

# **Transportation** **ALTERNATIVES**

**Ideas to Reduce Traffic Noise, Improve Safety and  
Increase Livability**

***Jackson Heights Commercial Core***  
***(74<sup>th</sup> Street, 82<sup>nd</sup> Street,  
37<sup>th</sup> Avenue, Roosevelt Avenue)***

Jackson Heights, Queens, NY

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## Credits

The report, drawings, workshop, data and analysis was produced with the able assistance of Elena Patarini.

## Overview

This report culminates a study of roadway noise and the traffic that causes it in the commercial core of Jackson Heights in Queens, New York. The focus of this study is on physical and regulatory changes to the transportation system.

We found a high percentage of livery cars (up to 27%) and delivery vans/trucks (up to 15%) in the study area. This is undoubtedly harmful to the historic buildings and cohesiveness of the neighborhood. On one historic-residential street we counted one truck every two minutes. Measures to reduce truck and livery car traffic are discussed including restricted delivery times, integrated deliveries, and prohibitions of truck turns.

We found some double parking (max 2/hr), more illicit parking (up to 12/hr) and significant meter feeding (up to 39%). Measures to better manage the parking supply are discussed including meters which detect feeding, muni-meters, coordination with parking lots, more flexible loading zones, and curb extensions. We end with a discussion of pedestrian malls, which would have the most impact on roadway noise.

The objective of this report is not to provide finalized recommendations, rather solid evidence and a frank discussion of the issues. The hope is that the Coalition for a Quiet Jackson Heights takes the findings and engages the larger community in a discussion of roadway noise, its root causes and possible solutions.



**Figure 1: Curb Extensions with Benches, 82nd Street**

## Issues

### Community Observations

The project team and the Coalition set the project boundaries as the rectangle bounded by Roosevelt Avenue, 86<sup>th</sup> Street, 37<sup>th</sup> Avenue and 72<sup>nd</sup> Street. This encompasses four of the major commercial streets, the most pedestrian activity and the two subway lines of the neighborhood. The project team created a series of neighborhood maps (see Figure 10, Figure 11 and Figure 12) and the Coalition identified the following issues contributing to excessive neighborhood noise:

1. Honking by drivers frustrated with traffic congestion due to double parked vehicles due to meter feeding on 82<sup>nd</sup> Street, 74<sup>th</sup> Street, 37<sup>th</sup> Avenue, and Roosevelt Avenue.
2. Honking by livery car drivers illegally cruising for fares.
3. Heavy truck traffic off designated truck routes.
4. Honking by drivers frustrated with traffic congestion at T-intersections along Roosevelt Avenue where all traffic must turn.
5. Heavy U-turn traffic along 37<sup>th</sup> Avenue.
6. Confusing intersection at Roosevelt Avenue, 74<sup>th</sup> Street and Broadway.
7. Confusing intersections at Roosevelt Avenue, 83<sup>rd</sup>, 84<sup>th</sup>, Baxter, and Gleane Streets.
8. Heavy traffic on Roosevelt Avenue, Northern Boulevard and the Brooklyn-Queens Expressway.
9. Elevated train on Roosevelt Avenue (#7).

We agreed to focus on the first three on the list. They were manageable for the group, realistic and within the scope of the project. In that the issues have to do with traffic and driver behavior, the Coalition decided to perform two surveys in July and August 2003:

- vehicle type, and
- meter usage and illegal parking.

The vehicle type survey tells us how many cars, trucks (small and large), busses and livery cabs are in the area. For example we will know if large trucks are driving off the designated truck routes. We will know what percentage of vehicles are livery cabs that may or may not be cruising for fares (and honking).

The meter usage and illegal parking survey tells us how the existing parking supply is used, legally and illegally. For example on a block with 80 meter hours, 20 of those hours may be occupied by the same vehicles. Their drivers are feeding the meters. Similarly we can understand how many vehicles are parking in crosswalks, at hydrants and double parked. This will substantiate or refute the perception whether double parking leads to honking. This survey will also tell us if there really is a lack of parking in the area, or if the parking supply is simply being misused. This survey also tells us if there

is enough commercial parking in the area, based on the number of trucks parked at meters and elsewhere, or if other vehicles are illegally parking in loading zones.

Simultaneously the project team surveyed the on-street parking supply in area through what is known as a Curb Allocation survey. This tells us what each portion of curb is used for and when: meters, street cleaning, driveways, fire hydrants, loading zones, bus stops.

As many uses vary during the course of a day (no standing zones during rush hours or street cleaning) an additional variable is calculated known as a parking-hour. For example, 83<sup>rd</sup> Street between Roosevelt and 37<sup>th</sup> Avenues is 720 feet long and has space for 40 cars on each side. On the east side there are five meters, three hydrants and one bus stop. The west has eight meters and one driveway. On Wednesday the east side of the street is cleaned. As shown in Table 1, multiplying each space by the number of hours one may or may not park there on a typical Wednesday yields 114 no parking-hours, 122.5 metered parking-hours and 723.5 free (unmetered) parking-hours. Similar surveys were performed on all blocks in the study area.

Space/regulation	Eastside		Westside		Both Sides	
	Spaces	Parking-hours	Spaces	Parking-hours	Spaces	Parking-hours
Hydrant (= 1.5 spaces)	3	54			3	54
Bus stop (= 4 spaces)	1	48			1	48
Driveway (= 1 space)			1	12	1	12
No Parking Subtotal		102		12		114
Meter (9 AM - 7 PM, 7 days)	5	50	8	80	13	130
Street cleaning (8.30-10.00 AM, Wed)		-7.5				-7.5
Metered Subtotal		42.5		80		122.5
No Regulation	31	372	31	372	62	744
Street Cleaning (8.30-10.00 AM, Wed)		-46.5				-46.5
Before Meter		10		16		26
Free Subtotal		335.5		388		723.5
Total	40	480	40	480	80	960

**Table 1: Curb Allocation on 83<sup>rd</sup> Street, 7 AM – 7 PM on Wednesday**

## Roadway Noise

As the impetus for this work is roadway noise, we surveyed the sound levels in the area to validate the concerns of the group. The measurements were taken on May 16<sup>th</sup>, 2003 with a digital decibel reader. Each survey was two minutes long and taken 25 feet away from the center of the nearest travel lane. According to Chapter 6 of Title 15 of the Rules of the City of New York, allowable sound levels are 92 dB for vehicles over four tons (trucks), 88 dB for motorcycles and 82 dB for all other vehicles (cars) on streets with speeds of 35 mph or less.<sup>1</sup> At all four sites the ambient noise is higher than 50 dB, the level at which sound becomes generally bothersome to humans. Additionally three of the four sites identified by the group exceed the maximum legal sound levels for trucks. The levels are listed in Table 2 and mapped in Figure 13.

It is also important to note the difference in ambient sound levels and the spikes (maximum). A change of 10 dB either doubles or halves the noise level, a change of 5 dB is “perceptible”, and a change of 3 dB or less is barely noticeable to the human ear. On 74<sup>th</sup> Street, the sound spike is almost five times greater than the ambient level. The conclusion is that, regardless of the actual levels, sound spikes truly bother people.

There is a correlation between roadway noise and vehicle speed and size. If one lowers vehicle speeds, reduces aggressive driving and keeps larger vehicles on designated routes, then the street will be quieter. Other measures to reduce roadway noise (plant trees, remove elevated trains, convert trucks to solar or battery powered, etc.) would also help but fall outside the project scope.

<b>Location</b>	<b>Ambient dB</b>	<b>Maximum dB</b>	<b>Difference dB</b>
37 <sup>th</sup> Av, 79 <sup>th</sup> to 80 <sup>th</sup> St	57	86	29
74 <sup>th</sup> St, Roosevelt to 37 <sup>th</sup> Av	54	93	39
82 <sup>nd</sup> St, Roosevelt to 37 <sup>th</sup> Av	67	97	30
Roosevelt Av, 74 <sup>th</sup> to 75 <sup>th</sup> Street	60	97	37

**Table 2: Noise Levels in Jackson Heights**

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<sup>1</sup> The legal allowable sound levels for speeds of more than 35 mph are: trucks 96 dB, motorcycles 92 dB, cars 88 dB. All of the streets in the study area have a speed limit of 30 mph.

## Surveys and Analyses

### Trucks and Livery Cars

The Coalition suggested that there was an overabundance of trucks and livery cars in the neighborhood contributing to roadway noise via rumbling and honking. To substantiate this claim we (the project team and coalition) performed vehicle classification surveys on the four streets which were thought to have the most noise. The surveys were taken on a typical weekday afternoon and a typical Saturday afternoon, the times when noise was perceived to be worst. Each survey lasted 30 minutes. The truck category includes commercial vans, delivery (UPS) trucks and large, 3-axle trucks. The bus category includes large and small busses, ambulettes and for-hire passenger vans. Livery cars are for hire, non-medallion taxis. The findings are presented in Table 3 and Table 4 and in Figure 14.

Location	Car	Livery	Truck	Bus	Total
37 <sup>th</sup> Av, 74 <sup>th</sup> – 75 <sup>th</sup> St	430	84	44	6	564
	76%	15%	8%	1%	
74 <sup>th</sup> St, 37 <sup>th</sup> – Roosevelt Av	142	28	8	12	190
	75%	15%	4%	6%	
82 <sup>nd</sup> St, 37 <sup>th</sup> – Roosevelt Av	136	56	40	32	264
	52%	21%	15%	12%	
85 <sup>th</sup> St, 37 <sup>th</sup> – Roosevelt Av	154	24	16	4	198
	78%	12%	8%	2%	
total	862	192	108	54	1216
	71%	16%	9%	4%	

**Table 3: Vehicle Type, Weekdays, 3-7 PM (30 min. counts)**

Location	Car	Livery	Truck	Bus	Total
37 <sup>th</sup> Av, 74 <sup>th</sup> – 75 <sup>th</sup> St	536	92	12	0	640
	84%	14%	2%	0%	
74 <sup>th</sup> St, 37 <sup>th</sup> – Roosevelt Av	208	84	12	6	310
	67%	27%	4%	2%	
82 <sup>nd</sup> St, 37 <sup>th</sup> – Roosevelt Av	210	40	24	18	292
	72%	14%	8%	6%	
85 <sup>th</sup> St, 37 <sup>th</sup> – Roosevelt Av	224	28	8	0	260
	86%	11%	3%	0%	
total	1178	244	56	24	1502
	78%	16%	4%	2%	

**Table 4: Vehicle Type, Saturdays, 2-6 PM (30 min. counts)**

The first observation is that the truck numbers are all above the citywide average of 3-4 percent. A direct comparison can be made to surrounding bridges; all designated truck routes. To create an even comparison we calculate the trucks per lane per

minute. As shown in Table 5, the local streets in Jackson Heights have similar truck volumes as major portals in Queens.

<b>Location</b>	<b>Trucks/lane/min</b>
82 <sup>nd</sup> St, 37 <sup>th</sup> – Roosevelt Av	1.3
Greenpoint Avenue Bridge	1.3
37 <sup>th</sup> Av, 74 <sup>th</sup> – 75 <sup>th</sup> St	0.7
Roosevelt Avenue Bridge	0.6
Hunters Point Bridge	0.6
85 <sup>th</sup> St, 37 <sup>th</sup> – Roosevelt Av	0.5
74 <sup>th</sup> St, 37 <sup>th</sup> – Roosevelt Av	0.3

**Table 5: Trucks per Lane per Minute, Weekdays 4-7 PM**

Source: NYC Department of Transportation report *New York City Bridge Traffic Volumes 2001*.

### Trucks on 82<sup>nd</sup> Street

That 82<sup>nd</sup> Street, a local commercial street has more than twice the number of trucks/lane/minute as the Roosevelt Avenue Bridge, a major arterial, is quite telling. So it must be asked if these trucks need to be on this street at this time period. Would it be possible to shift delivery hours to the early morning or late night, times when the street is not crowded with pedestrians? Surprisingly it should be noted that eight percent of Saturday afternoon traffic is commercial vans and trucks.

### Trucks on 37<sup>th</sup> Avenue and 85<sup>th</sup> Street

Trucks represent eight percent of weekday afternoon traffic on 37<sup>th</sup> Avenue and 85<sup>th</sup> Street. While 37<sup>th</sup> Avenue is certainly commercial, it is not a designated truck route. Yet it is a through route and one wonders if some of these trucks are using the street as a bypass to the truck routes on Broadway, Roosevelt Avenue and Northern Boulevard. 85<sup>th</sup> Street is almost purely residential, yet there is about one truck every two minutes, see Table 5.

### Livery Cabs

Livery cars make up more than one-fourth (27%) of all traffic on 74<sup>th</sup> Street during Saturday afternoons and more than one-fifth (21%) of all traffic on 82<sup>nd</sup> Street during weekday afternoons. Overall livery cabs constitute sixteen percent of traffic during both time periods. During the survey it was observed that most of the cabs were empty and many picked up street hails in the area. It is illegal for non-medallion (livery) cabs to “cruise” for fares.

## **Meter Feeding and Illicit Parking**

The Coalition suggested that traffic congestion and associated honking by frustrated drivers was due to double parked vehicles on the commercial streets – 82<sup>nd</sup> Street, 74<sup>th</sup> Street, 37<sup>th</sup> Avenue, and Roosevelt Avenue. To investigate this perception we (the project team and coalition) performed two surveys. First we counted all the meters in

the area and noted hours of availability. This yields a meter-hour number. For example on the subject blocks there are 150 meters which are available for 534 hours on weekday afternoons and 600 hours on Saturday afternoons.

Location	Meter-hours			Double parking -hours	Other illicit parking -hours	Total illicit parking -hours
	Available	Empty	Feeding			
37 <sup>th</sup> Av, 73 <sup>rd</sup> – 76 <sup>th</sup> St	160	2	41	2	9	11
		1%	26%	--	--	--
74 <sup>th</sup> St, 37 <sup>th</sup> – Roosevelt Av	156	2	32	8	46	54
		1%	21%	--	--	--
82 <sup>nd</sup> St, 37 <sup>th</sup> – Roosevelt Av	102	6	29	2	1	3
		6%	29%	--	--	--
Roosevelt Av, 82 <sup>nd</sup> – 86 <sup>th</sup> Street (north side)	116	17	24	3	14	17
		15%	21%	--	--	--
total	534	27	127	15	70	85
		5%	24%	--	--	--

**Table 6: Meter Usage and Illicit Parking, Weekdays, 3-7 PM**

Location	Meter-hours			Double parking -hours	Other illicit parking -hours	Total illicit parking -hours
	Available	Empty	Feeding			
37 <sup>th</sup> Av, 73 <sup>rd</sup> – 76 <sup>th</sup> St	160	0	63	5	30	35
		0%	39%	--	--	--
74 <sup>th</sup> St, 37 <sup>th</sup> – Roosevelt Av	156	5	55	6	20	26
		3%	35%	--	--	--
82 <sup>nd</sup> St, 37 <sup>th</sup> – Roosevelt Av	168	3	31	3	11	14
		2%	18%	--	--	--
Roosevelt Av, 82 <sup>nd</sup> – 86 <sup>th</sup> Street (north side)	116	15	18	1	13	14
		13%	16%	--	--	--
total	600	23	166	15	74	89
		4%	28%	--	--	--

**Table 7: Meter Usage and Illicit Parking, Saturdays, 2-6 PM**

Notes:

1. Meter feeding is counted when a vehicle remains at a meter longer than the time permitted.
2. Other illicit parking includes stopped in a crosswalk, at a hydrant, in a bus stop, at a taxi stand or loading zone, in a driveway, etc.

Next we surveyed parked vehicles once an hour for four hours from 3 to 7 PM on a typical weekday and from 2 to 6 PM on a typical Saturday. We recorded the license plate numbers (last three digits only) and noted where they were parked: at a meter, double parked, at a hydrant, in a crosswalk, etc. This tells us the number of unused

meter-hours, number of meter-hours where the driver “fed” the meter, and number of other “illicit” parking activity. Finally we compared the quantity of meter and illicit activity to the number of meter-hours available, see Table 6 and Table 7 and Figure 15.

### Meter Feeding

Vehicles parked at meters longer than the time permitted (meter feeding) is a serious issue in the neighborhood, especially on Saturdays. Overall about one-fourth of all meter-hours are “fed.” The problem reaches almost 40 percent on 37<sup>th</sup> Avenue during Saturday afternoons. Also, street vendors were recorded to have taken many meters for the entire time period.

While extending the time on one’s meter while shopping may be desirable, anecdotally we know that many shop keepers park in the morning and feed the meter throughout the day. The problem is that this diminishes the supply of available parking (for shopping or deliveries) and forces drivers to park elsewhere. In Table 6 and Table 7 note the correlation between illicit parking and meter feeding. The former is less than the latter (except for 74<sup>th</sup> Street during the week). Thus if one were to eliminate all the meter feeding, there would be enough supply for the demand. This in turn would allow traffic to flow more smoothly; hence less honking.

### Empty Meters

There were few, if any available meters during our survey. This undoubtedly fuels the perception that there is a parking shortage in the area. Yet that perception must be countered by the numbers of meter feeders.

The exception is on Roosevelt Avenue where 13-15 percent of meter-hours went unused. We note that the amount of illicit parking almost equals the number of free meters. We are not suggesting that there is a one for one exchange, for the free meter-hours may or may not coincide with the illicit parking, yet this brings up a question about driver behavior. Drivers choose to not park at a meter for various reasons. During our survey regular cars were parked in taxi stands, trucks were double parked next to empty loading zones, and livery cabs were parked in crosswalks next to empty meters. This suggests that more available meters is not the answer.

### Double and Other Illicit Parking

82<sup>nd</sup> Street has the lowest level of illicit parking. This is probably due to the curb extensions which eliminate parking at fire hydrants and crosswalks. We also note the number of double parked vehicles is one-fourth to one-half of that on 74<sup>th</sup> Street. This suggests that the curb extensions narrow the street such that drivers feel less comfortable double parking here, as they would most likely block the travel lane (especially for busses). Figure 2 shows a similar lack of double parking on 75<sup>th</sup> Street. We submit that this is due to the median, which narrows the roadway such that anyone double parking would block the travel lane.

74<sup>th</sup> Street sees the highest amount of illicit parking, 54 or 13.5 vehicles per hour on weekday afternoons. We observed that this primarily occurs on the west side where there is a large loading zone. Many delivery vehicles must double park due to cars

occupying the loading zone. In that 74<sup>th</sup> and 82<sup>nd</sup> Streets have similar functions and traffic patterns, the lack of illicit parking on the latter may be attributed to the curb extensions.



**Figure 2: Median, 75th Street**

## Discussion

### Traffic

As stated above, the Coalition perceives an overabundance of trucks and livery cars in the neighborhood contributing to traffic noise. Indeed, the surveys showed a large percentage of these vehicle types. On 82<sup>nd</sup> Street, for example, passenger cars constitute only 52 percent of weekday afternoon traffic due to the number of vans, trucks and livery cars, see Table 3. And as shown in Table 5 the per lane truck count is twice as high on 82<sup>nd</sup> Street as on the Roosevelt Avenue bridge to Flushing. Furthermore three of the streets studied lie in the Jackson Heights Historic District: 37<sup>th</sup> Avenue (east of 77<sup>th</sup>), 82<sup>nd</sup> Street and 85<sup>th</sup> Street; vibrations caused by excessive truck traffic are harmful to the 100 year old buildings and cohesiveness of the neighborhood.

### Trucks

Unfortunately, New York City suffers from getting the vast majority of its deliveries via trucks, as opposed to rail. As such, there is simply too much truck traffic in the five boroughs compared to the rest of the country. Typical remedies, No Thru Truck signage, and increased enforcement are often ignored and sporadic at best. The best hope may lie in the NYC-DOT truck route study currently underway. A few minor tweaks may be available though.

First, deliveries could be scheduled for early in the day. This may not always be convenient, but if a binding regulation were made, and the parking regulations similarly altered, it could be made to work. For example loading zones could only be in effect weekdays until 2 PM; other times and on weekends the spaces would be metered.

Second, non-motorized delivery vehicles could be used. UPS, FedEx and other delivery companies use delivery tricycles in parts of Manhattan and elsewhere around the globe. Businesses in the area could create a local delivery team coordinated with an off-street parking lot.

Third, businesses could establish a goods transfer system to reduce the number of trucks. For example large trucks from common distributors would unload in a industrial zone warehouse. Small trucks from each store would then pick up all the goods destined for that store at the warehouse. The net result would be one delivery per day per store. This is similar to how UPS and FedEx handle cargo.

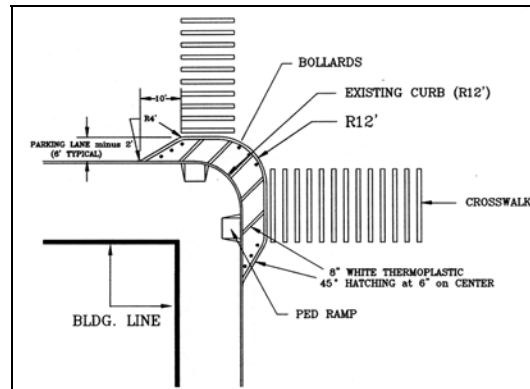
Fourth, trucks could be physically stopped from turning onto the historic, residential side streets via curb extensions. Examples of this technique are found on 180<sup>th</sup> Street in Queens and Norman Avenue in Brooklyn where industrial areas abut residential streets, see Figure 3 and Figure 4. Essentially the curb extensions are designed so that large trucks cannot make the turn (however, access is maintained for fire trucks). The diagram in Figure 5 shows striping and bollards as a precursor to more permanent concrete.



**Figure 3: Curb Extension to Discourage Turning Trucks, 180 St, Queens**



**Figure 4: "No Thru Truck Traffic," Norman Avenue, Brooklyn**



**Figure 5: 'No Truck Turns' Curb Extension**

Lastly, the loading zone for the supermarket at 85<sup>th</sup> Street and 37<sup>th</sup> Avenue should be moved to the Avenue. This would remove one reason why large trucks ply 85<sup>th</sup> Street.

### Livery cars

The numbers (27 percent during Saturday afternoon on 74<sup>th</sup> Street, see Table 4) clearly show this is an issue, yet livery cars are a way of life for many New Yorkers. The goal, at least in terms of roadway noise, should be to reduce the cruising and honking.

One method would be to establish livery cars stands near the subway stops (74<sup>th</sup> and 82<sup>nd</sup> Streets). Presently there are four taxi-only parking spaces on Roosevelt Avenue between 82<sup>nd</sup> and 84<sup>th</sup> Streets and one on 37<sup>th</sup> Road. The survey showed these were not well used. The stands should be located directly adjacent to the subway stairs. With this carrot the enforcement stick against cruising might more easily be used.

### Low Speed Zone

An idea raised by the coalition to better manage traffic is through a neighborhood low speed zone. Currently on the books is a state law which allows New York City to establish low speed zones in areas like Jackson Heights. The speed could be set at 15 or 20 mph (the current speed limit is 30 mph). This would be similar to the 20 mph speed

limit in Forest Hills Gardens, see Figure 6. Other low speed zones in Queens can be found in Bayside Terrace and Breezy Point.



**Figure 6: 20 mph Zone in Forest Hills Gardens, Queens**

## **Parking**

As stated above, the Coalition suggested that traffic congestion and associated honking by frustrated drivers was partially due to double parked vehicles. Our surveys confirmed that there is some double parking, more illicit parking and much meter feeding. The question then is, what can be done? There are three avenues to explore with regard to parking: better management of the existing supply, increased supply, decreased supply, or some combinations thereof.

## Meter Feeding

The most common method to control meter feeding is active enforcement. The simplest technique is to mark the tires of cars at meters every time period; those that have not rotated before the next time period are evidence of meter feeding. This has been done in Berkeley, CA. Another technique is to record license plates numbers, much the same way that we did for our survey. Both of these are incredibly time consuming and rarely used.

With advances in meter technology it is possible to control meter feeding electronically. One technique is to install a detector in each parking space which communicates with the meter. If the vehicle has not moved, the meter will not accept more money. There is currently a test of this in New Haven, CT with wired technology and with a wireless system in Cambridge, MA. Another benefit of the wireless system is that each meter also can be linked to the parking agency and police for repair or misuse.

If Muni-meters are used (see below), controlling feeding is more difficult. One technique is for the payer to enter a license plate number (or last three digits for example) before receiving the slip. The common problem is that many drivers do not know their plate numbers, or enter a wrong digit. Some meters use electronic payment systems (the NYC Parking Card), and could be programmed to not dispense another slip to the same card within the time limit. But this does not apply to those paying cash.

### Illicit Parking

Coordinating parking supply and demand in a congested area is a somewhat quixotic quest. Take for example Roosevelt Avenue. In Table 6 we found an equal number of empty spaces to the number of double parked vehicles and vehicles parked in crosswalks, in taxi stands and elsewhere. Some of the meters were occupied by taxis – instead of the taxi stand. Even when there is enough supply, drivers find reasons not to utilize it. Similarly we found on 74<sup>th</sup> Street, the space dedicated to loading was often used by non-commercial vehicles. These vehicles were not issued summons, so when truckers arrived, they had to double park.

One solution is variable pricing. The city meters loading zones in Midtown Manhattan (43<sup>rd</sup> to 59<sup>th</sup> Street, 2<sup>nd</sup> to 9<sup>th</sup> Avenues) and charges on an escalating basis (\$2 for the first hour and \$9 for three hours). On evenings and weekends non-commercial parking is allowed. Payment is made at Muni-meters (see below). DOT has found this program alleviates congestion and minimizes double parking. More information can be found at <http://www.nyc.gov/html/dot/html/motorist/parking/commpark.html>.

Another solution is to physically deter illicit parking. We note again that 82<sup>nd</sup> Street had the lowest level of double parking and had no parking at fire hydrants and crosswalks, due to the curb extensions. Similar treatments should be considered for the other commercial streets in the area, especially 74<sup>th</sup> Street.

### Off-street Parking

In the area there are four parking lots. While we did not survey their utilization rates, it may be possible to coordinate this supply with the on-street parking supply. This would be an ideal location for drivers who need to park longer than an hour to leave their vehicles. Perhaps a package delivery system could be developed where one's purchases could be delivered to the lot while you continue to shop. Another idea is to charge a reduced rate in exchange for a guaranteed payment – a monthly pass.

### Muni-meters

In the study area bounded by Roosevelt Avenue, 86<sup>th</sup> Street, 37<sup>th</sup> Avenue and 72<sup>nd</sup> Street there are 578 parking meters. If the single parking meters were replaced with Muni-meters, there would be approximately 738 metered spaces in the study area, an increase of 160 spaces or 28 percent.

The Muni-meter system uses a single meter usually located in the center of the block. It dispenses a time-coded slip which the driver places on the dashboard of the vehicle. They can be found increasingly around New York, especially Midtown Manhattan and city parking lots such as at Broadway and 31<sup>st</sup> Street, the Flushing Parking Garage, the Queensboro Hall Parking Garage, and the Sunnyside Parking Field.

The reason for the increase is that parking meters are typically placed at 22 to 25-foot intervals. This yields eight to nine parking meters per block along 37<sup>th</sup> and Roosevelt Avenues. Yet on streets without meters, vehicles are parked closer together. For example on the east side of 81<sup>st</sup> Street between Roosevelt and 37<sup>th</sup> Avenue there are

eight metered parking spaces with the rest un-metered. We counted 34 parked vehicles in about 544 feet - 16 feet per vehicle. Factored at 18 feet per vehicle (given the higher turnover along commercial streets, drivers will not park so tightly) we calculate that each block along 37<sup>th</sup> and Roosevelt Avenues could hold up to 11 vehicles, an increase of 2-3 vehicles per block, see Table 8.

Would this 28 percent increase in metered parking be enough? To find out we take the number of meter-hours and illicit parking-hours from our survey of meter use above and compare it to the additional hours gained through Muni-meters. Table 9 shows clearly that, except on 74<sup>th</sup> Street, the additional supply would accommodate demand.

A downside of Muni-meters is that single parking meters are often used as bicycle racks. This can be alleviated by adding real bicycle racks on the block (the city has an active program). In addition, businesses that use bicycles for deliveries should be required to install their own racks.

<b>Location</b>	<b>Existing Meters</b>	<b>If Muni-meters</b>	<b>Difference</b>
37 <sup>th</sup> Av, 72 <sup>nd</sup> – 86 <sup>th</sup> St	212	270	58
37 Rd, 72 <sup>nd</sup> – 77 <sup>th</sup> St	22	28	6
72 <sup>nd</sup> St, 37 <sup>th</sup> – Roosevelt Av	14	18	4
73 <sup>rd</sup> St, 37 <sup>th</sup> – Roosevelt Av	14	18	4
74 <sup>th</sup> St, 37 <sup>th</sup> – Roosevelt Av	39	51	12
75 <sup>th</sup> St, 37 <sup>th</sup> – Roosevelt Av	15	20	5
76 <sup>th</sup> St, 37 <sup>th</sup> – Roosevelt Av	17	22	5
77 <sup>th</sup> St, 37 <sup>th</sup> – Roosevelt Av	6	8	2
78 <sup>th</sup> St, 37 <sup>th</sup> – Roosevelt Av	8	10	2
79 <sup>th</sup> St, 37 <sup>th</sup> – Roosevelt Av	17	22	5
80 <sup>th</sup> St, 37 <sup>th</sup> – Roosevelt Av	18	24	6
81 <sup>st</sup> St, 37 <sup>th</sup> – Roosevelt Av	16	20	4
82 <sup>nd</sup> St, 37 <sup>th</sup> – Roosevelt Av	42	53	11
83 <sup>rd</sup> St, 37 <sup>th</sup> – Roosevelt Av	13	16	3
84 <sup>th</sup> St, 37 <sup>th</sup> – Roosevelt Av	17	22	5
85 <sup>th</sup> St, 37 <sup>th</sup> – Roosevelt Av	14	18	4
86 <sup>th</sup> St, 37 <sup>th</sup> – Roosevelt Av	8	10	2
Roosevelt Av, 72 <sup>nd</sup> – 86 <sup>th</sup> St (north side)	86	108	22
Total	578	738	160
			<b>28%</b>

**Table 8: Meter v. Muni-meter Comparison**

Location	Existing meter-hours	Additional hours with Muni-meters	Illicit parking-hours (from Table 6)
37 <sup>th</sup> Av, 73 <sup>rd</sup> – 76 <sup>th</sup> St	160	44	11
74 <sup>th</sup> St, 37 <sup>th</sup> – Roosevelt Av	156	48	54
82 <sup>nd</sup> St, 37 <sup>th</sup> – Roosevelt Av	102	26	3
Roosevelt Av, 82 <sup>nd</sup> – 86 <sup>th</sup> Street (north side)	116	32	17

**Table 9: Meter v. Muni-meter Comparison, Weekdays 3-7 PM**

### Curb Extensions at Hydrants

An innovative idea that creates more parking spaces is to construct curb extensions at fire hydrants as is done on 82<sup>nd</sup> Street, see Figure 7. By doing this the no parking zone may be reduced because the fire truck simply pulls up to the hydrant. This results in one extra parking space. There are 39 fire hydrants in the study area. We estimate about 30 more parking spaces if each were relocated to a curb extension.



**Figure 7: Hydrant on Curb Extension, 82nd Street**

### Pedestrian Mall

Imagine if 74<sup>th</sup> and 82<sup>nd</sup> Streets became pedestrian malls on weekends and summer evenings. Already these streets are known around the borough as shopping destinations, and to make that experience auto (and noise) free would only add to the attraction. Restaurants could fill the sidewalk with tables and chairs as they do on Mulberry Street in Little Italy. Residents could eat ice cream al fresco during late summer evenings. Children could play tag and hopscotch with their laughter being the loudest sound on the block.

A pedestrian mall would certainly reduce traffic noise, improve safety and increase livability, the goals of this study. Livery car drivers could not cruise. Truck drivers would have to make their deliveries when the street is open. Police, fire and ambulances could respond more quickly. Yet would it create "traffic chaos" elsewhere? A 1998 study which looked at 60 case studies around the globe found that "...road capacity can be reallocated to other modes, or other uses, without prolonged gridlock or traffic chaos occurring. When real traffic problems do occur...they tend to be short-lived."<sup>2</sup>

The study found that when streets are closed, the displaced traffic:

- is absorbed into the surrounding network if it is under-capacity,
- is reallocated into the surrounding network if capacity is increased, or
- disappears if the surrounding network cannot accommodate it, so travelers shift mode, destination or frequency.<sup>3</sup>

One key to a pedestrian mall would be regularity. The experience with sporadic street closings is poor. Drivers are often not aware of the change until they encounter the roadblocks and congestion ensues. Yet with a regular closing, say every Sunday, it becomes the norm. To exemplify, parts of Central, Prospect and Forest Parks are closed to vehicles every weekend, and drivers know it.

Examples of successful pedestrian malls on commercial streets in New York City include:

- Mulberry Street, Canal to Broome Streets, Manhattan (summer weekends)
- Nassau Street, Manhattan (daytime)
- Fulton Street, Broadway to Gold Street, Manhattan (lunchtime)
- MetroTech, Brooklyn
- Rockefeller Center, Manhattan



**Figure 8: Mulberry Street, Manhattan**



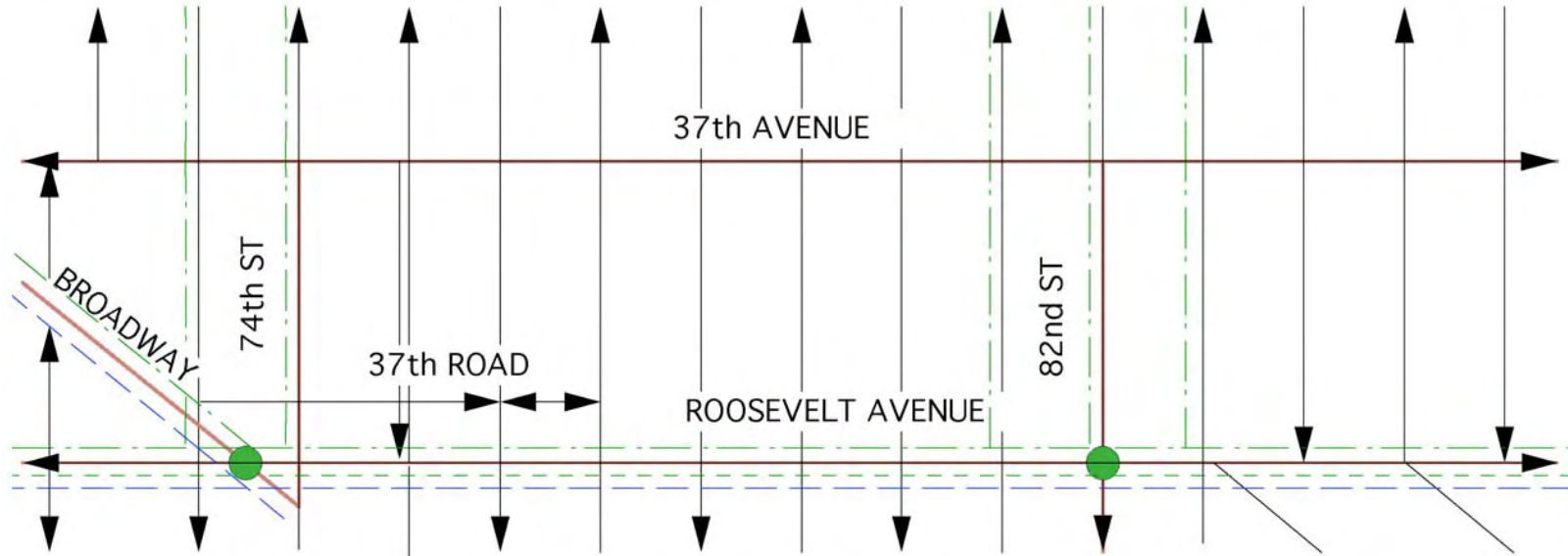
**Figure 9: Fulton Street, Manhattan**

<sup>2</sup> *Traffic Impact of Highway Capacity Reductions: Assessment of the Evidence*. Sally Cairns, Carmen Hass-Klau & Phil Goodwin. Landor Publishing, London, 1998, p. 37.

<sup>3</sup> *Ibid*, p. 57.



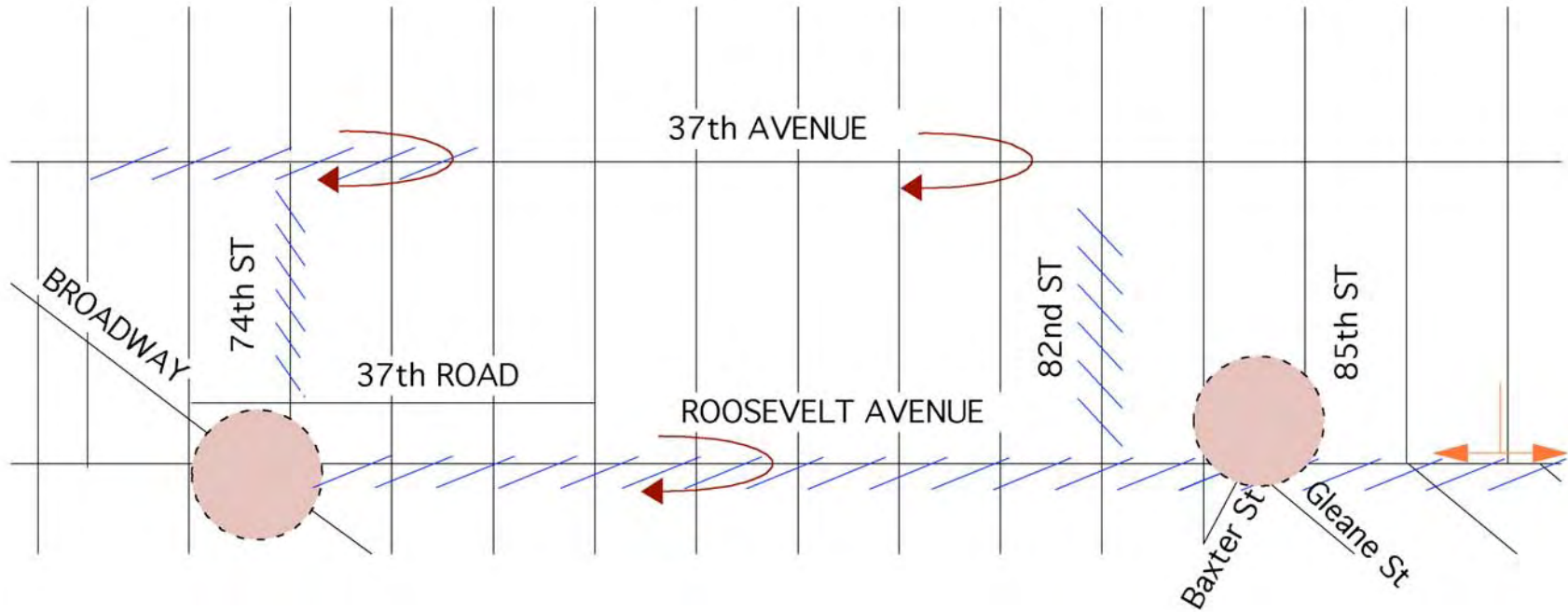
**Figure 10: Land Use and Existing Conditions**



Key:

- STREET DIRECTION
- COMMERCIAL STREET
- SUBWAY STATION
- - - ELEVATED TRAIN
- · - · - BUS LINE
- - - LOCAL TRUCK ROUTE

Figure 11: Traffic Network



Key:

HIGH TRUCK ACTIVITY



DOUBLE PARKING



U-TURN



FORCED TURN



CONFUSING INTERSECTION

Figure 12: Community Observations

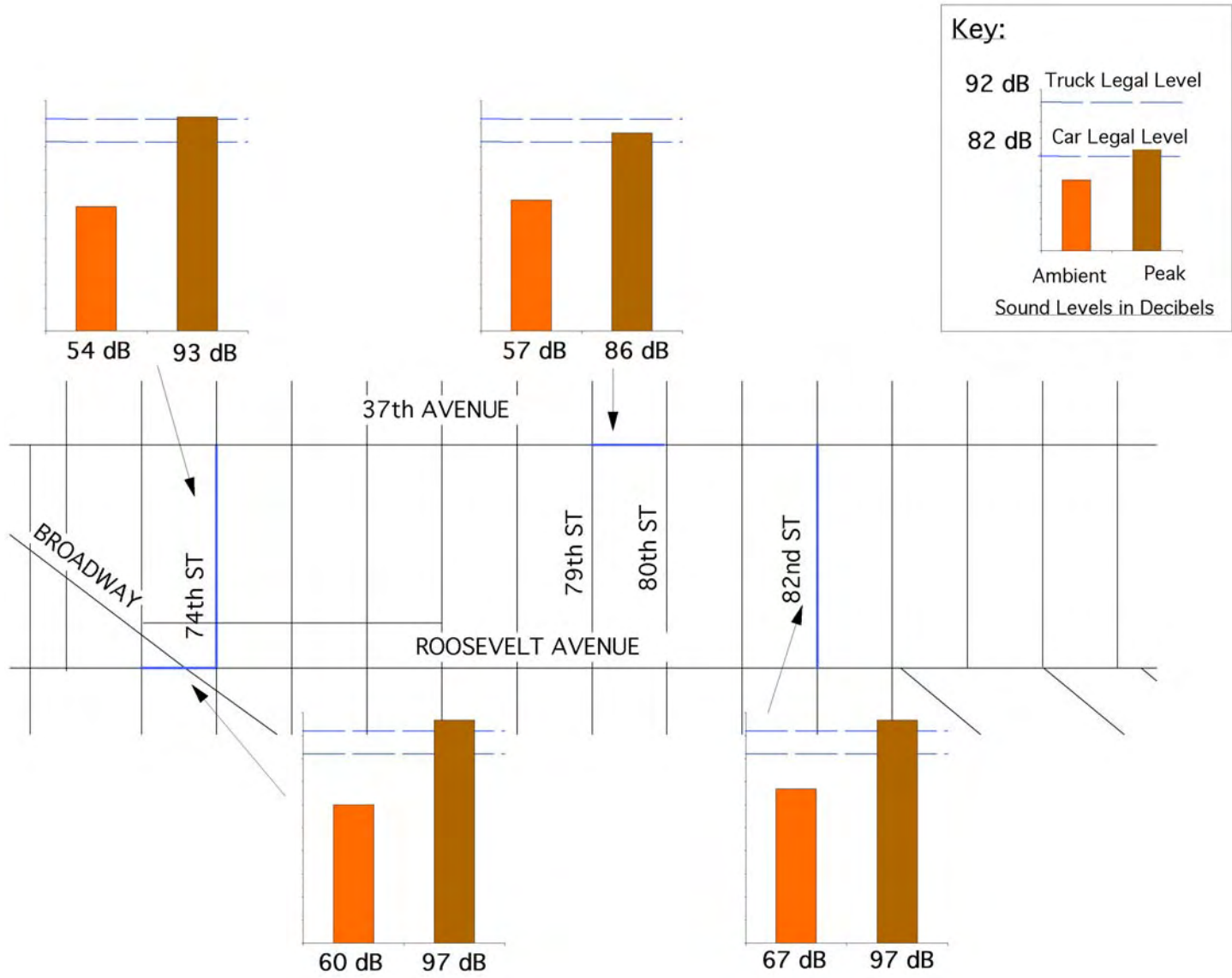
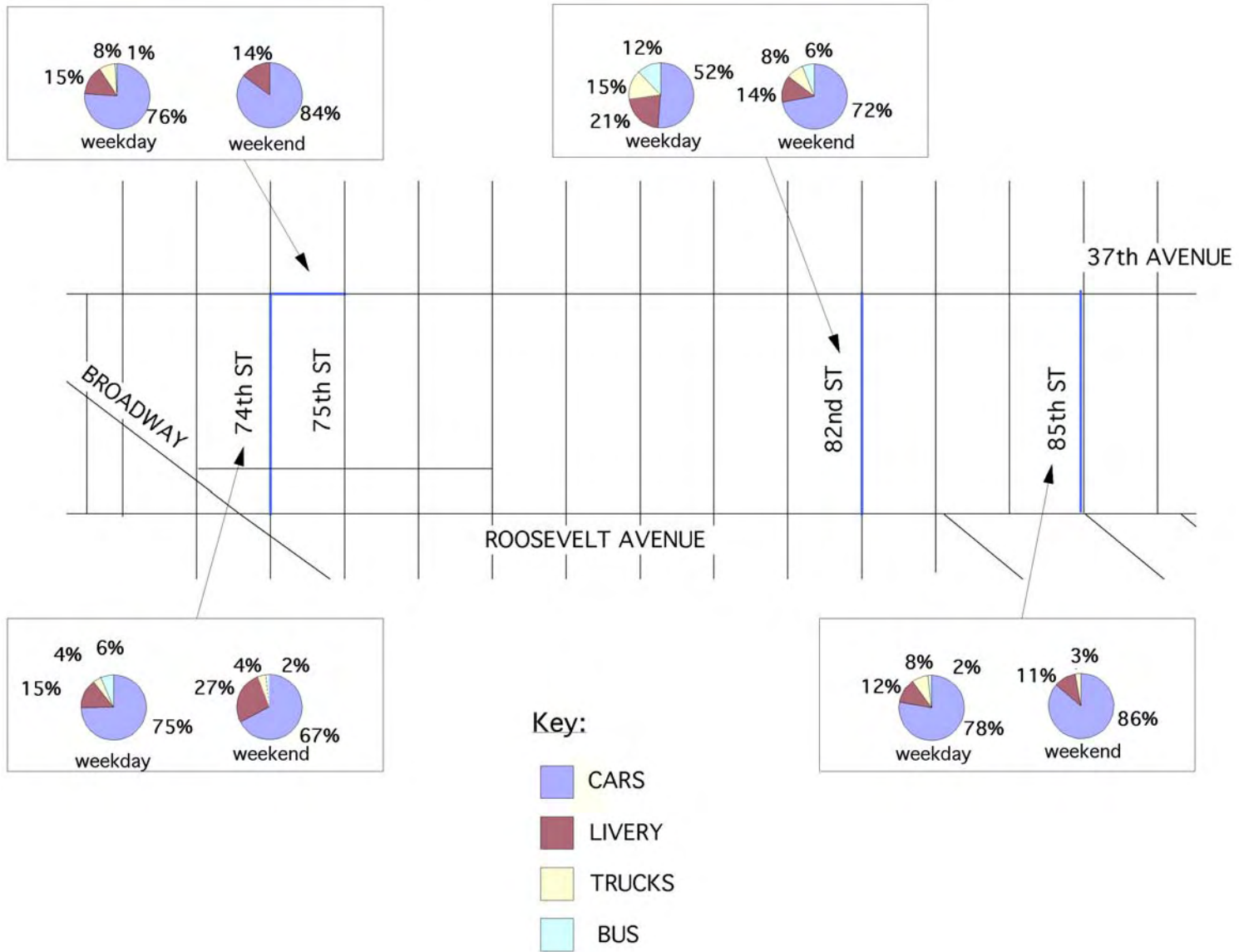


Figure 13: Sound Levels



**Figure 14: Vehicle Type**

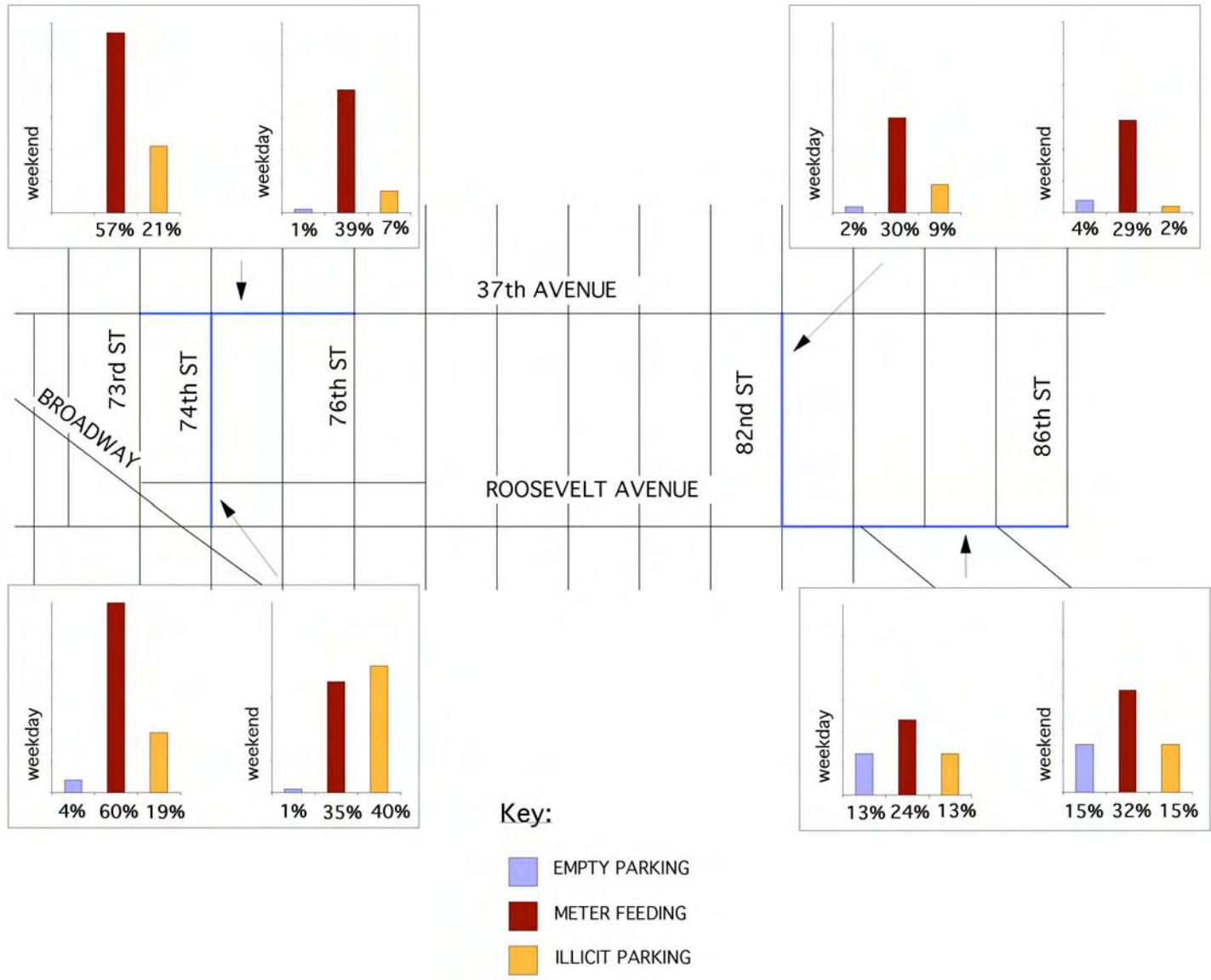


Figure 15: Meter Use and Illicit Parking