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TRANSPORTATION ALTERNATIVES

Your advocate for bicycling, walking and public transit

Driven to Excess:

What under-priced curbside parking costs the Upper West Side

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Table of Contents

Executive Summary

Every driving trip begins and ends with parking. But the demand for curbside parking in New York City far exceeds the supply. This mismatch is greatly compounded by the fact that curbside parking is free or priced far below garage rates, which are 10-15 times more expensive .

The low price of curbside parking unleashes a torrent of bargain-hunting drivers. Those who find spaces stay longer to make the most of their find. And when all spaces at the curb are occupied, other cars looking for parking circle in traffic for an elusive space. The saturation of curbside parking is a direct cause of air pollution, illegal parking and traffic congestion, all of which exact high costs on New York City's environment, economy, health and quality of life.

Transportation Alternatives conducted research on a 15-block area of Columbus Avenue, a major commercial corridor on Manhattan's Upper West Side. The data reveal the following:

- Motorists "cruise" a total of 366,000 miles a year as they search for metered parking in the 15-block survey area on Columbus Ave.: further than a one-way trip to the moon.

- Drivers cruise on average seven blocks (.37 miles) to find a metered parking space. During peak periods, before lunch and from 6pm to 8pm, motorists cruise an average of 14 blocks (.7 miles) before finding a parking spot.

- Drivers searching for curbside parking in the survey area generate 325 tons of Carbon Dioxide annually.

- On metered blocks, curb parking is completely occupied up to half the time. Unmetered blocks are completely full up to 75% of the time.

- The average vehicle parks for 93 minutes. Posted "1 Hour Parking" regulations are neither observed nor enforced. Each metered parking spot turns over 5.8 times per day. Each unmetered spot turns over 2.3 times per day.

These problems are typical of curbside parking throughout New York City. Studies by Transportation Alternatives have documented that between 28%[1] and 45%[2] of traffic on some streets is generated by cruising for parking.

Los Angeles, Chicago, San Francisco and Washington D.C. are solving their curbside parking problem by raising the price of metered parking during peak periods to reduce demand, thereby eliminating "cruising" and double-parking. The data collected for this study suggests that a modest increase in the price of metered parking on Columbus Avenue at peak hours should produce the necessary vacancies at the curb and virtually eliminate the excess traffic caused by parking-hunters. Proven methods to reduce cruising traffic include:

- Raising curbside prices during peak periods and lower it during off-peak to ensure the availability of one open space per block at all times.

- Running meters throughout the evening while restaurants and bars are still open in order to maintain parking turnover after 7pm.

[1] *Curbing Cars*, Transportation Alternatives, 2006.

[2] *No Vacancy*, Transportation Alternatives, 2007

- Replacing ineffective one-hour parking regulations with graduated metered rates that charge more for additional hours in order to encourage turnover. New York City's highly successful Commercial Congestion Parking Program in Midtown, charges $2 the first hour, $5 the second and $9 the third.

- Installing Muni-Meters that accept credit cards and enable more flexible pricing.

A pilot project employing these methods on Columbus Avenue and other congested major streets will produce big benefits for all New Yorkers: curbsides that can accommodate deliveries and more customers will benefit businesses; less double parking means a safer street environment for pedestrians and bicyclists, and more reliable bus service; and drivers will no longer need to circle block after block for an elusive parking space.

Background

Manhattan's Upper West Side has a reputation as one of New York's most livable neighborhoods. The UWS is well-served by public transit; dotted with major cultural institutions like Lincoln Center, the American Museum of Natural History and the New York Historical Society; and crossed by vibrant commercial corridors. It is both a destination and a dynamic place to live.

Columbus Avenue, Amsterdam Avenue, Broadway and West 72nd Street have the densest commercial activity in the area. On these stretches, storefronts are primarily occupied by restaurants and boutiques, with residential dwellings on the upper floors. The Columbus Avenue Business Improvement District (BID) represents businesses along Columbus Avenue between West 67th Street and West 83rd Street.

Metered parking on these streets costs a flat $1.50 per hour, with a one-hour time limit. Private garage parking in the area costs $10 to $15 per hour. Muni-Meters, which increase parking capacity and allow for more flexible payment options, are gradually being introduced by the NYC Department of Transportation on Columbus Avenue, 72nd Street, Broadway and Amsterdam Avenue. They are also being installed along residential streets that offer limited metered parking as well. Most meters expire at 7 pm, despite the many restaurants and bars that attract customers well into the evening. Oftentimes, residents begin occupying the meters an hour before they expire and park overnight.

Cross-streets are predominantly residential, with lower building heights and densities than the avenues. Alternate-side parking regulations govern these streets, and substantial turnover only occurs on days when street cleaning takes place. Vacant spaces on these residential streets are virtually nonexistent, but parking is free for those who are willing to hunt for it.

Each of these factors contributes to the needless congestion afflicting the neighborhood. Chronic double-parking impedes deliveries, snarls traffic and further endangers pedestrians trying to cross the street. Slow cruising traffic conflicts with bicyclists, buses and other road users close to the curb. All of these problems are inimical to healthy street life and the vibrant public space sought by residents, visitors and businesses alike.

Methodology

This study is the first to extrapolate cruising mileage in New York City. It measures the aggregate impact of under-priced curbside parking along a fifteen-block stretch of Columbus Avenue between West 68th Street and West 83rd Street on Manhattan's Upper West Side.

The methdology is modeled on similar research conducted by Dr. Donald Shoup in the Westwood Village neighborhood of Los Angeles. The research was comprised of three basic elements.

Miles Cruised

Surveyors on bicycles mimicked the search for parking at four destinations along Columbus Avenue: the American Museum of Natural History, Mughai Indian Restaurant, City Grill and Rigoletto's Pizza. 800 parking attempts were conducted between May and November 2007. For each parking attempt, surveyors began recording time, distance and average speed on a bicycle-mounted computer upon arriving at their destination. They then circled the block repeatedly until finding a vacant space, be it at a parking meter or along an unmetered residential street. Making note of whether the space was metered or unmetered, surveyors noted the time, distance and average speed of their search. In all cases, surveyors mimicked the driving patterns of a car as precisely as possible.

Parking Availability and Turnover

The average daily turnover of spaces was calculated by observing block faces adjacent to City Grill. City Grill was chosen because the cruising distances observed there by researchers were closest the neighborhood mean. Observations of the curb were made every 30 minutes for 12 hours on two metered and two unmetered block faces adjacent to the restaurant. Observations were made in January 2008.

A UPS delivery truck renders a one-way street all but impassible by double parking.

Parking Supply

Lastly, an inventory of on-street parking was conducted within the survey area that included all metered and alternate-side spaces.

Combining mean cruising distances, average turnover per day and the total number of spaces yields an estimate of the daily miles cruised for parking in the survey area. Multiplying this figure by 365 days yields an annual estimate.

Map of Columbus Avenue Survey Area

Results

Cruising on the Upper West Side

On the Upper West Side, metered spaces charge $1.50 per hour, compared to $15 an hour at commercial parking garages in the neighborhood. This huge price difference encourages motorists to spend time looking for curbside parking, instead of parking off-street. Visiting motorists are also encouraged to cruise in the hope of finding free parking on residential streets which is further encouraged by the absence of a Residential Parking Permit program.

Previous studies by Transportation Alternatives showed cruising is 28% of traffic in SoHo and 45% of traffic in Park Slope, Brooklyn. They have also shown an exponential relationship between curbside occupancy and illegal parking[3] (the fuller a curbside gets, the more cars double-park and obstruct crosswalks, bus stops and fire hydrants).

[3] *No Vacancy*, Transportation Alternatives, 2007

Table 1.
Cruising Distance and Time

Hour	Hourly Rate	Distance (miles)	Elapsed Time (mm:ss)
8am-9am	$1.50	0.17	01:47
9am-10am	$1.50	0.18	01:46
10am-11am	$1.50	0.22	02:29
11am-12pm	$1.50	0.71	06:19
12pm-1pm	$1.50	0.39	02:29
1pm-2pm	$1.50	0.54	01:39
2pm-3pm	$1.50	0.31	02:08
3pm-4pm	$1.50	0.17	01:14
4pm-5pm	$1.50	0.21	01:40
5pm-6pm	$1.50	0.11	01:04
6pm-7pm	$1.50	0.60	05:23
7pm-8pm	$0	0.80	09:05
Average		**0.37**	**03:05**

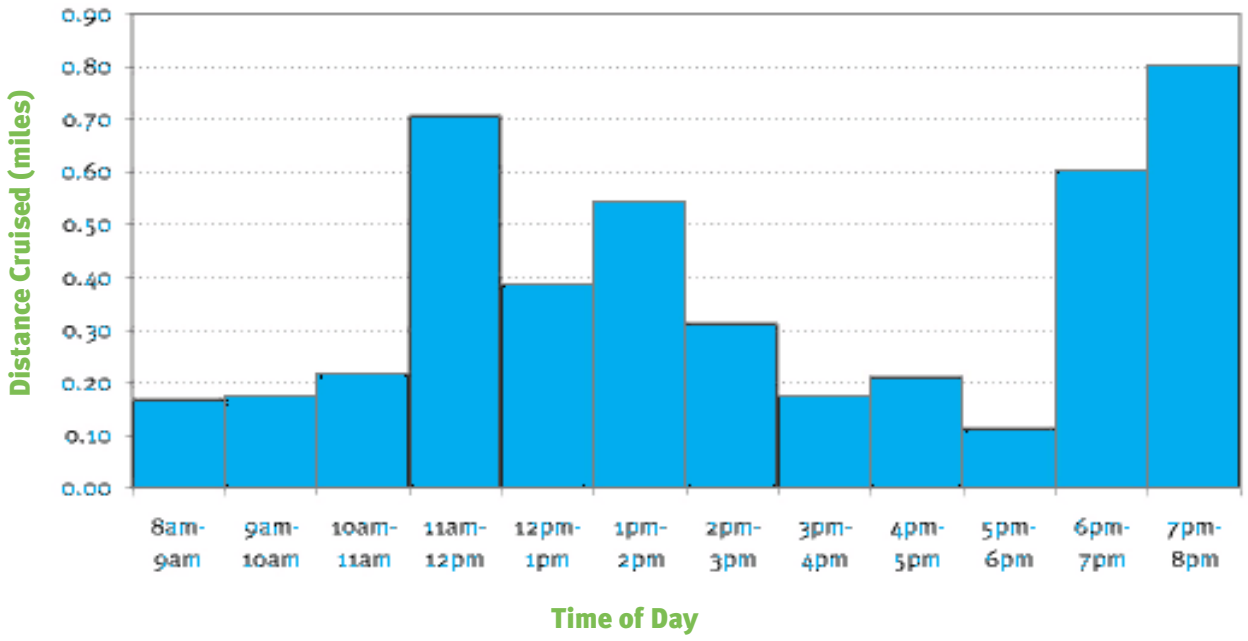
By conducting 800 parking attempts by bicycle along Columbus Avenue over a six month period, Transportation Alternatives calculated average cruising distance based on time of day. Sharp increases occurred at 11am (just before lunch) and after 6pm (the evening rush). Table 1 shows both the average distance and elapsed time required to find a metered space based on hour of day.

With all meters occupied, deliveries are made from a traffic lane.

A minority of parking attempts ended in unmetered residential parking spaces (188 of 777), which are also usable by customers in the Columbus Avenue area. Because they turn over so rarely, an attempt that ended in unmetered parking usually indicated a longer than normal parking search. When free unmetered parking spaces are included, the distance required to find a parking space rise to .41 miles (3.25 minutes).

Chart 1 shows the increase in cruising distances plotted by time of day. There is a surge in demand beginning at 11am which lasts until 2pm. These hours coincide with the lunch rush at many local restaurants, and also with the hours of peak traffic accumulation in Manhattan as a whole. The second spike begins at 6pm, which search distances rise from .10 miles per space to .6 miles. This figure climbs to .80 miles between 7pm and 8pm.

Chart 1: Time of Day versus Cruising Distance



The evening rise in cruising distance also corresponds with the expiration of most meters at 7pm. Drivers who park at 6pm can pay one hour at the meter and park for free until 8am the following morning. This adds a new pressure to metered spaces during a period when local businesses are still open.

The Costs of Cruising

While .37 miles may not sound like an inordinate distance to drive for parking space, this small dysfunction adds up. There are 506 metered parking spots within the Columbus Avenue BID. Each of these spots turns over approximately 5.8 times each day, based on a 12-hour curbside observation conducted on four block faces adjacent to City Grill. This block was chosen because its average cruising time and distance most closely resembled the averages from all four survey locations.

Taken as a whole, those .37 miles produce more than 365,818 miles cruised annually each year on a 15-block stretch of Columbus Avenue. That is roughly the distance between the Earth and the moon.

$$\frac{.37 \text{ miles}}{\text{parking event}} \times \frac{5.8 \text{ parking events}}{\text{metered space}} \times 506 \text{ metered spaces} \times \frac{365 \text{ days}}{\text{year}} = \frac{365{,}818 \text{ miles}}{\text{year}}$$

Double-parked delivery trucks on west 72nd street cut the width of the roadway in half.

With average NYC gas prices of $4.25 per gallon, that waste translates into $129,561 in fuel—money that might otherwise be spent at local businesses. The time wasted by drivers cruising for parking in the survey area exceeds 50,000 hours annually.

Simply on a neighborhood scale, cruising mileage has enormous environmental impacts. Table 2 shows that annual cruising VMT in the Columbus Avenue BID amounts to 325 tons of greenhouse-causing CO_2—the equivalent of planting 64,000 new trees or replacing 8,000 incandescent light bulbs with ones.

Table 2.
Environmental Impact of Cruising on the UWS

Inputs	
Estimated fuel efficiency of fleet (mpg)	12
Vehicle Miles Traveled (miles)	365,818
Carbon Footprint	
CO2 emitted (pounds)	649,537
CO2 emitted (tons)	325
CO2 emitted (metric tons)	295
Carbon Offsets Required	
Average cars removed from streets of USA (one year)	53
Average cars removed from streets of NYC (one year)	44
Bulbs replaced (one year)	8,122
Bulbs replaced (lifetime)	1,474
Trees planted (individual)	64,005
Trees planted (acres)	91.4

Parking Space Availability

Vacancy rates, the percentage of open parking spaces at a given time, on the Upper West Side's curbsides vary broadly throughout the day. At points of low demand, such as mid-morning and mid-afternoon, there are spaces available on most metered blocks. During the peak hours around lunch time and during the evening rush, 100% of the curb is often occupied, generating cruising traffic and double parking.

The price of metered parking is fixed at a flat $1.50 per hour between 8am and 7pm.

The average vehicle remains on the curb for 93 minutes, with vehicles parking for up to 12 hours at a time. Posted "1 Hour Parking" regulations are neither observed nor enforced, reducing turnover.

Blocked fire hydrands and other safety hazards proliferate once the curb is full.

The highly variable demand indicates the need for flexible pricing throughout the day. Curbsides often "lock-up" beginning at 6pm, an hour before meters expire, as residents claim spots for overnight parking. The 7pm expiration adds significantly to cruising during an already congested period when stores, restaurants and bars do brisk after-work business.

The two unmetered block faces observed had virtually no vacancies throughout the day. Respectively, they had an average vacancy rate between 1.8% and 2.3%; both block faces had median vacancy rates of zero.

Metered Parking Spaces

Observations of metered spaces were conducted on both sides of Columbus Avenue between West 72nd Street and West 73rd Street. An additional eight metered spaces were observed on West 73rd Street. On all block faces, demand for metered parking peaks midday (11am-2pm) and early evening (6pm-8pm).

The optimal vacancy rate for these blocks is roughly 12%, indicating one free space. In seven of 25 observations on the east side of Columbus Avenue, and ten of 21 observations on the west side, no metered spaces were available. Street cleaning on the west side reduced the number of observation periods. In the following charts, blue dots indicate observations in which vacant spaces were available; red dots indicate no available spaces. The "optimal vacancy rate" indicated by a gray line shows the vacancy rate corresponding to one open space.

Chart 2: Columbus Avenue between West 72nd Street and West 73rd Street, East Side

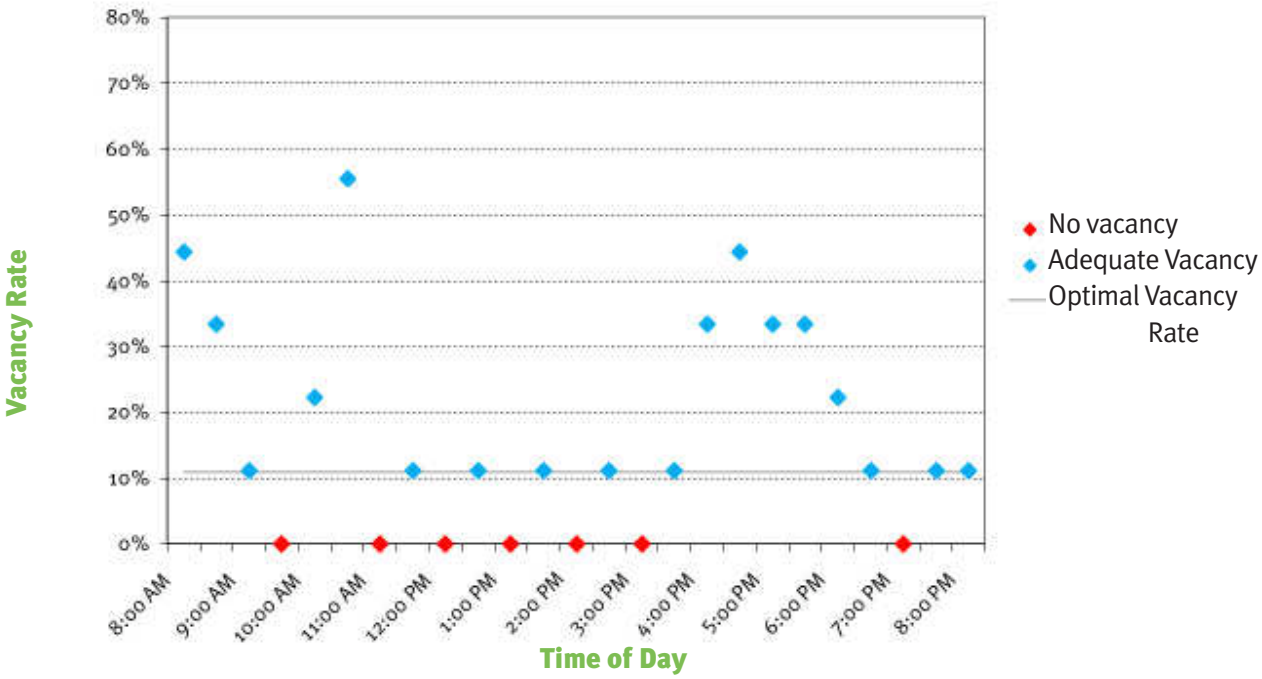
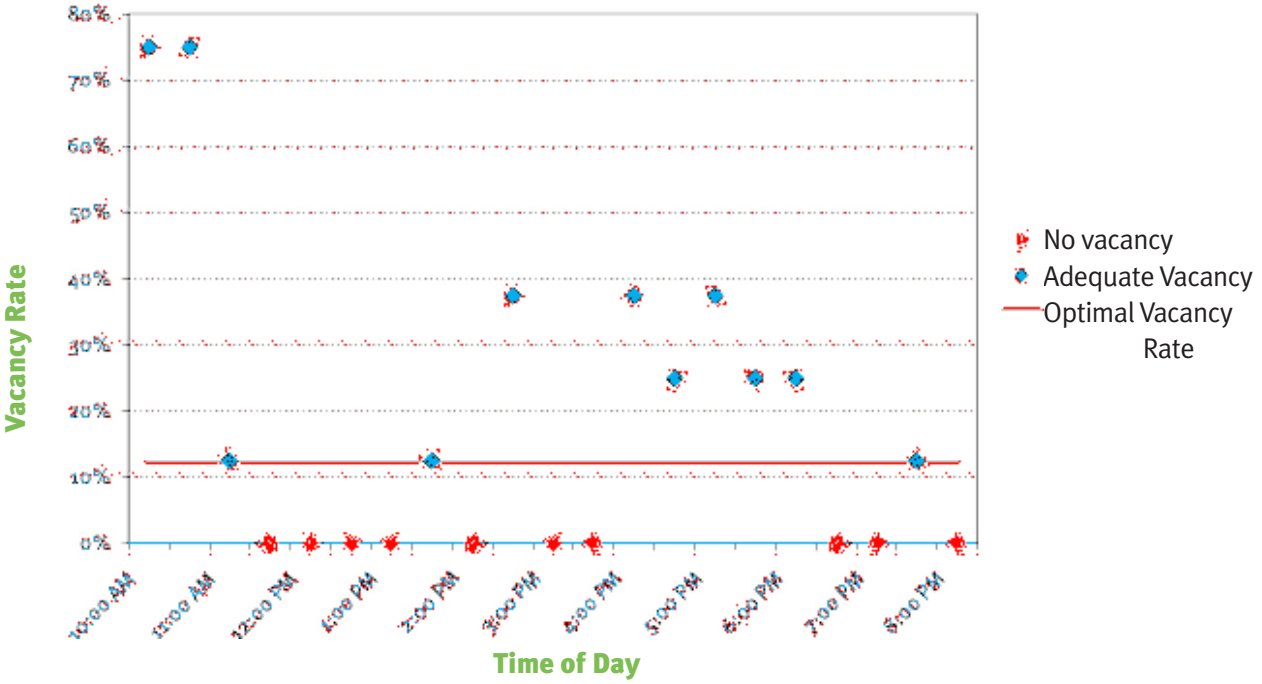


Chart 3: Columbus Avenue between West 72nd Street and West 73rd Street, West Side



Unmetered Parking Spaces

While vacancy rates remained low on both block faces, the north side of West 73rd Street had greater turnover and more vacancies due to street cleaning in the morning. In the hours following street cleaning, drivers tended to park for short periods of time rather than parking for the entire day (as was the case on the block face without street cleaning).

Even though vacancy and turnover are lackluster at metered spaces, unmetered space fare much worse.

On the south side of West 73rd Street, there were no spaces available during 18 of 24 30-minute observation periods. On the north side of West 73rd Street, there were no vacant spaces during 11 of 18 observations (street cleaning between 8am and 10:30am reduced the number of observations on the north side). The average turnover on West 73rd Street was 2.3 vehicles per day in each space, dramatically lower than the 5.8 vehicles a day in each metered space.

Again, in the charts below blue dots indicate observations with vacant spaces available while red dots signal zero vacant spaces. The optimal vacancy rate is equal to one space per block.

Chart 4: West 73rd Street between Columbus Avenue and Central Park West, South Side

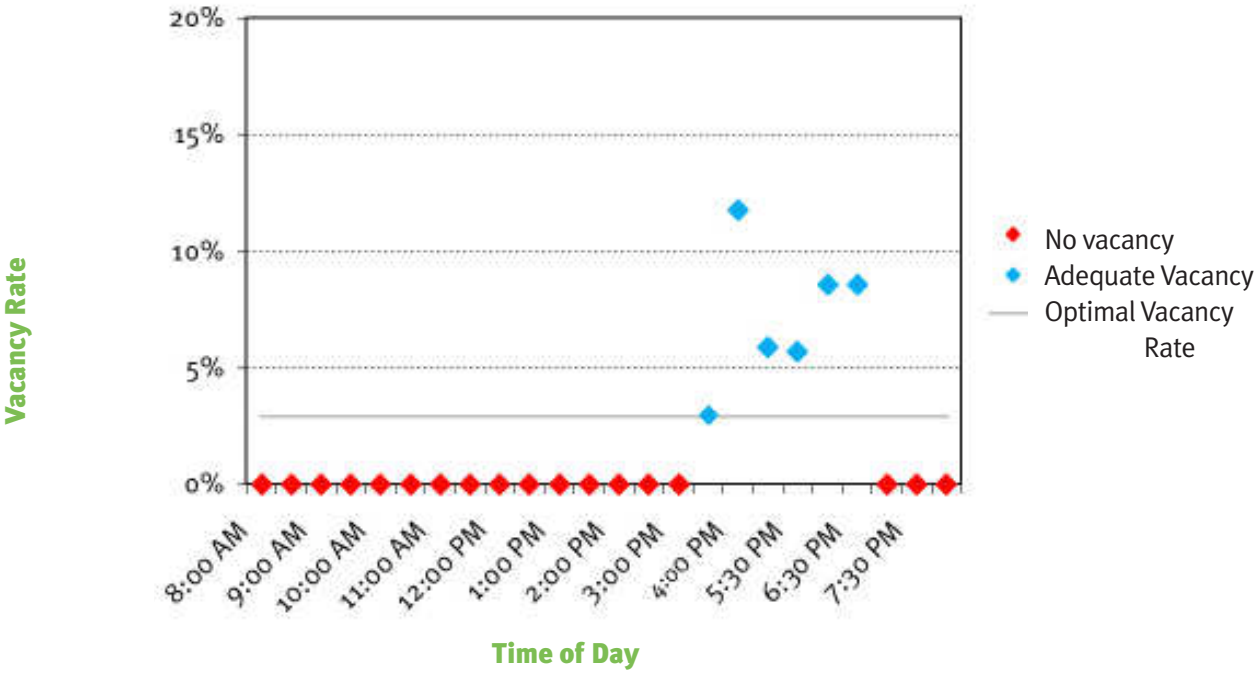
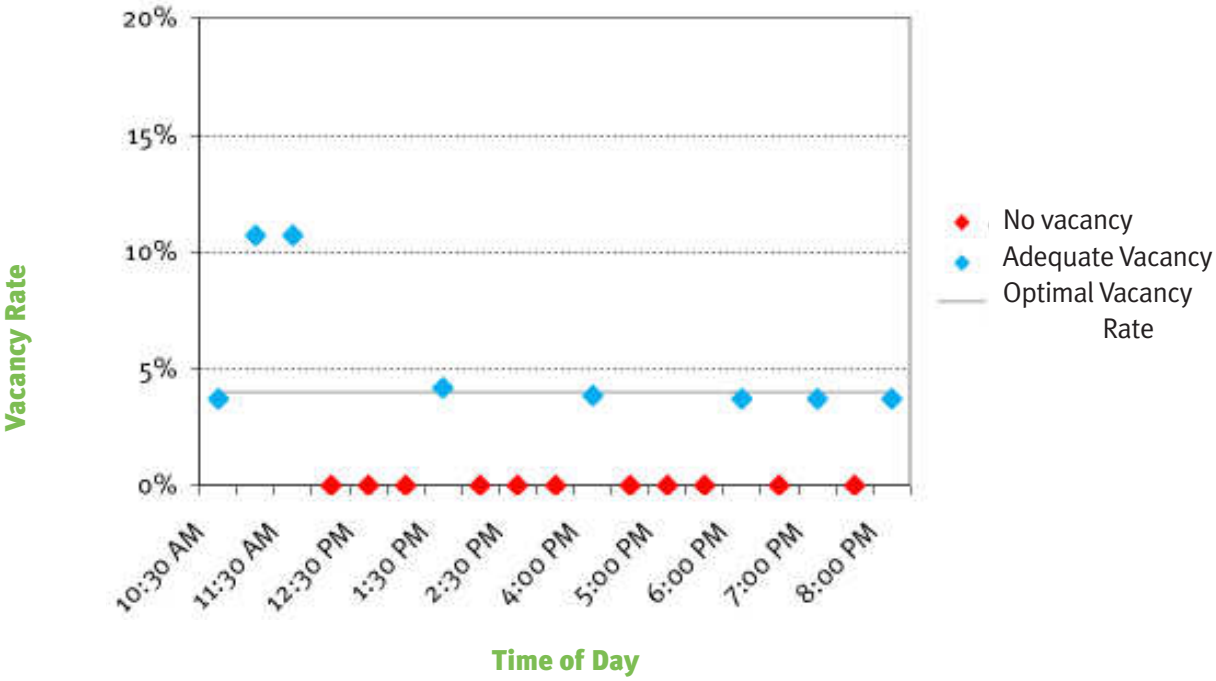


Chart 5: West 73rd Street between Columbus Avenue and Central Park West, North Side



Recommendations

By using the price of curbside parking to reduce demand, it is possible to reduce cruising mileage to nearly zero, thereby averting thousands of unnecessary miles of driving, as well as congestion and air pollution. Raising the price of parking during periods of greatest demand will prompt some drivers to opt for a transit commute, while encouraging others to park in a garage by reducing the price discrepancy between on-street and off-street spaces. It would also encourage greater turnover among those who continue to park.

In order to manage demand for metered parking, eliminate cruising and prevent illegal parking, the following recommendations should be implemented on Columbus Avenue and, if possible, on adjacent commercial corridors. These measures should be coordinated with Manhattan Community Board 7, the Columbus Avenue Business Improvement District and other local stakeholders and monitored to ensure targets are achieved.

1. Set vacancy targets for metered spaces that ensure one open space per block face at all times. Adjust meter prices gradually until this target is met on every block in the study area.

2. Run meters throughout the evening while restaurants and bars are still open in order to maintain short-term parking.

3. Eliminate ineffective one-hour parking regulations and replace with graduated metered rates that charge more for additional hours in order to encourage turnover.

4. Install Muni-Meters along Columbus Avenue that accept credit cards and enable more flexible pricing. Muni-Meters can charge graduated rates that deter long-term parking and encourage turnover.