

**Appendix L:
Revised Parking Analysis Memorandum**



MEMORANDUM

To: Ryan Sutherland, AMS Acquisitions Design & Development

From: Tom Brown, Nelson\Nygaard

Date: August 24, 2022

Subject: Summary of Parking Analysis for AMS Acquisitions Yonkers Master Plan

Introduction

Study Purpose

AMS is developing three new multifamily residential, mixed-use properties in downtown Yonkers (the Project), and has contracted Nelson\Nygaard to analyze whether these projects demand the parking ratio required by the city. The City of Yonkers currently requires one parking space per dwelling unit within one-quarter mile of the Metro North station, modified to 1 per unit + .33 per bedroom beyond that area. AMS does not want these transit-oriented projects overburdened with parking. Increased remote work rates, coupled with transit-oriented development considerations requires AMS and Nelson\Nygaard to ensure that parking is right-sized to the particular conditions of the developments.

Nelson\Nygaard was contracted to identify comparable residential developments in coordination with AMS and conduct parking utilization and demand surveys of the properties at peak demand and at midday to adjust the shared parking demand model to local conditions. In addition to the surveys of the developments, Nelson\Nygaard will interview property managers to identify building policies surrounding resident parking and conduct outreach to the Yonkers Parking Authority to understand parking availability and demand in public parking facilities. This local outreach will be supplemented by case studies to identify best practices and real-world outcomes.

Nelson\Nygaard's parking demand analysis will incorporate land use data and the identified local conditions to project parking demand and calculate supply needs for each of the three AMS developments.

Proposed Development

AMS Properties has proposed a set of developments for three sites located within one half-mile of Yorkers Station, the commuter rail station that is also served by Amtrak.

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[Figure 1 Proposed Development – All Sites and Phases](#)



Proposed Land Uses

At full buildout, the Chicken Island Project will consist of a mixed-use development of five towers, ranging in height from 23 to 38 stories. Along with 2,000 residential dwelling units, the Project will include street-level retail, personal service, and commercial space, and office space. The two mixed-use towers of the North Broadway Project will be 25 stories each, with 650 residential dwelling units, commercial and retail space, and office space. The two mixed-use towers of the Teutonia Project will be 40 stories each, with 906 residential dwelling units and commercial and retail space, but will not have any office space.

[Figure 2 Land Use Summary](#)

Land Use	Chicken Island Development Program Totals	North Broadway Development Program Totals	Teutonia Development Program Totals
Residential	2,000 dwelling units	650 dwelling units	906 dwelling units
Commercial/Retail	70,000 square feet	4,000 square feet	10,000 square feet
Office	17,000 square feet	13,000 square feet	None

This Memo

This memo provides a summary of findings for the following aspects of parking-demand projection, and optimal parking supply ratios/measures for the above-described properties:

- Residential Parking Demand – Measures of peak per-unit ratios of parking demand generation, based on industry standard measures, peak-demand measures from comparable developments, and per-unit zoning-code parking requirement ratios defined for comparable development contexts
- Shared Parking Demand – Time of Day projections of parking demand for all proposed uses, to identify the peak parking supply needs for the full project – and specifically if the non-residential parking needs will require supply beyond what is provided to meet peak residential parking demand.
- **Travel Demand Management Assessment – Contextual factors and development programming features that will impact parking demand from on-site land uses.**

Residential Parking Demand

Potential Per-Unit Demand-Generation Ratios

Industry Standard Published Measures

The *Parking Generation Manual* published by the Institute for Transportation Engineers provides a comprehensive set parking-generation ratios specific to common land use categories. These ratios are a common source for parking demand and supply calculations, including those used to establish minimum parking requirements within zoning codes. The ITE Land Use Category most appropriate for the residential components of proposed developments is Multifamily Housing Mid-Rise (221). The ITE development context most appropriate for all three proposed sites is “Dense Multi-Use Urban” to reflect the walkable, urban, and transit-served location of each site.

Figure 3 Industry-Standard Sourced Parking-Generation Rates

Proposed Land Use	ITE Land Use Category	Dense Multi-Use Urban Ratio
Residential Dwelling Units	Multifamily Housing Mid-Rise (221)	0.71/Dwelling Unit

Measures from Comparable Westchester County Properties

Occupancy counts completed during overnight counts at the Hudson Park development provide a useful source of local demand-generation data for residential units that are comparable to the proposed development, in terms of type of units offered, resident tenant markets, and location within the walkable urban context of central Yonkers, including comparable proximity to the main Yonker train station. The table below provides a summary of counts from 2008 and 2012.

The table below presents parking demand findings the Hudson Park development, as provided by the City’s transportation consultant BFJ Planning. Data is included from set of overnight counts completed in 2008 and 2012.

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Figure 4 Past Parking Generation Measures from the Hudson Park Development

Hudson Park	Residential Units	Peak (3 am) Occupancy	Peak Occupancy/Unit
Hudson Park (2012)	560	503	0.90
Hudson Park (2008)	266	223	0.84

As shown, an initial demand-generation rate of 0.84 occupied spaces per residential unit in 2008 rose slightly to 0.9 occupied spaces per unit in 2012. To address any potential changes that might affect this ratio, including the impact of COVID-19 on the vehicle ownership rates among those living in these types of development, the Hudson Park counts were updated, and two additional comparable developments were surveyed to create a new set of demand-generation ratios. Findings from all properties are summarized in the table below. To err on the side of fully capturing peak resident demand, the measures in this table represent the number of resident permits issued, rather than an overnight count.

Figure 5 Peak Parking Demand Generation Measures from Comparable Developments

Properties	Dwelling Units	Occupied Units	Active Resident Permits	Permits/Unit	Permits/Occupied Unit
360 Huguenot, New Rochelle	280	264	185	0.66	0.70
Sawyer Place, Yonkers	438	403	262	0.60	0.65
Hudson Park - 1 Alexander	293	278	246	0.84	0.88
Hudson Park - 1 Pier Pointe	139	127	118	0.85	0.93
Hudson Park - 1 Van Der Donck	127	120	124	0.98	1.03
Combined	1,277	1,192	935	0.73	0.78

As shown, even the highest measure is well below one space per dwelling unit. Factoring current occupancy levels for all properties – all between 92% and 95% -- the average permit/occupied-unit measure remains below 0.8 spaces per unit.

Parking-Requirement Ratio Case Studies

Another means of projecting parking needs for new residential dwelling units is to survey parking requirements established specifically to reflect the relationship between such units and parking demand in comparable development contexts. Following is a brief survey of such requirements, as established in municipal zoning codes for districts that encourage transit-oriented development in a local and regional context that combines both urban and suburban mobility patterns.

Charlotte, NC

Parking Standards in Growth Districts¹

In several of the city's more densely developed, mixed-use, and multimodal zoning districts (CAC-2, TOD-UC, TOD-NC, TOD-CC, TOD-TR, RAC, UC, UE), many of which do not have rail transit, the following parking standards apply:

- Minimum Requirement: 1 space per dwelling unit
- Maximum Parking: 1 space per bedroom

Public Parking Credit

In all districts, public parking facilities located within 1,000 feet walking distance of the development site may be credited toward the minimum parking requirement at a rate of one space for every five public parking spaces. Public parking facilities must be owned or operated by a government agency or municipal service district, or developed as a public-private partnership, but do not include "park and ride" facilities for public transit.

San Antonio, TX²

Parking Standards for Transit-Proximate Sites

- No parking requirements for projects within 500 feet of public transit stops
- Parking requirements are halved for projects within ¼-mile of public transit stops
- Parking requirements are reduced by 25% for projects located between 1/4-mile and ½-mile of public transit stops

The City establishes TODs via "Special Districts" overlaid onto existing districts to encourage mixed-use development around public transit stops. Properties within a quarter-mile of public transit stops are zoned as "TOD-C," and those between a quarter and a half-mile are labeled "TOD-P." Properties in TOD-P districts are required to provide only 75 percent of the minimum parking requirements for the underlying district. Properties within TOD-C districts need provide no more than 50 percent of the same minimum parking requirement. Properties that are within 500 feet of a transit stop have no parking requirements.

Redmond, WA

Parking Standards Based on Demonstrated Demand

The City of Redmond used reduced parking requirements to incentivize TOD around the Redmond Downtown Transit Center. Beginning in 1993, Redmond reduced parking requirements around the Transit Center from an average of two spaces per unit to 1.25 spaces alongside a corresponding increase in the allowed density of development. This allowed developers to build a greater mix of uses and increase residential density near the Transit Center. Following the success of this policy, in 2013 parking requirements were further reduced to 0.94 spaces per unit. The success of Redmond's TOD inspired further mixed-use development in downtown Redmond. As of 2015, residential units in the

¹ <https://charlotteudo.org/>

² <https://perma.cc/Q5ZR-NGT6>

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TOD were almost fully leased. This success was only possible due to the City's decision to lower parking requirements to a level that enabled effective TOD.

Proposed Per-Unit Demand-Generation Ratio

Based on the above findings, a projected supply-need ratio of 1 space per residential dwelling developed is proposed. Such a ratio would comfortably exceed demand projected by the most suitable ITE standard ratio, while reflecting most available data on parking-generation rates among comparable Yonkers/Westchester developments. It also aligns well with the zoning code requirements profiled above.

Shared Parking Demand



All three sites of the proposed development will include non-residential uses. To anticipate if such uses

will increase the supply need beyond what is required to meet peak residential parking demand, a shared-parking analysis was completed.

Proposed Land Uses

At full buildout, the Chicken Island Project will consist of a mixed-use development of five towers, ranging in height from 23 to 38 stories. Along with 2,000 residential dwelling units, the Project will include street-level retail, personal service, and commercial space, and office space. The two mixed-use towers of the North Broadway Project will be 25 stories each, with 650 residential dwelling units, commercial and retail space, and office space. The two mixed-use towers of the Teutonia Project will be 40 stories each, with 906 residential dwelling units and commercial and retail space, but will not have any office space.

Figure 6 Land Use Summary

Land Use	Chicken Island Development Program Totals	North Broadway Development Program Totals	Teutonia Development Program Totals
Residential	2,000 dwelling units	650 dwelling units	906 dwelling units
Commercial/Retail	70,000 square feet	4,000 square feet	10,000 square feet
Office	17,000 square feet	13,000 square feet	None

Potential Non-Residential Parking Generation Ratios

Having established the targeted supply ratio for residential uses at 1.0 spaces/dwelling unit ratio identified, a shared parking analysis requires appropriate parking-generation ratios for the non-residential uses proposed for each site. Several viable options are available for selecting appropriate parking-generation ratios to assign to the above-described land uses. However, as these uses are of a secondary focus for the development at all three sites, it was decided to emphasize industry-standard measures and to not emphasize the walkable urbanism or transit adjacency of the development context for these uses.

Proposed Non-Residential Parking Generation Ratios

The *Parking Generation Manual* published by the Institute for Transportation Engineers provides a comprehensive set parking-generation ratios specific to common land use categories. These ratios are a common source for parking demand and supply calculations, including those used to establish minimum parking requirements within zoning codes. Another common and well-researched source of parking-generation ratios is the Urban Land Institute’s *Shared Parking Manual* (3rd Edition).³ The table below presents ratios selected from these sources for the non-residential components of the proposed developments.

³ <https://knowledge.uli.org/en/books/2019/shared-parking>

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[Figure 7 Industry Standard Sourced Parking-Generation Rates](#)

Proposed Land Use	Land Use Category	Sourced Demand-Generation Ratio
Commercial/Retail	ULI Shared Parking – General Retail	4/1000 GSF
Office	ITE - General Office Building (710)	2.39/1000 GSF

The table below includes these ratios along with the ratio for the residential dwelling units as inputs for the Shared Parking Model.

[Figure 8 Industry Standard Sourced Parking-Generation Rates](#)

Proposed Land Use	Modeled Demand-Generation Ratio
Residential Dwelling Units	1/Dwelling Unit
Commercial/Retail	4/1000 GSF
Office	2.39/1000 GSF

Shared-Parking Model Demand Projections

The land use measures and parking-generation ratios presented in the table above were entered into a shared-parking model which was provided by BFJ Planning. This model uses “percent of peak” projections to estimate parking demand, based on peak measures, for five distinct weekday time periods:

1. Mid-Morning (10am–11am)
 - Residential demand is 45% of peak
 - Retail demand is 70% of peak
 - Office is 100% of peak
2. Early Afternoon (12pm–2pm)
 - Residential demand is 45% of peak
 - Retail demand is 75% of peak
 - Office is 90% of peak
3. Late Afternoon (3pm–4pm)
 - Residential demand is 70% of peak
 - Retail demand is 80% of peak
 - Office is 90% of peak
4. Evening (7pm-8pm)
 - Residential demand is 65% of peak
 - Retail demand is 70% of peak
 - Office is 10% of peak
5. Overnight (11pm–6am)
 - Residential demand is 100% of peak
 - Retail demand is 0% of peak

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- Office is 5% of peak
- 6. Saturday Midday (12-2PM)
 - Residential demand is 60% of peak
 - Retail demand is 100% of peak
 - Office is 20% of peak
 -

The resulting projections are summarized below.

Chicken Island Site

Figure 9 Chicken Island Projected Demand

Land Use	Mid-Morning	Early Afternoon	Late Afternoon	Evening	Overnight	Saturday Midday
Residential DU	900	900	900	1,400	2,000	1,200
Retail	196	238	210	224	0	280
Office	41	35	37	4	2	8
Non-Residential Total	207	273	248	228	2	288
Total Demand	1,137	1,173	1,147	1,628	2,002	1,488

Key Takeaways

- Parking demand will peak on weekday nights, between 11 PM and 6 AM, at 2,002 spaces
- Parking supplied to meet peak residential parking demand can also accommodate all non-residential parking demand, if supplies are managed as a shared pool of spaces, with some potential constraints overnight if non-residents are allowed to park overnight
- During much of the time on weekdays, a significant supply surplus is projected beyond demand projected for all on-site uses.

North Broadway Site

Figure 10 North Broadway Projected Demand

Land Use	Mid-Morning	Early Afternoon	Late Afternoon	Evening	Overnight	Saturday Midday
Residential DU	293	293	293	455	650	390
Retail	16	14	12	13	0	16
Office	31	26	28	3	2	6
Non-Residential Total	42	40	40	16	2	22
Total Demand	340	333	332	471	652	412

Key Takeaways

- Peak parking demand is on weekday nights, between 11 PM and 6 AM, at 652 spaces
- Parking supplied to meet peak residential parking demand can also accommodate all non-residential parking demand, if supplies are managed as a shared pool of spaces, with some potential constraints overnight if non-residents are allowed to park overnight
- During much of the time on weekdays, a significant supply surplus is projected beyond demand projected for all on-site uses.

Teutonia Site

Figure 11 North Broadway Projected Demand

Land Use	Mid-Morning	Early Afternoon	Late Afternoon	Evening	Overnight	Saturday Midday
Residential DU	408	408	408	634	906	589
Retail	28	34	30	32	0	40
Total Demand	436	442	438	666	906	629

Key Takeaways

- Parking demand will peak on weekday nights, between 11 PM and 6 AM, at 906 spaces
- Parking supplied to meet peak residential parking demand can also accommodate all non-residential parking demand, if supplies are managed as a shared pool of spaces, with some potential constraints overnight if non-residents are allowed to park overnight
- During much of the time on weekdays, a significant supply surplus is projected beyond demand projected for all on-site uses.

Adjusting for “Work from Home” Impacts

The BFJ model is based on documented, historically normative patterns of reduced residential demand during workday hours. This is something that has been significantly affected by the increase rate of employees working from home (WFH) during the COVID-19 pandemic. WFH rates spiked dramatically during many months of the pandemic, and it is widely projected that this will have a lasting impact on WFH rates as the pandemic eases and recedes from workplace health and safety concerns.

To ensure that the shared parking analysis captures impacts from current WFH conditions on shared parking capacities, data was collected at all comparable developments included in the peak-demand analysis, providing off-peak measures that can be used to adjust the model’s assumptions regarding off-peak residential parking demand ratios.

Figure 12 Off-Peak Parking Generation Measures from Comparable Developments

Properties	Midday Occupancy	Occupancy/Unit	Midday Occupancy as Percent of Peak Occupancy
360 Huguenot, New Rochelle	121	0.43	62.1%

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Sawyer Place, Yonkers	168	0.38	59.0%
Hudson Park	280	0.50	53.9%
Combined	569	0.45	57.2%

The combined average among the four sites suggests that, at midday, resident parking demand declines to about 57.2% of peak demand. This compares to the 45% estimated percent-of-peak used in the shared-parking model. Based on this, the model was updated to project that midday demand would fall no further than 65% of the peak-demand measure residential uses. This change, however, did not change the timing or intensity of projected peak demand for any of the three development sites.

[Figure 13 Projected Demand Assuming 65% as Lowest Percent-of-Peak for Residential Demand](#)

Development Site	Mid-Morning	Early Afternoon	Late Afternoon	Evening	Overnight	Saturday Midday
Chicken Island	1,537	1,573	1,547	1,628	2,002	1,588
North Broadway	465	463	462	471	652	445
Teutonia	679	685	681	733	997	648

Conclusion

The finding outlined above suggest that on-site parking provided at 1 space per dwelling unit will provide ample capacity to meet peak resident parking demand, based on a range of measures that actual demand is more likely to be significantly lower than to exceed such a supply. Furthermore, if provided at this level and managed as a shared supply that is accessible to all on-site residents, commercial tenants, employees, and visitors, this supply would be more than sufficient to meet all on-site parking needs.

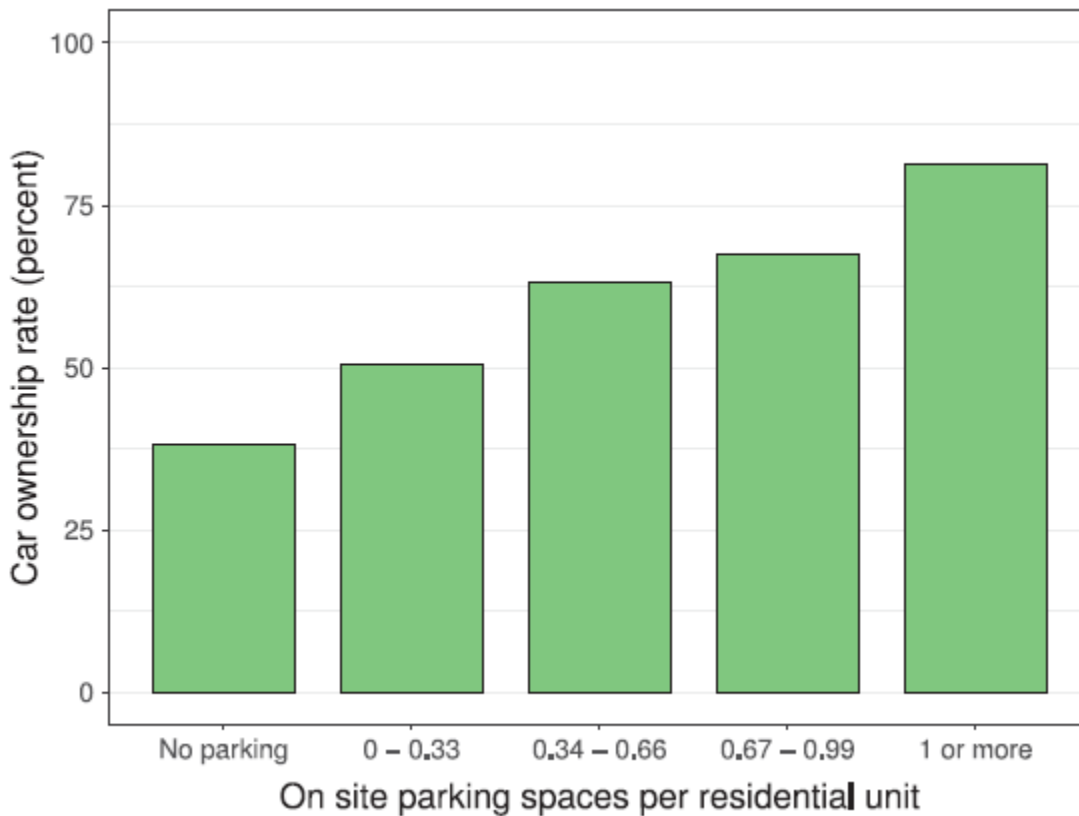
Travel Demand Management Assessment

Parking demand generated by the Project will be affected by several factors beyond those captured in the baseline parking generation ratios identified in the first sections of this memo. Beyond transit proximity, and the walkable-urban, multimodal development context, the following policies, programs, and amenities are proposed for the Project.

Overview of Relevant TDM Measures

Key Policies

Reduced Parking Supply



A reduced parking supply is a significant factor affecting resident parking demand, causing households to adjust their vehicle ownership levels to meet the availability of on-site parking options.

Documented Effectiveness

Documentation on the effectiveness of this measure in reducing resident parking demand include:

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- Chatman (2013)⁴ – Key Finding: Households with fewer than one off street parking space per adult had 0.16 fewer vehicles per adult; .29 fewer vehicles per adult when fewer than 1 and also scarcity in on- and off- street parking.
- Millard-Ball (2021)⁵ – Key Finding: On-site parking supply has a greater impact on parking demand than public-transportation accessibility – reducing ownership rates by as much as 50%, with buildings offering at least 1 space per dwelling unit generating “more than twice the car ownership rate of buildings that have no parking.”
- California Air Pollution Control Officers Association (CAPCOA)⁶ – Key Finding: Reduces resident travel impacts by up to 13.7%.

Estimated Effectiveness

- Given the combined documentation noted above, we estimate that a supply of roughly 1 space per dwelling unit will reduce baseline, resident parking demand by at least 10%.

Charging for all Resident Parking (Unbundling)

Charging for parking as an optional resident amenity has been shown to have significant impacts on resident parking demand – incentivizing households to adjust their vehicle ownership levels and also attracting lower-vehicle households via the cost savings made possible when the parking they don't need is not added to their housing cost.

Documented Effectiveness

Documentation on the effectiveness of this measure in reducing resident parking demand include:

- Littman (2006)⁷- Key Finding: Unbundling parking produces impacts similar to parking pricing, reducing automobile ownership with typical levels of reduced residential parking demand ranging between 10-30%.
- Nelson\Nygaard *Arlington County Residential Building Study* (2018) – Key Finding: Where parking is unbundled, there is approximately 6% lower auto ownership per unit and 13% lower auto ownership per adult resident.

Estimated Effectiveness

- Given the combined documentation noted above, we estimate that the proposed resident parking rates will reduce baseline, resident parking demand by 10%.

⁴ <https://trid.trb.org/view/1243004>

⁵ <https://journals.sagepub.com/doi/abs/10.1177/0042098021995139?journalCode=usja&#abstract>; <https://medium.com/sidewalk-talk/the-strongest-evidence-yet-that-parking-spaces-cause-more-driving-fb530aec9165>

⁶ http://www.airquality.org/ClimateChange/Documents/Final%20Handbook_AB434.pdf

⁷ [Parking Pricing Implementation Guide \(vtpi.org\)](http://www.vtpi.org/ParkingPricingImplementationGuide.pdf)

Complementary Amenities

Amenities that enhance area multimodal mobility options can amplify the effectiveness of the Key TDM Policies noted above. While the baseline ratio identified in the first section of this memo captures the impact of factors like area walkability and land-use mix and densities, the Project will also include noteworthy amenities that will aid in attracting low-vehicle households to the Project, and in reducing vehicle ownership rates among its residents.

- Bike Parking
- Dedicated Transit Shuttle

Conclusion

We project that the TDM measures noted above, particularly the below-average parking supply and the “unbundling” of resident parking, but also the bike parking and transit-shuttle services, will reduce parking generation among the Project’s residents by 15-20% compared to the baseline ratio identified in the first section of this memo – or roughly 0.8 - 0.85 spaces per dwelling unit. Again, this would align with demand-generation ratios provided by ITE as well as documented demand among local/regional peer developments.