly 1,000 drivers.

High-Level Methodology

1. **Eligibility Mapping** – Filter street network to identify legally and logistically possible stand locations, removing residential/government zones, bus routes, and unsuitable street types.
2. **Suitability Analysis** – Score remaining segments by proximity to restrooms, food, and prayer spaces.
3. **Desirability Mapping with Driver Input** – Map driver-identified preferred neighborhoods, food spots, prayer locations, and suggested stand sites.
4. **Prioritization** – Overlay eligibility, desirability, and survey results to generate a ranked list of candidate sites.
5. Interactive Tool – Build results into a decision-support map interface for deeper analysis and data export.

Technical Methodology – Eligibility Mapping

🎯 To remove street segments where there is a clear barrier or inappropriate land use.

- Downloaded **Centerline** from NYC Open Data and filtered out streets with no parking lanes (kept those with at least 1 lane).
- Downloaded **MapPLUTO v25** shoreline clipped dataset from NYC DCP, selected Manhattan, and created a boolean field UndesiredLandUse marking residential (01–03) and government (08) segments.
- Buffered these segments 15m, dissolved, and removed intersecting Centerline segments.
- Excluded **bus routes and bus stops**: Used NYC Open Data bus stop and bus route layers to select all Centerline segments intersecting bus routes or within a set buffer of bus stops, and removed them from eligibility.
- Applied additional street-type filters to remove avenues, tunnels, bridges, and other unsuitable types.
- Created more_than_one_park_lane boolean to exclude segments with only one parking lane.
- Final eligibility flag eligible_street_idg = segments meeting all above criteria.
- Merged **eligibility layer with AADT traffic count data** to attribute traffic volumes to each segment, enabling filtering of eligible segments by traffic levels in the interactive interface.

This geoprocessing workflow ensured that only eligible, lower-traffic segments, free of conflicts with bus operations, were considered before desirability scoring and survey integration.

Technical Methodology – Suitability Analysis

🎯 To map out existing infrastructure that indicates favorable or unfavorable areas for new stands.

- Collected existing FHV relief stand locations from NYC DOT.
- Created 5-minute travel time areas from each existing stand to assess current coverage.
- Integrated and mapped daily traffic counts (AADT data) for all eligible segments.
- Mapped locations of all public restrooms.
- Mapped locations of all POPS (Privately Owned Public Space) restrooms.
- Created 250 ft buffers around all restroom locations to assess accessibility.

Technical Methodology - Desirability / Driver Input

🎯 To factor in driver-generated data.

In addition to eligibility and desirability analysis, driver perspectives were central to this project. We translated their lived experiences into actionable spatial insights through the following process:

1. **Data Collection** – Used Survey123 to gather exact geolocations for three categories: recommended relief stand spots, favorite prayer locations, and favorite food spots.
2. **Hexagonal Grid Creation** – Generated a tessellated hexagonal grid over Manhattan to provide a neutral spatial unit for aggregating driver input without bias toward administrative boundaries.
3. **Category-Based Aggregation** – Counted the number of driver-submitted locations within each hexagon for each category separately and mapped these counts using a color gradient (more counts = deeper hue).
4. **Weighted Attractivity Score** – Repeated the aggregation but combined all categories, applying a weight of 2 for recommended relief stands and 1 for both prayer and food spots. This created a general "attractivity" score for each hexagon.
5. **Interest Level Classification** – Grouped hexagons into interest levels based on data distribution: 0 = no data, 1 = some interest, 2 = high interest, 3 = very high interest.
6. **Interactive Integration** – Mapped all layers and implemented filters within the interactive interface, allowing users to view interest levels by type or combined attractivity score.

This method ensures that driver feedback directly shapes the prioritization process, balancing legal feasibility and human need.

We're always happy to talk through our process, share data, or help you think through how mapping can serve your organization.
If any of this sparked ideas or questions, please reach out to us at olivia@north-arrow.org.