The Artisan Scottsdale

Parking Master Plan

Prepared for:

Jackson Dearborn Partners
404 S. Wells Street
Suite 400
Chicago, IL 60607

Registered Professional Engineer (Civil)
CERTIFICATE NO.
40961
JAMIE ANN K. BLAKEMAN
Date Signed: 03/25/21
ARIZONA, U.S.A.

Project Number: 20.5119
March 25, 2021

Prepared by:

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3-ZN-2021
3/30/2021

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1. Executive Summary

Lōkahi, LLC (Lōkahi) was retained by Jackson Dearborn Partners to complete a Parking Master Plan for The Artisan Scottsdale mixed-use development. The proposed development is located on the southwest corner (SWC) of Indian School Road and Marshall Way in Scottsdale, Arizona.

The proposed development will include the following land uses:

- Multi-Family Residential — 83 units
  - *16 studio units*
  - *51 one-bedroom units*
  - *16 two-bedroom units*
- Office — 2,500 square feet
- Retail — 2,500 square feet

The objective of this Parking Master Plan is to establish that the **152 total parking stalls provided on site, will provide sufficient parking** for The Artisan Scottsdale mixed-use development.

In addition, the sub-surface parking garage for The Artisan Scottsdale will provide one (1) floor of public parking that will provide 57 public parking stalls.

City of Scottsdale Required Parking

Using the *City of Scottsdale Code of Ordinance's* shared parking requirements, a maximum parking demand of 101 parking spaces are required. This peak parking demand occurs on weekdays between midnight and 7:00 am. Therefore, with 153 parking stalls provided, this represents a **surplus of 52 (52.0%) parking stalls** for the proposed development.

ITE Parking Generation

The weekday and Saturday parking demand were also calculated for the proposed development using the *Institute of Transportation Engineers (ITE)* publication *Parking Generation, 5th Edition*. The weekday and weekend parking calculations result in a parking **surplus of 31 (25.6%) and 41 (36.9%)** parking stalls for the proposed development.

ULI Shared Parking

Utilizing the *Urban Land Institute (ULI)* publication titled *Shared Parking, 3rd Edition,* the weekday and weekend parking demand was calculated for The Artisan Scottsdale development. The weekday and weekend parking calculations result in a parking **surplus of 36 (31.0%) and 40 (35.7%)** parking stalls for the proposed development.

Parking Trends

There is a great deal of information in various publications regarding parking needs of mixed-use multi-family developments. The overriding theme is that there are ongoing changes in land use and transportation that are driving down the demand for parking.

According to "People Over Parking" published by the American Planning Association (October 2018), "tinkering with minimum parking requirements is not new...what's different now is an evolving understanding that urban lifestyles are changing, traditional parking ratios are outdated, and too much supply can be as harmful as too little." Two groups, TransForm and Center for Neighborhood Technology, conducted surveys during the middle of the night at apartments on the West Coast and Chicago and found that consistently **"one-quarter to one-third of spaces sat empty."**

Additionally, the growing popularity of rideshare services such as Uber and Lyft, and bikeshare services, all contribute to reducing the reliance on personal vehicles, and thereby reducing parking demand.

Parking Summary

	Reference Table	Parking Stalls	Surplus
City of Scottsdale Code			
Shared Parking Requirements	3	100	52
ITE Parking Generation			
Weekday	4	121	31
Saturday	5	111	41
ULI Shared Parking			
Weekday	6	116	36
Weekend	7	112	40

In conclusion, the request to provide 152 parking stalls for The Artisan Scottsdale mixed-use development meets the requirements of the City of Scottsdale's Shared Parking Requirements, and results in a surplus of parking based the ITE Parking Generation, the ULI Shared Parking, and based on parking demand rates observed at local multi-family residential developments.

Therefore, based upon the detailed analysis in this Parking Master Plan, the 152 proposed parking stalls is anticipated to meet and exceed the parking demand The Artisan Scottsdale development.

2. Introduction

Lōkahi, LLC (Lōkahi) was retained by Jackson Dearborn Partners to complete a Parking Master Plan for The Artisan Scottsdale mixed-use development. The proposed development is located on the southwest corner (SWC) of Indian School Road and Marshall Way in Scottsdale, Arizona.

The proposed development will include the following land uses:

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  - *51 one-bedroom units*
  - *16 two-bedroom units*
- Office — 2,500 square feet
- Retail — 2,500 square feet

Scope of Study

The objective of this Parking Master Plan is to establish that the 152 on-site parking stalls will provide sufficient parking for the proposed multi-family, mixed-use development.

In addition, the sub-surface parking garage for The Artisan Scottsdale will provide one (1) floor of public parking that will provide 57 public parking stalls.

This Parking Master Plan calculates the number of parking spaces required for the proposed development based on the City of Scottsdale Code, the ITE Parking Generation, and the ULI Shared Parking.

Surrounding Area

The study area is located in the City of Scottsdale, Arizona, approximately two and one-quarter miles west of State Route Loop 101 (SR 101L) and 4 miles north of State Route Loop 202 (SR 202L). The proposed site will be located on the southwest corner of Indian School Road and Marshall Way, within the Arts District of Old Town Scottsdale.

The proposed development is bordered by Indian School Road to the north, 1st Avenue to the south, and Marshall Way to the east. Located directly west of the proposed site are several commercial developments to include an insurance broker, interior designer, advertising agency, two (2) cafés, and a bar.

See **Figure 1** for a vicinity map.

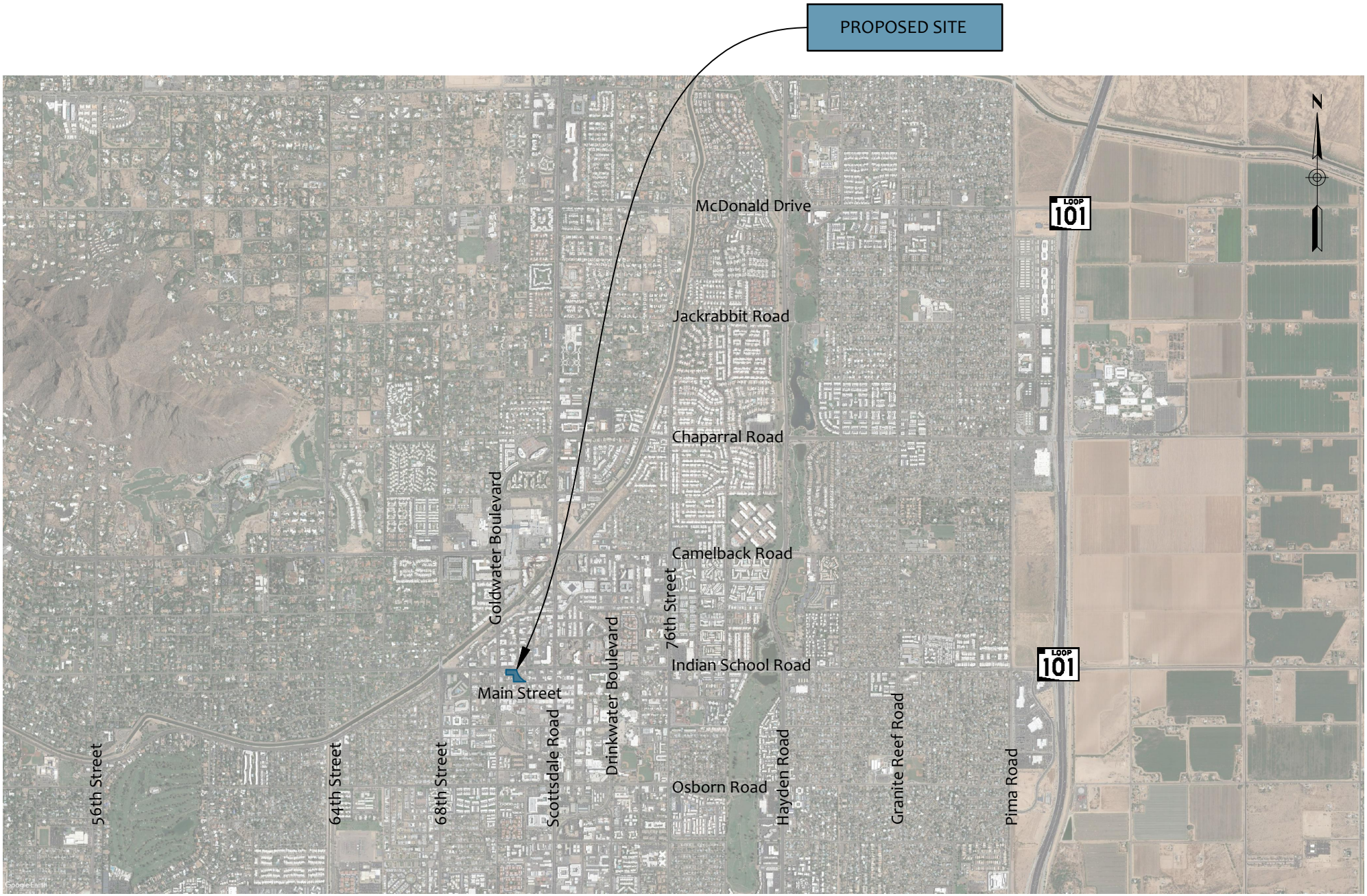


FIGURE 1 | VICINITY MAP

3-ZN-2021
3/30/2021

3. Site Accessibility

The City of Scottsdale encourages the use of bicycles and other alternative transportation modes other than the private vehicle and provides these alternatives throughout the vicinity of the proposed development.

Bicycle and Pedestrian Facilities

Within approximately one (1) square mile, nine (9) districts containing art galleries, shops, restaurants, museums, and nightclubs are within a walkable and accessible distance from The Artisan Scottsdale development. The Arizona Canal is located approximately one-quarter (0.25) mile north of the proposed site and provides approximately 70 miles of shared use paths.

Bike lanes are currently provided along the north and south sides of Indian School Road and bike routes are provided along Goldwater Boulevard, Main Street, Scottsdale Road, and Drinkwater Boulevard within the vicinity of the site. The Mountain Vista self-guided bike tour route begins and ends at the intersection of Main Street and Brown Avenue and routes along Marshall Way, adjacent to the proposed development.

In addition, the City has been recognized by the League of American Bicyclists as a Bicycle Friendly Community at the Gold Level for 2011-2023. This designation indicates the performance of important categories, like **ridership, safety, and education**.

Transit Facilities

Valley Metro Route 41 operates along Indian School Road within the study area. This route connects Avondale to Scottsdale. According to the Valley Metro System Map, there are two (2) stops located near the intersection of Indian School Road and Goldwater Boulevard, located directly northwest of the site, and two (2) stops located near the intersection of Indian School Road and Scottsdale Road, located less than 1,000 feet from the site. This route operates Monday through Sunday. Valley Metro Route 72 operates along Scottsdale Road within the study area. This route connects the City of Chandler to the northern portion of the City of Scottsdale. According to the Valley Metro System Map, there are two (2) stops located near the intersection of Indian School Road and Scottsdale Road, located less than 1,000 feet from the site. This route operates Monday through Sunday.

In addition, the City of Scottsdale provides four (4) trolley routes. The Old Town Route (OLDT) circulates around Old Town Scottsdale. A trolley stop is located near the intersection of Marshall Way and 1st Avenue, immediately south of the site. This trolley route operates every 15 minutes between 10:00 AM and 9:25 PM every day of the week.

Bikeshare and rideshare services contribute to reducing the reliance on personal vehicles, thereby further reducing parking.

4. Proposed Development

The Artisan Scottsdale development will be comprised of two (2) buildings to include 83 multi-family units, 2,500 square feet of office space, and 2,500 square feet of retail space. Of the 83 multi-family units there are 16 studio units, 51 one-bedroom units, and 16 two-bedroom units.

The proposed site plan indicates that there will be three (3) access points to the proposed development. The primary access is located along Marshall Way approximately 120 feet south of Indian School Road. This driveway will be a full access, allowing all movements into and out of the proposed parking garage.

There will be in ingress and egress access located along Goldwater Boulevard, via the alley approximately 120 feet south of Indian School Road. Additionally, there will be a one-way access driveway located along 1st Avenue, approximately 230 feet west of Marshall Way.

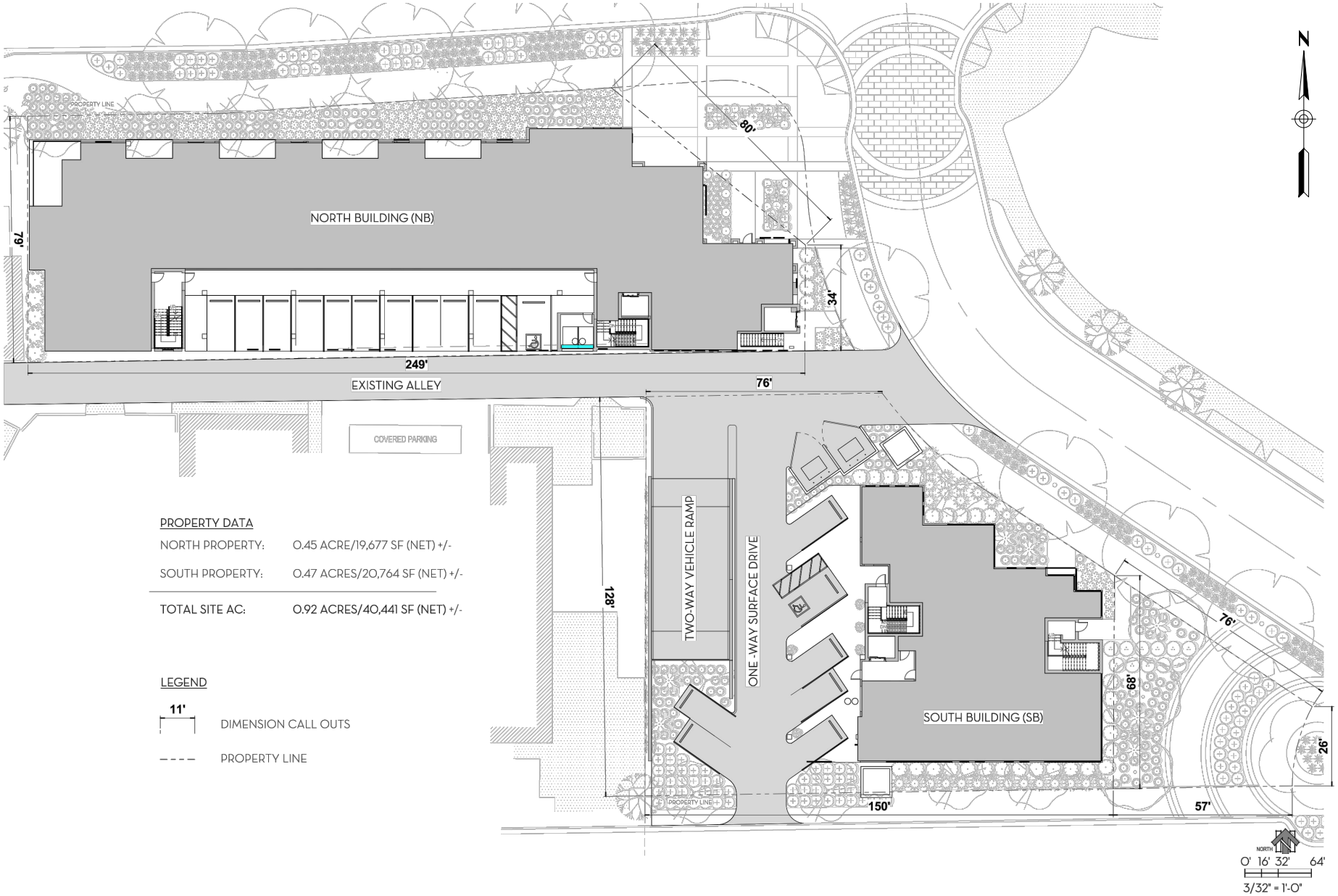
See **Figure 2** and **Appendix A** for the proposed site plan.

Proposed Parking

The Artisan Scottsdale development will provide a total of 152 parking stalls. The 152 total parking stalls will be provided via a mixture of garage and surface stalls. There will be three (3) subgrade parking levels that will provide a total of 134 parking stalls, as well as 18 surface grade parking stalls to provide a total of 152 parking stalls.

Of the 134 subsurface parking stalls, 32 parking stalls will be provided as tandem parking stalls.

In addition, the sub-surface parking garage for The Artisan Scottsdale will provide one (1) floor of public parking that will provide 57 public parking stalls.



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SUB4 DEVELOPMENT CO.

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APARTMENT BUILDING

DIMENSIONED BOUNDARY PLAN | 21D
3/32" = 1'-0"
MARCH 23, 2021 | REZONING

FIGURE 2 | SITE PLAN

3-ZN-2021
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5. City of Scottsdale Required Parking

The Artisan Scottsdale mixed-use development will include the following land uses:

- Multi-Family Residential — 83 units
  - *16 studio units*
  - *51 one-bedroom units*
  - *16 two-bedroom units*
- Office — 2,500 square feet
- Retail — 2,500 square feet

Shared Parking Requirements

Table 9.103.B entitled *Schedule of Parking Requirements in the Downtown Area* within the *City of Scottsdale Code of Ordinances* provides the general parking requirements. The following categories and vehicle parking ratio minimums are relevant to The Artisan Scottsdale development:

Mixed-Use Developments

- Dwellings, Multiple-Family
  - Efficiency — 1.0 per dwelling unit
  - 1-Bedroom — 1.0 per dwelling unit
  - 2-Bedroom — 2.0 per dwelling unit
- Nonresidential area — 1 per 350 sf of gross floor area (GFA)

Applying these rates to The Artisan Scottsdale development results in the following parking requirement, see **Table 1**.

Table 1 – City of Scottsdale Parking Requirement

Use	Rate				Quantity	Units	Parking Stalls
Dwellings, Multiple-Family	1.0	Per	each Efficiency Unit		16	Dwelling Units	16
	1.0	Per	each 1 Bedroom		51	Dwelling Units	51
	2.0	Per	each 2 Bedroom		16	Dwelling Units	32
Non-Residential Area	1	Per	350	SF GFA	5,000	Square Feet	15
						Total	**114**

Table 9.104.A entitled *Schedule of Shared Parking Calculations* within the *City of Scottsdale Code of Ordinances* provides shared use parking requirements for seven land use categories based upon a time of day. Residential, retail, and office land uses are among these categories. See **Table 2** for the

parking percentages for the three land uses broken down by weekday and weekend and hours of the day.

Table 2 – Scottsdale Shared Parking Percentages

General Land Use Classification	Weekday			Weekend		
	12 am - 7 am	7 am - 6 pm	6 pm - 12 am	12 am - 7 am	7 am - 6 pm	6 pm - 12 am
Residential	100%	55%	85%	100%	65%	75%
Retail	0%	100%	80%	0%	100%	60%
Office and industrial	5%	100%	5%	0%	60%	10%

Applying the percentages, shown in **Table 2** to the parking requirements shown in **Table 1** results in the shared parking requirement, shown in **Table 3** below:

Table 3 – Scottsdale Shared Parking Calculations

General Land Use Classification	Weekday			Weekend		
	12 am - 7 am	7 am - 6 pm	6 pm to 12 am	12 am - 7 am	7 am - 6 pm	6 pm to 12 am
Residential	99	55	85	99	65	75
Residential Total	**99**	**55**	**85**	**99**	**65**	**75**
Retail	0	7	6	0	7	5
Office	1	8	1	0	5	1
Amenities Total	**1**	**15**	**7**	**0**	**12**	**6**
Total	**100**	70	92	99	77	81
Difference From Provided	52	82	60	53	75	71
% Difference	52.0%	117.1%	65.2%	53.5%	97.4%	87.7%

Based on the *City of Scottsdale Zoning Ordinance's* Shared Parking Calculations, the 152 parking stalls provided, represents a **surplus of 52 (52.0%) parking stalls** for the proposed development.

Conclusion:

Using the *City of Scottsdale Code of Ordinance's* shared parking requirements, a maximum parking demand of 100 parking spaces are required. This peak parking demand occurs on weekdays between midnight and 7:00 am. Therefore, with 152 parking stalls provided, this represents a **surplus of 52 (52.0%) parking stalls** for the proposed development.

6. ITE Parking Generation

The Institute of Transportation Engineers (ITE) publication titled *Parking Generation, 5th Edition* is utilized for estimating parking demand based on research and experiences of transportation engineering and planning professionals.

The land use categories that most closely represents The Artisan Scottsdale development are the following:

- Land Use 221 Multifamily Housing (Mid-Rise)
- Land Use 712 Small Office Building
- Lane Use 820 Shopping Center

Multi-family Housing (Mid-Rise) (Land Use 221)

The average weekday peak period parking demand for General Urban/Suburban (no nearby rail transit) site is 1.31 parking stalls per dwelling unit, and the average Saturday peak period parking demand is 1.22 parking stalls per dwelling unit.

Small Office Building (Land Use 712)

The average weekday peak period parking demand for General Urban/Suburban (no nearby rail transit) site is 2.56 parking stalls per 1,000 square feet of gross floor area. ITE does not provide an average Saturday peak period a small office building, therefore, the average Saturday peak period for a general office building was used. The average Saturday peak period parking demand is 0.28 parking stalls per 1,000 square feet of gross floor area.

Shopping Center (Land Use 820)

The average weekday peak period parking demand for General Urban/Suburban (no nearby rail transit) site is 1.95 parking stalls per 1,000 square feet of gross floor area, and the average Saturday peak period parking demand is 2.91 parking stalls per 1,000 square feet of gross floor area.

The average weekday and Saturday ITE peak period parking demand calculations for General Urban/Suburban locations are presented below in **Table 4** and **Table 5**, respectively.

Table 4 – ITE Parking Demand (Weekday)

Use	Weekday Rate				Quantity	Units	Parking Stalls
ITE Code 221 - Multifamily Housing (Mid-Rise)	1.31	Per	1	Dwelling Unit	83	Dwelling Units	109
ITE Code 712 - Small Office Building	2.56	Per	1000	SF GFA	2,500	Square Feet	7
ITE Code 820 - Shopping Center	1.95	Per	1000	SF GFA	2,500	Square Feet	5
						Total	**121**

Table 5 – ITE Parking Demand (Saturday)

Use	Saturday Rate				Quantity	Units	Parking Stalls
ITE Code 221 - Multifamily Housing (Mid-Rise)	1.22	Per	1	Dwelling Unit	83	Dwelling Units	102
ITE Code 710 - General Office Building	0.28	Per	1000	SF GFA	2,500	Square Feet	1
ITE Code 820 - Shopping Center	2.91	Per	1000	SF GFA	2,500	Square Feet	8
						Total	**111**

Based upon ITE Parking Generation, 5th Edition, the weekday and Saturday parking demand for The Artisan Scottsdale development is 121 and 111 parking stalls, respectively. With 152 parking stalls provided, this represents a surplus of 31 (25.6%) and 41 (36.9%) parking stalls for the proposed development.

7. ULI Shared Parking

The *Urban Land Institute (ULI)* publication titled *Shared Parking, 3rd Edition* is an additional source for estimating parking demand based on research and experiences planners, government agencies, consultants, and engineers. Similar to the ITE Parking Generation publication, ULI's Shared Parking publication provides base parking demand ratios based on various land uses.

Weekday

The following categories and base weekday vehicle parking ratio minimums are relevant to The Artisan Scottsdale development:

- Residential
  - Studio efficiency — 0.85 per dwelling unit
  - 1-Bedroom — 0.90 per dwelling unit
  - 2-Bedroom — 1.65 per dwelling unit
  - Visitor — 0.10 per dwelling unit
- Office (<25,000 SF)
  - Employee — 3.50 per 1,000 sf GFA
  - Visitor — 0.30 per 1,000 sf GFA
- Retail (<400,000 SF)
  - Employee — 0.70 per 1,000 sf GFA
  - Visitor — 2.90 per 1,000 sf GFA

Applying these rates to The Artisan Scottsdale development results in the following parking requirement, see **Table 6**.

Table 6 – ULI Shared Parking (Weekday)

Use		Rate				Quantity	Units	Parking Stalls
Residential	Residents	0.85	per	each Studio		16	Units	14
		0.90	per	each 1 Bedroom		51	Units	46
		1.65	per	each 2 Bedroom		16	Units	27
	Visitor	0.10	per	each unit		83	Units	9
Office (< 25,000 SF)	Employee	3.50	per	1,000	SF GFA	2,500	SF	9
	Visitor	0.30	per	1,000	SF GFA	2,500	SF	1
Retail (< 400,000 SF)	Employee	0.70	per	1,000	SF GFA	2,500	SF	2
	Visitor	2.90	per	1,000	SF GFA	2,500	SF	8
							Total	**116**

Based upon the ULI *Shared Parking, 3rd Edition*, the weekday parking demand The Artisan Scottsdale development is 116 parking stalls. With 152 parking stalls provided, this represents a surplus of 36 (31.0%) parking stalls for the proposed development.

Weekend

The following categories and base weekend vehicle parking ratio minimums are relevant to The Artisan Scottsdale development:

- Residential
  - Studio efficiency — 0.85 per dwelling unit
  - 1-Bedroom — 0.90 per dwelling unit
  - 2-Bedroom — 1.65 per dwelling unit
  - Visitor — 0.15 per dwelling unit
- Office (<25,000 SF)
  - Employee — 0.35 per 1,000 sf GFA
  - Visitor — 0.03 per 1,000 sf GFA
- Retail (<400,000 SF)
  - Employee — 0.80 per 1,000 sf GFA
  - Visitor — 3.20 per 1,000 sf GFA

Applying these rates to The Artisan Scottsdale development results in the following parking requirement, see **Table 7**.

Table 7 – ULI Shared Parking (Weekend)

Use		Rate				Quantity	Units	Parking Stalls
Residential	Residents	0.85	per	each Studio		16	Units	14
		0.90	per	each 1 Bedroom		51	Units	46
		1.65	per	each 2 Bedroom		16	Units	27
	Visitor	0.15	per	each unit		83	Units	13
Office (< 25,000 SF)	Employee	0.35	per	1,000	SF GFA	2,500	SF	1
	Visitor	0.03	per	1,000	SF GFA	2,500	SF	1
Retail (< 400,000 SF)	Employee	0.80	per	1,000	SF GFA	2,500	SF	2
	Visitor	3.20	per	1,000	SF GFA	2,500	SF	8
							Total	**112**

Based upon the ULI *Shared Parking, 3rd Edition*, the weekend parking demand for The Artisan Scottsdale development is 113 parking stalls. With 152 parking stalls provided, this represents a surplus of 40 (35.7%) parking stalls for the proposed development.

8. Parking Trends

There is a great deal of information in various publications regarding parking needs. This section examines a small sample of books, articles, and significant points of interest.

The issue of parking needs for residential developments is not a new topic. An extensive 2015 parking study "Right Size Parking" led by King County Metro gathered data from over 200 multi-family sites in King County, WA to determine that "**existing multi-family parking capacity exceeded utilization by an average of 0.4 spaces per housing unit – a 40% oversupply**". According to this report the RSP project has attracted national attention. Several regions and cities around the country are currently working to replicate the RSP study and web calculator concept for their own planning purposes, including the San Francisco Bay Area, Washington, D.C., Boston, and Chicago. Many regions are reexamining parking requirements in support of pedestrian-oriented design, transit access, and a compact mix of uses to include transportation choices." Website www.rightsizeparking.org also provides a multi-family residential parking calculator for King County area as well as guidance on unbundled parking prices and resulting rental prices adjustments.

According to "People Over Parking" published by the American Planning Association (October 2018), "tinkering with minimum parking requirements is not new...what's different now is an evolving understanding that **urban lifestyles are changing, traditional parking ratios are outdated, and too much supply can be as harmful as too little.**" Two groups, TransForm and Center for Neighborhood Technology, conducted surveys during the middle of the night at apartments on the West Coast and Chicago and found that consistently "**one-quarter to one-third of spaces sat empty**."

This new focus on alternative transportation modes can take interesting twists in this new world of more cost-effective ride-hailing services, as evidenced by the Aug 8, 2017 article from the Financial Post: Ontario Town's Experiment Using Uber As Public Transportation Is Working, Officials Say. The following provides excerpts from this article.

The town of Innisfil, Ontario is hailing its two-month old experiment to subsidize Uber as the lone form of public transit as a success, with nearly 5,000 trips taken since the pilot project began in May. Innisfil — … home to about 36,000 people — has paid $26,462.41, or an average of $5.43 per trip, for 4,868 Uber rides taken in the two months since launching the unique-to-Canada project on May 15.

Another article entitled, Toward Zero Parking: Challenging Conventional Wisdom for Multi-family, by David Baker and Brad Leibon (July 2nd, 2018), mentions additional benefits with the recent shift in transportation trends:

"With the ubiquity of ride-hailing services, residents can walk out their front door, hop in a vehicle, and get dropped off at their destination rather than risk having to drive themselves, park several blocks from their destination, and walk the remaining distance, or walk through a parking garage getting to and from a car."

The author of this article also notes that, "A future not dominated by privately owned cars may be a long way off, but **increasingly the use of a car is becoming detached from the need for parking**."

This brief summary of interconnected articles on the topic of parking needs in the news is by no means comprehensive but does serve to point to several important issues when assessing parking needs.

See **Appendix C** for the articles referenced in this section.

9. Recommendations & Conclusions

Through this Parking Master Plan, The Artisan Scottsdale mixed-use development is **requesting the approval to provide a total of 152 parking stalls on-site.**

In addition, the sub-surface parking garage for The Artisan Scottsdale will provide one (1) floor of public parking that will provide 57 public parking stalls.

City of Scottsdale Required Parking

Using the *City of Scottsdale Code of Ordinance's* shared parking requirements, a maximum parking demand of 100 parking spaces are required. This peak parking demand occurs on weekdays between midnight and 7:00 am. Therefore, with 152 parking stalls provided, this represents a **surplus of 52 (52.0%) parking stalls** for the proposed development.

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Additionally, the growing popularity of rideshare services such as Uber and Lyft, and bikeshare services, all contribute to reducing the reliance on personal vehicles, and thereby reducing parking demand.

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ITE Parking Generation			
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Saturday	5	111	41
ULI Shared Parking			
Weekday	6	116	36
Weekend	7	112	40

In conclusion, the request by The Artisan Scottsdale development to provide 152 on-site parking stalls will provide sufficient parking to meet and exceed the parking demand for this development.

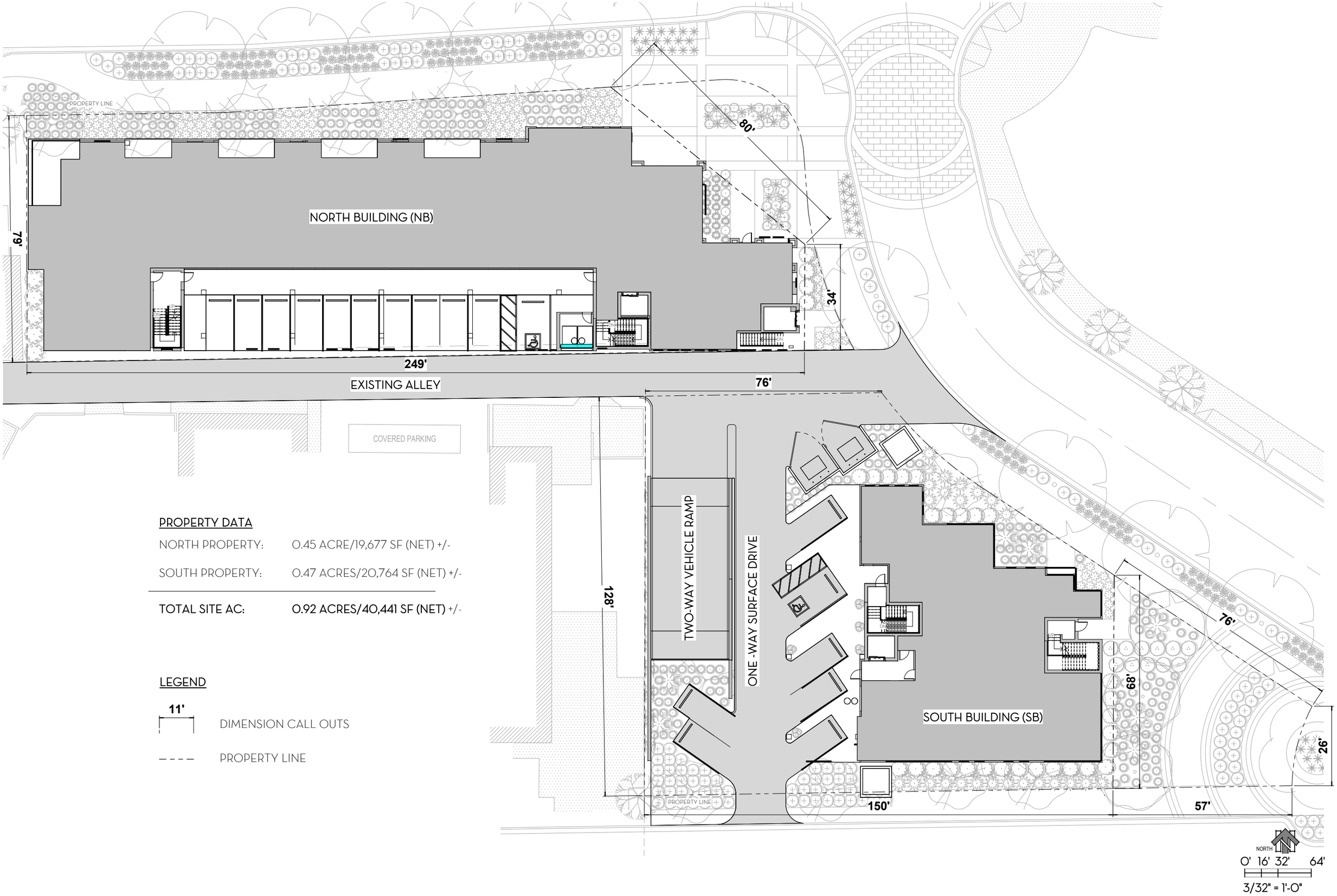
In addition, the sub-surface parking garage for The Artisan Scottsdale will provide one (1) floor of public parking that will provide 57 public parking stalls.

Appendix A – Proposed Site Plan

A

3-ZN-2021
3/30/2021

THE ARTISAN SCOTTSDALE



PROPERTY DATA

NORTH PROPERTY:	0.45 ACRE/19,677 SF (NET) +/-
SOUTH PROPERTY:	0.47 ACRES/20,764 SF (NET) +/-
TOTAL SITE AC:	0.92 ACRES/40,441 SF (NET) +/-

LEGEND

11' — DIMENSION CALL OUTS

– – – – PROPERTY LINE

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THE ARTISAN SCOTTSDALE
APARTMENT BUILDING

DIMENSIONED BOUNDARY PLAN | 21D
3/32" = 1'-0"

MARCH 23, 2021

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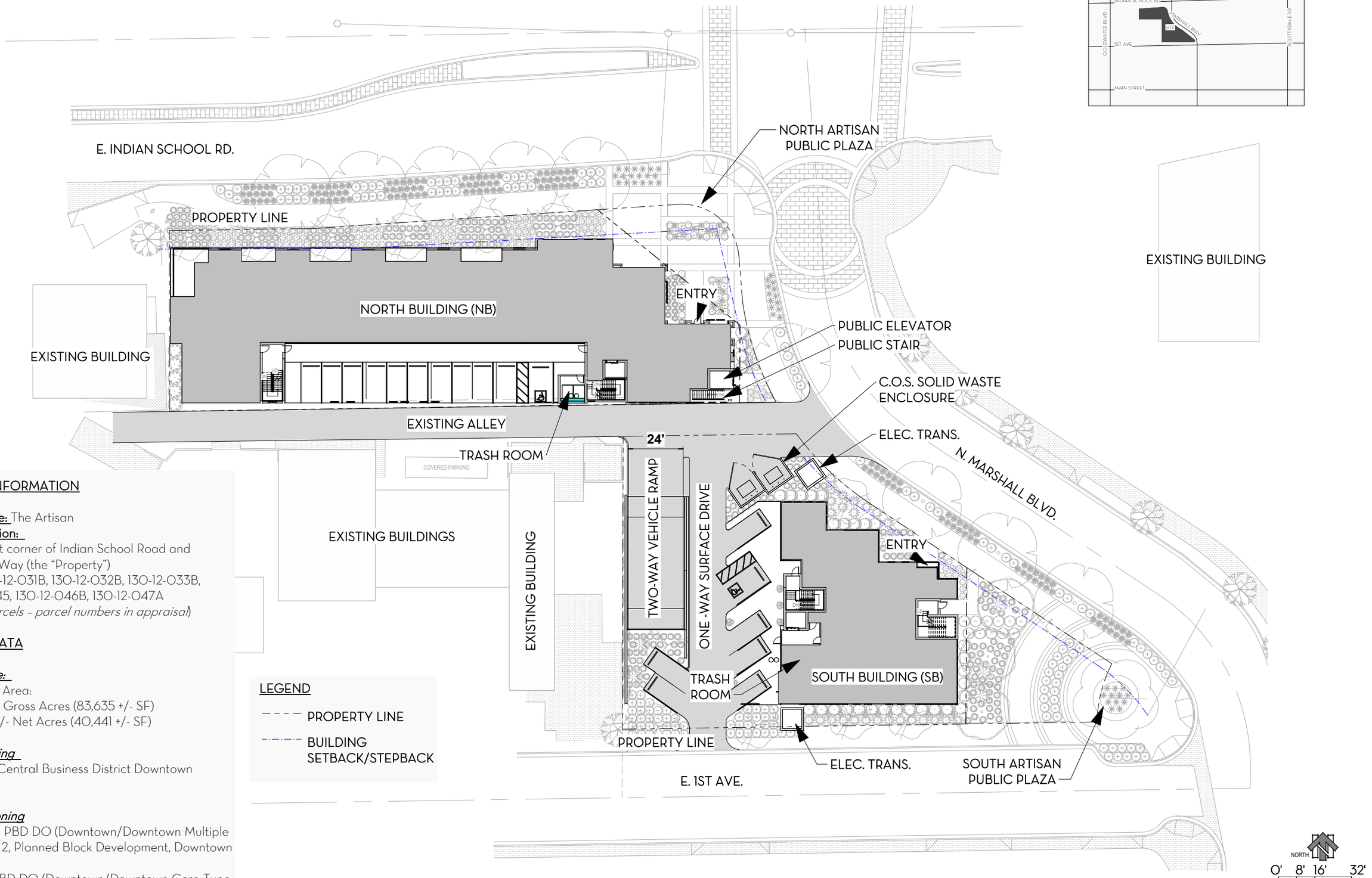
THE ARTISAN SCOTTSDALE



VICINITY MAP

EXISTING BUILDING

PROJECT INFORMATION

Project Name: The Artisan

Parcel Location:

- Southwest corner of Indian School Road and Marshall Way (the "Property")
- APN: 130-12-031B, 130-12-032B, 130-12-033B, 130-12-045, 130-12-046B, 130-12-047A

(*plus City parcels – parcel numbers in appraisal*)

PROJECT DATA

Property Size:

- Total Site Area:
  - 1.92+/- Gross Acres (83,635 +/- SF)
  - 0.92 +/- Net Acres (40,441 +/- SF)

Current Zoning

- C-2 DO (Central Business District Downtown Overlay)

Proposed Zoning

- D/DMU-2 PBD DO (Downtown/Downtown Multiple Use-Type 2, Planned Block Development, Downtown Overlay)
- D/DC-1 PBD DO (Downtown/Downtown Core-Type 1, Planned Block Development, Downtown Overlay)

LEGEND

- PROPERTY LINE
- BUILDING SETBACK/STEPBACK

NORTH

0' 8' 16' 32'

1/16" = 1'-0"

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APARTMENT BUILDING

SITE PLAN | 21F.1

1/16" = 1'-0"

MARCH 23, 2021

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THE ARTISAN SCOTTSDALE

SITE PLAN

1. NORTH BUILDING
   - 35% 4 STORIES (45' HEIGHT)
   - 65% 5 STORIES (66' MAX)
   - 53 UNITS
   - ARTSPACE
2. SOUTH BUILDING
   - 4 STORIES (100%)
   - 51' HEIGHT MAX
   - 30 UNITS
   - 5,000 SQFT OFFICE/RETAIL
3. SHARED ALLEY
4. NORTH ARTISAN PLAZA (~4,500 SQFT)
5. SOUTH ARTISAN PLAZA (~5,500 SQFT)
6. SURFACE PARKING
7. UNDERGROUND & SURFACE PARKING ACCESS
   - 209 SPACES
8. ARTSPACE
9. ROOF GARDEN

NOTE: DEPICTIONS AND DATA ARE CONCEPTUAL AND SUBJECT TO CHANGE

8.25.20

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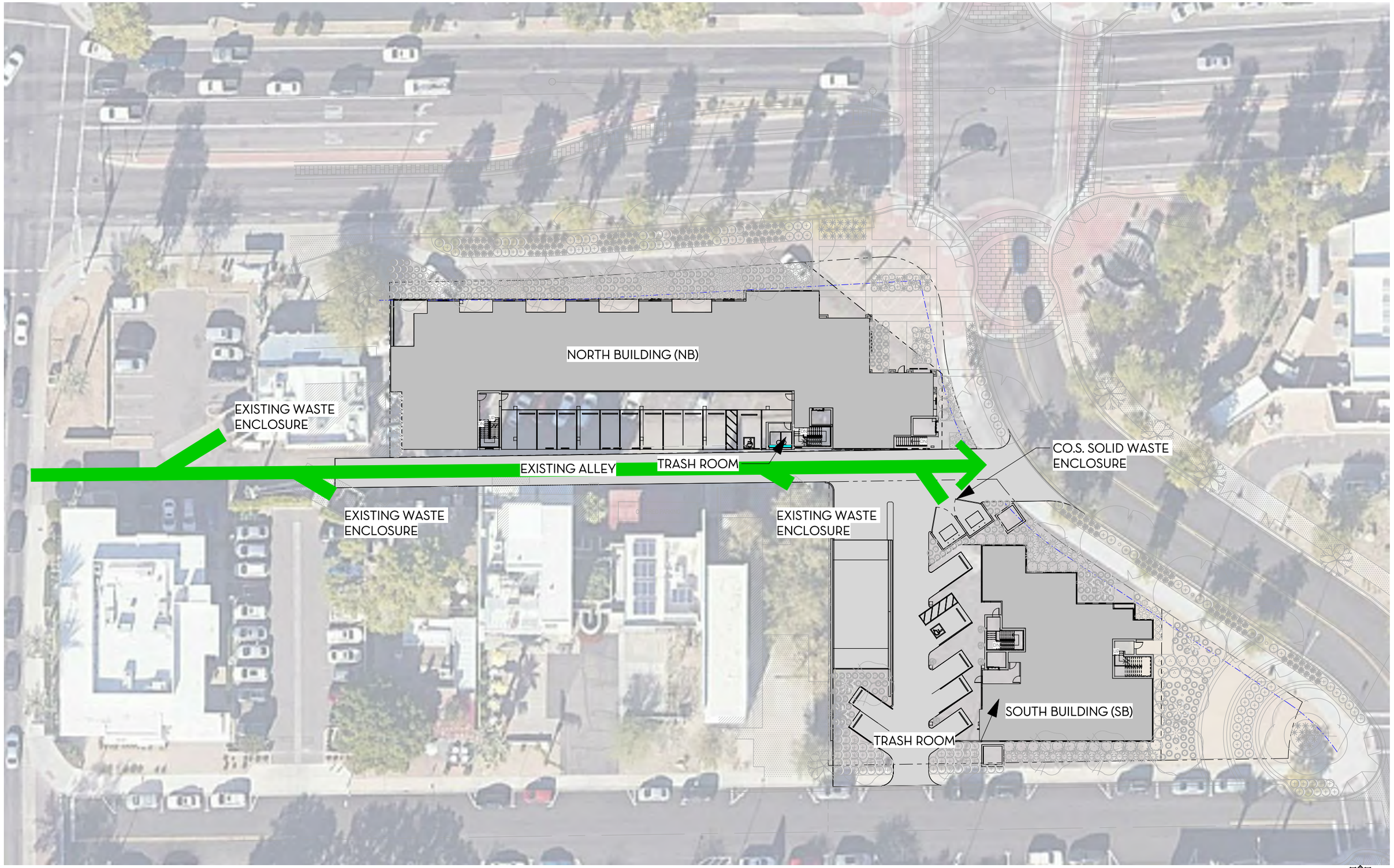
SUB4 DEVELOPMENT CO.

THE ARTISAN SCOTTSDALE
APARTMENT BUILDING

MARCH 23, 2021

3-ZN-2021
3/30/2021

THE ARTISAN SCOTTSDALE



NORTH

0' 8' 16' 32'

1/16" = 1'-0"

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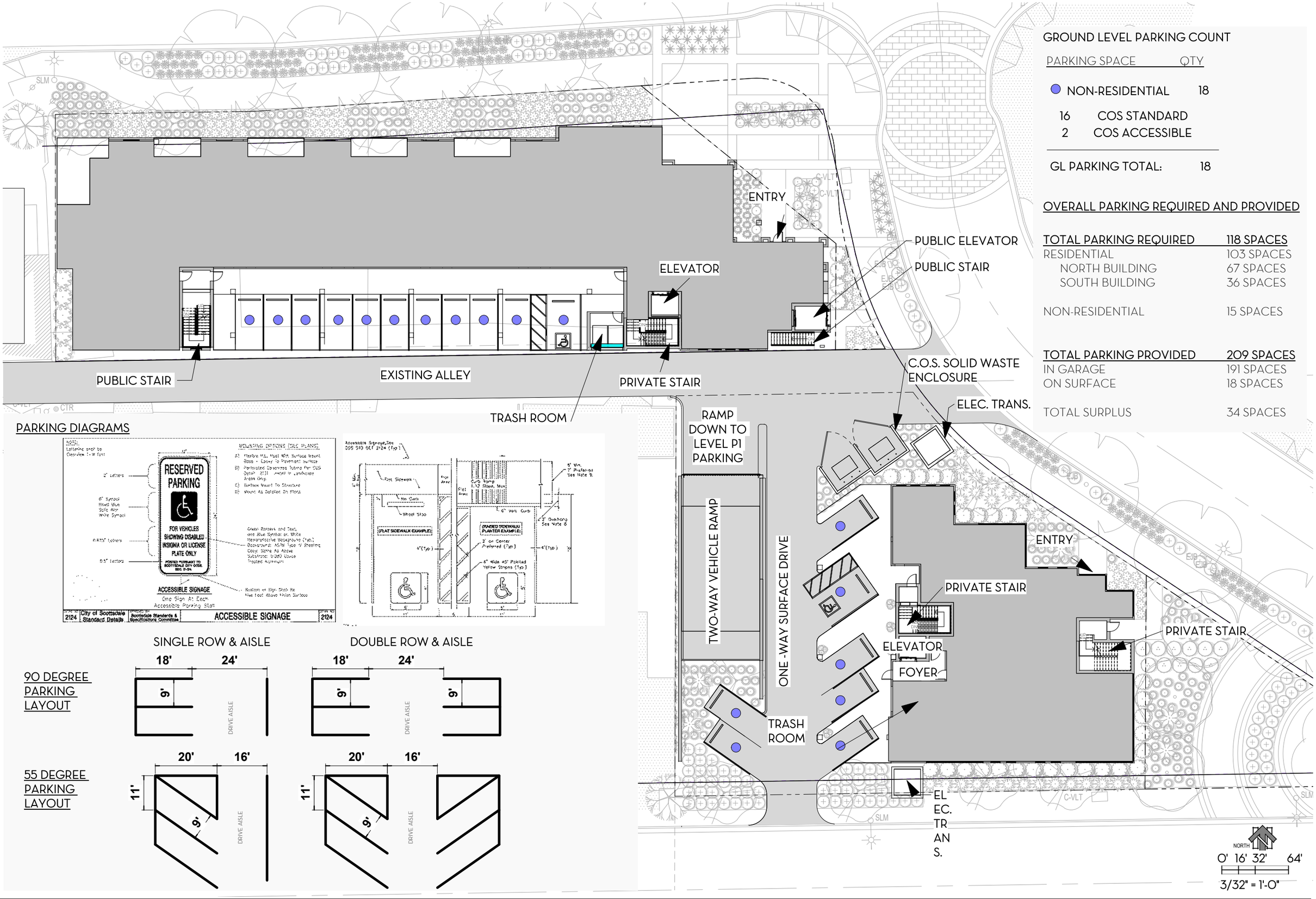
APARTMENT BUILDING

REFUSE PLAN | 21H
1/16" = 1'-0"

MARCH 23, 2021 |

3-ZN-2021
3/30/2021

THE ARTISAN SCOTTSDALE



GROUND LEVEL PARKING COUNT

PARKING SPACE	QTY
NON-RESIDENTIAL	18
16 COS STANDARD	
2 COS ACCESSIBLE	
GL PARKING TOTAL:	18

OVERALL PARKING REQUIRED AND PROVIDED

TOTAL PARKING REQUIRED	118 SPACES
RESIDENTIAL	103 SPACES
NORTH BUILDING	67 SPACES
SOUTH BUILDING	36 SPACES
NON-RESIDENTIAL	15 SPACES
TOTAL PARKING PROVIDED	209 SPACES
IN GARAGE	191 SPACES
ON SURFACE	18 SPACES
TOTAL SURPLUS	34 SPACES

PARKING DIAGRAMS

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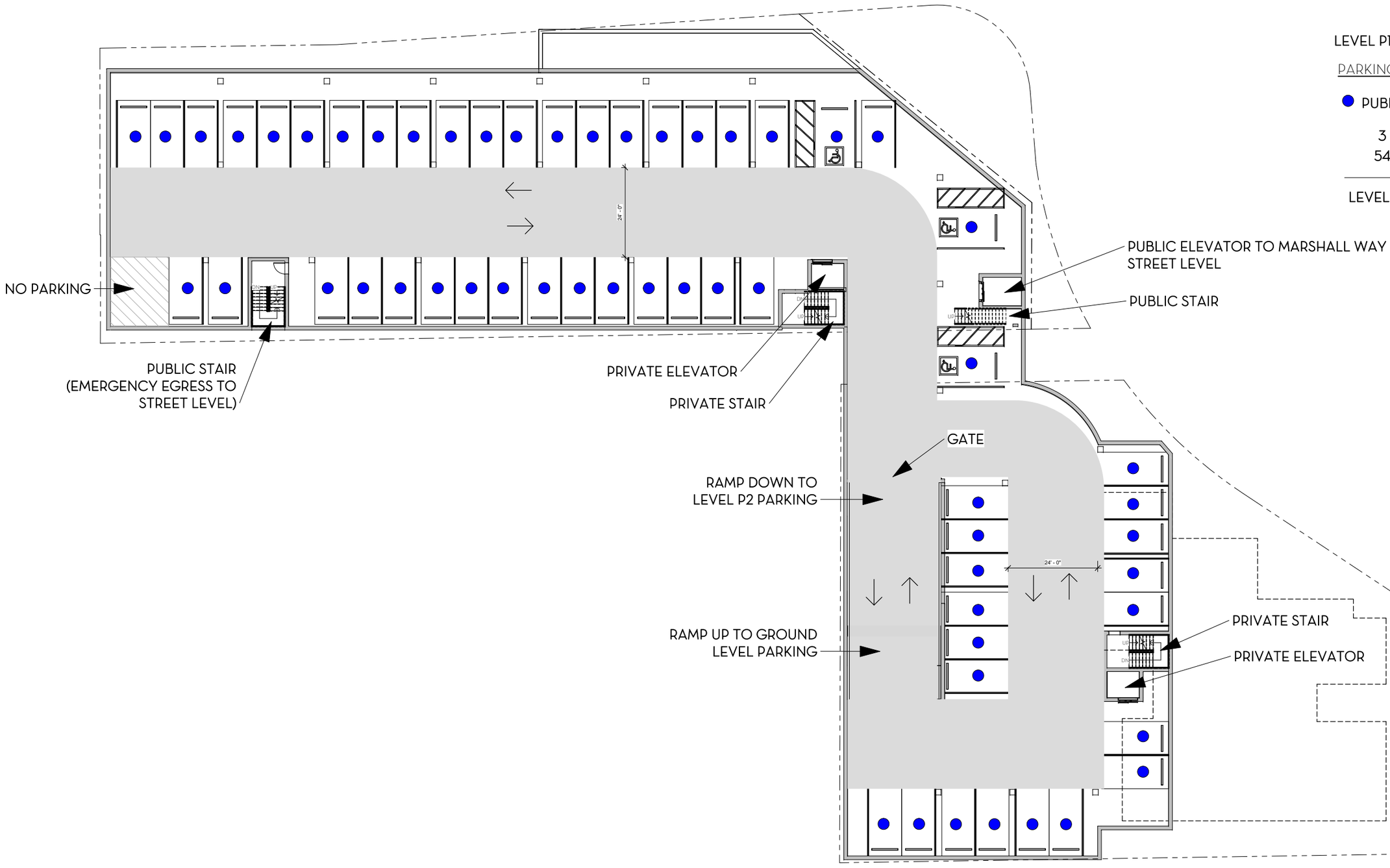
GROUND LEVEL PARKING PLAN | 21S.0
3/32" = 1'-0"

MARCH 23, 2021 |

3-ZN-2021
3/30/2021

THE ARTISAN SCOTTSDALE



LEVEL P1 PARKING COUNT

PARKING SPACE	QTY
PUBLIC	57
3 COS ACCESSIBLE	
54 COS STANDARD	
LEVEL P1 PARKING TOTAL:	57

NORTH

0' 16' 32' 64'

3/32" = 1'-0"

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APARTMENT BUILDING

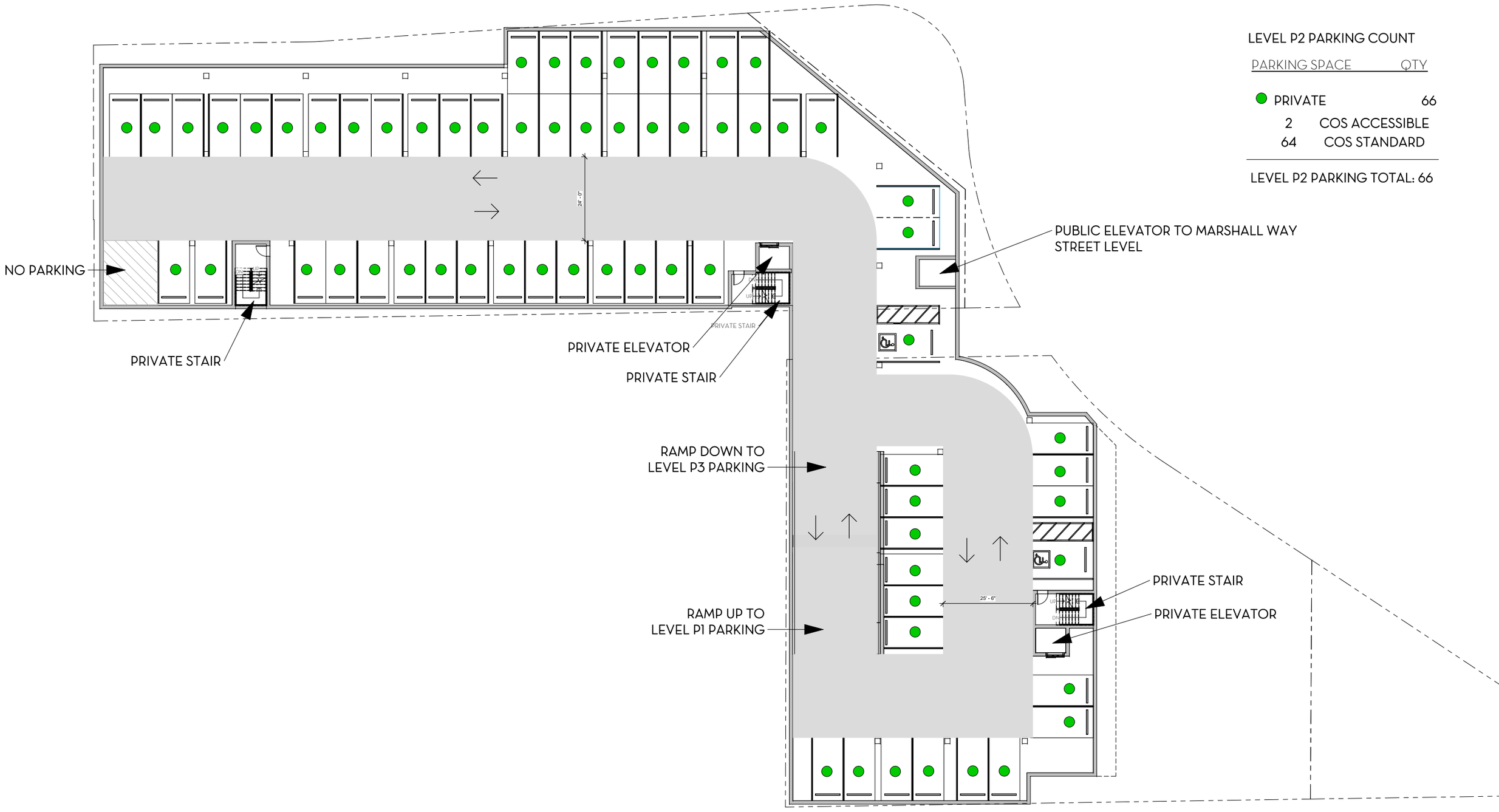
LEVEL P1 PUBLIC PARKING PLAN | 21S.1

3/32" = 1'-0"

MARCH 23, 2021

3-ZN-2021
3/30/2021

THE ARTISAN SCOTTSDALE



LEVEL P2 PARKING COUNT

PARKING SPACE	QTY
PRIVATE	66
2 COS ACCESSIBLE	
64 COS STANDARD	

LEVEL P2 PARKING TOTAL: 66

NORTH
0' 16' 32' 64'
3/32" = 1'-0"

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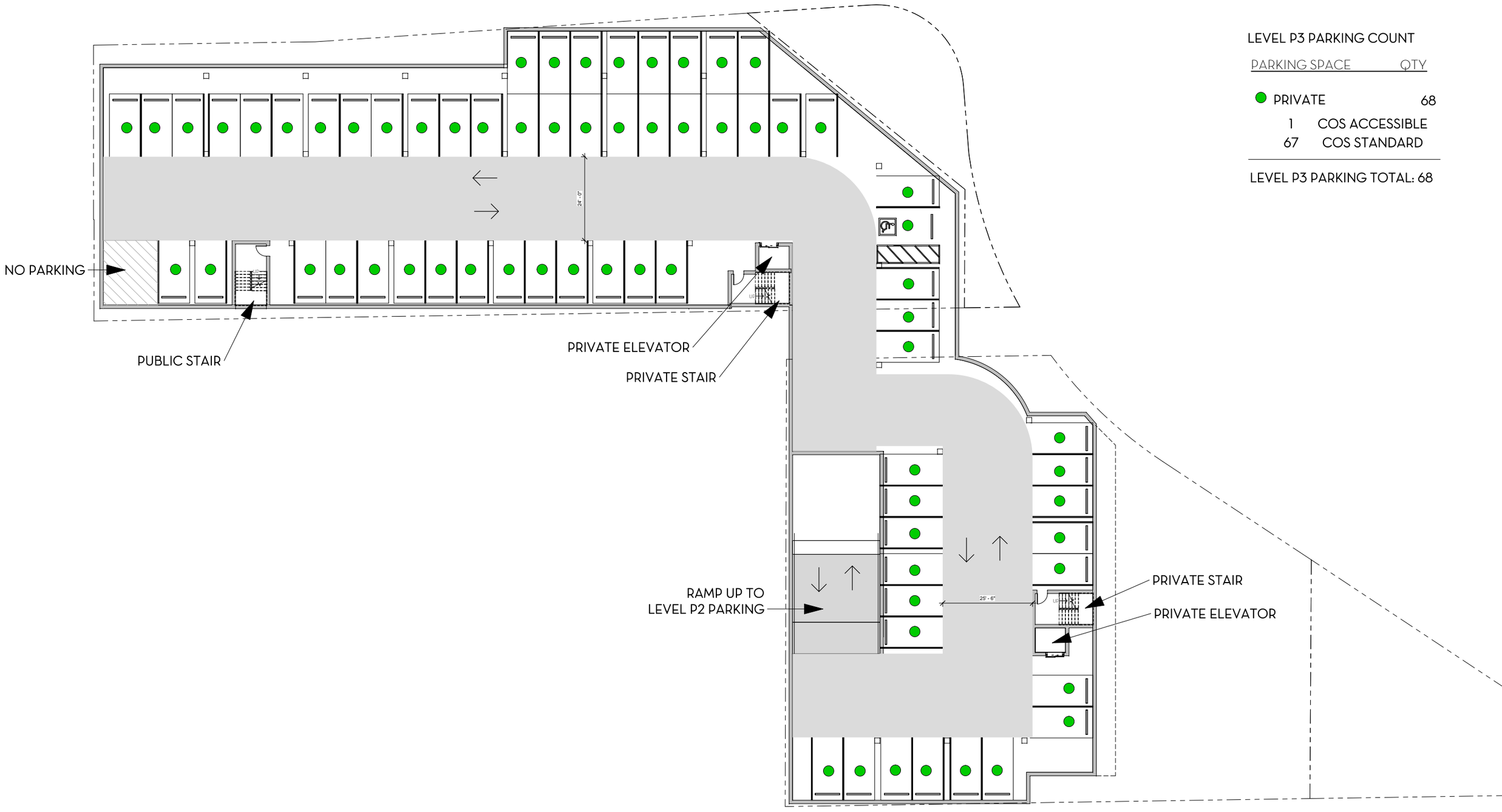
LEVEL P2 PARKING PLAN | 21S.2
3/32" = 1'-0"

MARCH 23, 2021

3-ZN-2021
3/30/2021

THE ARTISAN SCOTTSDALE



LEVEL P3 PARKING COUNT

PARKING SPACE	QTY
PRIVATE	68
1 COS ACCESSIBLE	
67 COS STANDARD	

LEVEL P3 PARKING TOTAL: 68

NORTH
0' 16' 32' 64'
3/32" = 1'-0"

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SUB4 DEVELOPMENT CO.

THE ARTISAN SCOTTSDALE
APARTMENT BUILDING

LEVEL P3 PARKING PLAN | 21S.3
3/32" = 1'-0"

MARCH 23, 2021

3-ZN-2021
3/30/2021

Appendix B – City of Scottsdale Code of Ordinance

B

3-ZN-2021
3/30/2021

Sec. 9.103. - Parking requirements.

A. *General requirement.* Except as provided in Sections 9.103.B, 9.104, 9.107, and 9.108, and subsections therein, each use of land shall provide the number of parking spaces indicated for that use in Table 9.103.A. and Section 9.105.

B. *Requirement in the Downtown Area.* Except as provided in Sections 9.104, 9.107, and 9.108, and subsections therein each use of land in the Downtown Area shall provide the number of parking spaces indicated for that use in Table 9.103.b. and Section 9.105. Those uses that are not specifically listed in Table 9.103.B. shall provide the number of parking spaces indicated for that use in Table 9.103.A.

C. *Required bicycle parking.* Every principal and accessory use of land which is required to provide at least forty (40) vehicular parking spaces shall be required to provide bicycle parking spaces at a rate of one (1) bicycle parking space per every ten (10) required vehicular parking spaces; and after July 9, 2010, new development shall provide, at a minimum, two (2) bicycle parking spaces. No use shall be required to provide more than one hundred (100) bicycle parking spaces.

1. Subject to the approval of the Zoning Administrator, in the Downtown Area, bicycle parking spaces may be provided within a common location that is obvious and convenient for the bicyclist, does not encroach into adjacent pedestrian pathways or landscape areas, and the location shall be open to view for natural surveillance by pedestrians. Such common bicycle parking areas shall be subject to the approval of the Zoning Administrator.

D. *Bicycle parking facilities design.* Required bicycle parking facilities shall, at a minimum, provide a stationary object to which the bicyclist can lock the bicycle frame and both wheels with a user provided U-shaped lock or cable and lock. The stationary object shall generally conform to the Design Standards & Policies Manual. The Zoning Administrator may approve alternative designs. Bicycle lockers and other high security bicycle parking facilities, if provided, may be granted parking credits pursuant to Section 9.104.C., Credit for bicycle parking facilities.

E. *Calculating required parking for transportation facilities.* Required parking for park and ride lots and major transfer centers shall be determined by the Zoning Administrator. Subject to the Design Standards & Policies Manual and the following criteria:

1. Goals of the City with regard to transit ridership along the route on which the transportation facility is located.
2. Distance from other transportation facilities with parking.

F. *Fractions shall be rounded.*

1. When any calculation for the required parking results in a fraction of a parking space, the fraction shall be rounded up to the next greater whole number.
2. When any calculation for the provided parking results in a fraction of a parking space, the fraction shall be rounded down to the next greater whole number.
3. When any calculation of a Parking P-3 District credit, improvement district credit, or in-lieu parking credit results in a fraction of a credit, the fraction shall not be rounded.

G. *Interpreting requirements for analogous uses.* The Zoning Administrator shall determine the number of spaces required for analogous uses. In making this determination, the Zoning Administrator shall consider the following:

1. The number of parking spaces required for a use listed in Table 9.103.A., or Table 9.103.B., that is similar to the proposed use;

2. An appropriate variable by which to calculate parking for the proposed use; for example, building square fo of employees;
3. Parking data from the same use on a different site or from a similar use on a similar site;
4. Parking data from professional publications such as those published by the Institute of Transportation Engineers (ITE) or the Urban Land Institute (ULI);

H. *Additional requirements for company vehicles.* When parking spaces are used for the storage of vehicles or equipment used for delivery, service and repair, or other such use, such parking spaces shall be provided in addition to those otherwise required by this Zoning Ordinance. Before a building permit is issued the number of spaces to be used for vehicle storage shall be shown on the plans. Unless additional spaces are provided in excess of the required number of spaces, no vehicles in addition to that number shall be stored on the site.

———

Table 9.103.A. Schedule of Parking Requirements	
Amusement parks	Three (3) spaces per hole for any miniature golf course, plus one (1) space per three thousand (3,000) square feet of outdoor active recreation space, plus any additional spaces required for ancillary uses such as but not limited to game centers and pool halls.
Arts festivals, seasonal	A. One (1) space for each two hundred (200) square feet of indoor public floor area, other than public restaurant space. B. Restaurant at seasonal arts festivals shall be provided parking in accordance with table 9.103.a.
Banks/financial institutions	One (1) space per two hundred fifty (250) square feet gross floor area.
Bars, cocktail lounges, taverns, afterhours or micro-brewery/distillery with live entertainment	A. One (1) space per sixty (60) square feet of gross floor area; and B. One (1) space per two hundred (200) gross square feet of outdoor patio area, excluding the first two hundred (200) gross square feet.
Bars, cocktail lounges, taverns, afterhours or micro-brewery/distillery	A. One (1) space per eighty (80) square feet of gross floor area; and B. One (1) space per two hundred (200) gross square feet of outdoor patio area, excluding the first two hundred (200) gross square feet.

Boardinghouses, lodging houses, and other such uses	One (1) parking space for each one (1) guest room or dwelling unit.
Bowling alleys	Four (4) parking spaces for each lane, plus two (2) parking spaces for any pool table, plus one (1) parking space for every five (5) audience seats.
Carwash	Four (4) spaces per bay or stall plus one (1) space per employee plus ten (10) stacking spaces.
Churches and places of worship	A. With fixed seating. One (1) space per four (4) seats in main sanctuary, or auditorium, and c below; or B. Without fixed seating. One (1) space for each thirty (30) square feet of gross floor area in main sanctuary and c below. C. One (1) space per each three hundred (300) square feet gross floor area of classrooms and other meeting areas.
Club/lodge, civic and social organizations	One (1) space per two hundred fifty (250) square feet gross floor area.
College/university	One (1) space per two (2) employees plus one (1) space per four (4) students, based on projected maximum enrollment.
Community or recreation buildings	One (1) parking space for each two hundred (200) square feet of gross floor area.
Conference and meeting facilities, or similar facilities	A. One (1) parking space for every five (5) seats, if seats are fixed, and/or B. One (1) parking space for fifty (50) square feet of gross floor area of conference/meeting area.
Cultural institutions and museums	One (1) space per three hundred (300) square feet gross floor area.
Dance halls, skating rinks, and similar indoor recreational uses	One (1) parking space for each three hundred (300) square feet of gross floor area in the building.

Dance/music/and professional schools	One (1) space per two hundred (200) square feet of gross floor area classroom area.
Day care center	One (1) parking space for each employee; plus one (1) space for every fifteen (15) students, plus one (1) space for each company vehicle as per Section 9.103.H., additional requirements for company vehicles.
Dry cleaners	One (1) space per two hundred fifty (250) square feet gross floor area.
Dwellings, multiple-family	Parking spaces per dwelling unit at the rate of: efficiency units 1.25 one-bedroom 1.3 two-bedrooms 1.7 three (3) or more bedrooms 1.9
Dwellings, single- and two-family and townhouses	Two (2) spaces per unit.
Elementary schools	One (1) parking space for each classroom plus one (1) parking space for each two hundred (200) square feet of gross floor area in office areas.
Funeral homes and funeral services	A. One (1) parking space for every two (2) permanent seats provided in the main auditorium; and B. One (1) parking space for every thirty (30) square feet of gross floor area public assembly area.
Furniture, home improvement, and appliance stores	A. Uses up to fifteen thousand (15,000) square feet of gross floor area. One (1)space per five hundred (500) square feet gross floor area; or B. Uses over fifteen thousand (15,000) square feet of gross floor area. One (1) space per five hundred (500) square feet for the first fifteen thousand (15,000) square feet of gross floor area, and one (1) space per eight hundred (800) square feet area over the first fifteen thousand (15,000) square feet of gross floor area

Galleries	One (1) space per five hundred (500) square feet of gross floor area.
Game centers	One (1) space per one hundred (100) square feet gross floor area.
Gas station	Three (3) spaces per service bay and one (1) space per 250 square feet of accessory retail sales gross floor area. Each service bay counts for one (1) of the required parking spaces.
Golf course	One (1) parking space for each two hundred (200) square feet of gross floor area in any main building plus one (1) space for every two (2) practice tees in the driving range, plus four (4) parking spaces for each green in the playing area.
Grocery or supermarket	One (1) space per three hundred (300) square feet gross floor area.
Health or fitness studio, and indoor recreational uses	A. Building area less than, or equal to, 3,000 square feet of gross floor area: one space per 250 square feet of gross floor area. B. Building area greater than 3,000 square feet of gross floor area, and less than 10,000 square feet of gross floor area: one space per 150 square feet of gross floor area. C. Building areas equal to, or greater than, 10,000 square feet of gross floor area, and less than 20,000 square feet of gross floor area: one space per 200 square feet of gross floor area. D. Building areas equal to, or greater than, 20,000 square feet of gross floor area: one space per 250 square feet of gross floor area.
High schools	One (1) parking space for each employee plus one (1) space for every six (6) students, based on projected maximum enrollment.

Hospitals	One and one half (1.5) parking spaces for each one (1) bed.
Internalized community storage	One (1) parking space for each two thousand five hundred (2,500) square feet of gross floor area.
Library	One (1) space per three hundred (300) square feet gross floor area.
Live entertainment (not including bars, restaurants, and performing arts theaters)	A. With fixed seating. One (1) parking space for two and one-half (2.5) seats. B. Without fixed seating. One (1) parking space for every sixty (60) square feet of gross floor area of an establishment that does not contain fixed seating.
Manufactured home park	One and one-half parking spaces per manufactured home space.
Manufacturing and industrial uses	One (1) parking space for each five hundred (500) square feet of gross floor area.
Mixed-use commercial centers In mixed-use commercial centers with less than 20,000 square feet of gross floor area, land uses (with parking requirements of one space per 250 square feet or fewer spaces) shall occupy at least 60 percent of gross floor area.	One (1) space per three hundred (300) square feet of gross floor area.
Mixed-use developments	A. One (1) space per three hundred twenty-five (325) square feet of gross floor area of nonresidential area; B. Multiple-family residential uses shall be parked at the ratios of the dwellings, multiple-family in other districts requirements, herein.
Office, all other	One (1) space per three hundred (300) square feet gross floor area.
Offices (government, medical/dental and clinics)	One (1) space per two hundred fifty (250) square feet of gross floor area.

Parks	Three (3) parking spaces for each acre of park area.
Personal care services	One (1) space per two hundred fifty (250) square feet gross floor area.
Plant nurseries, building materials yards, equipment rental or sales yards and similar uses	One (1) parking space for each three hundred (300) square feet gross site area of sales and display area.
Pool hall	Two (2) spaces per pool table.
Postal station(s)	One (1) parking space for each two hundred (200) square feet of gross floor area.
Radio/TV/studio	One (1) space per five hundred (500) square feet gross floor area, plus one (1) space per company vehicle, as per Section 9.103.H., additional requirements for company vehicles.
Ranches	One (1) space per every two (2) horse stalls.
Residential health care facilities	A. Specialized care facilities—0.7 parking space for each bed. B. Minimal care facilities—1.25 parking spaces for each dwelling unit.

Restaurants with live entertainment	A. When live entertainment limited to the hours that a full menu is available, and the area of live entertainment is less than fifteen (15) percent of the gross floor area, one (1) parking space per one hundred twenty (120) square feet of gross floor area; and B. One (1) parking space for each three hundred fifty (350) gross square feet of outdoor public floor area, excluding the first three hundred fifty (350) gross square feet of outdoor patio area, unless the space is located next to and oriented toward a publicly owned walkway or street, in which case the first five hundred (500) gross square feet of outdoor patio area is excluded. C. When live entertainment is not limited to the hours that a full menu is available, and/or the area of live entertainment is less than fifteen (15) percent of the gross floor area, one (1) parking space per sixty (60) square feet of gross floor area, plus patio requirements above.
Restaurants	A. One (1) parking space per one hundred twenty (120) square feet of gross floor area; and B. One (1) parking space for each three hundred fifty (350) gross square feet of outdoor patio area, excluding the first three hundred fifty (350) gross square feet of outdoor patio area, unless the space is located next to and oriented toward a publicly owned walkway or street, in which case the first five hundred (500) square gross feet of outdoor patio area is excluded.
Retail	One (1) space per two hundred fifty (250) square feet of gross floor area.
Retail, in a PCoC zoning district without arterial street frontage	One (1) space per three hundred (300) square feet gross floor area.

Stables, commercial	Adequate parking for daily activities shall be provided as determined by the Zoning Administrator.
Swimming pool or natatorium	One (1) space per one thousand (1,000) square feet gross floor area.
Tennis clubs	One (1) parking space per each two hundred (200) square feet of gross floor area, excluding court area, plus three (3) parking spaces per each court. The property owner shall provide additional parking spaces as necessary for tournaments, shows or special events.
Theaters, cinemas, auditoriums, gymnasiums and similar places of public assembly in PNC, PCC, PCP, PRC, or PUD zoning districts	One (1) space per ten (10) seats.
Theaters, cinemas, auditoriums, gymnasiums and similar places of public assembly in other districts	One (1) parking space per four (4) seats.
Trailhead - gateway	Five hundred (500) to six hundred (600) spaces, including those for tour buses and horse trailers.
Trailhead - local	None required.
Trailhead - major community	Two hundred (200) to three hundred (300) spaces, including those for horse trailers.
Trailhead - minor community	Fifty (50) to one hundred (100) spaces.
Transportation facilities	Required parking shall be determined by the Zoning Administrator per Section 9.103.E., Calculating required parking for transportation facilities.
Transportation uses	Parking spaces required shall be determined by the Zoning Administrator.
Travel accommodations	One (1.25) parking spaces for each one (1) guest room or dwelling unit.

Travel accommodations with conference and meeting facilities, or similar facilities	The travel accommodation requirements above. A. Travel accommodations with auxiliary commercial uses (free standing buildings) requirements above. B. One (1) parking space for every five (5) seats, if seats are fixed, and/or C. One (1) parking space for fifty (50) square feet of gross floor area of conference/meeting area.
Travel accommodations, with auxiliary commercial uses (free standing buildings)	A. The travel accommodation requirements above. B. Bar, cocktail lounge, tavern, after hours, restaurants, and live entertainment uses shall provide parking in accordance uses parking requirements herein this table. C. All other free standing commercial uses. One (1) parking space for every four hundred (400) square feet of gross floor area.
Vehicle leasing, rental, or sales (parking plans submitted for vehicle sales shall illustrate the parking spaces allocated for each of A, B, and C.)	A. One employee parking space per 200 square feet of gross floor area, B. One employee parking space per 20 outdoor vehicular display spaces, and C. One patron parking space per 20 outdoor vehicular display spaces.
Veterinary services	One (1) space per three hundred (300) square feet gross floor area.
Warehouses, mini	One (1) space per three hundred (300) square feet of gross floor area of administrative office space, plus one (1) space per each fifty (50) storage spaces.
Warehousing, wholesaling establishments, or separate storage buildings.	One (1) parking space for each eight hundred (800) square feet of gross floor area.
Western theme park	Total of all spaces required for the various uses of the theme park, may apply for a reduction in required parking per Section 9.104, Programs and incentives to reduce parking requirements.

Table 9.103.B. Schedule of Parking Requirements in the Downtown Area	
Bars, cocktail lounges, taverns, afterhours or micro-brewery/distillery with live entertainment	A. One (1) space per eighty (80) square feet of gross floor area; and B. One (1) space per two hundred (200) gross square feet of outdoor patio area, excluding the first two hundred (200) gross square feet.
Bars, cocktail lounges, taverns, afterhours or micro-brewery/distillery	A. One (1) space per one-hundred twenty (120) square feet of gross floor area; and B. One (1) space per two hundred (200) gross square feet of outdoor patio area, excluding the first two hundred (200) gross square feet.
Dwellings, multi-family	A. One parking space per dwelling unit for units with one bedroom or less. B. Two parking spaces per dwelling unit, for units with more than one bedroom.
Financial intuitions	A. In a Type 1 area, one (1) space per five hundred (500) square feet of gross floor area; or B. In a Type 2 area, all other lot widths, one (1) space per three hundred (300) square feet of gross floor area.
Fitness studio (no larger than 3,000 gross square feet)	A. One (1) space per three hundred (300) square feet of gross floor area. B. A fitness studio larger than 3,000 gross square feet shall comply with Table 9.103.a.
Galleries	One (1) space per three hundred (500) square feet of gross floor area.
Live entertainment (not including bars, restaurants, and performing arts theaters)	A. With fixed seating. One (1) parking space for two and one-half (2.5) seats. B. Without fixed seating. One (1) parking space for every eighty (80) square feet of gross floor area of an establishment that does not contain fixed seating.

Medical and diagnostic laboratories	One (1) space per three hundred (300) square feet of gross floor area.
Mixed-use commercial centers In mixed-use commercial centers with less than 20,000 square feet of gross floor area, land uses (with parking requirements of one space per 300 square feet or fewer spaces) shall occupy at least 60 percent of gross floor area.	One (1) space per three hundred fifty (350) square feet of gross floor area.
Mixed-use developments	A. One space per 350 square feet of gross floor area of nonresidential area; plus B. Parking spaces required for multiple-family dwellings as shown in this table, except as provided in Section 9.104.H.3.d.
Office, including government and medical/dental offices and clinics	A. In a Type 1 area, one (1) space per five hundred (500) square feet of gross floor area; or B. In a Type 2 area, all other lot widths, one (1) space per three hundred (300) square feet of gross floor area.
Performing arts theaters	One (1) parking space per ten (10) seats.
Restaurants that serve breakfast and/or lunch only, or the primary business is desserts, bakeries, and/or coffee/tea or non-alcoholic beverage	A. One (1) parking space for each four hundred (400) square feet of gross floor area; and B. One (1) space for each three hundred fifty (350) gross square feet of outdoor public floor area. Excluding the first three hundred fifty (350) gross square feet of outdoor public floor area, unless the space is located next to and oriented toward a publicly owned walkway or street, in which case the first five hundred (500) gross square feet of outdoor public floor area is excluded.

Restaurants, including restaurants with a micro-brewery/distillery as an accessory use.	A. One (1) parking space per three hundred (300) square feet of gross floor area; and B. One (1) parking space for each three hundred fifty (350) gross square feet of outdoor patio area. Excluding the first three hundred fifty (350) gross square feet of outdoor patio area, unless the space is located next to and oriented toward a publicly owned walkway or street, in which case the first five hundred (500) gross square feet of outdoor public floor area is excluded.
Restaurants, including restaurants with a micro-brewery/distillery as an accessory use, and with live entertainment	A. When live entertainment limited to the hours that a full menu is available, and the area of live entertainment is less than fifteen (15) percent of the gross floor area, one (1) parking space per three hundred (300) square feet of gross floor area; and B. One (1) parking space for each three hundred fifty (350) gross square feet of outdoor public floor area. Excluding the first three hundred fifty (350) gross square feet of outdoor patio, unless the space is located next to and oriented toward a publicly owned walkway or street, in which case the first five hundred (500) gross square feet of outdoor patio area is excluded. C. When live entertainment is not limited to the hours that a full menu is available, and/or the area of live entertainment is greater than fifteen (15) percent of the gross floor area, one (1) parking space per one hundred twenty (120) square feet of gross floor area, plus patio requirements above at all times.
Retail, personal care services, dry cleaners, and tattoo parlors	A. In a Type 1 area, one (1) space per five hundred (500) square feet of gross floor area; or B. In a Type 2 area, all other lot widths, one (1) space per three hundred (300) square feet of gross floor area.

Work/live	A. The required parking shall be based on the area of commercial uses, per Table 9.103.B and when applicable, Table 9.103.A. B. In addition to the parking requirement for the commercial area, parking shall be provide in accordance with the dwellings, multi-family and co-housing parking requirement for developments containing more than one (1) dwelling unit, excluding the first unit (except as provided in Section 9.104.H.3.d).
All other uses	As specified Table 9.103.A.

Note: 1. Type 1 and Type 2 Areas are locations of the Downtown Area described by the Downtown Plan.

(Ord. No. 2736, § 1, 3-7-95; Ord. No. 3048, § 2, 10-7-97; Ord. No. 3225, § 1, 5-4-99; Ord. No. 3879, § 1(Exh. § 26), 3-2-10; Ord. No. 3896, § 1(Exh. § 6), 6-8-10; Ord. No. 3899, § 1(Res. No. 8342, Exh. A, §§ 18, 19), 8-30-10; Ord. No. 3920, § 1(Exh. §§ 104—109), 11-9-10; Ord. No. 3926, § 1(Exh. § 13), 2-15-11; Ord. No. 3980, § 1(Res. 8895, § 1, Exh. A, § 46), 12-6-11; Ord. No. 3992, § 1(Res. No. 8922, Exh. A, § 17), 1-24-12; Ord. No. 4099, § 1(Res. No. 9439, Exh. A, §§ 17—23), 6-18-13; Ord. No. 4117, § 1(Res. No. 9563, Exh. A, §§ 96—98), 11-19-13; Ord. No. 4143, § 1(Res. No. 9678, Exh. A, §§ 246—249), 5-6-14; Ord. No. 4265, § 1, 6-21-16)

Sec. 9.104. - Programs and incentives to reduce parking requirements.

The following programs and incentives are provided to permit reduced parking requirements in the locations and situations outlined herein where the basic parking requirements of this Zoning Ordinance would be excessive or detrimental to goals and policies of the city relating to mass transit and other alternative modes of transportation.

A. *Administration of parking reductions.* Programs and incentives which reduce parking requirements may be applied individually or jointly to properties and developments. Where reductions are allowed, the number of required parking spaces which are eliminated shall be accounted for both in total and by the program, incentive or credit which is applied. The record of such reductions shall be kept on the site plan within the project review file. Additionally, the reductions and manner in which they were applied shall be transmitted in writing to the property owner.

B. *Credit for on-street parking.* Wherever on-street angle parking is provided in the improvement of a street, credit toward on-site parking requirements shall be granted at the rate of one (1) on-site space per every twenty-five (25) feet of frontage, excluding the following:

1. Frontage on an arterial, major arterial or expressway as designated in the Transportation Master Plan.
2. Frontage on a street that is planned to be less than fifty-five (55) feet wide curb-to-curb.
3. Frontage within twenty (20) feet of a corner.

4. Frontage within ten (10) feet of each side of a driveway or alley.
5. Frontage within a fire hydrant zone or other emergency access zone.
6. Locations within the Downtown Area.

C. *Credit for bicycle parking facilities.*

1. *Purpose.* The City of Scottsdale, in keeping with the federal and Maricopa County Clean Air Acts, wishes to encourage the use of alternative transportation modes such as the bicycle instead of the private vehicle. Reducing the number of vehicular parking spaces in favor of bicycle parking spaces helps to attain the standards of the Clean Air Act, to reduce impervious surfaces, and to save on land and development costs.
2. *Performance standards.* The Zoning Administrator may authorize credit towards on-site parking requirements for all uses except residential uses, for the provision of bicycle facilities beyond those required by this Zoning Ordinance, subject to the following guidelines:
   a. Wherever bicycle parking is provided beyond the amount required per Section 9.103.C., required bicycle parking, credit toward required on-site vehicular parking may be granted pursuant to the following:
      i. Downtown Area: one (1) vehicular space per eight (8) bicycle spaces.
      ii. All other zoning districts: one (1) vehicular space per ten (10) bicycle spaces.
   b. Wherever bicycle parking facilities exceed the minimum security level required per Section 9.103.D., required bicycle parking, credit towards required onsite vehicular parking may be granted at a rate of one (1) vehicular space per every four (4) high-security bicycle spaces.

      High-security bicycle spaces shall include those which protect against the theft of the entire bicycle and of its components and accessories by enclosure through the use of bicycle lockers, check-in facilities, monitored parking areas, or other means which provide the above level of security as approved by the Zoning Administrator.
   c. Wherever shower and changing facilities for bicyclists are provided, credit towards required on-site vehicular parking may be granted at the rate of two (2) vehicular spaces per one (1) shower.
   d. The number of vehicular spaces required Table 9.103.A., or when applicable Table 9.103.B., shall not be reduced by more than five (5) percent or ten (10) spaces, whichever is less.

D. *Credit for participation in a joint parking improvement project.* After April 7, 1995, no new joint parking improvement projects shall be designated in the City of Scottsdale. Existing joint parking improvement projects may continue to exist, subject to the standards under which they were established.

The joint parking improvement project was a program through which a group of property owners with mixed land uses including an area of more than three (3) blocks and at least six (6) separate ownerships could join together on a voluntary basis to form a parking improvement district, providing parking spaces equal to a minimum of thirty (30) percent of their combined requirements according to the ordinance under which they were established. Each participant property could have received credit for one and one-half (1½) times his proportioned share of the parking spaces provided. The project required that a statement be filed with the superintendent of buildings stating the number of spaces assigned to each participating property. No adjustments were to be permitted subsequent to the filing of this statement.

E. *Mixed-use shared parking programs.*

1. Purpose. A mixed-use shared parking program is an option to reduce the total required parking in larg commercial centers and mixed-use developments in which the uses operate at different times throug recognizes that strict application of the required parking ratios may result in excessive parking spaces. excessive pavement and impermeable surfaces and discourages the use of alternate transportation m
2. Applicability. A mixed-use shared parking program is an alternative to a parking master plan.
3. Procedure.
    a. A mixed-use shared parking program may be proposed at the time a parking plan is required.
    b. The mixed-use shared parking program may also be requested exclusive of any other site plan review or permitting procedure.
    c. Mixed-use shared parking plans shall be reviewed by, and are subject to the approval of, the Zoning Administrator.
    d. Alternatively, the applicant may elect to have the shared parking plan reviewed by, and subject to the approval of, the City Council in a public hearing.
    e. For changes of use in mixed-use projects, the parking necessary for the new mix of uses shall not exceed the parking required by the previous mix of uses.
4. Limitations on mixed-use shared parking.
    a. The total number parking spaces required by Table 9.103.B. and the total number of parking spaces required for a mixed-use commercial center and mixed-use development indicated in Table 9.103.A. shall not be used to reduce the required parking in the Downtown Area or a development that is defined as mixed-use development or mixed- use commercial center not in the Downtown Area.
    b. The total number of parking spaces required by Table 9.103.A. shall not be reduced by more than twenty (20) percent.
5. Performance standards. The Zoning Administrator may authorize a reduction in the total number of required parking spaces for two (2) or more uses jointly providing on-site parking subject to the following criteria:
    a. The respective hours of operation of the uses do not overlap, as demonstrated by the application on Table 9.104.A., Schedule of Shared Parking Calculations. If one (1) or all of the land uses proposing to use joint parking facilities do not conform to one (1) of the general land use classifications in Table 9.104.A., Schedule of Shared Parking Calculations, data shall indicate there is not substantial conflict in the principal operating hours of the uses. Such data may include information from a professional publication such as those published by the Institute of Transportation Engineers (ITE) or the Urban Land Institute (ULI), or by a professionally prepared parking study.
    b. A parking plan shall be submitted for approval which shall show the layout of proposed parking.
    c. The property owners involved in the joint use of on-site parking facilities shall submit a written agreement subject to City approval requiring that the parking spaces shall be maintained as long as the uses requiring parking exist or unless the required parking is provided elsewhere in accordance with the provisions of this Article. Such written agreement shall be recorded by the property owner with the Maricopa County Recorder's Office prior to the issuance of a building permit, and a copy filed in the project review file.

Table 9.104.A Schedule of Shared Parking Calculations

General Land Use Classification	Weekdays			Weekends		
	12:00 a.m.— 7:00 a.m.	7:00 a.m.— 6:00 p.m.	6:00 p.m.— 12:00 a.m.	12:00 a.m.— 7:00 a.m.	7:00 a.m.— 6:00 p.m.	6:00 p.m.— 12:00 a.m.
Office and industrial	5%	100%	5%	0%	60%	10%
Retail	0%	100%	80%	0%	100%	60%
Residential	100%	55%	85%	100%	65%	75%
Restaurant and bars	50%	70%	100%	45%	70%	100%
Hotel	100%	65%	90%	100%	65%	80%
Churches and places of worship	0%	10%	30%	0%	100%	30%
Cinema/theater, and live entertainment	0%	70%	100%	5%	70%	100%

How to use the schedule of shared parking. Calculate the number of parking spaces required by Table 9.103.A. for each use as if that use were free-standing (the total number of parking spaces required by Table 9.103.B. and the total number of parking spaces required for a mixed-use commercial center and mixed-use development indicated in Table 9.103.A. shall not be used to reduce the required parking in the Downtown Area, or a development that is defined as mixed-use development or mixed-use commercial center not in Downtown Area.)

Applying the applicable general land use category to each proposed use, use the percentages to calculate the number of spaces required for each time period, (six (6) time periods per use). Add the number of spaces required for all applicable land uses to obtain a total parking requirement for each time period. Select the time period with the highest total parking requirement and use that total as your shared parking requirement.

F. *Parking master plan.*

1. *Purpose.* A parking master plan is presented as an option to promote the safe and efficient design

of parking facilities for sites larger than two (2) acres or those sites in the Downtown Type 1 Area as designated by the Downtown Plan larger than sixty thousand (60,000) square feet. The city recognizes that strict application of the required parking standards or ratios may result in the provision of parking facilities of excessive size or numbers of parking spaces. This results in excessive pavement and impermeable surfaces and may discourage the use of alternate transportation modes. A parking master plan provides more efficient parking through the following requirements.

2. *Applicability.* The parking master plan is appropriate to alleviate problems of reuse and is also applicable as an alternative to the above mixed-use shared parking programs.
3. *Procedure.*
    a. A parking master plan may be proposed at the time a parking plan is required.
    b. The parking master plan may also be requested exclusive of any other site plan review or permitting procedure.
    c. Parking master plans shall be reviewed by, and are subject to the approval of, the Zoning Administrator.
    d. For changes of use in mixed-use projects, the parking necessary for the new mix of uses shall not exceed the parking required by the previous mix of uses.
4. Limitations on parking master plans.
    a. The total number parking spaces required by Table 9.103.B. and the total number of parking spaces required for a mixed-use commercial center and mixed-use development indicated in Table 9.103.A. shall not be used to reduce the required parking in the Downtown Area or a development that is defined as mixed-use development or mixed-use commercial center not in the Downtown Area.
    b. The Zoning Administrator shall only permit reductions of up to twenty (20) percent of the total parking required per Table 9.103.A.
    c. Reductions of more than twenty (20) percent of required parking shall be subject to approval by the City Council.
5. Elements of a parking master plan. The contents of the parking master plan shall include:
    a. A plan, which graphically depicts where the spaces and parking structures are to be located.
    b. A report, which demonstrates how everything shown on the plan complies with or varies from applicable standards and procedures of the City.
    c. The plan shall show all entrances and exits for any structured parking and the relationship between parking lots or structures and the circulation master plan.
    d. The plan, supported by the report, shall show the use, number, location, and typical dimensions of parking for various vehicle types including passenger vehicles, trucks, vehicles for mobility impaired persons, buses, other transit vehicles and bicycles.
    e. The plan, supported by the report, shall include phasing plans for the construction of parking facilities and any interim facilities planned.
    f. Whenever a reduction in the number of required parking spaces is requested, the required report shall be prepared by a registered civil engineer licensed to practice in the State of Arizona and shall document how any reductions were calculated and upon what assumptions such calculations were based.

g. Parking ratios used within the report shall be based upon uses or categories of uses already liste Schedule Of Parking Requirements (the total number of parking spaces required by Table 9.103.E parking spaces required for a mixed-use commercial center and mixed-use development indicate not be used to reduce the required parking in the Downtown Area or a development that is defin development or mixed-use commercial center not in the Downtown Area.)

h. Such other information as is determined by the reviewing authority to be necessary to process the parking master plan.

6. *Performance standards.* Parking shall comply with the requirements of the Zoning Ordinance as amended except where application of the following criteria can show that a modification of the standards is warranted. This shall be determined by the Zoning Administrator pending review of the materials described in Subsection 5. above.

a. The parking master plan shall provide sufficient number and types of spaces to serve the uses identified on the site.

b. Adequate provisions shall be made for the safety of all parking facility users, including motorists, bicyclists and pedestrians.

c. Parking master plans shall be designed to minimize or alleviate traffic problems.

d. Parking spaces shall be located near the uses they are intended to serve.

e. Adequate on-site parking shall be provided during each phase of development of the district.

f. The plan shall provide opportunities for shared parking or for other reductions in trip generation through the adoption of Transportation Demand Management (TDM) techniques to reduce trip generation, such as car pools, van pools, bicycles, employer transit subsidies, compressed work hours, and High Occupancy Vehicle (HOV) parking preference.

g. Surfacing of the lot shall be dust-proof, as provided by Section 9.106.C.1.

h. The parking master plan shall attempt to reduce environmental problems and to further the City's compliance with the federal Clean Air Act amendments of 1990 through appropriate site planning techniques, such as but not limited to reduced impervious surfaces and pedestrian connections.

i. Compliance with the federal Clean Air Act amendments of 1990 shall be considered.

j. Reductions in the number of parking spaces should be related to significant factors such as, but not limited to:

i. Shared parking opportunities;

ii. Hours of operation;

iii. The availability and incorporation of transit services and facilities;

iv. Opportunities for reduced trip generation through pedestrian circulation between mixed-uses;

v. Off-site traffic mitigation measures;

vi. Recognized variations in standards due to the scale of the facilities;

vii. Parking demand for a specified use; and

viii. The provisions of accessible parking spaces beyond those required per Section 9.105.

k. Reductions in the number of parking spaces for neighborhood-oriented uses may be granted at a rate of one (1) space for every existing or planned residential unit located within two (2)

blocks of the proposed use, and one-half (0.5) space for every existing or planned residential unit located within four (4) blocks of the proposed use.

7. *Approval.* The property owner involved in the parking master plan shall submit a written agreement, subject to City approval, requiring that the parking facility and any associated Transportation Demand Management (TDM) techniques shall be maintained without alteration unless such alteration is authorized by the Zoning Administrator. Such written agreement shall be recorded by the property owner with the Maricopa County Recorder's Office prior to the issuance of a building permit, and a copy filed in the project review file.

G. *Reserved.*

H. *Downtown Overlay District Program.*

1. *Purpose.* This parking program will ease the process of calculating parking supply for new buildings, remodels, or for buildings with new tenants or new building area.

   This parking program consists of two (2) elements: Parking required and parking waiver.

2. *Parking required.* The amount of parking required shall be:

   a. *If there is no change of parking intensity.*

      i. If there is no change of parking intensity of the land use on any lot that has a legal land use existing as of July 31, 2003, no additional parking shall be required.

   b. *Parking credits.*

      i. Parking credits under this program shall be only for: parking improvement districts, permanent parking in-lieu credits, approved zoning variances for on-site parking requirements - unless the Zoning Administrator finds that the justification for the parking variance no-longer exists, and Parking P-3 District, except as provided in Section 9.104.H.2.b.i.(1). Only these parking credits shall carry forward with any lot that has parking credits as of July 31, 2003.

         (1) Parking credits associated with the Parking P-3 District shall continue to apply, unless the Parking P-3 District is removed from the property.

      ii. The Downtown Overlay District does not void public agreements for parking payments of any type of parking program.

      iii. Any parking improvement district credit(s) or permanent parking in-lieu credit(s) that the lot has that are in excess of the current parking demand shall remain with the lot.

      iv. Property owners are still required to pay for any program that allowed them to meet the parking requirements.

   c. *Increase in parking.*

      i. When a property's parking requirements increase above the parking requirements on July 31, 2003, the new parking requirement is calculated as follows:

         (N - O) + T = number of parking spaces required

         N = new (increased) parking requirement

         O = old parking requirement (on July 31, 2003)

T = total of on-site and any remote parking spaces, plus any parking credits required on July 31, 2003 to meet the old parking requirement (excluding excess on-site and remote parking spaces and any excess parking credits).

ii. As applicable, Table 9.103.A. Table 9.103.B. shall be used to calculate N and O.

iii. A waiver to this requirement is in Section 9.104.H.3.

3. *Parking waiver within the Downtown Overlay District.*

a. *Purpose.* This parking waiver is designed to act as an incentive for new buildings, and for building area expansions of downtown businesses, which the expansion will have a minimal impact on parking demand.

b. *Applicability.* Upon application, property owners may have parking requirements waived if they meet both the following criteria:

i. Are within the Downtown Overlay District, and/or the Downtown District; and

ii. The new building or the new area of a building expansion is used for retail, office, restaurant or personal care services uses allowed in the underlying district.

c. *Limitations on this parking waiver.*

i. Can be used only once per lot existing as of July 31, 2003.

ii. Can be used for retail, office, restaurant or personal care services uses allowed in the underlying district at a ratio of one (1) space per three hundred (300) gross square feet.

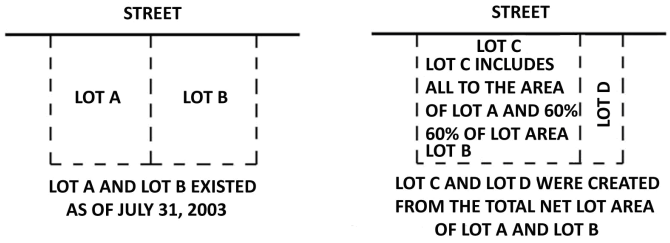
iii. Is limited to a maximum of two thousand (2,000) gross square feet of new building, or building area expansion. The two thousand (2,000) gross square feet per lot of new building, or building area expansion may be used incrementally, but shall not exceed two thousand (2,000) gross square feet of the building size of each lot existing as of July 31, 2003.

(1) Except as provided in Section 9.104.H.3.c.iii.(1)., a lot that is created after July 31, 2003 from more than one (1) lot that existed as of July 31, 2003 shall be allowed to utilize parking waiver as cumulative total of all lots that were incorporated into one (1) lot.

(2) A lot(s) that is created after July 31, 2003 from a portion of a lot(s) that existed as of July 31, 2003 shall be entitled to a waiver of area, as described in section 9.104.H.3.c.iii., based on the pro-rata portion of the net lot that was split from the existing lot(s) and incorporated into the new lot(s). For example:

As shown in Figure 9.104.A., Lot A and Lot B are reconfigured into two (2) new lot configurations, Lot C and Lot D. Lot C now includes all of the net lot area of Lot A and sixty (60) percent of the net lot area of Lot B. Lot C is entitled to the all of the waiver of Lot A and sixty (60) percent of the waiver of Lot B. Lot D is entitled only to forty (40) percent of the waiver of Lot B.

FIGURE 9.104.A.

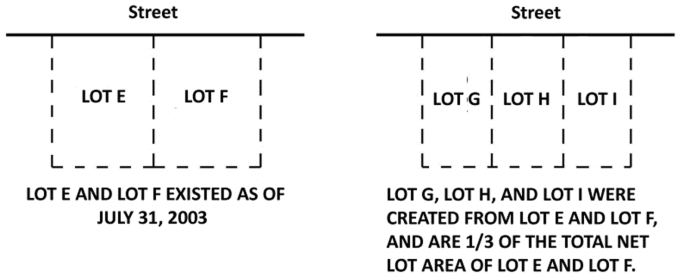


Therefore, Lot C's wavier would be three thousand two hundred (3,200) square feet of new building, or building area expansion; and Lot D's wavier would be eight hundred (800) square feet of new building, or building area expansion.

Another example may be:

As shown in Figure 9.104.B., Lot E and Lot F are reconfigured into three (3) new lots, Lot G, Lot H, and Lots I. Lot G, Lot H, and Lots I are each equal to one-third (1/3) of the total net lot area of Lot E and Lot F. therefore, Lot G, Lot H, AND Lots I each are entitled to one-third (1/3) of the total wavier that is allowed for Lot E and Lot F.

FIGURE 9.104.B.



Therefore, Lot G's, Lot H's, and Lot I's waiver each would be one thousand three hundred thirty-three and one-third (1,333.33) square feet of new building, or building area expansion.

____

iv. Cannot be used on land that issued to meet a property's current parking requirement unless the same number of physical parking spaces are replaced elsewhere on site, or through the purchase of permanent in-lieu parking credits.

d. *Residential addition parking waiver.* No additional parking is required for up to four new dwelling units that are added to a development as part of a 2,000 square foot (or smaller) nonresidential gross floor area expansion.

(Ord. No. 2736, § 1, 3-7-95; Ord. No. 3520, § 1, 7-1-03; Ord. No. 3543, § 1(Exh. 1), 12-9-03; Ord. No. 3774, § 2, 3-18-08; Ord. No. 3896, § 1(Exh. § 6), 6-8-10; Ord. No. 3920, § 1(Exh. §§ 110—114), 11-9-10; Ord. No. 3980, § 1(Res. 8895, § 1, Exh. A, § 47), 12-6-11; Ord. No. 4005, § 1(Res. No. 8947, Exh. A, § 199, 200), 4-3-12; Ord. No. 4099, § 1(Res. No. 9439, Exh. A, §§ 24, 25), 6-18-13; Ord. No. 4143, § 1(Res. No. 9678, Exh. A, §§ 250—261), 5-6-14)

Appendix C – Parking Trends in the News

C

3-ZN-2021
3/30/2021

RIGHT SIZE PARKING

Final Report

AUGUST 2015

Right Size Parking
Tools to balance supply

King County METRO

Fehr & Peers
Transportation Consultants

VIA

Project partners

U.S. Department of Transportation
Federal Highway Administration

Washington State Department of Transportation

CNT
Sustainable Communities. Attainable Results.

ULI Urban Land Institute
Northwest

Consultant team

Rick Williams Consulting

FEHR & PEERS

VIA

km Kidder Mathews
COMMERCIAL REAL ESTATE SOLUTIONS

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King County Metro Transit

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Report prepared by VIA Architecture

August 2015

Contents

What is the "right size" for parking?

Right-sizing parking means striking a balance between parking supply and demand.

Why does Right Size Parking matter?

Parking is expensive to build. Construction of parking in multi-family projects costs between $20,000 - $40,000 per stall, which has an impact on rent charged to tenants.

King County is over-parked. The Right Size Parking study found that on average, multi-family buildings in King County supply 40% more parking than is actually utilized.

Excess parking has negative effects on communities. Oversupply of parking leads to increased automobile ownership, vehicle miles traveled, congestion and housing costs.

The **Right Size Parking** project was designed to address the issues surrounding multi-family residential parking supply in King County, assembling local information on parking demand to guide parking supply and management decisions in the future.

King County
Right Size Parking
Tools to balance supply.

www.rightsizeparking.org

Introduction

Project overview

The Right Size Parking (RSP) project is an innovative, data-driven research and outreach effort focused on helping local jurisdictions and developers to balance parking supply and demand for multi-family buildings. Led by King County Metro, the public transit authority for King County, WA, the project advances the state of parking demand and pricing research by presenting up-to-date parking data in context.

Research has shown that multi-family parking is oversupplied. Based on parking utilization and pricing data gathered from over 200 multi-family properties in King County, WA, the RSP project determined that existing multi-family parking capacity exceeded utilization by an average of 0.4 spaces per housing unit — a 40% oversupply.

The RSP project determined that existing multi-family parking capacity exceeded utilization by an average of 0.4 spaces per housing unit — a 40% oversupply.

Excess parking presents significant barriers to smart growth and efficient transit service operations. Too much parking at residential properties is associated with more automobile ownership, vehicle miles traveled, and congestion as well as higher housing costs. On the other hand, too little parking can have negative impacts on the real estate marketability of multi-family housing projects in addition to on-street parking spillover impacts when on-street parking is not sufficiently managed and priced. Finding the balance of parking supply and demand supports transportation choice and walkable, more affordable neighborhoods.

The RSP project provides locally credible and context-sensitive data on parking demand, providing stakeholders with the information they need to make decisions that:

- Support economic development by reducing barriers to building mixed-use multi-family residential developments in urban centers near transit infrastructure
- Reduce housing costs as well as household monthly expenditures, allowing a larger demographic to participate in the urban and suburban infill housing markets
- Encourage transit use, ridesharing, biking and walking
- Reduce traffic congestion, vehicle miles traveled, and the amount of greenhouse gases (GHG) produced

Who benefits from RSP?

Developers, public decision makers, and communities all have the potential to benefit from the outcomes of this project. With updated context-sensitive information on parking demand, cities can regulate development in ways that meet local and regional goals. Developers can build more housing near transit and sell it for less.

This information is relevant to a wide variety of potential user groups, including jurisdictions, developers, and communities.

Sharing the research

A key goal of the RSP project is making the research available to and usable by the public. The data resources and tools created by the RSP project support a wide range of community and policy goals, such as providing a range of transportation choices (including transit), affordable housing, smart growth, and economic development. RSP tools have been designed for ease of use and adaptability.

Project background

The RSP project was funded through a grant from the Federal Highway Administration's (FHWA's) Value Pricing Pilot Program to address the issues around multi-family residential parking supply in King County. Initial data collection began in 2011, and the final RSP pilot projects were completed in 2015. The project directly addresses FHWA's call to action to develop policy that builds more livable communities. The project assembled local information on multi-family residential parking demand to guide future decisions regarding parking supply and management, therefore enabling the reduction of excess parking supply at multi-family housing developments in urban and suburban infill environments.

Why does right-sizing parking matter to affordability?

The high cost of parking construction and maintenance drives up the cost of housing and reduces the supply of affordable housing. Unless parking costs are separated from the cost of housing – "unbundled"- households are forced to pay for parking regardless of their needs. Even when parking costs are unbundled, developers often cannot

charge the full cost-recovery price for parking due to the required oversupply typical in zoning codes and 'sticker shock' concerns of their customers.

In King County, WA, parking makes up 10-20% of the cost to construct multi-family buildings, but only 6% is recovered through parking charges, meaning that the remainder must be accounted for through rent prices. This cross-subsidization, or recovering part of the parking investment through higher rental rates, causes a distorted market for parking and reduces the opportunity to use pricing as a tool to manage parking demand. Lower-income households are especially burdened by this distortion as they typically have lower rates of auto ownership and spend a larger percentage of their income on housing.

However, providing too little parking also can pose risks for real estate marketability and cause on-street parking impacts nearby, such as parking spillover, especially when on-street parking is not sufficiently managed and priced. These problems suggest that there is a "right size" to providing parking that strikes a delicate supply-to-demand balance, ensuring real estate marketability while meeting community goals.

Why King County Metro?

The RSP project is aligned with the mission of King County Metro Transit. King County Metro's Strategic Plan calls for supporting the integration of transit and land use to create compact, healthy communities. Communities that are compact and friendly to pedestrians and bicycles are most easily served by transit. Such communities foster healthier, more active lifestyles while reducing auto-dependency and associated road investments. By the same token, transit service can support and encourage development that is more compact.

Public transit is often most successful in markets in which parking is priced and supplied to reflect actual demand. As a transit agency, King County Metro has an interest in encouraging land uses and policies that prevent over-building of parking supply. Too much parking leads to increased automobile ownership, vehicle miles traveled, congestion and housing costs. In addition, it presents barriers to smart growth and efficient transit service. Right-sizing parking in locations where an oversupply of parking exists can be expected to help promote transit ridership and service efficiency.

RSP Project Approach

1. Get the Data
   - Scientific approach
   - Field counts collect local, up-to-date data
   - Statistical analysis
2. Provide New Tools
   - Web tools, model code, best practices
3. Check the Code
   - Find gaps and make changes
4. Engage Partners
   - Implement public and private demonstration projects

Project scope

In order to address the project need for up-to-date, context-sensitive data and user-friendly tools for understanding parking supply and demand, the RSP team engaged a diverse set of stakeholders, including developers, financiers and public-sector decision makers. In collaboration with this assemblage of multidisciplinary advisors, the team worked to develop technical policy best practices aimed at overcoming barriers to right-sizing parking supply.

The RSP project was structured around an interdisciplinary approach to developing innovative research and tools, as well as providing best practices on policy reform and parking management. These tools were implemented and tested through demonstration pilot projects with local partners.

Through the coordinated work efforts of the project team, the RSP project was able to achieve the following objectives:

- Provide context-sensitive multi-family residential parking demand information on a dynamic website to guide stakeholder decisions about building new parking and managing existing parking
- Offer tools and incentives to jurisdictions and developers to test pricing and right-sizing of parking supply in residential and commercial developments
- Engage the development community through professional forums to utilize new parking demand information and implement pricing and management techniques

At the project outset, the RSP team conducted an audit of principal technical policy issues pertinent to achieving right-sized parking in multi-family residential buildings. From this assessment, the team compiled a Technical Policy Memorandum summarizing the known barriers and potential solutions for RSP in addition to a set of policy and action recommendations that set the stage for the project research. The Technical Policy Memorandum can be found at:

http://metro.kingcounty.gov/programs-projects/right-size-parking/pdf/rsp-technical-policy-memo-final-09-17-12.pdf

RSP research and modeling

The primary goals of the project research were to bring clarity to the existing lack of consensus on the factors that influence parking demand and to make the findings easily accessible to a broad audience. Despite a recent surge in research, a lack of consensus still exists on the factors that drive demand for parking in multi-family buildings across a variety of urban and suburban contexts. While socio-demographic, housing, and built environment variables have all been shown to have an impact on residential parking and vehicle availability, their relative influence is a source of debate.

The RSP research identified independent variables to be tested in a regression analysis of parking utilization within 208 multi-family housing developments in King County, WA, which was conducted in 2012. Parking utilization was correlated to building characteristics as well as to neighborhood characteristics where the building resides. The final model derived from this regression analysis incorporated seven variables – five pertaining to the property or development characteristics and two to the built environment – and has a high R-square value of 0.81, meaning that the model has very substantial explanatory power.

Web calculator

The King County Multi-Family Residential Parking Calculator is a map-based web tool that enables users to estimate parking use for multi-family developments in the context of specific building and site/neighborhood characteristics. The website tool condenses the research findings and RSP model into a simple interactive calculator format accessible to a wide variety of stakeholders. The web calculator can help analysts, planners, developers, and community members weigh factors that will affect parking use at multi-family housing sites, including consideration of how much parking is "just enough" when making economic, regulatory, and community decisions about development.

Users are able to create custom multi-family parking scenarios and adjust them using variables related to the building and its location, including proximity to transit, unit and parking pricing, jobs and population. Understanding the influence of these variables helps determine how much parking is "just enough" for a particular site.

More detailed information about the web calculator can be found in Chapter 3. Try out the calculator online at:

www.rightsizeparking.org

Project partners and potential users

King County Metro applied for the FHWA grant in partnership with the Center for Neighborhood Technology (CNT) and the Urban Land Institute (ULI). As the leader of the RSP effort, King County Metro provided project administration and management as well as technical support for the project team. Recognizing that the issues addressed in the RSP project span multiple disciplines, Metro assembled a multidisciplinary team in order to ensure that the appropriate resources and expertise would be available to support the wide-ranging needs of the project.

What's in this document?

This document describes the RSP project goals, research methodology, and the results of the RSP pilot projects; provides an overview of stakeholder outreach efforts; and outlines next steps for RSP applications and research. In addition, this report introduces the tools and strategies created by the project for those interested in implementing RSP practices in other jurisdictions or communities. These tools can help analysts, planners, developers, and community members weigh factors that will affect parking use at multi-family housing sites.

Throughout this document, look for the RSP toolkit icon (above) to learn more about RSP tools and products. Links to additional project resources can be found in the Appendix.

Research

Research scope and context

Today, multi-family residential buildings often provide too much automobile parking, which can be an impediment to achieving a wide range of community goals. An oversupply of parking can have deleterious effects on economic development, consumers, the community at large and the environment.

Excess parking consumes valuable urban real estate, which contributes to sprawl, lower-density development, and greater distances between buildings. Those outcomes can deter walking, transit use and efficient transit service operations. An oversupply of parking can also damage natural landscapes through urban sprawl, increase impervious surfaces and add to greenhouse gas emissions. These considerations pose challenges for communities that want to encourage multi-modal transportation options and promote smart growth land use planning strategies.

In auto-dominated suburban developments with little transit service, parking decisions are relatively straightforward; planners or developers can apply findings from parking generation studies conducted in similar communities across the country found in the Institute of Transportation Engineers (ITE) Parking Generation Manual. However, parking supply decisions become more complicated as suburban communities introduce more compact development, mixed uses, and new multimodal transportation options in addition to welcoming a more diverse demographic of multi-family housing users. Current suburban parking generation studies do not meet the objectives of these settings, nor do they account for factors that may influence parking demand. They also do not serve as an adequate model to guide parking provision in urban areas.

Despite a recent surge in research, a lack of consensus still exists on the factors that drive demand for parking and account for the variation in auto ownership in multi-family buildings across a variety of urban and suburban contexts. While socio-demographic, housing, and built environment variables have all been shown to have an impact on residential parking and vehicle availability, their relative influence is a source of debate.

Academics and practitioners have responded to this gap in research through a growing body of studies showing how the oversupply of parking can lead to increased auto ownership, vehicle miles traveled, congestion and housing costs. In addition, studies have shown that misaligned parking policies present barriers to smart growth and efficient transit service. There is some agreement that parking supply and pricing have a significant impact on parking demand and auto ownership, but these variables have been understudied.

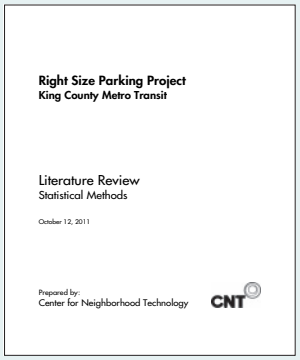
The Right Size Parking research applies extensive data collection and analysis to provide clarity on the factors that influence parking demand in multi-family developments. Specifically, the objective of this research was to identify independent variables to be tested in regression analysis of parking utilization within 208 multi-family housing developments which were surveyed in King County, Washington in 2012.

The RSP research question: What are the contextual factors that influence parking demand for multi-family buildings?

Drawing upon an extensive literature review of existing parking standards and studies, the RSP team used regression analysis to develop a model of parking utilization. Where other studies have stopped at modeling parking demand based upon the utilization of existing parking supply, the RSP project went further to develop a robust statistical model that describes parking demand as a complex equation composed of strongly correlated independent and context-sensitive variables.

It is the goal of the RSP team that the new data, research, and tools developed by the project provide the information needed to help developers, financiers, jurisdictions, and neighborhood groups better estimate the optimum amount of parking for new multi-family developments across a wide variety of development contexts. The results are intended for use by practitioners and are made easily accessible through an interactive website tool.

Literature Review of Statistical Methods



The project team worked with the Center for Neighborhood Technology (CNT) to conduct a thorough literature review of parking supply standards and studies in order to determine the current state of knowledge and inquiry surrounding the balance of parking supply and demand. This initial survey of accepted standards most often used to guide parking supply indicates that they are typically based on a single independent variable — unit count — and do not account for independent variables such as building type, transit and land use factors.

The incorrect application of existing parking data has been criticized both locally and nationally and has been identified as a major barrier to successful transit-oriented development. As a case in point, the ITE manual continues to be used as a standard for determining parking supply. However, these guidelines consider only the number of units in a building in its parking supply calculation and draw from mainly suburban data gathered in the 1980s.

The RSP team compiled an overview of current statistical methods for estimating parking demand and studied new models aimed at linking contextual factors, such as sociodemographic characteristics, to parking demand. The literature review included many studies that begin to address and model the relationships between parking demand and contextual variables such as household characteristics, housing type, qualities of the built environment, and parking price. Additionally, data sources that assess auto ownership or vehicle availability were reviewed to ascertain the extent to which vehicle ownership could serve as a proxy measure for estimating parking demand.

The RSP Literature Review can be found at:

http://metro.kingcounty.gov/programs-projects/right-size-parking/pdf/rsp-litreview_11-2011.pdf

Background research findings

The RSP team laid the foundation for the development of the research methodology by conducting a thorough literature review (see sidebar) to determine the current state of the industry methods for estimating parking demand. The findings of the literature review indicated that parking supply requirements and guidelines are typically not tied to demand and that there is currently no clear understanding of the factors contributing to parking demand.

The team reviewed multiple studies indicating that there is often a measurable oversupply of parking in multi-family buildings. This phenomenon is often caused by a combination of factors: developer overestimation, financier requirements, and/or jurisdictional parking requirements. The review of these studies clarified that the importance of considering parking demand is widely recognized while the impacts of contextual factors, although documented in many cases, are still debated. The two largest identified gaps were 1) a lack of consensus on factors that influence demand for parking; and 2) omission of data on parking availability, cost and pricing.

It was clear to the team that the tools and methods that have informed parking supply regulations in the past are often not appropriate for guiding parking supply decisions for new development in King County today. The literature review included several studies that have begun to establish a meaningful link between parking demand and a range of building and site characteristics. These initial findings served as the basis for the development of the RSP model.

RSP Research Guiding Principles

- Scientific approach
- Based on data and statistical analysis
- Local data with hyper-local applicability
- Relevant to community goals
- Actionable
- Support policy change, informed participation in project review and investment/development decisions
- Designed to support creation of interactive web tool

Methodology development

The RSP team set out to design the research to address the gaps in understanding regarding parking demand and vehicle availability uncovered during the literature review. A primary goal of the RSP study is to provide clarity on these issues in the form of practical tools for use in development and policy discussions. The literature review served as the basis for drafting the research methodology, which was vetted by a Methods Review Committee.

Methods Review Committee

The RSP team assembled a Methods Review Committee to assist with developing and vetting the research methodology. The committee consisted of a panel of parking experts, including national and local academics, practicing professionals, leaders of the urban planning and engineering fields, and ITE members.

Methods Review Committee

Cynthia Chen, University of Washington

Donald Shoup, University of California Los Angeles

John Holtzclaw, Sierra Club

John McIlwain, Urban Land Institute

Jeffrey Tumlin, Nelson\Nygaard

Robert Cervero, University of California Berkeley

Ransford McCourt, DKS Associates

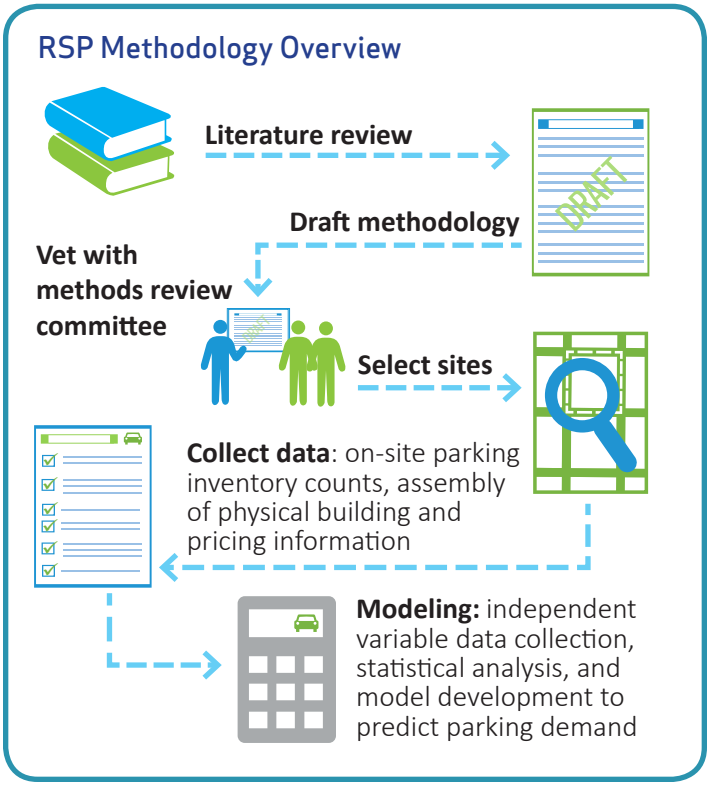
Rachel Weinberger, University of Pennsylvania

Richard Willson, California State Polytechnic University

Steffen Turoff, Walker Parking Consultants

The Methods Committee worked to ensure that the RSP research methodology met the highest academic and industry standards, honored the budget allocation, and provided statistically significant and replicable results.

Comments and input from the Methods Review Committee were integrated into the final research methodology documents, which documented background research, outlined the research objectives, and provided a road map for project development.



Site selection and data collection

Site selection process

Convenience and quota sampling techniques were used to assemble a total of 223 multi-family sites representing various types of multi-family development around King County, Washington. Study sites were chosen to provide a well-distributed sample of the dependent variable and many of the site-specific independent variables used to generate the RSP model.

The geographic location of eligible properties was defined to ensure that the sample was focused in areas where future multi-family residential development could potentially occur. Within the defined boundary, eligible sites included multi-family residential properties with a minimum of ten units either leased as apartments or sold as condominiums. For properties that contained a mix of uses, only the residential portion of the parking supply was studied.

Numerous developers, property owners, and property management companies were asked to participate in the data collection effort. Targets to ensure a representative sample were established based on transit connectivity, employment access, average medium gross rent, and average median household income.

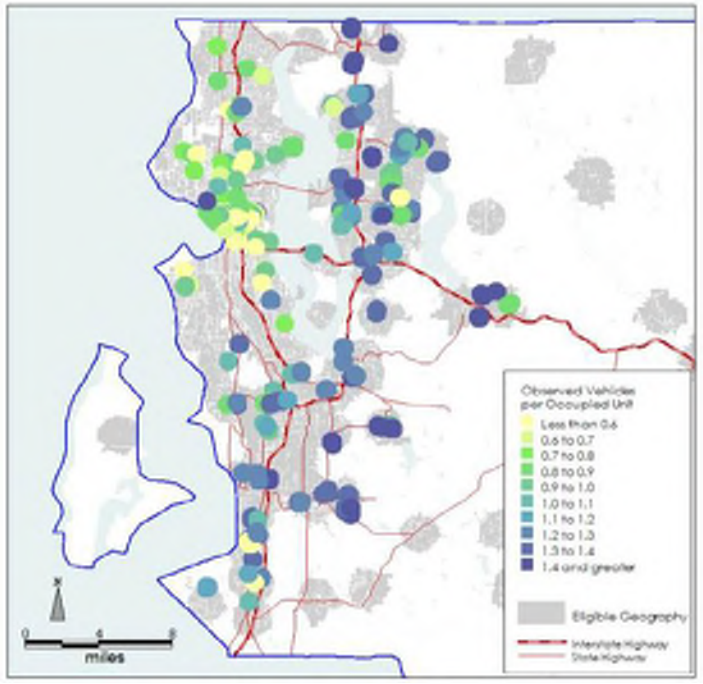


Fig. 1: Observed Vehicles per Occupied Unit.

Field counts

The RSP team collected data for 33,166 occupied apartment units throughout King County accompanied by 46,420 residential parking stalls (32,608 of which were observed to be occupied with vehicles). The field counts required at least two visits to the site: an initial visit to meet with the property manager and discuss data needs, and a second to perform the parking utilization count. The parking utilization count followed the Institute of Transportation Engineer's Parking Generation Manual method of counting between the parking peak hours of 12:00 a.m. and 5:00 a.m. on weekdays only for multi-family land uses.

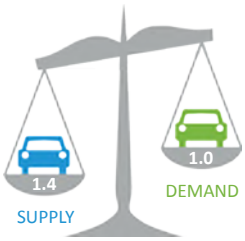
The sample represented a range of parking types but included all residential parking, including visitor parking, identified by the property manager at each multi-family development. Parking was generally provided in off-street garages or lots located on the multi-family parcel, but some parking was located in dedicated on-street stalls or satellite garages.

Sites selected for the study were screened for building age and available parking supply to control for potential under-supplied parking where constrained supply made actual demand unknowable. The end result was the identification of 223 sites for which parking utilization could be measured via parking counts, and the exclusion of sites for which undefined off-site, on-street parking may have resulted in underrepresentation of parking use. The initial 223 sites were cut to 208 sites, as explained later in this document, in order to eliminate statistical outliers.

RSP data collection summary

What did we find?

The RSP team found that, on average, parking is supplied at 1.4 spaces per dwelling unit but is only used at about 1 space/unit.



What does this imbalance mean?

When these average supply and utilization findings are applied to a typical suburban project with 150 units, roughly $800,000 would be wasted on unused parking. This estimate assumes a conservative construction cost of $15,000/stall .

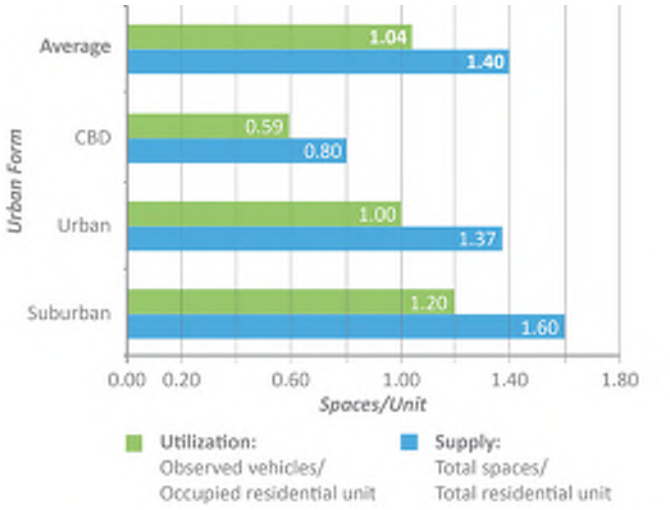


Fig. 2: Observed Vehicles per Occupied Unit as a function of urban form. Both parking utilization and the gap between parking supply and demand tend to be greater in suburban areas on average.

Parking oversupply by the numbers:

Oversupply of parking adds unnecessary cost to project development and inefficient use of land:

- Excess surface parking can add $2 per foot to annual unit leasing cost (@ $8,000 per stall)
- Excess garage parking can add $6.00- $7.00 per foot to annual unit leasing cost (@ $30,000 per stall)
- For a typical affordable housing development, adding one space per unit increases leasing costs by about 12.5%; adding two parking spaces increases leasing costs by about 25%

Data modeling

Modeling parking utilization, dependent variable

The dependent variable used in the model estimating parking utilization was "observed vehicles per occupied residential unit" collected from the field data. This dependent variable analysis was comparable to the approach of some of the studies included in the literature review. However, the RSP study sought to determine the effect of contextual factors on parking demand in addition to the much more basic number of housing units.

Modeling parking utilization, independent variables

The RSP project went beyond modeling parking demand based on the utilization of existing supply per each unit of housing by also considering the effects of a host of other potential independent variables. The collection of the primary parking utilization data enabled a unique statistical analysis and the development of a model for predicting parking utilization at multi-family residential developments. Based on the field data, the Center for Neighborhood Technology used regression analysis to test a set of independent variables and to create a statistical model that would identify the building and environmental characteristics that best described the relationship between parking utilization and demand.

During the regression analysis and model development process, over 100 distinct potential independent variables grouped into five categories—parking supply and price, property/development characteristics, neighborhood household characteristics, accessibility, and built form characteristics — were analyzed, enabling the consideration of the greatest number of possible variables to create a complete picture of the primary factors contributing to parking demand. These external data were collected from a variety of sources, including the American Community Survey, the King County GIS Center, Zipcar, and Walkscore.

Because one variable can be represented in many different formats using different metrics, an extensive list of potential explanatory variables was analyzed. For example, while it was expected that transit access would correlate with parking utilization rates, the best measure of transit access to explain utilization rates was unknown, so several different kinds of transit access measurements were included in the study.

Parking supply as a variable

Parking supply is often cited as one of the most important variables in determining demand, and many past studies have found a high correlation between the two factors. A similarly high correlation was found in the RSP research data, indicating that it should be included in the model.

However, estimating parking utilization for the purposes of informing supply decisions should not be a function of supply. Parking supply was ultimately excluded from the model because its inclusion addresses a different research goal. The RSP research objective was to estimate the full quantity of parking that would be demanded at a given property in order to help inform a decision on the amount of parking that should be supplied at that location. Therefore, it was not desirable for the model to take into account situations for which parking utilization was low because of inadequate supply rather than low demand.

If supply were to be included in the regression model, its coefficient would indicate the effect of parking supply on usage, conditional on the other observable characteristics included in the model. Therefore, parking supply was excluded as an independent variable from the model.

Regression analysis

Because the regression analysis began with the presumption that the ordinary least squares (OLS) transformation would provide the optimal approach, a simple linear regression model was used at the outset of the modeling effort. However, because relationships between the dependent and independent variables were not all assumed to be linear, all variables were tested using various transformations (e.g. natural log, inverse, square root, etc.). Variables were tested for their correlation with the dependent variable as well as for the form that provided the best and most logical fit.

To construct the regression analysis, many approaches were tested to find the best method of including, removing, and ultimately assembling the best set of variables. In the end, the goal was to find the set of variables that provided the most robust theoretical framework while remaining relevant from a practical development and planning standpoint, keeping in mind that the resulting formula must ultimately be applied and made accessible via an online tool.

RSP Technical Research Memo

The RSP Technical Research Memo outlines the RSP research objectives and explains the project research methodology and model development in detail. The report identifies the key variables that describe parking demand in King County according to the RSP research. It also discusses the connection between characteristics of multi-family buildings and the parking and transportation needs of residents. The RSP Technical Research Memo can be found at:

http://www.rightsizeparking.org/Right_Size_Parking_Technical_Memo.pdf

Maintaining the criteria that all variables be significant (the probability that the coefficient is non-zero, or $p < 0.05$) and all multicollinearity be low (as assessed through variance inflation factors, or VIF values, less than 5) was considered throughout the modeling process. Because each factor or characteristic was represented using many independent variables (as well as multiple transformations of each), multicollinearity, or a high level of correlation between independent variables, was an important consideration.

The most effective modeling approach identified, which served as the basis for the parking utilization model, began with a set of variables that appeared in the highest-scoring results of multiple approaches. A stepwise method was used, with an entry criterion of 0.05 and a removal criterion of 0.10.

Variables were then considered based on their logical candidacy from a planning or development context. For example, for a case in which a variable representing the count of three-bedroom units was included in the final set of variables in the absence of any other count or average number of bedrooms, the three-bedroom unit count was removed and variables pertaining to average bedroom counts were added and tested in a stepwise method. Or, if two variables had high collinearity, such as block size and the transit connectivity index, one was removed and various variables were tested to replace the other.

Throughout the modeling process, outlying cases were tested to ensure that no single property was significantly influencing the fit. Sample properties, or cases, with high leverage values (approximately > 0.5) or outlying residuals (as identified through separated tails in a residual histogram) were removed from the sample. In the end, 15 cases were removed based on these criteria, resulting in a final sample size of 208 properties.

Further details on the regression analysis can be found in the RSP Technical Memo (see sidebar to left).

Results and summary of findings

The final model derived from the regression analysis incorporated seven variables – five pertaining to the property or development characteristics and two describing the built environment (these variables are described in further detail on p. 12). The final equation for the model is:

$$P_u = b + \sum_{i=1}^{7} C_i X_i$$

where P_u is the modeled value of the parking utilization, b is a constant term, C_i is the coefficient for the "ith" variable (derived from the regression equation), and X_i is the value of the "ith" variable representing a location or building characteristic.

Parking utilization was found to be correlated to individual building characteristics as well as to the neighborhood in which the building resides. In other words, parking utilization cannot be determined from the characteristics of the building alone, nor from the setting alone. To understand and accurately assess parking needs, both building type and location must be considered in tandem.

RSP independent variables

CNT identified seven variables that produce a combined R-square value of 81.0%, an adjusted R-square of 80.3%, and a standard error of 0.16: Table 1 identifies the seven independent variables as well as their individual R-square and stepwise R-square values. Individual R-square values represent the correlations between the given variable and the dependent variable. The stepwise R-square values represent the improved R-square value as each variable is added to the final model.

Independent variable	Individual R Square	Stepwise R Square
Gravity measure of transit frequency	55.5%	55.5%
Percent of units designated affordable	27.6%	67.1%
Average occupied bedroom count	34.3%	73.7%
Gravity measure of intensity (population + jobs)	53.3%	76.2%
Units per residential square feet	17.1%	78.7%
Average rent	6.7%	80.0%
Parking price as a fraction of average rent	18.1%	81.0%

Table 1: Independent Variables and Summary of Regression Results.

Figure 3 illustrates the final fit of the observed or measured data as compared to the predicted model results.

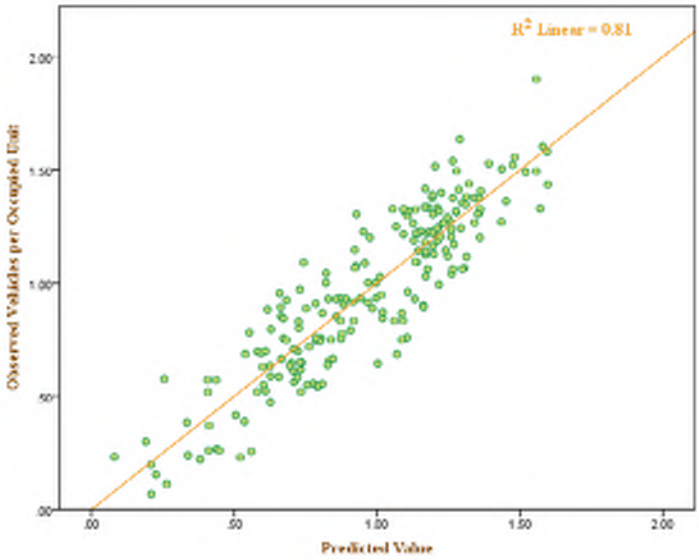


Fig. 3: Observed vehicles per occupied unit versus modeled value.

Limitations

The final model resulting from the RSP regression analysis can help to support and guide decisions about parking supply and management. However, it cannot provide definitive answers about specific future policies or developments. Rather, the model is intended to serve as a resource to inform discussions as users weigh the factors affecting parking use and consider how much parking is needed.

Model estimates and data collection

Although the final model is statistically very strong, it is important to keep in mind that it represents an estimate, which by definition has inherent limitations. Real-world parking use can and will vary from RSP estimates for many reasons. For example, some property managers provide transit passes to building residents as a transit demand management (TDM) strategy, which is likely to reduce the demand for parking in those buildings beyond what the RSP model estimates.

Limitations on data collection also affect the model's accuracy. For the most part, observed parking included supply that was on-site and off- street, unless additional resident parking was noted by property managers. The sites selected for the study were screened based on building age and available parking supply to control for potential under-supplied parking that could result in spillover and unmet on-site parking demand. The result was that the sites studied were those for which parking could be measured through parking counts rather than those for which undefined off-site parking would have resulted in an underrepresentation of parking demand.

Due to a lack of on-street parking data and limitations on scope, this research was not able to fully account for on-street parking supply, occupancy, and pricing in the modeling of off-street multi-family parking. Using neighborhood on-street parking counts and resident surveys, future research opportunities exist to establish a more comprehensive understanding of multi-family parking demand.

Additionally, the data collected and utilized in the model represents a single point in time. As factors related to both the built environment and parking usage change (e.g. expanded transit service), the independent variables may need to be updated and their relationships to the dependent variable (parking utilization) reassessed.

RSP Independent Variables

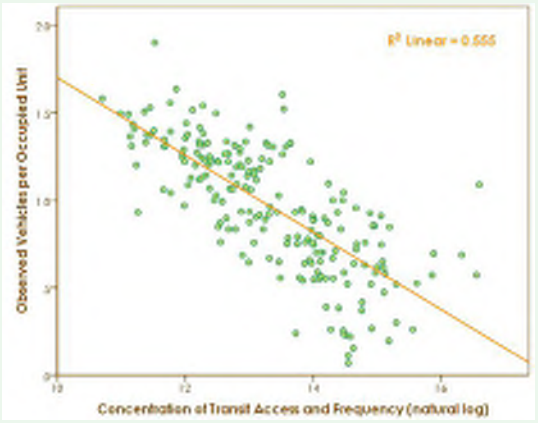


Fig. 4: Gravity measure of transit frequency.

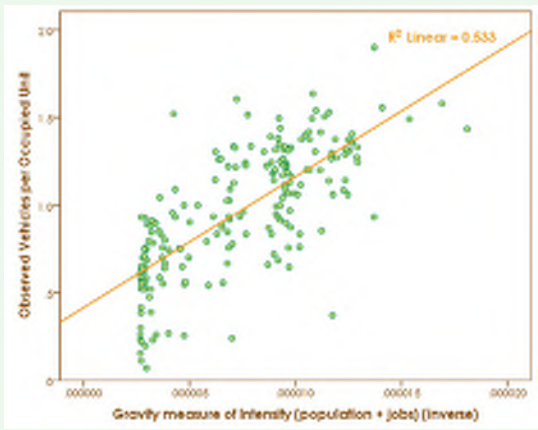


Fig. 5: Gravity measure of intensity (jobs + population).

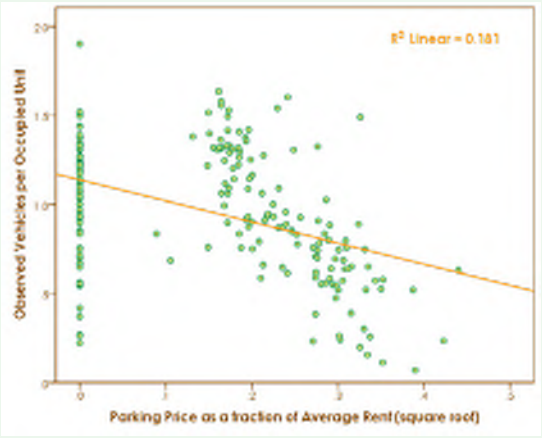


Fig. 6: Parking price as a fraction of average rent.

1. Gravity measure of Transit Frequency

Gravity measures take into account both the quantity and proximity of the factor being measured. RSP data indicated a strong correlation between concentration of transit frequency and observed vehicles per occupied unit. Transit concentration was able to serve as a proxy for many other built environment factors.

2. Percent of Units Designated Affordable

This variable includes all units identified as affordable by any designation as a percent of all units (regardless of occupancy). RSP data indicated that as the percent of affordable units increases, parking utilization decreases.

3. Average Occupied Bedroom Count

Average occupied bedroom count is the average number of bedrooms in all occupied units. To calculate this average, studio units were assumed to have a bedroom count of one. RSP data indicates that the average count of bedrooms has a positive correlation with parking utilization: as average bedroom count increases, parking utilization increases.

4. Gravity measure of Intensity (Population + Jobs)

Previous research often found a strong correlation between both residential density and job access with auto ownership. The strong correlation of the gravity measure of intensity and observed vehicles per occupied unit observed in the RSP data supports these findings.

5. Units per Residential Square Feet

Obtained from the property managers, units per residential square feet is calculated as total residential units divided by the residential square feet of the development. RSP data indicates that as units per residential square feet increase, or as average unit size decreases, parking utilization decreases.

6. Average Rent

Average rent (measured in dollars) represents the average monthly cost of all residential units in the building. RSP data indicates that observed parking utilization increases as average rent increases.

7. Parking Price as a Fraction of Average Rent

Parking price as a fraction of average rent is calculated as the monthly price of parking per stall divided by the average monthly rent. RSP data indicates a negative trend, revealing that as parking price increases, parking utilization decreases.

Model coverage

To ensure confidence in the model estimates, limits were established for the coverage area. The sample utilized for data collection covered a wide range of built environment characteristics and land uses, but it did not cover the full spectrum found throughout the county. Therefore, the coverage for which model estimates were calculated was limited to the range of built environment characteristics found in the data collection sample. In other words, areas of the county that had lower transit service, population, or job concentrations than those found within the RSP research sample were removed from the coverage area.

Applications

A principal goal of the RSP project is to provide stakeholder access to the research. The King County Multi-family Residential Parking Calculator, which is described in detail in the following chapter, condenses the project's complex research findings into a simple map-based format accessible to a wide variety of stakeholders. Using the RSP model to estimate parking utilization, resulting outputs for most developable parcels in King County, Washington are clearly illustrated on this interactive, mapping website.

Conclusions

The RSP project provides analysts with new tools to consider the proper provision of parking, given several land use, transit and walk factors. Block size, population and job density, and walk and transit access to trip destinations influence parking utilization, in some cases by as much as 50 percent. They provide clear indication of where parking for low auto ownership characteristics can be applied. CBD multi-family parking utilization of 0.51 vehicles per occupied dwelling unit in the sites studied, compared with suburban 1.18 vehicles per occupied dwelling unit, indicates that accommodations and environments conducive to low- and zero-auto-ownership households correlate with reduced need for parking. Economic and pricing considerations were also found to matter, including average rent units, the share of units that are affordable, and the price charged for parking.

Web Tool

Background and goals

A principal goal of the RSP project is to provide stakeholder access to the project research. To achieve this goal, the RSP team used the project data and conclusions to design and build an easy-to-use web calculator tool that can provide useful information and guidance for the broad spectrum of RSP stakeholders and potential users. The web calculator is a map-based tool that provides place-specific estimates of parking demand at the parcel level. The web tool has been designed to demonstrate RSP research findings, illustrate the influence of the identified predictive factors, and present data that multiple stakeholders will find valuable in their efforts to right-size parking supply.

Design and function

In order to achieve the project outreach goals, King County Metro partnered with the Center for Neighborhood Technology (CNT) to create a dynamic website with the ability to estimate multi-family residential parking demand across King County. The multi-family residential parking demand information provided by the calculator can be used for both policy guidance and market research.

Data-based

The calculator is based on the RSP model developed during the research phase of the project, which was created using local data of actual parking use collected in 2012 at over 200 developments in urban and suburban localities across King County, Washington. The interactive calculator tool uses the RSP statistical model to estimate parking use for multi-family developments throughout King County in the context of specific sites. The parking use data is correlated with factors related to the observed building, its occupants, and its surroundings - particularly concentrations of transit, residents and jobs, as well as the price charged directly to the users of parking. Using best available research findings and industry-accepted rule of thumb assumptions, additional impacts were estimated to highlight the associated 'costs' of parking, which are displayed as part of the web calculator interface.

King County Multi-Family Residential Parking Calculator

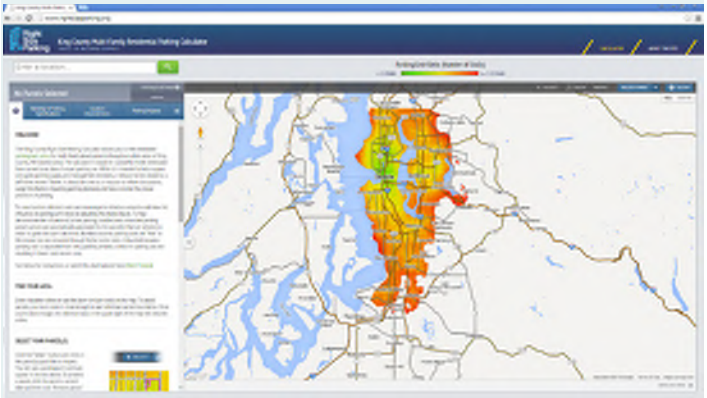


Figure 7. Screenshot of the King County Multi-Family Residential Parking Calculator.

To highlight the importance of parking price and presence of affordable units on parking utilization, the calculator automatically calculates and displays the different parking utilization estimates for two scenarios: a given parcel and building with 1) parking pricing bundled with or unbundled from rent, and 2) 100% affordable units or no affordable units. Additional calculator functions include:

- Viewing estimated parking/unit ratios for multi-family developments in urban King County, WA
- Creating scenarios for a specific parcel or custom area by inputting variables particular to a proposed development (instead of relying on default values representing development averages), such as number of units, unit type and size, and average rent
- Adjusting scenarios for contextual factors such as concentration of population, jobs and transit service to estimate parking use if neighborhood characteristics were to change in the future
- Comparing the impacts of alternative parking scenarios, including information about cost, greenhouse gas (GHG) emissions and estimated vehicle miles traveled (VMT) of building users

See the following pages for step-by-step instructions on how to use the web calculator tool. The King County Multi-family Residential Parking Calculator is online at:

http://www.rightsizeparking.org/

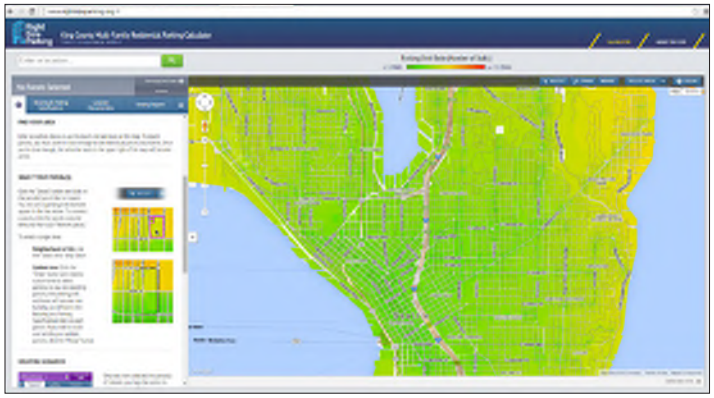
Web Calculator Overview

Calculator basics

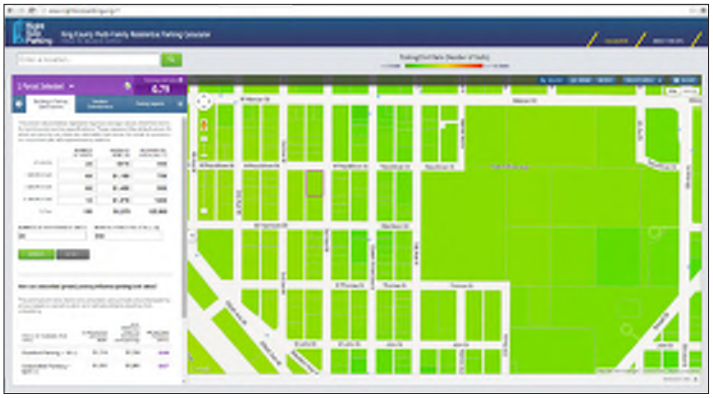
The King County Multi-Family Residential Parking Calculator is a map-based web tool that helps users estimate parking demand for multi-family developments at specific sites. The calculator can help analysts, planners, developers, and community members weigh factors that will affect parking use at multi-family housing sites and determine how much parking is "just enough" when making economic, regulatory, and community decisions about development.

The RSP web calculator can be accessed online at: www.rightsizeparking.org

How to use the King County Multi-Family Residential Parking Calculator:



Enter an address or use the zoom tool to find an area of interest.



Select an individual parcel using the "Select" arrow tool.

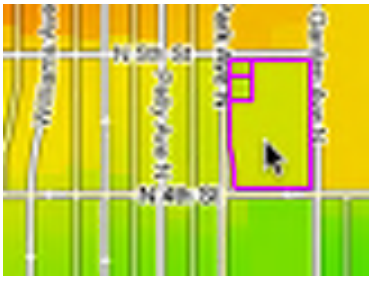
1 Find your area

Enter a location or use the zoom and pan tools on the map to zoom in to the area of interest. When zoomed in close enough, individual parcels boundaries will become visible and the selection tools in the upper right of the map will become active.

2 Select your parcels

Click the "Select" button and then click on the parcel(s) of interest. A parking/unit estimate will appear in the calculator box. Parcels can be added to or subtracted from a selection using the "Select" tool. A larger area, such as an entire neighborhood or city, can be selected using the "Select Area" drop down menu.

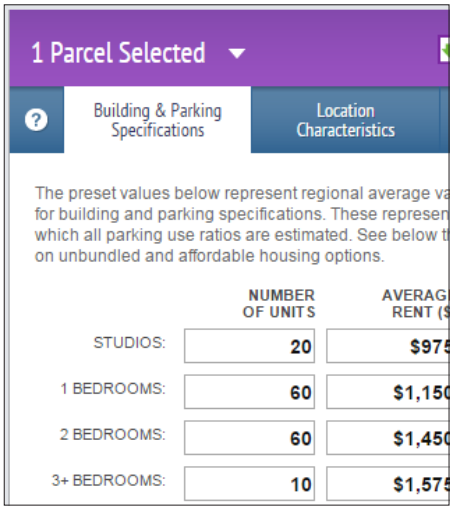
Parking demand can be estimated for a custom area by using the "Draw" tool to select multiple parcels. In a custom calculation, the parking/unit estimates assume that one building will be assigned to each parcel. The "Merge" tool allows users to assign one building to multiple parcels.



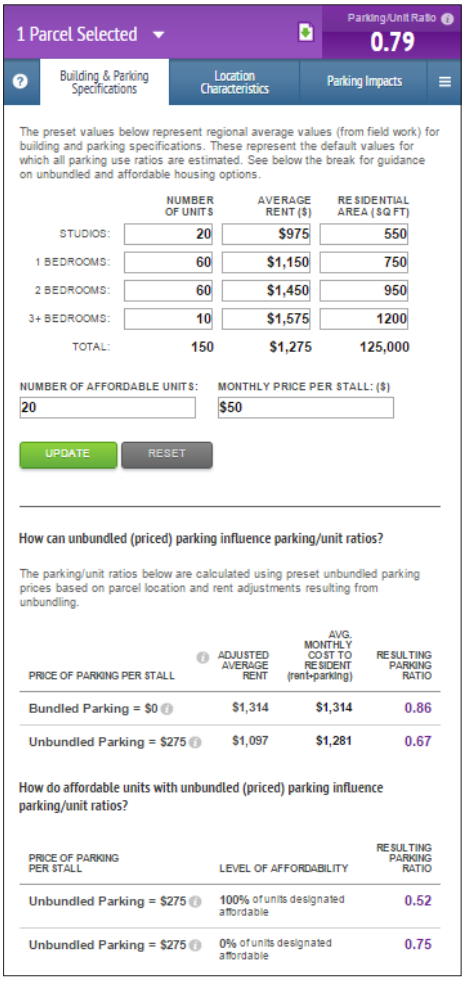
Select multiple parcels or draw a custom area if desired.

3 Create scenarios

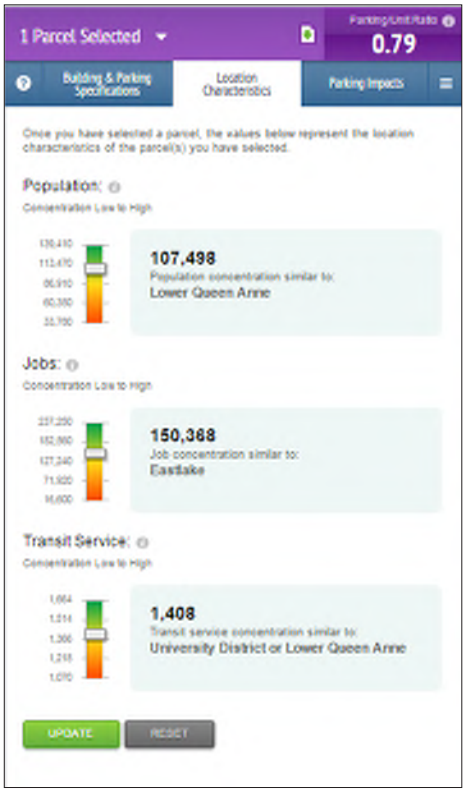
Once the parcel(s) of interest have been selected, the default inputs are shown and can be adjusted using the "Building and Parking Specifications" and "Location Characteristics" tabs. Two preset scenario options (unbundled parking and affordable housing) are provided on the "Building and Parking Specifications" tab to provide a starting point for developing custom scenarios.



Adjust default inputs under the first two tabs.



Enter building and parking specifications.



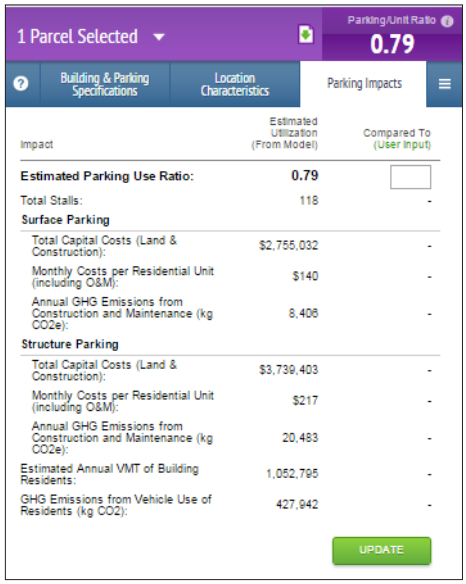
Make adjustments for location characteristics.

4 View results

Parking/Unit Ratio: The calculator tool displays the estimated parking spaces per residential unit for the selected building(s), or the parking/unit ratio. When multiple parcels are selected, an average is displayed. The calculator also provides additional information about the selection, such as parcel data and the estimated parking use ratio for the selected parcel(s).

Parking Impacts: This tab provides average parking construction costs and estimated vehicle miles traveled (VMT) as well as greenhouse gas (GHG) emissions based on the amount of parking supplied.

Selection Info: Click the up arrow in the bottom right of the map screen for trip generation reduction estimates and Census data on average commute distance and journey to work mode split.



View parking use estimates and impacts.

User interface

The RSP web calculator condenses complex research findings into a user-friendly, map-based format accessible to a wide variety of stakeholders. The tool allows users to apply the RSP statistical model to real-world scenarios, whether it be planning at the neighborhood level or designing and financing a building at the parcel level.

Outputs for most developable parcels in King County, Washington are illustrated on this interactive website calculator. Users have the ability to select a parcel, input details specific to a proposed development (replacing the default values that represent development averages), adjust factors of the built environment, and view the resultant parking utilization estimate. Users can also adjust scenarios using variables related to a specific site and its location, including proximity to transit, jobs and/or population.

This ability to adjust variables enables users to compare the impacts of alternative scenarios in order to weigh factors that will affect parking use at multi-family housing sites when making economic, regulatory, and community decisions about development.

When variables are entered, the calculator displays the impacts of creating the stated amount of parking, including: total capital costs of parking, monthly costs per residential unit, annual vehicle miles traveled (VMT) of building residents, and greenhouse gas (GHG) emissions from building construction and maintenance as well as from the vehicle use of residents. Understanding the variables influencing parking supply and demand helps users to determine how much parking is "just enough" for a particular site.

Built-in scenarios

RSP research found that parking pricing and the presence of affordable units are two factors that have a pronounced effect on parking utilization. In order to highlight these findings, the website includes two "built-in" scenarios that automatically calculate and display the different parking utilization estimates for a given parcel and building with:

- Parking pricing bundled with or unbundled from rent, and
- 100% affordable units or no affordable units

Who benefits and how?

Developers, public decision makers, and communities will all benefit from the King County Multi-family Residential Parking Calculator.

Developers and financiers: Decreased costs of housing development, ownership, rental and operation

Action: Right-size new developments; build more housing near transit and sell it for less

Jurisdictions: Improved pedestrian environment, walkable neighborhoods, and transportation choices

Action: Adjust code to reflect findings

Neighborhoods: Improved pedestrian environment, transit operations and efficiency; decreased housing costs

Action: Community participation in the development process

Users and intended applications

Calculating parking use at multi-family developments can help provide information to users that can guide and inform decisions on building and managing parking. The calculator can help analysts, planners, developers, and community members weigh factors that will affect parking use.

The calculator can also be used as a resource to inform discussions and help consider the proper provision of parking. With updated context-sensitive information on parking demand, the calculator allows communities to regulate development in a way that meets both local and regional goals.

This new approach provides public and private sector practitioners with information and tools to better align parking supply with demand, preserving resources and supporting a range of community goals including transit-oriented development and housing affordability. The tool also facilitates developers in building more housing, especially affordable housing, in areas well-served by transit.

While the web calculator tool is intended to help support and guide parking supply and management decisions, it should not be viewed as providing a definitive answer on parking provision. Rather, it should be seen as a resource for informing discussions and weighing the factors impacting parking demand.

USER TESTIMONIALS RSP WEB CALCULATOR

Web calculator users representing both municipal and developer stakeholder groups provided the RSP team with feedback on the utility of the interactive RSP tool:

City of Kirkland

"The City of Kirkland used the King County Multi-Family Residential Parking Calculator to help draft new parking requirements for multi-family zoning districts within the City. The parking calculator was fundamental in establishing a baseline parking requirement, which we then modified based on additional parking information and policy direction from City officials."

- Jon Regala, Senior Planner, City of Kirkland Department of Planning and Community Development

William Popp Associates

"The tool has been very helpful in our parking demand studies for predicting demands for multi-family apartments in urban settings with abundant public transportation and nearby shop, restaurant, and socio-recreational opportunities. We have found the tool very useful in that we can narrow down our study area to a parcel specific condition or expand out to a larger block area or neighborhood community when predicting demand. Previous data sources for parking demand are often all-encompassing, and they are often only stratified into urban and suburban areas. In general, the tool has been very useful in our recent parking analysis endeavors, particularly in urban settings."

- William Popp Jr., Transportation Engineer

Beacon Development Group

"As a development consultant to non-profits building affordable housing, Beacon used the Right Size Parking calculator to help one of our clients plan for the amount of parking needed by their new mixed-use project. The tool is very easy to use, and it gave us a firm number to start from so that our client could formulate a parking plan during project development rather than simply react to parking needs after the project was completed."

- Boting Zhang, Housing Developer

Capitol Hill Housing

"The King County Multi-Family Residential Parking Calculator web tool has been a great resource for advocacy about parking in our neighborhood of Capitol Hill. Capitol Hill is a dense urban neighborhood in which many residents do not own a car and large households only own one car. Many developers, new to the neighborhood, are skeptical of the low parking demand or need hard evidence to show during their financing negotiations.

King County's parking calculator, and the research behind it, has provided that evidence. We can sit down with developers and pull up recommendations for their specific site, mix of unit sizes, levels of affordability, and the price they are planning to charge. Working with the parking calculator results in lower, more realistic parking ratios in new buildings. Increasingly, new developers have already consulted the parking calculator before we meet with them.

The calculator is also helpful for assuaging neighborhood fears about parking spillover. The tool allows everyone to easily access accurate information about parking demand and make informed decisions."

- Alex Brennan, Senior Planner

City of Renton

"The ability to compare the City's regulations with RSP findings allowed City staff to verify that the adopted City parking regulations were appropriate. The ability to compare our regulations to such an extensive study instead of simply comparing to neighboring jurisdictions gave City staff the confidence that our parking numbers were appropriate for the development patterns in Renton. "

- Vanessa Dolbee, Current Planning Manager, Community & Economic Development Department

Usage cases and stakeholder input

During its initial two years of use, the calculator website has seen constant use, with visits originating from across the country. The most frequently performed actions by visitors to the RSP web calculator include running the model and viewing the information tabs that allow for user scenario adjustments and display information about parking impacts. Of these tabs, the Building and Parking Specifications tab has been most highly utilized.

King County Multi-Family Residential Parking Calculator usage statistics (Feb 1, 2013 - Feb 1, 2015)

Total Events & Unique Events by Event Category		
Run Model	40,017	2,834
View Tab	27,856	10,104
Update	5,667	1,412
Location Search	2,233	926
Total & Unique Events by Event Action		
Building/Parking Specs	4,152	1,174
Location Specs	758	331
Parking Impacts	757	383

Demonstration Projects 4

Introduction

The final stage of the RSP project consisted of the development and implementation of pilot demonstration projects with local partners. The project team engaged seven demonstration pilot project partners, including both local jurisdictions and property owners, to put RSP research into practice through policy and management pilots. Pilot project partners were selected through a competitive bid process.

The **policy-based pilots** were designed to align jurisdiction parking regulations with regional goals for vehicle miles traveled (VMT), housing affordability, and greenhouse gas (GHG) emissions. Four King County cities - Kent, Kirkland, Seattle, and Tukwila - were selected as partners and worked with the RSP team to analyze potential policy changes.

The **management-based pilots** utilized innovative Transportation Demand Management (TDM) strategies, including parking pricing and incentive strategies, to test parking management scenarios. The partners for the management pilots included Capitol Hill Housing, an affordable housing provider; El Centro de la Raza, a community-based civil rights organization and housing provider; and Hopelink, an emergency services center.

In order to best support and empower these pilot projects, the RSP team developed a set of tools to assist policy makers and developers in understanding the market demand for parking based on location-specific characteristics. These tools, which include the Right Size Parking Model Code, a Parking Requirements and Utilization Gap Analysis, and a Multi-Family Parking Strategies Toolkit, are described in more detail in the following sections of this chapter.

Policy pilots

Pilot funding and technical support to test innovative parking policy approaches were awarded to four partner King County cities: Seattle, Kent, Kirkland, and Tukwila. These pilot projects began in 2014.

The intent of the policy pilot projects was to apply the RSP research findings in order to achieve better alignment between jurisdiction parking regulations and regional goals, such as increased transit ridership and provision of affordable housing.

Policy changes considered by the partner municipalities ranged from reductions in parking minimums for development to parking management strategies, including shared parking and residential parking program reform.

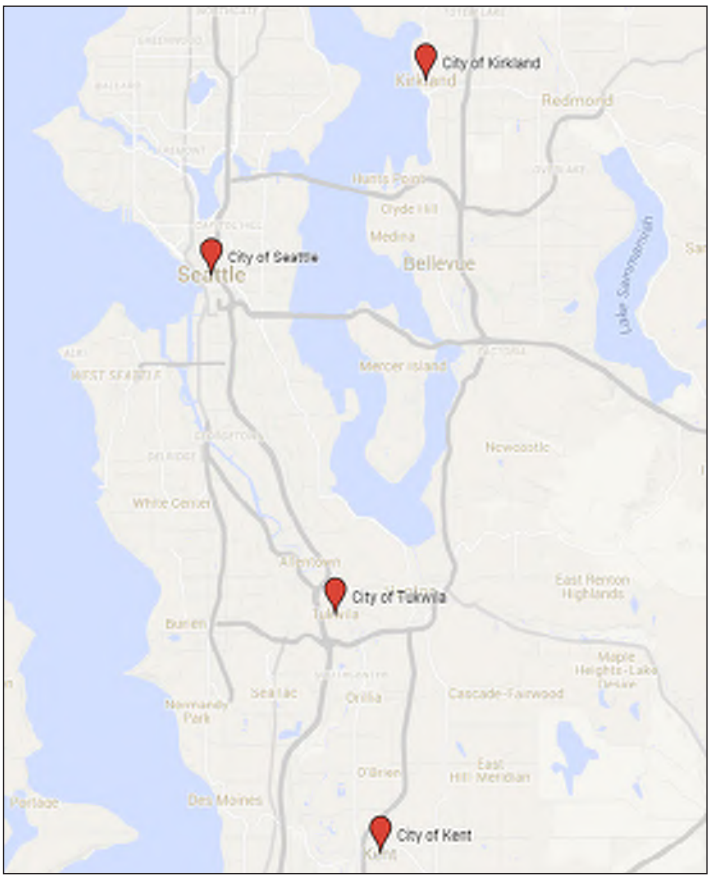


Fig. 8: A map of the Right Size Parking Policy Pilot Project partner locations.

Policy pilot partners

The selected pilot partners worked with RSP staff and consultants to analyze potential policy changes using the RSP web calculator. Both the RSP Model Code and the Parking Requirements and Utilization Gap Analysis were used to provide guidance for the recommendations for each partner city.

Each pilot project had a unique focus based on local issues and context:

- **Kent:** Identify best code and management strategies for mixed-use areas in a suburban context
- **Kirkland:** Establish parking requirements that reflect market demand and prevent spillover
- **Seattle:** Evaluate existing parking policies and programs and explore private shared parking opportunities
- **Tukwila:** Identify parking strategies for the Tukwila International Boulevard Station area; explore the potential for implementing private shared parking

Parking Requirements & Utilization Gap Analysis

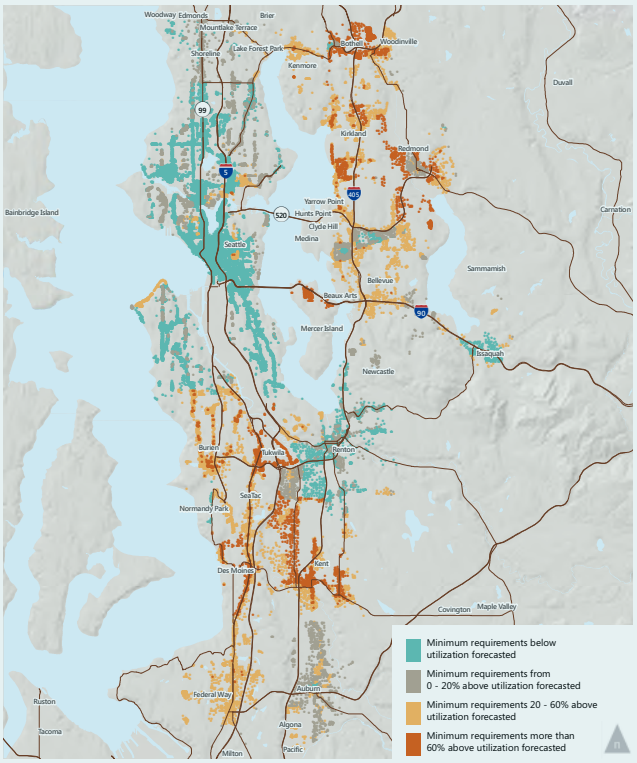


Fig. 9: Data map illustrating the gap between minimum parking requirements and observed parking utilization in King County.

The **Parking Requirements and Utilization Gap Analysis** provides a comparison of local municipal code minimum parking requirements with multi-family off-street parking utilization forecast by the RSP web calculator. The motivation behind this research is that misaligned parking requirements may spur new development to supply more parking than necessary, leading to oversupply and increased housing costs. They can also make it difficult to unbundle the price of parking from rent as it would only lead to a higher parking vacancy rate, but no cost savings.

The analysis indicates that in most King County locations, parking requirements are higher than forecast parking utilization, often by around 50%. More than 82% of King County parcels outside the City of Seattle have minimum parking requirements that are greater than the RSP model utilization. For more information, see:

http://metro.kingcounty.gov/up/projects/right-size-parking/pdf/gap-analysis-7-12-13.pdf

Right Size Parking Model Code

The RSP study found that many parts of King County have established minimum parking requirements that exceed modeled utilization. In many King County municipalities, parking codes may not be up to date with changes in land use, demographics and consumer preferences that have already reduced – and could potentially further reduce – the demand for parking. In some municipalities, parking minimums do not take into account the fact that demand for parking varies based on unit type, occupant income, proximity to transit, or other contextual factors.

In order to address this gap, the RSP team developed the **Right Size Parking Model Code** to help local jurisdictions implement policies that more accurately reflect their stated goals, such as housing affordability and neighborhood walkability. The model code document provides policy options and model code for cities looking to better match their local parking supply with demand using an adaptable, customizable menu of options with an explanation of each policy choice.

The purpose of the model code is to provide a resource for municipalities that are interested in implementing code changes to help right-size local parking supply. The model code draws from several other components of the RSP project, including best practices research, the RSP Technical Policy Memo, multi-family utilization surveys, parking code gap analysis, the RSP calculator, and stakeholder input.

The primary recommendation of the model code is for a market-based approach to parking supply in multi-family buildings and for spillover to be controlled by on-street parking pricing in lieu of parking minimums. The document also provides, as a second best alternative, recommendations for a context-based regulatory approach in which minimums are set based on a comprehensive assessment of neighborhood and project-specific conditions.

http://metro.kingcounty.gov/programs-projects/right-size-parking/pdf/140110-rsp-model-code.pdf

CITY OF KENT POLICY PILOT

PILOT FOCUS

Parking code adjustments and parking management strategies

CONTEXT

The Kent Downtown area is experiencing tensions as it urbanizes from a suburban retail center to a mixed-use transit node. Large surface parking lots provide public parking free of charge throughout the Downtown, and several arterials traversing the area do not currently accommodate on-street parking.

As new multi-family development integrates with the existing urban fabric, the City of Kent desires to ensure that parking is managed as a valuable resource for livability and economic development within the Downtown area. In order to provide the City with tools for achieving this goal and addressing the transitional tensions affecting Downtown Kent, the RSP team worked to identify parking code and parking management strategies appropriate for this urbanizing, mixed-use area located within a broader suburban region.

RSP FINDINGS

A multi-family parking utilization survey conducted by the RSP team indicated that in Kent actual parking demand is less than what is required by the City's parking codes. When presented with this information, both the City and other project stakeholders expressed interest in exploring strategies for right-sizing the parking supply in Downtown Kent.

RSP RECOMMENDATIONS

The pilot project consisted of the creation of a parking code and parking management strategy that recognize the economic value and cost of parking stalls and support the appropriate prioritization of parking users within a mixed-use context. In general, the project team found the need for consistent and user-friendly communication of parking expectations and regulations to different user types as well as a need for focused enforcement and management of surface parking, including dedicated employee parking.

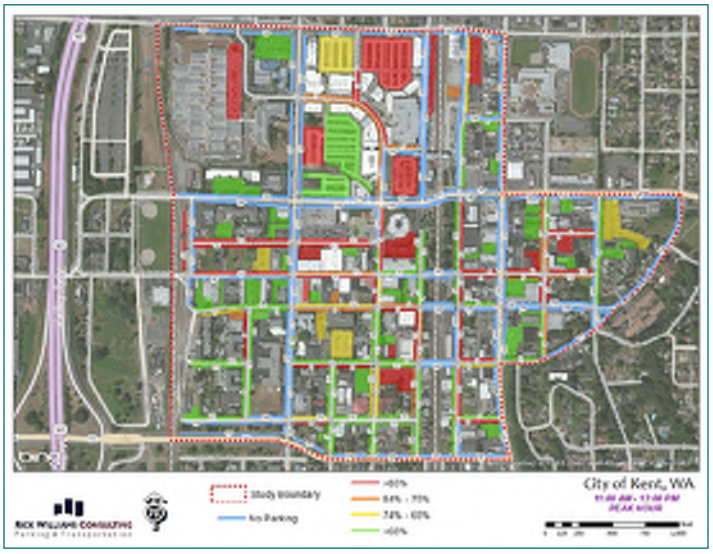


Fig. 10: Combined On and Off-Street Peak Hour Occupancies.

Project deliverables included:

- Documentation of existing parking conditions and identification of parking challenges and barriers
- A policy technical memo with code alternatives that are right-sized for Kent's development context
- Prioritized recommendations for parking code adjustments
- A context-specific parking management strategy that supports RSP standards while directly addressing and responding to stakeholder concerns

CITY OF KIRKLAND POLICY PILOT

PILOT FOCUS

Establish parking requirements based on actual parking demand

CONTEXT

The Kirkland Planning Commission and Houghton Community Council expressed interest in gaining a better understanding of how the RSP calculator tool results compared with observed multi-family parking utilization in Kirkland. To address this issue, the RSP team compared the results obtained by using the web calculator to observed parking utilization rates collected at 24 multi-family developments across the City of Kirkland.

RSP FINDINGS

The team found that the RSP web calculator generally predicts parking utilization in the City of Kirkland accurately, with most sites within +/-15 percent of the observed value. Using the results of this analysis, the team compiled a technical memo that included recommendations for adjustments in parking requirements that reflect documented parking demand and prevent parking spillover.

The team also found that in certain transit-rich environments, the calculator may overestimate parking utilization due to the sensitivity of the transit score to relatively small differences in walking distances to transit. They determined that it was reasonable to manually adjust the RSP web model accordingly to more accurately consider the availability of high quality transit service in portions of Kirkland.

RSP RECOMMENDATIONS

- Use a unit-based approach to developing parking standards

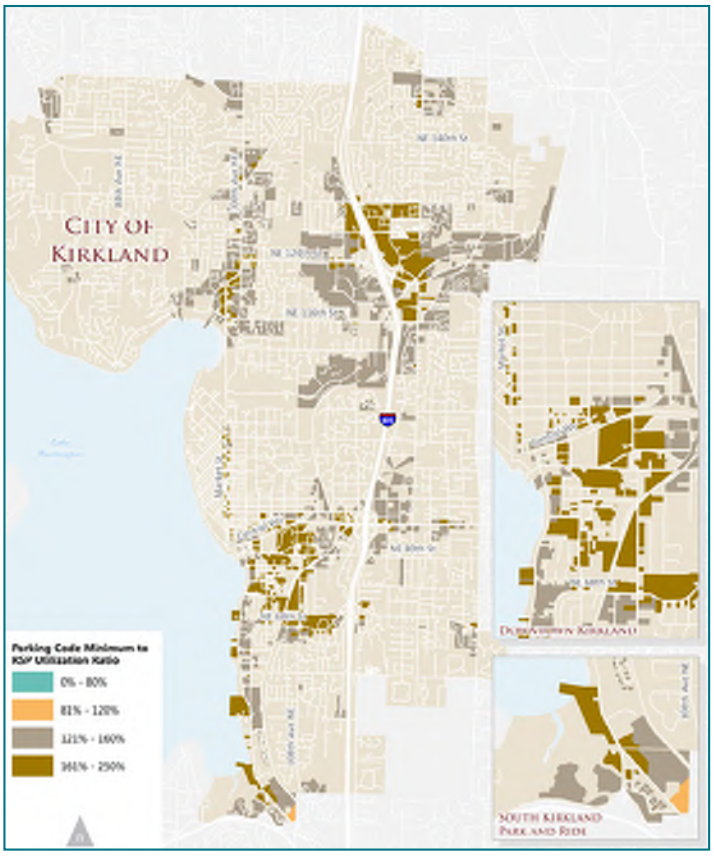


Fig. 11: RSP comparison of Kirkland parking code minimum requirements to RSP utilization ratio.

- Set minimum requirements at or just below utilization rates (may warrant additional on-street parking management)
- Supplement adjustments for parking requirements that respond to transit service with additional on-street parking management strategies

CITY OF SEATTLE POLICY PILOT

PILOT FOCUS

Parking Code Review, Shared Parking Strategies, and Residential Parking Zone (RPZ) Review

CONTEXT

The City of Seattle participated in the RSP pilot to identify methods, including code and policy changes, for better balancing on and off-street parking supply and pricing. This pilot included an evaluation of existing parking codes and policies, an assessment of the existing Restricted Parking Zone (RPZ) program, and identification of opportunities to expand the feasibility of private shared parking. The goal of the project was to develop key revisions to the parking management process, tying together RSP goals of off-street requirements with effective on-street management.

RSP FINDINGS

Parking Code Review: Seattle parking standards are extremely varied, with distinct separations by use types, making it difficult to "right size" parking requirements.

Shared Parking Strategies: Building design can facilitate shared use parking by bringing the parker to a plaza connected to both the street and the building's private space. Signage and wayfinding systems are also important to supporting successful shared use parking.

Residential Parking Zone Review: The number of parking permits issued exceeds the actual supply of parking. The relationship between the cost of on-street and off-street parking is skewed to favor on-street parking, particularly where off-street parking is unbundled from rent.

RSP RECOMMENDATIONS

The RSP team researched each of these issues and produced reports focused on each of the three analytical tasks. It is hoped that these preliminary recommendations will spur discussion around clarifying issues and strategies for making adjustments to the City of Seattle's parking management practices:

Fig. 12: Signage regulating Seattle's Restricted Parking Zones (RPZs).

Fig. 13: RPZ locations in Seattle.

Minimum and Maximum Requirements Recommendations

- Consider the context of vision goals for unique areas of the City and develop an encompassing policy foundation to "right size" parking everywhere for consistency
- Simplify the parking code by creating broader land use categories

Shared Parking Recommendations

- Research and understand the range of shared use options that could be met within existing parking surpluses
- Establish consensus on those types of shared parking that are acceptable to the City
- Develop communication and facilitation strategies that bring potential shared use partners together

Residential Parking Zone Review Recommendations

- Increase the base price of residential parking permits and shift to monthly permit billing
- Graduate the price of residential parking permits in high-demand neighborhoods
- Modify institutional agreements
- Tie permit eligibility to off-street parking availability

CITY OF TUKWILA POLICY PILOT

PILOT FOCUS

Private shared parking strategies and on-street parking user prioritization

CONTEXT

The RSP team partnered with the City of Tukwila to perform an "audit" of the RSP web calculator tool to determine how accurately it reflected parking utilization and demand in the Tukwila International Boulevard (TIB) light rail station area. The City also sought parking policy recommendations that would support a walkable, affordable, transit-oriented neighborhood around the TIB station.

RSP FINDINGS

The team found that the RSP model estimates parking utilization accurately for the majority of the selected sites: 15 of 18 sites fell within a 20 percent level of error. On average, apartments in the study area do not share as strong a link between good transit service and lower parking utilization as elsewhere in the County. This relationship is not very strong because current levels of transit service in Tukwila do not vary enough to make a meaningful impact on parking use.

The team found that many businesses actively take measures to prevent non-patron parking in their lots to eliminate spillover. They also found that Tukwila enforces more regulations for non-residential parking than other cities, making shared parking difficult to implement.

RSP RECOMMENDATIONS

Based on the data gathered through the RSP audit, the team worked to identify parking strategies for the TIB station area, including an exploration of private shared parking. The RSP team proposed recommendations and strategies that would enable the City of Tukwila to achieve its vision of creating a welcoming place, supporting equity, and preserving affordabilty. RSP recommendations included:

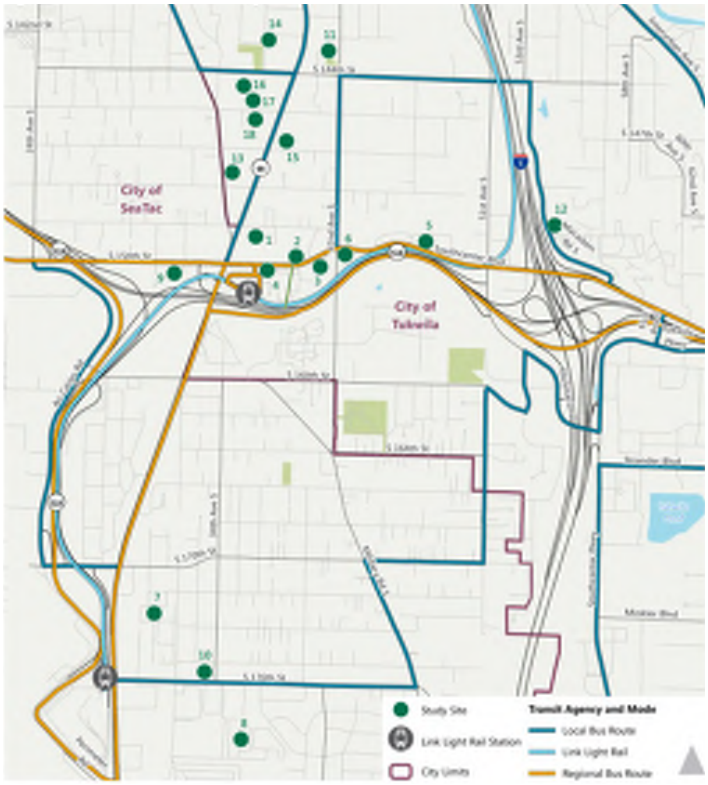


Fig. 14: Tukwila and SeaTac Study Site Locations

- Reduce multi-family parking minimums
- Develop clear policy language about the purpose and intent of on-street parking
- More directly facilitate the use of shared parking agreements between commercial and/or residential lots for off-street parking
- Create design standards that include on-street parking for new and improved streets
- Continue to monitor occupancy levels at the TIB station and transition the area to transit-oriented development

Management pilots

Pilots to test innovations in parking management, pricing, and transportation demand management to reduce parking demand were awarded to three non-profit partners at multi-family properties in King County: Capitol Hill Housing, Hopelink, and El Centro de la Raza.

The intent of the management pilots is to generate data and case studies that reflect the impact of implementing innovative parking pricing and TDM strategies. In some cases, the RSP team took various approaches to address financial incentives that would support future pricing initiatives. Strategies explored by the partner municipalities included developing shared parking strategies at multiple scales, identifying TDM strategies for affordable housing projects, and applying RSP strategies at multi-family properties with unique federal constraints and requirements. Additional support and funding for the management pilot projects was provided by the Federal Transit Administration.

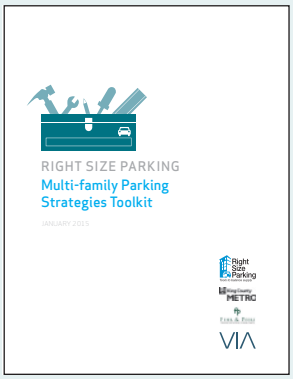
In response to stakeholder input received during the course of the pilot projects, the RSP team developed both a Multi-family Parking Toolkit and a Multi-family Development Passport transit product for use by multi-family property owners and managers. More information on these tools can be found on the following pages.

Management pilot partners

The management pilots were selected to test RSP concepts aimed at supporting regional smart growth goals of dense, compact development that leads to non-auto mode share growth, thereby promoting affordable housing, transit and other travel alternatives. Three partners were selected through a competitive bid process:

- **Capitol Hill Housing:** Test district shared parking strategies; identify a business model to coordinate shared parking at the neighborhood level
- **El Centro de la Raza:** Identify TDM and parking management tools for a planned affordable housing project using the RSP web calculator
- **Hopelink:** Implement TDM and parking management strategies at senior and low-income properties with unique needs and constraints, including federal restrictions on pricing parking

Multi-family Parking Strategies Toolkit



The **RSP Multi-family Parking Strategies Toolkit** is a guide that presents a set of tools for developers and property managers to use for managing parking supply in multi-family buildings. The toolkit addresses pricing, transportation demand management (TDM) strategies, design, and parking management as well as providing a case study and additional RSP resources.

Some of the tools presented can reduce the amount of parking needed to serve residential demand, resulting in a significant positive impact on project bottom line in terms of both construction costs and rent. Others can increase parking utilization and create new revenue streams.

By encouraging alternatives to driving, these parking strategies can help facilitate transit-oriented development, protect the environment, reduce congestion, and support local businesses. Reduced parking can also earn points in green building ratings systems such as LEED.

The tools in this guide address pricing, transportation demand management, design, and parking management. They can be applied to new developments or existing buildings, and many work best when combined in a multi-pronged approach. A case study that employed some of the recommended tools is included at the end of the document.

The “toolkit” is intended only as an overview of the best tools. Further details on implementation can be obtained from widely available publications or from a parking or transportation demand management expert.

The Multi-Family Parking Strategies Toolkit can be found online:

http://metro.kingcounty.gov/programs-projects/right-size-parking/pdf/multifamily-parking-toolkit.pdf

CAPITOL HILL HOUSING MANAGEMENT PILOT

PILOT FOCUS

District shared parking strategies and business model

CONTEXT

Capitol Hill Housing (CHH), an affordable housing provider, engaged the RSP team to develop district shared parking strategies in the Pike/Pine corridor of Seattle's Capitol Hill neighborhood as a means of managing oversupply. Shared parking fits strongly within Capitol Hill's EcoDistrict program and supports neighborhood goals of developing neighborhood-scale strategies that benefit the environment while increasing housing affordability. The RSP team analyzed current Pike/Pine parking practices and economics, reviewed best practices case studies, and provided next steps toward the creation of a district parking system. The team identified a business model that could be used to coordinate shared parking at the neighborhood level.

RSP FINDINGS

CHH carried out the bulk of the data collection and research, drawing upon its long-standing neighborhood relationships to identify and recruit initial participants for pilot leases. The team conducted focus groups with residents as well as with owners and property managers to help develop and test the pilot lease agreements. The team generally found that neighborhood stakeholders strongly support transitioning to a shared parking system. Stakeholder interviews revealed the following findings:

- Developers supply excess parking to reduce risk of a shortage; if that risk could be mitigated through shared parking strategies, parking ratios could be reduced
- Employers are concerned about the cost of employee time spent searching for parking
- Residents parking on the street tend to base parking decisions on price rather than on time spent looking for or walking to and from a more distant location

RSP RECOMMENDATIONS

The RSP team developed a four-step approach toward creating a district parking system in the Pike/Pine corridor. The progressive process, which describes an evolution from a relatively simple "Broker" model to a more complex and dynamic "Internet of Parking" model, would allow CHH to make adjustments gradually and minimize risk (see Fig. 15). Specific recommendations were made at each step regarding operations, responsibilities, and technologies.

The final report for this pilot can be accessed online:

https://capitolhillecodistrict.org/projects/pike-pine-shared-parking/

DISTRICT SHARED PARKING BUSINESS MODEL PROGRESSION

	Broker	Smart Broker	Intranet of Parking	Internet of Parking
Buyers	Residents, Buildings	*Broker* Plus Businesses	Same as *Smart Broker*	*Smart Broker* Plus Visitors
Data Collection Method	N/A	Automated	Same as *Smart Broker*	Same as *Smart Broker*
Data Collection Times	N/A	Real Time	Same as *Smart Broker*	Same as *Smart Broker*
Space Assignment	Assigned	Unassigned	Same as *Smart Broker*	Same as *Smart Broker*
Garage Assignment	Assigned	Same as *Broker*	Unassigned	Same as *Intranet*
Notification Incentives	No	Yes	Yes	Yes
Peak Demand Incentives	No	Yes	Yes	Yes
Valet Service	No	Yes	Yes	Yes
Equipment Changes	None	Occupancy Tracking	*Smart Broker* Plus Card Readers	Same as *Intranet*
Garage Communication	None	One-Way	Two-Way	Same as *Intranet*
Rental Period Length	Monthly	Same as *Broker*	Same as *Broker*	*Broker* Plus Daily, Hourly
Time Restrictions For	Businesses	Same as *Broker*	Same as *Broker*	*Broker* Plus Individuals
Target Occupancy	Low	Medium	Medium-High	High
Cost	Low	Low-Medium	Medium-High	High
Revenue	Low-Medium	Medium	Medium-High	High

Fig. 15: The recommended business model for progression toward shared parking in Pike/Pine. Table from final report, ***District Shared Parking: Program, Policy and Technology - Strategies for a More Resilient Parking System in Pike Pine***. Link to complete report provided above.

HOPELINK MANAGEMENT PILOT

PILOT FOCUS

Assistance with parking demand management and improving affordable housing resident mobility

CONTEXT

Hopelink is a non-profit community action agency that provides mobility management services in King County. Hopelink proposed implementing TDM and parking management strategies at senior and low-income properties in King County, including an exploration of parking pricing options.

In partnership with Senior Housing Assistance Group (SHAG) and Catholic Housing Services (CHS), Hopelink's Mobility Management team created Existing Conditions Reports for three SHAG properties and two CHS properties. Parking management plans were created for four of the five properties. The plans incorporated TDM best practices with site-specific factors to prioritize implementation strategies.

During the second half of 2014, prioritized strategies determined by project partners to be most feasible within the constraints of each property were implemented. Strategies specific to each study site were selected, which included shared and/or remote parking, nonmotorized infrastructure improvements, mobility management strategies, financial incentives, and parking regulation and enforcement, among others. A parking utilization assessment was conducted to gauge the relative success of the implemented strategies, and the team followed up with household surveys and staff interviews.

RSP FINDINGS

One of the primary pilot implementation strategies was the facilitation of a Transit Incentive Program (TIP) to encourage use of public transit by residents. The program, implemented across all of the study properties, was designed to reduce dependence on private automobiles, allowing residents to consider giving up vehicles or ensuring that additional vehicles are not purchased. The TIP gave participants a fully-loaded ORCA card for four months during 2014. As a result, an overall increase in resident mobility and comfort with use of transit was observed. A majority of participant survey respondents reported an increase in weekly transit use (see Fig. 16). Data collected on parking utilization showed a slight decrease in parking utilization at all properties.

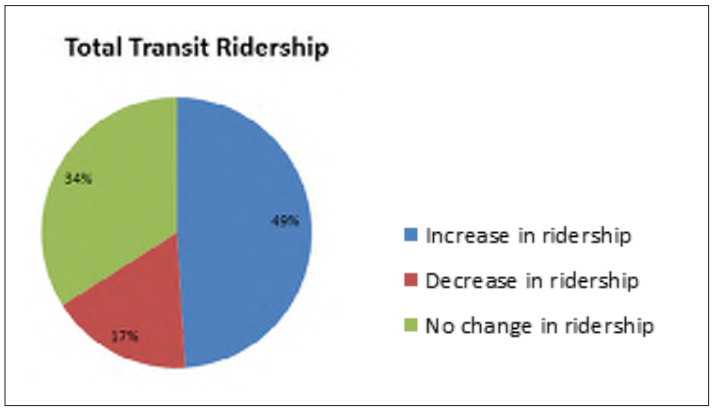


Fig. 16 A Transit Incentive Program implemented during the pilot project resulted in increased total transit ridership.

Additional implementation strategies included pedestrian safety enhancements, a Car2Go waiver for SHAG residents, and clarification of existing parking policies and operations practices.

RSP RECOMMENDATIONS

Due to the regulatory framework governing facilities built using low income tax credits, the team recognized that unbundling parking, a potential strategy explored during the course of the project, would require a policy change at the federal level.

As an outcome of the pilot project, SHAG staff expressed interest in self-funding a parking utilization assessment of a nearby park-and-ride lot as well as implementing a community rideshare program for group trips.

Hopelink is currently exploring opportunities to help partner agencies develop mobility plans for residents, develop tools to explain cost differentials between gas and transit for certain trips, and facilitate financial workshops for CHS residents who are burdened by high-interest car loans.

EL CENTRO DE LA RAZA MANAGEMENT PILOT

PILOT FOCUS

Traffic study and TDM plan

CONTEXT

El Centro de la Raza (ECDLR), a social services organization and housing provider, sought to explore and select TDM and parking management tools for application at a planned affordable housing project, Plaza Roberto Maestas. The mixed-use project and auxiliary garage would replace existing parking lots, keeping total parking in the campus context at approximately 150 stalls while bringing new residents and businesses to the site. The team was charged with determining the parking and traffic needs on the campus after completion of the project.

The RSP team worked together with ECDLR, Beacon Development Group, the project developer, and the City of Seattle's Department of Transportation to balance parking supply and demand for the entire campus. The project began with a community meeting to gather feedback about the design of the proposed parking garage. Needed parking supply was determined using the RSP web calculator. The team conducted a parking and traffic study, which included consideration of construction parking and staging as well as recommended project-related outreach efforts.

RSP FINDINGS

During the course of the project, the team learned that the Columbia City Station Apartments (CCSA), a 52-unit low-income 1- and 2-bedroom apartment building adjacent to the Columbia City Light Rail Station, has nearly filled its 23 rentable stalls while being situated in a similar restricted parking zone. Recognizing that paid parking could help the project and ECDLR in a number of ways, including inducing and underwriting transit ridership, ECDLR is exploring the possibility of charging households for parking with pricing scaled to reflect a percentage of tenant rent.

Though not an initial focus of the project, it became clear during the study that office-related parking demand will also influence parking demand in the completed ECDLR campus. To address ECDLR's office parking uses, the RSP team explored a TDM strategy that included layered parking uses throughout the day, establishing an organizational account with ZipCar for ECDLR staff members, and providing 50% subsidies for employee ORCA passes.

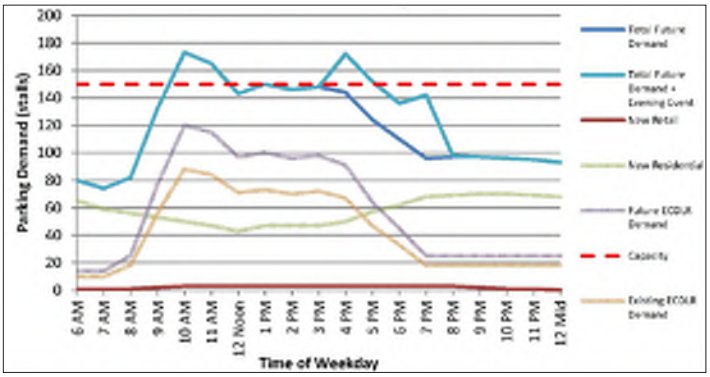


Fig. 18: Future on-site parking demand compiled for the Plaza Roberto Maestas Traffic Study.

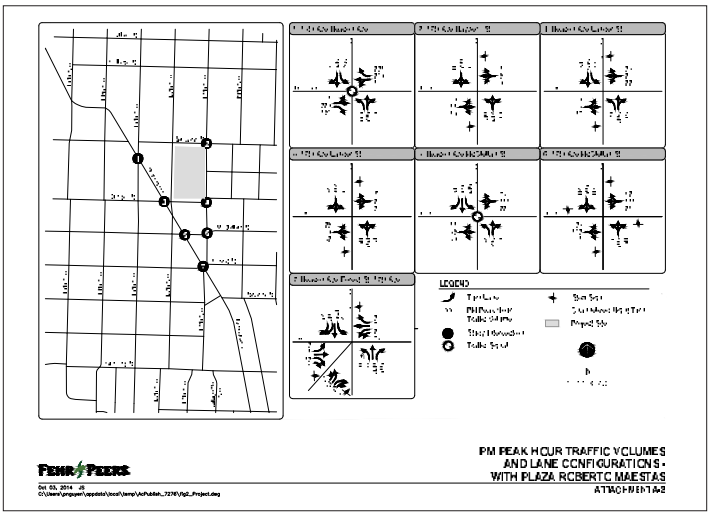


Fig. 19: Projected future peak hour traffic volumes and lane configurations from the Plaza Roberto Maestas Traffic Study.

RSP RECOMMENDATIONS

The calculator projections were used to identify TDM strategies for the completed project. The final RSP deliverable was an operating plan for TDM at the completed project that outlined guiding principles for implementing TDM and provided detailed recommendations regarding residential parking, alternative transportation, office and shared daytime parking, and event parking.

ORCA Multi-family Development Passport Pilot Program

The **ORCA Multi-family Development Passport** pilot program provides an ORCA card that is an annual transportation pass for multi-family property owners or managers to offer to residents. Participating multi-family property owners and managers purchase the ORCA cards to offer to their residents. In exchange for a substantial discount, the program requires that the ORCA card be offered to every residential unit in the building; however, participation by residents is not mandatory.

The program benefits multi-family property owners and managers by providing an amenity for residents that encourages transit use, in turn reducing traffic congestion around buildings, lessening neighborhood parking impacts, and facilitating easier building parking management. Offering this product to residents can also give building owners and managers a competitive edge in a crowded rental and real estate market and contribute to more sustainable building and transportation management practices.

Residents benefit from receiving a single card to access comprehensive transit services throughout Seattle and beyond, ensuring a convenient, flexible, and affordable transportation option for choosing how to get to work, run errands, or visit family and friends.

The cost of the passport varies depending on property location and existing transit use. After the first year of the program, the cost is adjusted based on resident participation and use from the previous year. Property owners and managers may elect for residents to co-pay up to 50% of the cost of the product.

More information on the ORCA Multi-family Development Passport program and other transportation programs available to multi-family property owners and managers can be found here:

http://www.seattle.gov/waytogo/navSeattle.htm

Stakeholder Involvement & Project Outreach 5

Telling the RSP story

Though rooted in academically-rigorous statistical analysis, it was Metro's intention that the RSP story not be solely an academic exercise. RSP's goal is to put data in the hands of those who make parking decisions in order to have a direct impact on communities, both within King County and beyond.

It was critical for the RSP project to create a call-to-action among stakeholders in order to spread the word about RSP research and to affect meaningful change in parking pricing behavior. The RSP findings tell a compelling story about the dynamics surrounding parking supply and the necessity for taking action to implement change in order to support community and regional goals.

RSP tools and education

RSP interfaces and products have been designed with ease of use and flexibility of application in mind. The primary means by which RSP research and data have been made easily accessible to stakeholders — including policymakers, project planners and developers, and the general public — is via the RSP web calculator. In order to best leverage the research and web tool products, the RSP project also developed guidelines for parking best practices that address both regulatory and property development topics.

These products, which include the RSP Model Code, the Parking Requirements and Utilization Gap Analysis, and the Multi-family Parking Strategies Toolkit, provide hands-on guidance for decision-makers and practitioners seeking to meet organizational goals through parking reform.

Stakeholder involvement

The RSP team recognized at the outset of the project that stakeholder outreach and involvement would be an essential component of sharing the RSP message and research. To that end, the RSP project sought an interdisciplinary approach, soliciting input from a wide array of parking stakeholders, developing innovative research and tools, providing best practices on policy reform and parking management, and implementing demonstration pilot projects with local partners. Stakeholder input came from a variety of forums, including focus groups as well as a methods committee of national academics and practicing professionals that guided the development of the research.

The RSP team has made a concerted and comprehensive effort to spread the word about RSP findings and tools via outreach through publications, conference presentations, and meetings with interested stakeholder groups.

The project team presented the RSP research and findings at conferences focused on issues of transportation, parking management, smart growth, real estate, land use, and urban planning. The team also presented to municipal, agency, and organizational audiences that were interested in potential applications of the RSP tools and research. RSP presentations were a feature of multiple FHWA-sponsored parking pricing and management workshops throughout the country. In addition, the RSP project was shared with student audiences at the University of Washington and the University of Oregon.

The realization and implementation of the pilot projects are also a testament to the success of the RSP outreach efforts. The project team partnered with seven developer and jurisdictional partners to successfully complete pilot projects focused on parking management and policy reform.

RSP project outreach goals and audiences

Primary RSP outreach goals included the following:

- Educate a broad range of stakeholders regarding the availability and utility of RSP tools and products
- Increase stakeholder understanding of the impacts of building too much or little parking
- Raise awareness of individual stakeholder perspectives and concerns between and among the broader stakeholder group
- Promote the website tool and other RSP products; Explain how to use the tool
- Create momentum around RSP concepts and actions within relevant industries and professions (for example, use of the web calculator by developers or policy changes on the part of jurisdictions)
- Identify new partners for RSP implementation and continued research

"Supply & Demand: A Balanced Approach to Parking" Presentation and Panel

Fig. 20: Professor Donald Shoup presents on parking supply and demand at a Right Size Parking event. Photo courtesy ULI.

In February 2013, the Urban Land Institute Northwest partnered with King County Metro to present a lunch event entitled **'Supply & Demand: A Balanced Approach to Parking'**. The event featured opening remarks from King County Executive Dow Constantine, a keynote presentation by Donald Shoup, Professor of Urban Planning at UCLA, and a panel of local industry experts. The discussion focused on issues surrounding the art and science of parking and the presentation of groundbreaking data from the Right Size Parking Project.

Key points presented by Shoup, a highly-regarded expert in balancing parking supply and demand, included the observation that municipal land use codes have a tendency to require the provision of quantities of parking that exceed actual demand. In Shoup's experience, city codes that keep street parking free or cheap and that seek to prevent spillover parking effects actually have the effect of distorting the parking market.

Shoup presented three potential solutions: implementing variable pricing for street parking that targets 85% parking space occupancy, returning parking meter revenue directly to the district in which it is generated, and removing off-street parking requirements for buildings in coordination with changes in land use.

A video of the full presentation can be found at:

https://vimeo.com/65086043

Audiences include:

- Developers of multi-family and mixed-use projects
- Financiers of multi-family and mixed-use developments
- Local government staff and decision-makers (transportation, land use/permitting, neighborhoods, economic development)
- Local, regional, national levels of public sector, industry/professional organizations
- Urban planning and architecture consultants
- Neighborhood groups with an interest in parking supply issues
- Advocacy groups with interest in the environment, smart growth, transit, health, and active transportation
- Chambers of commerce and business groups
- Academics
- Media

Project team partners

The RSP team, which included agency, private and non-profit sector partners, worked to balance issues of parking supply with competing interests while creating tools that support economic development and community goals alike. Project outreach included the range of user types and multidisciplinary experts necessary to assure a relevant and accurate product.

Within the RSP project team, several committees were organized that helped to provide guidance for the various initiatives of the RSP project, including a **Jurisdictional/ Technical Committee,** a **ULI Development Committee,** a **Methods Committee,** and an **Education Outreach Committee**. The following is a list of the key partners in the RSP project:

Federal Highway Administration (FHWA)

The FHWA provided project funding, grant oversight, and technical review of deliverables.

Washington State Department of Transportation (WSDOT)

WSDOT provided project management, grant oversight and progress review.

Center for Neighborhood Technology

Metro engaged the Center for Neighborhood Technology (CNT), a non-profit organization and leader in the promotion of livable and sustainable urban communities, to assist in the development of the project research methodology. CNT worked with Metro staff and project partners to design the research to meet RSP project goals. CNT also supported the analysis and reporting of the RSP data and produced statistical models to enable the development of data-driven tools for informing and influencing development and parking supply decisions. In addition, CNT supported the production of the website calculator tool to help disseminate project information to a broad audience of potential users.

Urban Land Institute

Metro collaborated with the Urban Land Institute (ULI) to structure the community engagement and outreach component of the RSP project. ULI reviewed the project research, explored concepts and strategies, and helped to develop and recommend guidelines and incentives to be advanced by the RSP project.

In addition, ULI established a committee to engage multi-family development professionals to support the overall program development and implementation of the RSP project. ULI was also charged with marketing and communicating the RSP work products and concepts to existing and potential project stakeholders as well as to the broader public.

Consultant team

In addition to the project partners listed above, Metro enlisted a consultant team to provide technical expertise in the various disciplines engaged by the RSP project:

- **VIA Architecture:** Urban design and planning consultants
- **Rick Williams Consulting:** Parking and Transportation Demand Management consultants
- **Fehr & Peers:** Transportation consultants
- **Kidder Mathews:** Commercial real estate consultants

The consultant team conducted local parking demand research and data collection. The team used this information to develop guidelines for best practices and strategies for addressing parking issues in complex, mixed-use urban environments. In addition, the consultant team facilitated the stakeholder committee meetings and gathered feedback from participants.

The consultant team identified potential barriers and challenges to achieving RSP goals and collaborated to provide solutions. They also developed guidelines for implementing incentive program pilot projects.

Pilot partners

The RSP project engaged several municipal and developer partners to participate in seven policy and management pilot projects to test the RSP model and findings. See Chapter 4 for more information on the RSP pilot projects.

Stakeholder committees

The RSP project organized two stakeholder committees to provide valuable input and feedback to project deliverables: the **ULI Development Committee** and a **Jurisdiction Technical Committee**. These two committees were developed to provide unique skills and experience that are necessary for effectively addressing residential multi-family parking issues in King County. The two groups met together several times throughout the course of the project to ensure efficient review and input on project concepts and deliverables, including:

- Developing a common understanding of project parameters, assumptions, and outcomes
- Discussion of public/private conflicts, finding common ground, and identifying project opportunities
- Developing ideas about function, content and target audience for the RSP website and web calculator

ULI Development Committee

The ULI Development Committee comprised a broadly representational stakeholder group consisting of ULI members representing the multi-family development community, financiers, property managers, engineers, and city planning managers.

This committee was convened to serve as a sounding board to the larger RSP project team by supporting the overall program development and implementation. The ULI Development Committee was tasked with advocating for the outcomes and solutions developed through the project and serving as a liaison to the real estate community during project implementation. In addition, the committee provided targeted support to the following RSP project efforts:

- Identification of barriers and solutions to RSP development in multi-family and mixed-use properties within King County
- Development of a list of monitoring and measurement metrics, including identification of gaps in information
- Creation of technical program guidelines, model code language and development of incentives
- Oversight of RSP community engagement and outreach, including development of a project implementation plan
- Identification of barriers to RSP and the corresponding development of innovative but practical solutions that could be implemented locally
- Contribution to the creation of products that help jurisdictions and developers build successful transit-oriented communities
- Review, revision, and testing of RSP products
- Provision of advice and feedback for the development of technical program guidelines and incentives necessary for the implementation of a new approach to parking

Jurisdiction Technical Committee

The Jurisdiction Technical Committee was composed of members familiar with the technical issues surrounding parking demand and its implications for urban development and transportation. Committee members included jurisdiction technical staff members from cities throughout King County, with a representative mix of expertise in permit review, long range planning, code writing, traffic demand management, and traffic engineering.

The Jurisdiction Technical Committee provided public sector stakeholder review and input on technical aspects of the RSP project, such as new methods to assess multi-family residential parking demand, and suggested policy and zoning regulations to allow a reduction in parking supply when appropriate. The committee provided additional support to the RSP project in the following ways:

Recommendations & Next Steps 6

The RSP project has attracted national attention. Several regions and cities around the country are currently working to replicate the RSP study and web calculator concept for their own planning purposes, including the San Francisco Bay Area, Washington, D.C., Boston, and Chicago. Many regions are reexamining parking requirements in support of pedestrian-oriented design, transit access, and a compact mix of uses to increase transportation choices. Such priorities demonstrate a long-term commitment to RSP principles such as lowering reliance on cars, and they provide justification for reductions in or elimination of requirements for off-street parking in multi-family developments.

The strategies and tools created by the RSP project offer a model to jurisdictions aiming to base parking decisions on local data and sound scientific methods, as well as to developers seeking to determine how much parking to supply in a multi-family building. In particular, the web calculator tool advanced the parking industry by developing a context-sensitive approach to predicting multi-family residential parking utilization.

Overall challenges and successes

Challenges

The primary challenges faced by the RSP team during the course of the project involved questioning and challenging institutionally-entrenched "status quo" assumptions about parking utilization and demand. These assumptions influence public perception of parking supply and demand dynamics. They provide the foundation for developer and financier decisions regarding the building of new parking in multi-family projects and are not necessarily aligned with the realities of current conditions in many urban contexts, as the RSP research revealed.

Another challenge faced by the team was ensuring property manager follow-through with research assistance during the data collection stage of the project.

Successes

RSP has significantly advanced the industry's understanding of residential parking dynamics through its high-quality, comprehensive research, originality, and transferability to other regions. RSP presentations were a feature of multiple FHWA-sponsored parking pricing and management workshops throughout the country. The RSP study was also recently featured by both ITE and the Transportation Research Board, and it has received national attention for its innovative data-driven process, strategies of public engagement, and best practice policy development.

The pilot projects have demonstrated that the results of the RSP research can help to successfully support and guide decisions about parking supply and management. RSP tools and strategies can serve as resources to inform discussions as users weigh the factors affecting parking use and consider how much parking to provide or how much to reduce parking requirements.

Top Tips for Implementing RSP

Following are the top recommendations from the project team to other cities looking to implement RSP:

- **Good communication is important.** Maintain good relationships between real estate and jurisdictional communities.
- **Data collection takes time.** Develop strong methods that can be implemented efficiently and consistently.
- **Consider your audience.** Create tools and products that are audience-specific, context-relevant and user-friendly.
- **Improve upon the research.** The RSP project is one approach to understanding the relationship between parking supply and demand, and it lays the groundwork for future research efforts. The RSP team would like to see future efforts continue to develop and improve the research methodology. This might include conducting resident surveys, analyzing vehicle licensing information, and including on-street parking counts in the project data.

Next steps for RSP

RSP data and methodologies are currently being shared with ITE and other interested parties beyond King County, leading to subsequent projects in other regions and potential inclusion in the next edition of the ***ITE Parking Generation Manual***. RSP has garnered national attention, spurring initiatives in other regions, and many communities are examining the project to identify how RSP concepts can be implemented in their area.

One of the most important aspects of the RSP project is its up-to-date and context-specific data. Because many of the areas included in the RSP data collection sample continue to experience rapid development that results in an ever-changing context, it is important that data collection and database updates remain an ongoing piece of the RSP effort. The RSP team is analyzing options for regularly updating RSP data and the website calculator to ensure the continued accuracy of the model estimates.

Current RSP goals include continuing to gather momentum on data-driven parking allocations and securing additional partnerships for pilot projects. The RSP team also plans to develop a monitoring evaluation program to measure the effectiveness of the incentive program pilot projects.

See the project website for more information on the Right Size Parking Project: http://metro.kingcounty.gov/programs-projects/right-size-parking/

GREENTRIP PARKING DATABASE CASE STUDY

The GreenTRIP Parking Database provides data from more than 65 multi-family residential sites around the San Francisco Bay Area, a region that has shown a trend in decreased car ownership in recent years.

The GreenTRIP Parking Database project built upon the research methods developed by the King County Multi-family Residential Parking Calculator. Although not a predictive model like the RSP calculator, the GreenTRIP Parking Database takes into account many similar factors, such as income and access to transit.

Working together with CNT, the GreenTRIP team used lessons learned from RSP to optimize data collection, resulting in a wider range of data for each site. The database also incorporated more about depth of affordability than the RSP data set.

The parking database can be used to search for specific sites and to view actual total parking used at a particular location or for a particular building type. Reports can be printed and shared freely with developers and decision-makers.

The Metropolitan Transportation Commission (MTC) partially funded the research that served as the basis for the GreenTRIP database, with additional support from a U.S. Department of Housing and Urban Development grant.

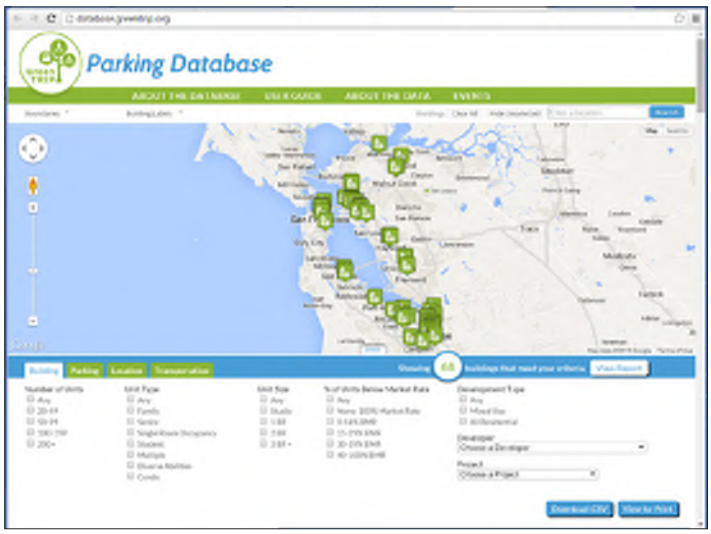


Fig. 21: The GreenTRIP user interface.

The GreenTRIP Parking Database can be found at:

http://database.greentrip.org/

Appendix 7

Right Size Parking products and tools

In an effort to ensure that the project data and findings continue to be easily accessible and usable by the full spectrum of stakeholders, the team created a set of technical memoranda, RSP "toolkit" documents, and a multifaceted web calculator tool to aid users in determining how much parking is "just enough" for a specific site. These tools, listed below, are described in further detail throughout this report (look for the RSP tool icon below) and can also be accessed online:

- **Right Size Parking Literature Review**
  Review of existing parking supply standards and studies
  http://metro.kingcounty.gov/programs-projects/right-size-parking/pdf/rsp-litreview_11-2011.pdf
- **King County Multi-family Residential Parking Calculator**
  Interactive map-based RSP web calculator
  http://www.rightsizeparking.org/
- **Right Size Parking Technical Research Memo**
  A summary of the RSP research findings
  http://www.rightsizeparking.org/Right_Size_Parking_Technical_Memo.pdf
- **Right Size Parking Technical Policy Memo**
  Provides policy-based solutions to identified RSP barriers
  http://metro.kingcounty.gov/programs-projects/right-size-parking/pdf/rsp-technical-policy-memo-final-09-17-12.pdf
- **Right Size Parking Model Code**
  A menu of RSP model code language for jurisdictions
  http://metro.kingcounty.gov/programs-projects/right-size-parking/pdf/140110-rsp-model-code.pdf
- **Parking Requirements and Utilization Gap Analysis**
  Comparison of code requirements and actual utilization
  http://metro.kingcounty.gov/up/projects/right-size-parking/pdf/gap-analysis-7-12-13.pdf
- **Multi-family Parking Strategies Toolkit**
  RSP parking management toolkit for property owners
  http://metro.kingcounty.gov/programs-projects/right-size-parking/pdf/multifamily-parking-toolkit.pdf

King County Metro web resources

King County Metro Right Size Parking website

The **King County Metro Right Size Parking website** includes an introduction to the RSP project and web tool, an overview of the project objectives, and links to project deliverables and additional resources.

http://metro.kingcounty.gov/programs-projects/right-size-parking/

King County Multi-family Residential Parking Calculator

The **King County Multi-family Residential Parking Calculator** is the interactive web tool that enables a wide variety of audiences to interact with the RSP data and apply the project research and findings to specific projects or areas.

http://www.rightsizeparking.org/

Right Size Parking Glossary

The **Right Size Parking Glossary** provides definitions for project-related terminology and further describes key project concepts and variables.

http://www.rightsizeparking.org/glossary.php

Additional resources & related research:

- Minimum Efforts: How a City Successfully Addressed Minimum Parking Requirements for Multi-family Properties, Daniel Rowe, ***Parking Professional Magazine***, November 2013. http://metro.kingcounty.gov/programs-projects/right-size-parking/pdf/parking-professional-article-nov-2013-drowe.pdf
- Do Land Use, Transit, and Walk Access Affect Residential Parking Demand?, Daniel Rowe, Ransford S. McCourt, P.E., PTOE, Stephanie Morse, and Peter Haas, Ph.D., ***ITE Journal***, February 2013. http://metro.kingcounty.gov/programs-projects/right-size-parking/pdf/ite-journal-feb-2013-drowe.pdf
- Contemporary Approaches to Parking Pricing: A Primer, U.S. Department of Transportation, Federal Highway Administration, May 2012. http://metro.kingcounty.gov/programs-projects/right-size-parking/pdf/fhwa-parking-pricing-primer.pdf
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People Over Parking

Planners are reevaluating parking requirements for affordable housing.

Carless in Seattle: Plymouth on First Hill's apartments are now home to some of the city's formerly homeless disabled population. Photo courtesy SMR Architects and Plymouth Housing Group.

By Jeffrey Spivak

Like a lot of cities, Minneapolis has experienced the dual trends of rising multifamily rents and dwindling housing affordability. For years it offered the usual carrots of tax incentives and development subsidies for residential projects with affordable units. But three years ago, it tried a different strategy: The city slashed its multifamily parking requirements in certain parts of town.

The usual ratio of one parking space for every one unit was cut in half for larger apartment projects and was eliminated entirely for projects with 50 or fewer units located near high-frequency transit. Lo and behold, the market mostly responded in the exact ways planners had predicted.

Apartment developers proposed projects with fewer parking spaces. That lowered the cost of construction. So, such projects began offering rents below the market's established levels. New studio apartments, which typically went for $1,200 per month, were being offered for less than $1,000 per month.

"There's definitely a new type of residential unit in the market that we haven't seen much before," says Nick Magrino, a Minneapolis planning commissioner who has researched apartment development trends since the parking code change. "Outside of downtown, there's

been a lot of infill development with cheaper, more affordable units."

Tinkering with minimum parking requirements is not new. Cities have been fiddling with regulations for decades, sometimes raising them, sometimes lowering them, and sometimes giving variances for specific projects. What's different now is an evolving understanding that urban lifestyles are changing, traditional parking ratios are outdated, and too much supply can be as harmful as too little.

So there's a burgeoning movement of municipalities across the U.S. reducing or eliminating parking requirements for certain locales or certain types of development or even citywide.

"This would have seemed inconceivable just a few years ago," says Donald Shoup, FAICP, a Distinguished Research Professor in UCLA's Department of Urban Planning who has studied and written about parking policies for years and is considered the godfather of the current reform movement. (See an article based on his new book, *Parking and the City:* www.planning.org/planning/2018/oct/parkingpricetherapy/ (/planning/2018/oct/parkingpricetherapy/).)

Carless in Seattle: The mixed use transit-oriented development Artspace Mt. Baker Lofts is located on the Central Link light-rail line. It has bicycle storage and a reserved car-share space, but no parking garage. Photo courtesy SMR Architects and Artspace.

Over the past three years, a Minnesota-based smart-growth advocacy organization called Strong Towns has compiled, through crowdsourcing, more than 130 examples of communities across the country addressing or discussing parking minimum reforms. And that list hasn't captured all the cities taking actions.

Communities are reforming these regulations in a variety of ways.

Some have ditched parking minimums entirely. Buffalo, New York, in early 2017 became the first U.S. city to completely remove minimum parking requirements citywide, applied to developments of less than 5,000 square feet. Late last year Hartford, Connecticut, went a step further and eliminated parking minimums citywide for all residential developments.

Some have targeted their reforms to certain areas or development districts. Lexington, Kentucky, earlier this year scrapped parking requirements in a shopping center corridor to allow the development of new multifamily housing. Spokane, Washington, this past summer eliminated parking requirements for four-plus-unit housing projects in denser parts of the city.

Some have tied new policies specifically to spur affordable housing. Seattle this past spring eliminated parking requirements for all nonprofit affordable housing developments in the city, among other provisions. A couple of years ago, Portland, Oregon, waived parking requirements for new developments containing affordable housing near transit. Also in 2016, New York eliminated parking requirements for subsidized and senior housing in large swathes of the city well served by the subway.

Even some suburbs are doing it. Santa Monica, California, removed parking requirements entirely last year for new downtown developments as part of a new *Downtown Community Plan*. And this year, the Washington, D.C., suburban county Prince George's, Maryland, revised its zoning code to significantly reduce parking minimums.

"We're trying to create a new model of mobility and not emphasize the car as much as we've done in the past," says David Martin, Santa Monica's director of planning and community development.

Building Parking Raises Rent

Parking costs a lot to build, and that cost usually ends up raising tenant rents.

$5,000: Cost per surface space

$25,000: Cost per above-ground garage space

$35,000: Cost per below-ground garage space

$142: The typical cost renters pay per month for parking

+17%: Additional cost of a unit's rent attributed to parking

Source: Housing Policy Debate, 2016

Catalysts for change

Three primary factors are driving this new reform:

1. CITIES ALREADY HAVE MORE THAN ENOUGH PARKING.

The Research Institute for Housing America, part of the Washington, D.C.-based Mortgage Bankers Association, used satellite imagery and tax records this year to tally parking space totals in different- sized U.S. cities, and determined that outside of New York City, the parking densities per acre far exceeded the population densities.

Meanwhile, two different groups — TransForm, which promotes walkable communities in California, and the Chicago-based Center for Neighborhood Technology, a nonprofit sustainable development advocacy group — have both conducted middle-of-the-night surveys of parking usage at apartment projects on the West Coast and in Chicago, respectively. They consistently found one-quarter to one-third of spaces sat empty. The Chicago center concluded "it is critical to 'right size' parking at a level below current public standards."

2. TRANSPORTATION PREFERENCES ARE SHIFTING.

A variety of converging trends point to the possibility of fewer cars in the future. Fixed-rail transit lines continue to be developed in more urban centers, and millennials are not driving as much as previous generations. Meanwhile, transportation alternatives are proliferating, from passenger services such as Uber to car-sharing services such as Zipcar. Then there's the potential of driverless cars and the expansion of retail delivery services.

3. BOTTOM LINE: WE'RE GOING TO NEED MUCH LESS SPACE TO STORE CARS.

In fact, Green Street Advisors, a commercial real estate advisory firm, analyzed what it calls the "transportation revolution" — encompassing ride-hailing services, driverless cars, etc. — and estimated that U.S. parking needs could decline by 50 percent or more in the next 30 years. (See "Future-Proof Parking," March: www.planning.org/planning/2018/mar/futureproofparking (/planning/2018/mar/futureproofparking/).)

"In the old days, you built an apartment and you expected it needed two cars," says Doug Bibby, president of the National Multifamily Housing Council, an apartment trade association in Washington D.C. "Those parking ratios are outdated and no longer valid in any jurisdiction."

Concerns about housing affordability

With the U.S. economy reasonably strong and most urban crime rates on a long-terms decline, housing costs have increasingly emerged as a hot-button issue. In Boston University's nationwide Menino Survey of Mayors last year, housing costs were cited as the number one reason residents move away, and more affordable housing was the top-ranked improvement mayors most wanted to see.

"It's on the minds of mayors now more than it has been in the past," says Kimble Ratliff , the National Multifamily Housing Council's vice president of government affairs.

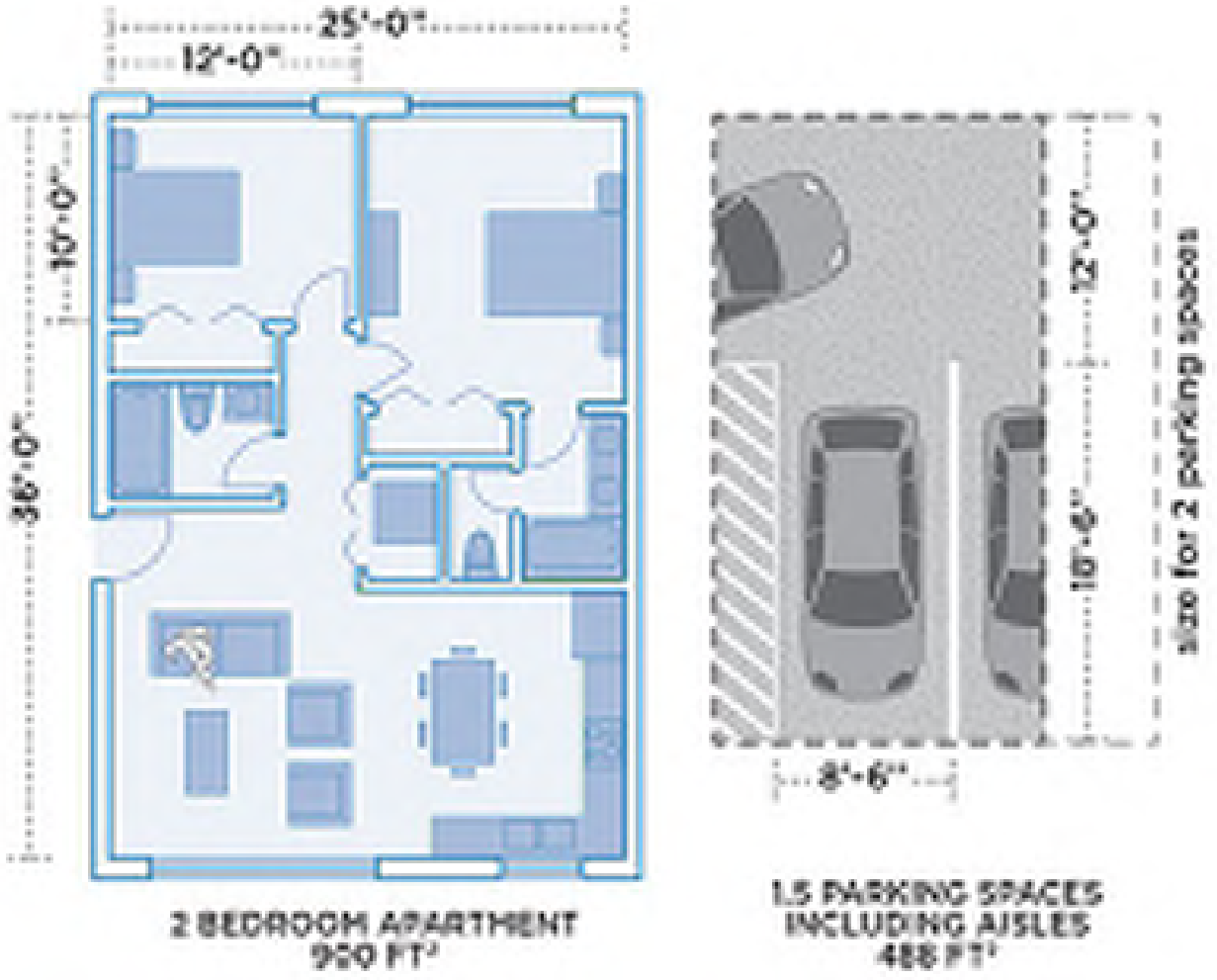
They're concerned because there's ample evidence of a continued national shortage of affordable housing. The latest "State of the Nation's Housing" report from Harvard University's Joint Center for Housing Studies noted that a decade-long multifamily construction boom has increased total occupied rental units by 21 percent, but mainly at the top end of the market. Total units deemed "affordable" — costing less than 33 percent of median income — have remained basically static during the last decade, while the number of extremely low-income renter households has grown by more than 10 percent. The 2018 report concluded that there is a "tremendous pent-up demand for affordable rental housing."

So as cities have searched for ways to generate more affordable housing, parking has emerged as an easy target. Parking ratios are simple to change, and the process doesn't lead to future cost obligations like subsidies do.

That was the approach taken by Seattle this year. "The number one issue facing our city is the lack of housing options and affordability. We're looking to remove any barriers to the supply of housing, and parking is one of them," says Samuel Assefa, the director of Seattle's Office of Planning and Community Development.

Living Space versus Parking Space

The typical median parking required for a two-bedroom apartment in many large North American cities is more than half the size of the apartment itself.



Source: Seth Goodman, graphicparking.com.

Impacts on housing costs

Planners' shifting strategies toward parking are now supported by a growing body of evidence that parking requirements negatively impact multifamily housing, especially affordable projects.

In a nutshell, building parking costs a lot, and that cost usually ends up raising tenant rents.

Various studies indicate that surface parking lot spaces cost upwards of $5,000 each, while above-ground parking garages average around $25,000 per space and below-ground garages average around $35,000 per space. That can translate into higher rent, particularly in big cities. Two UCLA urban planning professors studied U.S. rental data and reported in the journal *Housing Policy Debate* in 2016 that garage parking typically costs renter households approximately $142 per month, or an additional 17 percent of a housing unit's rent. Other studies have found even larger impacts on rents.

"That can be a significant burden on lower-income households," says David Garcia, policy director of the Terner Center for Housing Innovation at the University of California–Berkeley.

Changing that equation can help produce additional affordable housing. That's a scenario actually playing out in Portland, Oregon.

In 2016 the Portland Community Reinvestment Initiatives, a nonprofit developer and manager of low-income housing, began planning a 35-unit senior housing project called Kafoury Court. At the time, Portland's code required providing five parking spaces for the project, and the developer was struggling to find financing. But late that year, the city changed its parking requirements, and Kafoury now only needs to provide two spaces.

While that change doesn't seem like much, it allowed the development to be totally redesigned. A first-floor parking garage was no longer needed, so the building has been scaled back from five stories to four stories, which led to cost-saving ripple effects. "This has made the project financially feasible," says PCRI's Julia Metz.

She adds: "We prefer to build houses for people, not cars. When it comes down to choosing space for people or parking, we're going to choose people."

Affordable housing projects, with their lower rent revenue streams, are already challenging to finance. So parking is an increasingly key factor in whether or not a project works financially. But to developers, reducing or removing parking requirements does not mean eliminating parking supply. It simply allows developers to decide how many spaces to build based on market and locational demand.

"I've had developers say to me, 'Hey, I could make this deal work if I only had to build a garage that's one-third smaller,'" says Greg Willett, chief economist of RealPage, a provider of property management software and services. "Any way you can take costs out of the deal is meaningful."

APA Housing Initiative: Planning Home

By Emily Pasi

Planners know better than anyone the critical role that housing plays in our communities, and the severity of the U.S.'s housing affordability and availability crisis. Lack of housing choice and affordability hurts people and limits communities' prosperity. To this end, APA is actively working to develop new tools and better planning practices to encourage and deliver more and better housing options for all.

Earlier this year, APA's board of directors greenlit Planning Home, an organization-wide, multiyear housing initiative that aims to reshape the way planners, elected officials, decision makers, advocates, and the public use planning to address the nation's housing challenges.

Grounded in the philosophy that better tools can get communities the housing people need, APA's Planning Home action agenda is driven by six board-approved principles, which call on policy makers at all levels of government to:

- Modernize state planning laws

- Reform local codes
- Promote inclusive growth strategies
- Remove barriers to multifamily housing
- Turn NIMBY into YIMBY
- Rethink finance

Learn what you can do now to advance APA's Planning Home action agenda at PlanningHome.com (/home/).

Emily Pasi is the public affairs manager at APA.

'The debate is now won'

When it comes to utilizing parking to augment planning and development policies, U.S. cities still have a long way to go to catch up to some European counterparts. Zurich, Switzerland; Copenhagen, Denmark; and Hamburg, Germany, have all capped the total number of allowable parking spaces in their cities. Oslo, Norway — where a majority of center-city residents don't own cars — is pursuing plans to remove all parking spaces from that district, to be replaced by installations such as pocket parks and phone-charging street furniture.

And last year the largest city in North America, Mexico City, eliminated parking requirements for new developments citywide and instead imposed limits on the number of new spaces allowed, depending on the type and size of building.

In the U.S., however, parking is still sacred in many places. Sometimes when parking reductions are proposed for a certain urban district or a specific new development, nearby residents complain it will force new renters to park on their residential streets. Because so many people still own cars, the National Multifamily Housing Council's *2017 Kingsley Renter Preferences Report* ranked parking as renters' second-most desired community amenity, behind only cell-phone reception.

Not surprisingly, then, some places are still demanding more parking, not less. In Boston, for instance, an influx of new residents clamoring for parking in the booming South Boston neighborhood led to zoning code changes in 2016 that require developers to build two-thirds more off-street parking than before.

Nevertheless, the movement to reduce parking is now widespread, involving big cities and small towns, urban districts and suburban locales, affordable housing and market-rate units. "It's pretty well accepted now that reforming parking minimums is a good way to manage cities," says Tony Jordan, founder of Portlanders for Parking Reform, which has advocated for better parking policies. "The debate is now won."

The lessons for planners are, first, to be open to adjusting parking policies in zoning codes and comprehensive plans and, second, to be flexible in crafting new parking limits depending on the location or desired outcome, such as spurring affordable housing development.

"As we update our policies, we as planners need to learn from the past and adjust," says Seattle planning director Assefa. "We constantly need to tweak our policies and face the challenges of what's not necessarily working. More often than not, there's significant space dedicated to the car that is not utilized."

Jeffrey Spivak, a market research director in suburban Kansas City, Missouri, is an award-winning writer specializing in real estate planning, development, and demographic trends.

RESOURCES

APA Knowledgebase Collection, "Rethinking Off-Street Parking Requirements": www.planning.org/knowledgebase/parkingrequirements (/knowledgebase/parkingrequirements).

Harvard University Joint Center for Housing Studies' *The State of the Nation's Housing 2018*: hjchs.harvard.edu/state-nations-housing-2018 (http://hjchs.harvard.edu/state-nations-housing-2018).

Center for Neighborhood Technology, "Stalled Out: How Empty Parking Spaces Diminish Neighborhood Affordability:" http://bit.ly/2Mr0bES (http://bit.ly/2Mr0bES).

Strong Towns keeps track of progress on parking minimum removals across the U.S. http://bit.ly/2C1t86k665600 (http://bit.ly/2C1t86k665600).

Ontario town's experiment using Uber as public transportation is working, officials say

Innisfil – located just south of Barrie and home to about 36,000 people — has paid $26,462.41, or an average of $5.43 per trip, for 4,868 Uber rides taken in the two months since launching the unique-to-Canada project on May 15

Alicja Siekierska

August 8, 2017
5:18 PM EDT

Filed under
Transportation

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The town of Innisfil, Ont. is hailing its two-mo subsidize Uber as the lone form of public trar nearly 5,000 trips taken since the pilot projec

Innisfil — located just south of Barrie and hor people — has paid $26,462.41, or an averag 4,868 Uber rides taken in the two months sin unique-to-Canada project on May 15.

“We are really pleased we did go this route,” a senior policy advisor with the town.

“This partnership with Uber had definitely pro cost effective for us, being able to provide thi residents. You don’t need to be within walkin or a bus route, so it’s something that works fo

More

Last summer, Innisfil's city council was at a c
additional transportation options across the s
declared a key priority in the community's str
found that a fixed-route bus service would be
tag of $270,000 per year for one bus, and $6

Instead, the town decided to partner with glob
Uber to launch a partnership to provide on-de
Innisfil residents that is partially subsidized by
Passengers pay between $3 and $5 for set ro
such as to Town Hall and the GO train statior
for all other rides within town.

Pentikainen and Tim Cane, Innisfil's manage
will provide city council with a two-month upd
on Wednesday.

So far, demand is keeping pace with the budg
Innisfil's council committed $100,000 for the f
and an additional $125,000 next year.

There are certain times where meeting dema
but according to Uber people have been able
time," Pentikainen said.

"As a 24/7 service, we're quite pleased," Pen
that using Uber as an on-demand public tran
the best option for the town for the foreseeab

"With our large geography, the distance betw
bus routes to provide the same level of servic
expensive," he said. "Maybe decades into the
much higher population we may look at other
right now this is working for us."

Pentikainen added that, in the short term, the
to tweak the service to make it more efficient
users, as well as surveying residents about th

Uber spokesperson Susie Heath said the ride
pleased with the results of the report that was
will be presented on Wednesday.

“Since we launched this exciting public transi
has been great to see Innisfil residents acces
demand rides to get around their community
transit hubs,” Heath said in an emailed stater

“We look forward to continued dialogue with
transit authorities across Canada to explore s

The past several months have proven to be a
ride sharing company. In June, chief executiv
resigned after a lengthy investigation that wa
former engineer publicly accused the compar
and discrimination. The report, conducted by
General Eric Holder, had many recommenda
Kalanick’s authority should be reduced.

Toward Zero Parking: Challenging Conventional Wisdom for Multifamily

By David Baker and Brad Leibin
July 2, 2018

The 69 condos in 388 Fulton (left center) in San Francisco's Hayes Valley sold easily in 2017 without any structured parking being provided. (Bruce Damonte)

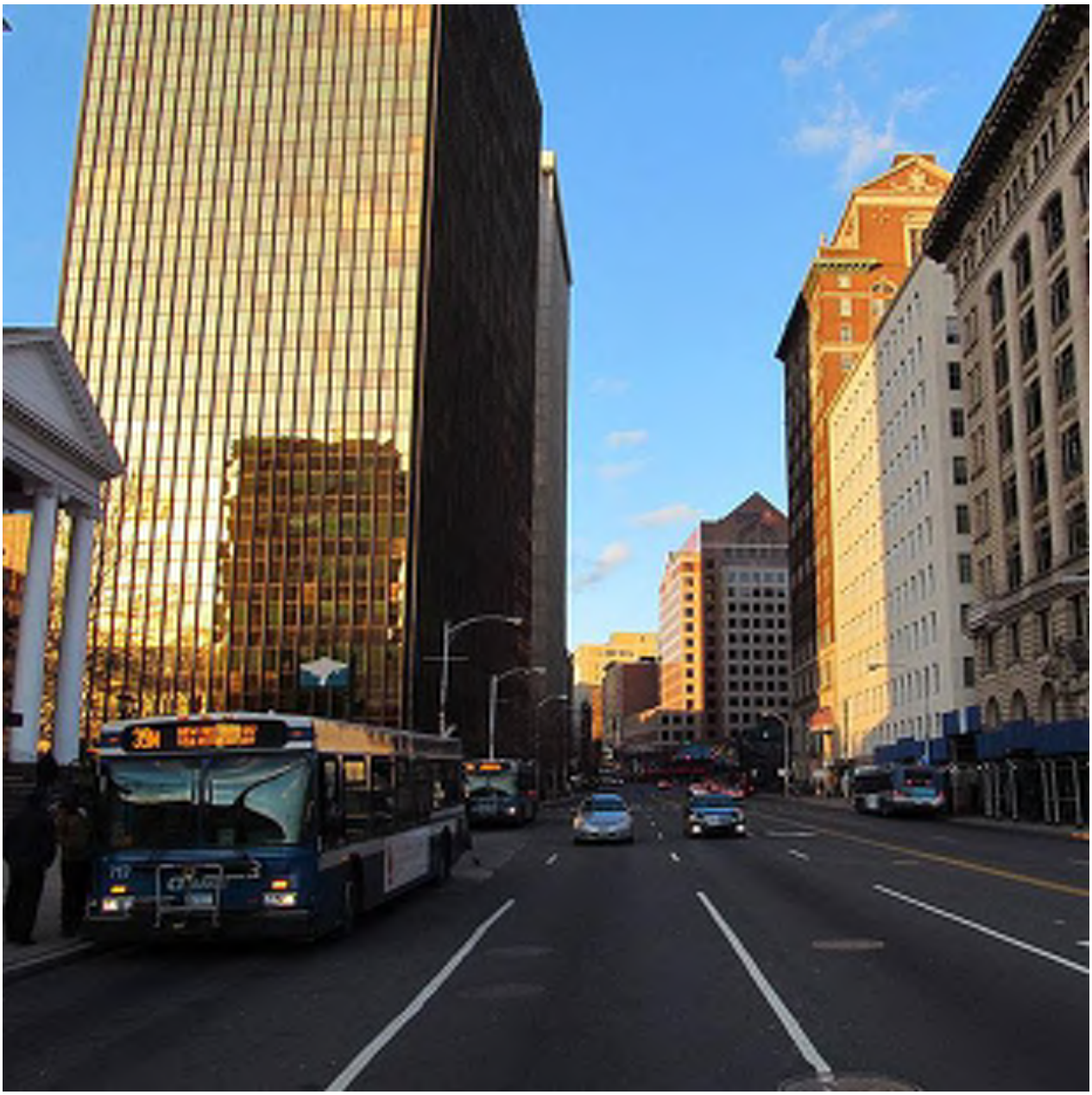
This article appeared in the spring issue of Urban Land *on page 146.*

The rising popularity of human-powered transportation, walking and bicycling, and widespread availability of ride-hailing services like Lyft and Uber plus car-sharing services like Zipcar and Getaround, and the introduction of same-day delivery services have all reduced the need for individuals to own—and park—cars.

At the same time, costs of construction are at historic highs in dense urban areas, creating a challenge for developers to meet housing demand. Individual unit sizes are shrinking in response, allowing greater density. However, with smaller units, the number of parking spaces goes up, too, if traditional parking ratios hold. High construction expenses result in a very high per-space cost for parking spaces, especially for structured parking, which can run $50,000 or more for a single space.

In response to these factors, municipalities are changing the way they handle parking. Cities around the United States are eliminating minimum parking requirements for new developments.

Last year, officials in Buffalo, New York, removed parking minimums citywide for commercial and residential projects of less than 5,000 square feet (465 sq m). Also last year, Hartford, Connecticut, scratched parking minimums across the city for commercial and residential developments, regardless of size. Many other municipalities have removed parking minimums for at least one part of the city or have lowered or removed minimums for certain uses. San Francisco has gone a step further, establishing parking maximums for downtown and nearby areas well served by public transit, capping the amount of parking that developers are allowed to build for multifamily housing.



In 2017, Hartford, Connecticut, scrapped parking minimums across the city for commercial and residential developments, regardless of size. (John Phelan/Wikimedia Commons)

Nevertheless, even multifamily housing developers who support creating walkable neighborhoods and prioritizing alternative forms of transit still think they need to follow traditional parking ratios or the units will not rent or sell. What

follows are common concerns we have heard in our architecture practice, as well as the experiences and counterarguments we have come across that make us optimistic about reaching a future in which parking plays a much-diminished role in the urban environment.

1. Will planning commissions embrace attempts to reduce or eliminate parking?

About 20 years ago, a development proposal came before the San Francisco Planning Commission: a new restaurant with two residential units above and no parking spaces for the residents. Even though the project was small, dozens of neighbors showed up at the commission hearing to share their fears about the loss of street parking. The commission chairman responded by saying, "I moved from Manhattan to San Francisco so I could park." The commission voted down the no-parking proposal. Back then, the primary concerns of neighbors of proposed projects were increased traffic and competition for street parking.

In the intervening years, as voter attitudes toward automobiles have changed, the San Francisco Planning Commission has reversed its approach.

In 2005, the commission established caps specifically addressing the amount of parking developers can build for multifamily housing downtown and nearby areas well served by public transit. The commission encourages projects with active uses on ground floors, and not requiring parking makes this easier by freeing space for commercial or residential use and obviating the need for a wide parking garage door on the street. Limiting driving also reduces infrastructural maintenance costs. Last year, San Francisco's Transportation Demand Management Ordinance acknowledged that parking generates auto traffic (rather than the converse—that traffic is mainly caused by cars circling in the hunt for scarce parking, which is often the pro-parking argument).

2. What about irate neighbors?

Although some community groups still push developers to add parking, many neighborhood associations are now recognizing that car ownership is dropping. We recently designed a project in central San Francisco, the Brady Block, which will have about 600 new units of housing, a new office building, and new public realm and streetscape improvements on Market Street. The parking ratio is about 0.5 spaces per apartment. The local neighborhood group, the Hayes Valley Neighborhood Association, would have preferred that the ratio be 0:1, and, in fact, we were concerned members would come to the Planning Commission hearing to demand less than the 0.5 ratio. In the past, we would face local resident groups who would oppose projects for the opposite reason.

Urban advocacy groups have played a key role in changing public opinion. Locally, these include SPUR (San Francisco Bay Area Planning and Urban Research Association), Livable City, the San Francisco Bicycle Coalition, TransForm, and the San Francisco Housing Action Coalition, among others. They have been highly active in encouraging reliance on—and infrastructure support for—walking, bicycling, and transit, and they endorse developments that deemphasize reliance on the automobile.

In place of parking in San Francisco, Curran House's ground floor includes community spaces, a peaceful courtyard, office space for the building developer, and additional affordable family-sized units. (Brian Rose)

3. Even if residents say they drive less, don't they really want to own a car?

We have not found this to be the case.

An example is one of our recently completed projects, Potrero 1010, a 453-unit mixed-use, mixed-income development in San Francisco's Potrero neighborhood. Developed by Chicago-based Equity Residential, Potrero 1010 has 0.65 parking spaces per unit, which was the city's allowed parking maximum, and the parking spaces are not bundled with the units but available for rent separately.

About half of the parking spaces are rented, while the others remain empty, indicating that the development could have succeeded with half the parking. The building promotes walkability and alternative forms of transit: it has extensive bike storage with bike repair stands, and it is organized around a new city-owned one-acre (0.4 ha) park accessible to the public via a midblock passage lined with active uses.

4. Renters may be willing to forgo cars, but what about condominium buyers?

We designed a no-parking condo building, 388 Fulton, in Hayes Valley, San Francisco, for local developer 7×7 Development, with 69 studio and two-bedroom market-rate units. Even with zero parking, the units sold out easily in 2016 and early 2017.

5. Don't residents prefer the security of driving in their own cars?

At 388 Fulton, most of the 35 325-square-foot (30 sq m) micro-unit studios were purchased by single women in their 20s and 30s. This challenges the idea that car ownership is perceived as safer even though parking garages are high-crime areas. With the ubiquity of ride-hailing services, residents can walk out their front door, hop in a vehicle, and get dropped off at their destination rather than risk having to drive themselves, park several blocks from their destination, and walk the remaining distance, or walk through a parking garage getting to and from a car.

The Brady Block, in design in San Francisco, will have 600 new units of housing, a new office building, a new public realm, and streetscape improvements on Market Street—plus a 0.5:1 parking ratio. (David Baker Architects)

6. How can affordable-housing developers and operators help residents travel to jobs and schools without providing parking?

"While our priority is to provide housing, we do not want simply to pass the cost of parking on to our residents," says Jerry Jai, senior project manager at East Bay Asian Local Development Corporation (EBALDC), an Oakland-based nonprofit provider of affordable housing. "If we don't offer parking, does that limit job opportunities? What about costs due to towing, break-ins, and parking tickets?"

Jai notes that car ownership is not just about quality of life; it can also help parents transport their kids to school. "We don't want to be in a patronizing position where we say to residents, 'You should be able to get by without parking.'" However, Jai points to new sources of funding like California's Affordable Housing and Sustainable Communities Program (AHSC) as a promising opportunity. "Sources like AHSC are exciting because they encourage affordable-housing developers to build in transit-rich areas and to increase transportation connections—bus, light rail, etc."

Not paying to build parking can also free up money to provide other supportive resources to residents in need. In San Francisco's Tenderloin neighborhood, Curran House, completed in 2005, has 67 affordable family apartments an

parking spaces. Most of the low-income residents cannot afford a car, and the central site has excellent public transit connections. Providing parking would have added several million dollars to the construction cost.

By not spending money—or dedicating space—for structured parking, the nonprofit housing developer, Tenderloin Neighborhood Development Corporation (TNDC), was able to provide additional units, a courtyard, space for supportive services, neighborhood-serving retail space, and office space for itself.

Our firm is working on another project with TNDC, 222 Taylor Street, just a block from Curran House on the site of a former parking lot. The design includes 113 affordable family apartments and no parking, reserving the ground level for a much-needed community grocery.

Now that Congress's overhaul of the federal tax code has lowered the tax rate for corporations and federal affordable housing tax credit programs have less value to corporations, developers of affordable housing will be even more strapped for funds, and eliminating parking will become even more essential as a strategy for meeting housing demand.

7. Will lenders be willing to finance low- and no-parking developments?

Developers who plan to build multifamily housing and then sell it have to convince equity investors and loan committees to accept lower parking ratios. The investment community is often reluctant to embrace lower amounts of parking, fearing that renters and especially buyers will be turned off, particularly in places outside highly dense urban areas like San Francisco.

However, this is changing, says Will Goodman, vice president of San Francisco–based Strada Investment Group. "There is an evolution happening with the investment community to accept no parking or low parking," he says. "We are seeing parking utilization rates go down in new buildings and technologies like ride share expanding. So, investors are increasingly buying into the story that most people don't need parking day to day, especially if they are in an area that is near to transit and where traffic is bad. In these locations, people are typically not driving to work. They may want a car for weekend excursions, but it does not need to be on site."

Particularly in super-hot markets like San Francisco, there are many precedents that investors can look at to understand that renters are willing to forgo on-site parking. But even in slightly cooler markets like downtown Oakland, Goodman says he is finding that investors are willing to take the risk.

Strada is about to break ground on a new luxury high-rise rental development in downtown Oakland, where there has not been a luxury high-rise completed since 2009. "All the comps are based on 2009 or pre-2009 parking-to-dwelling-unit ratios, which are 1:1," Goodman says. "There were some members of the investment community who were not comfortable with not providing parking. We were ultimately able to find the right investors who saw the project as representing the future of Oakland development. They understood that this is a project in an extremely transit-rich part of the city. Additionally, there are a number of garages nearby so that our residents could have a secure parking space off site."

The simplest solution is for municipalities to put parking maximums in place for transit-rich areas, as San Francisco has done. These maximums change the culture, providing successful examples of developments with limited parking, which consequently makes it much easier for developers to persuade investors to get behind low- and no-parking developments.

Even in more car-oriented markets, some developers are seeing an opening for reducing parking. In Minneapolis, we are working with local developer Lander Group on a mixed-use residential project on a 1.5-acre (0.6 ha) site in the Lyn Lake neighborhood. It is in the conceptual design phase, and the developer aims to balance density and parking requirements with a desire to create a vibrant streetscape and public realm.

"The larger projects with institutional investors are going to be very cautious about reducing parking ratios," says Michael Lander, founder and president of Lander Group. "But lenders are starting to understand that in some of the denser, more transit-rich markets there is not as much need for parking. And they know the enormous cost of parking. So there is beginning to be a changing of the status quo."

In San Francisco's Tenderloin neighborhood, 222 Taylor (left) is replacing a little-used parking lot with 113 homes for low-income residents and a neighborhood-serving grocery store. (David Baker Architects)

8. Millennials may be forgoing car ownership, but are baby boomers still attached to owning their own cars?

Even many baby boomers are beginning to question the need for cars and parking, Lander says. "The baby boomer generation in the Midwest is often still saying the same thing when it comes to proposed new developments: 'not enough parking, too much traffic.' It is a relearning process for baby boomers," says Lander. "When empty-nesters move downtown, they often bring two cars. But once they try the alternatives, like ride share, many of them reconsider the practicality of owning more than one vehicle."

9. Does this idea have traction beyond San Francisco?

Last year, San Francisco developer Panoramic Interests proposed building 1,031 market-rate apartments near the West Oakland station on the Bay Area Rapid Transit (BART) system and providing no parking for residents. The project is going through the approval process. Also in Oakland, EBALDC is looking for creative ways for projects to make economic sense despite rapid construction-cost escalation. One of these ways is reducing or eliminating parking. "The elimination of parking in one of our recent projects resulted in major savings, which made the difference between a feasible project versus one that was not," says Jai.

Even outside coastal markets, possibilities exist to minimize parking. "Midwestern cities like Minneapolis are different from denser, more transit-rich cities," Lander says. "There is more need for a car. So, I think there will still be a lot of auto mobility in the future, but many more alternatives to private ownership like Uber and car-sharing services. This will significantly reduce the need for parking."

10. Is the preference for not owning a car just a short-term trend?

A future not dominated by privately owned cars may be a long way off, but increasingly the use of a car is becoming detached from the need for parking. In urban areas, driverless taxis are likely to hit the streets much sooner than anticipated. Waymo, Google's self-driving car project, has teamed with Fiat Chrysler Automobiles to announce plans to

start offering driverless ride-hailing service in Phoenix by the end of this year. General Motors plans to launch a fleet of driverless taxis in multiple cities in 2019. At the same time, municipalities that once focused on providing ample street parking are now prioritizing bus stops, loading zones, bicycle lanes, and ride-hailing stops.

The days when multifamily housing developers must provide individual parking spaces are numbered. "Who knows? Perhaps in 20 years, no one will be having this debate because of autonomous vehicles, ride sharing, and improvements in public transportation," says Jai. "We need to remember that we are building housing that is supposed to last 50 years."

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Juergen Fenk Appointed Chairman of ULI Europe

By Trisha Riggs
July 6, 2018

Text Size: A A A

Juergen Fenk, member of the Group Executive Board of SIGNA Group, has been named the new chair of ULI Europe. Fenk, who succeeds Jon Zehner, global head of the client capital group for LaSalle Investment Management, will serve on a voluntary basis for a two-year term.

Fenk brings extensive ULI leadership experience to his new role. A member of ULI for over a decade, Fenk has just completed a four-year term as chair of ULI Germany, ULI's second largest national council in Europe. He is also a Global Governing Trustee, a member of ULI Europe's Executive Committee, and serves on ULI's Global Board of Directors.

"On behalf of all of the ULI members in Europe, I would like to thank Jon Zehner for his visionary leadership over the past two years," said Fenk. "During Jon's term as chair, ULI Europe has grown rapidly to nearly 3,500 members, and expanded the opportunities for members to engage by increasing the number of National Council events, creating new Product Councils, and advancing programmes such as UrbanPlan. Undoubtedly one of Jon's greatest achievements as chair is the creation of our new Strategic Plan that will act as ULI Europe's roadmap for the next four years."

Fenk will lead the implementation of the ULI Europe Strategic Plan, which is part of ULI's Global Strategic Plan, recently approved by the Institute's Global Board of Directors. The four-year plan strives to strengthen member engagement and expand its impact around the world. The Europe Strategic Plan will focus on five key areas: growing individual and corporate membership in the region; strengthening ULI's position in Europe as a multi-disciplinary real estate and land use knowledge network, which leads in applying big ideas and emerging trends to business practices; further developing National Councils and Product Councils to increase member engagement; focusing on mission-driven activities, such as UrbanPlan and Advisory Services to distinguish ULI from other organizations; and establishing a financially resilient platform for sustainable growth.

"ULI in Europe is in an exciting phase of its development," said Fenk. "The approval of the new Strategic Plan will provide us with the focus and investment needed to grow our membership, develop our networks, and expand our reach across Europe. Our approach will be to continue building each National Council by developing its local programme and growing its membership, while at the same time increasing the knowledge sharing and collaboration between councils to ensure we build a truly European network."

"ULI's global and genuinely multi-disciplinary membership is something that makes us unique among real estate organisations. ULI's origins in Europe have always made it more historically focused on capital markets and finance, and while we want to maintain our strong presence in this area, we also want to continue our growth in other sectors and disciplines to ensure we are truly reflective of the whole real estate market," continued Fenk. "Advisory Services is one programme that can really help us broaden our engagement with the public sector. During my term as chair for ULI Germany, we undertook an Advisory Services panel in Frankfurt / Offenbach. The panel not only tackled an important real estate challenge for the city, but really helped drive engagement between members and facilitated a much richer dialogue