

Mode Shifting Freight to Decrease Truck Traffic Impact

With the help of StreetLight InSight®, Stantec developed a plan to accelerate the “future future” of commercial freight movement along the Brooklyn-Queens Expressway (BQE).

EXECUTIVE SUMMARY

- StreetLight's Origin-Destination Metric indicated truck “hot spots” along the BQE
- By transferring the trips in these hot spots from truck to marine or rail freight, the BQE could see a daily reduction of 4,000 trucks
- Over time, this shift can open opportunities for additional modes and create 90+ acres of reclaimed public space

Mission: Understand BQE's Truck Travel Patterns

Nearly 90% of the goods brought into New York City each year are moved in trucks, 20,000 of which travel along the Brooklyn-Queens Expressway — a 16-mile stretch of deteriorating surface infrastructure that runs from Hugh L. Carey Tunnel in Brooklyn to the Grand Central Parkway in Queens.

As part of a residency with the Institute for Public Architecture, a team of Stantec engineers and planners examined the opportunity to shift goods movement from the corridor and better distribute freight demand across modes. In order to do this, they first had to understand the area's existing freight network.

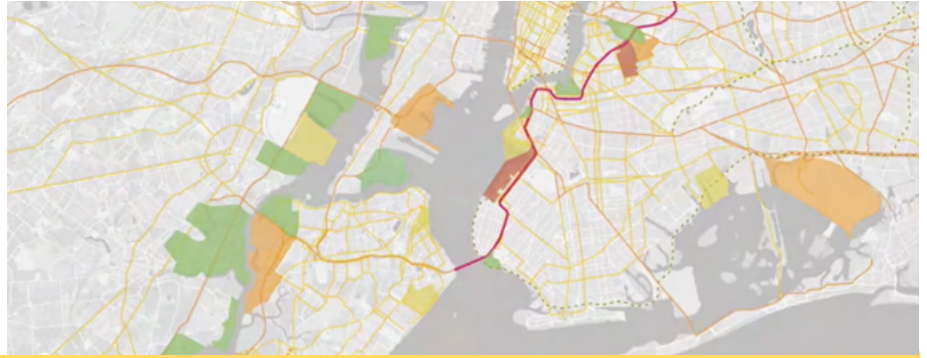
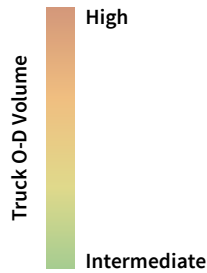
Using StreetLight's Origin-Destination Metric, Stantec identified areas with high levels of trip starts/ends for trucks using the BQE, and determined their correlation to major waterside industrial areas like the Port of New Jersey and the Brooklyn Army Terminal. The volume of trucks making trips to or from a waterside terminal represents an opportunity to shift modes to marine vessels, reducing freight demand on the BQE and enabling other uses for this corridor.

“We started this study by detangling a huge set of data to help us understand the existing geography of truck movement in the city. These patterns helped us establish a plan that could enable changes to the corridor.”

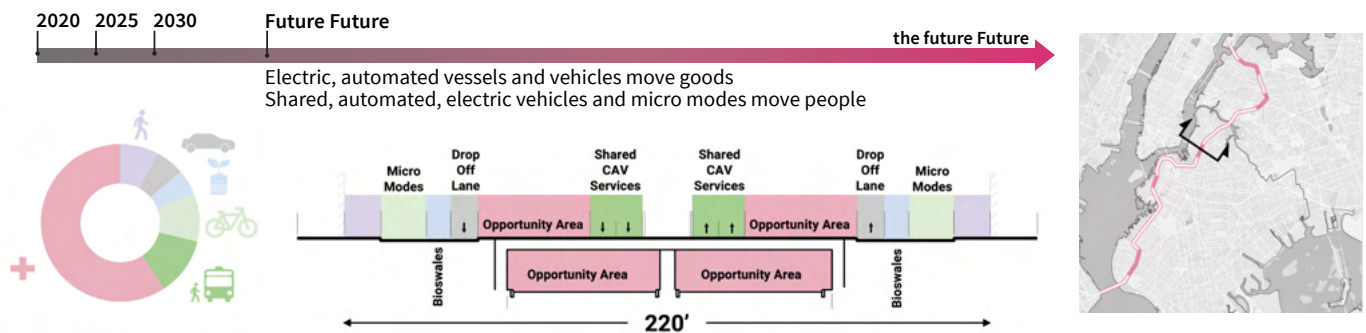
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Existing Truck Network



Truck origin-destination analysis showed high volume along corridors also served by rail and marine modes.



The team envisioned a phased transition from an open-trench urban highway to a future corridor that prioritizes shared travel modes and creates “opportunity areas” to be programmed by the community.

Analysis: Determine Feasibility of Mode Shift

Stantec overlaid StreetLight Metrics onto the regional freight network, which served as a base for further analysis into how this travel can be minimized:

- A comparison of this network with the local rail lines found rail terminals that overlap with truck destination points, while extending further east to serve Long Island.
- A similar comparison with the marine highway network found area port locations that align with the industrial areas where StreetLight’s O-D Metric had identified truck travel.

Through this analysis, Stantec found substantial location-based opportunities for trucks to transfer their goods to the rail or marine freight networks and completely bypass the BQE altogether. Stantec estimated that initiating these changes could reduce truck traffic on the BQE by 4,000 trucks per day and 29,000 tons of carbon emissions annually.

Reclaim Public Space and Climate Health

Through this gradual mode shift, truck travel along the BQE can be incrementally reduced, allowing planners and engineers to reclaim space for new transportation modes and for the public. Stantec suggests this can unlock future opportunities for:

- New bus-only lanes and/or Bus Rapid Transit (BRT) service
- Safe cycling infrastructure along surface streets
- Reclaimed pedestrian space and opportunity areas

Instead of tearing down the structure, this stepwise approach to revitalizing the BQE could turn the blighted infrastructure into a community amenity. This vision of a “cohesive urban boulevard” supports emerging mobility offerings, such as fully connected and automated vehicles, while giving an estimated 90 acres of land back to the local community.