

MEMORANDUM

Date: August 18, 2021

To: Kayla Zander & Melissa Soots
Carleton Hart Architecture, PC
830 SW 10th Avenue
Suite 200
Portland OR 97205

From: Frank Charbonneau, PE, PTOE

Subject: Parking Analysis Study FL2167
Plambeck Gardens Apartments
SW Boones Ferry Road, Tualatin

In conjunction with the Plambeck Gardens Apartments' development being planned in Tualatin on SW Boones Ferry Road a parking study has been conducted. The study was performed to establish a supportable parking rate applicable for Plambeck Gardens and the construction of 116 affordable dwelling units. Although not yet finalized the site design will provide 170 parking spaces. According to City code and direction from City of Tualatin Planning staff a total of 188 parking spaces are required. Figure `a` in the appendix serves as the site plan schematic.

The new affordable housing facility is being developed by the Community Partners for Affordable Housing (CPAH) and is situated along the east side of SW Boones Ferry Road between SW Norwood Road and SW Greenhill Lane at addresses #23500 & #23550 SW Boones Ferry Road. The development is being funded by the Washington County Metro Affordable Housing Bond and a 4% LIHTC. At close of the construction loan a Reservation and Extended Use Agreement with the State will require all units be restricted to rents that are affordable to people at 60% of the Area Median Income for 60 years. A similar agreement will be recorded with Metro which will restrict the rents of some units further to 30% for people earning area median income. This restriction is also for 60 years.

Vehicular access to the site includes one main access located on SW Boones Ferry Road in the property's northerly area. A second access for emergency vehicles will be positioned in the site's south property corner. A vicinity map is included in the appendix as Figure 1. A future access connection to a proposed residential development to the south is also provided. The access will remain closed off by bollards and curbing as the timing of the connection is unknown.

The site will accommodate a total of 170 on-site parking spaces yielding a parking ratio of 1.47 spaces per dwelling unit. A parking rate of 1.62 would be required according to City code. Since local parking data was not available for affordable housing it was necessary to perform parking surveys at three similar apartment complexes and establish rates for comparison to Plambeck Gardens' parking capacity. Parking rates for affordable housing as published in the ITE Parking Generation Manual were also reviewed in the analysis.

The following three affordable housing facilities were selected for the surveys after conferring with the City's planning department.

- **Autumn Park Apartments** are located at 10922 SW Wilsonville Road in Wilsonville and contain a total of 144 units. There are 275 on-site parking spaces. Limited on-street parking is available in the area and none were observed to be used during the survey. Tenants are not charged to park in the facility's lot. From the survey conducted on 7/20/21 (Tuesday) & 7/21/21 (Wednesday) between the hours of 10PM to 2AM the number of vehicles parked ranged from 201 cars to a maximum of 216 cars. At the peak 79% of the lot's capacity was used. The parking ratio in terms of the maximum number of vehicles parked per apartment unit was 1.50.

Transit accommodations near the facility include Tri-Met bus stops along SW Wilsonville Road for #4 – Wilsonville Road. The nearest stops in terms of walking distance from the Autumn Park Apartments are located at approximately 1,300 feet & 1,600 feet northeast of the intersection at SW Wilsonville Road and Willamette Way. The nearest stop for light rail (Westside Express) is 1.6 miles from the site. Figure 2 illustrates the apartments' location and the nearest bus stop locations.

- **Woodridge Apartments** are located at 11999 SW Tualatin Road in Tualatin and contain a total of 264 units. There are 391 on-site parking spaces. No on-street parking is available in the area. Tenants are not charged to park in the facility's lot. From the survey conducted on 7/20/21 (Tuesday) & 7/21/21 (Wednesday) between the hours of 10PM to 2AM the number of vehicles parked ranged from 306 cars to a maximum of 317 cars. At the peak 81% of the lot's capacity was used. The parking ratio in terms the maximum number of vehicles parked per apartment unit was 1.20.

Transit accommodations near the facility include Tri-Met bus stops along Highway 99W for #93 – Tigard/Sherwood and #94 – Pacific Hwy/Sherwood. The nearest stops in terms of walking distance from the Woodridge Apartments are located along Highway 99W between SW 124th Avenue and Hazelbrook Road at approximately 390 feet & 1,760 feet. The nearest stop for light rail (Westside Express) is 2.5 miles from the site. Figure 3 illustrates the nearest bus stop locations.

- **Greenburg Oaks Apartments** are located at 11905 SW 91st Avenue in Tigard and contain a total of 84 units. There are 107 on-site parking spaces. On-street parking is available along SW 91st Avenue and on SW Lincoln Avenue. The number of apartment related vehicles that parked on these streets were included in the survey. Tenants are not charged to park in the facility's lot. From the survey conducted on 7/20/21 (Tuesday) & 7/21/21 (Wednesday) between the hours of 10PM to 2AM the number of vehicles parked (including on-street) ranged from 101 cars to a maximum of 106 cars. At the peak 99% of the lot's capacity was used. The parking ratio in terms the maximum number of vehicles parked in the lot per apartment unit was 1.26.

Transit accommodations near the facility include Tri-Met bus stops along SW Greenburg Road for #76 – Hall/Greenburg and #78 – Denney/Kerr Parkway. The nearest stops in terms of walking distance from the Greenburg Oaks Apartments are located at approximately 1,120 feet & 990 feet, adjacent to the SW Lincoln Avenue intersection on SW Greenburg Road. The nearest stop for light rail (Westside Express) is 0.5 miles from the site. Figure 4 illustrates the nearest bus stop locations.

Currently there are Tri-Met bus stops located on SW Boones Ferry Road south of the Plambeck Gardens property. Route #96 – Tualatin/I-5 travels along SW Boones Ferry Road. The southbound bus stop is located at the Greenhill Lane intersection at a walking distance of approximately 0.20 miles from the site. The northbound bus stop is located 1,190 feet south of the Greenhill Lane intersection at a walking distance of approximately 0.43 miles from the site. The nearest stop for light rail (Westside Express) is located 2.4 miles from the site. Figure 1 illustrates the bus stop locations.

It is noted that Tri-Met’s planning department has indicated the agency will work to establish additional bus stops along SW Boones Ferry Road in the area adjacent to the Plambeck Gardens and Autumn Sunrise developments when the projects are complete. CPAH is supportive of Tri-Met and the City of Tualatin’s efforts to increase the availability of public transit in the Basalt Creek Planning Area.

The parking survey periods were selected in order to account for the maximum parking conditions. According to the ITE Parking Generation Manual, 5th edition, January 2019 the peak parking demand for multi-family facilities (land-use code #221) occurs during the hours of 12:00-4:00AM. A copy of the ITE time-of-day parking distribution is included in the appendix.

The surveys counted the number of vehicles parked in the lots and on the adjacent streets where applicable. The data was recorded every 15 minutes. Summaries of the survey results are included in the appendix.

For the three sites combined the peak demand parking ratio equated to 1.30 cars per unit as referenced in the following table.

Table 1 Peak Parking Demand for Survey Sites

Facility Name	Available Spaces	Occupied Spaces	Apartment Units	Parking Demand
Autumn Park	275	216	144	1.50
Woodridge Apts	391	317	264	1.20
Greenburg Oaks	107	106	84	1.26
Average Peak Parking Demand (occupied spaces/unit)				1.30

Application of the peak demand rate (1.30) determined that 151 spaces are needed at Plambeck Gardens and the site design will include 170 spaces. Reference Table 2 below.

Table 2 Projected Peak Parking Demand for Plambeck Gardens

Plambeck Gardens (proposed #apartments)	116
Projected Peak Parking Demand (spaces) ¹	151

¹ Estimated Parking Demand = Peak Average Parking Demand rate x Plambeck Gardens apartment count

The ITE parking rates for affordable housing (land use code #223) applied the 85th percentile values on a per unit and per bedroom basis (no definition was provided on the number of bedrooms factored into ITE’s rate). Applying these rates equated to the following peak parking results.

Table 3 ITE Peak Parking Demand

ITE Rate	Units	Peak Demand
1.33 Spaces/Unit	116 Apartments	155 spaces
0.82 Spaces/BR	206 Bedrooms	169 spaces

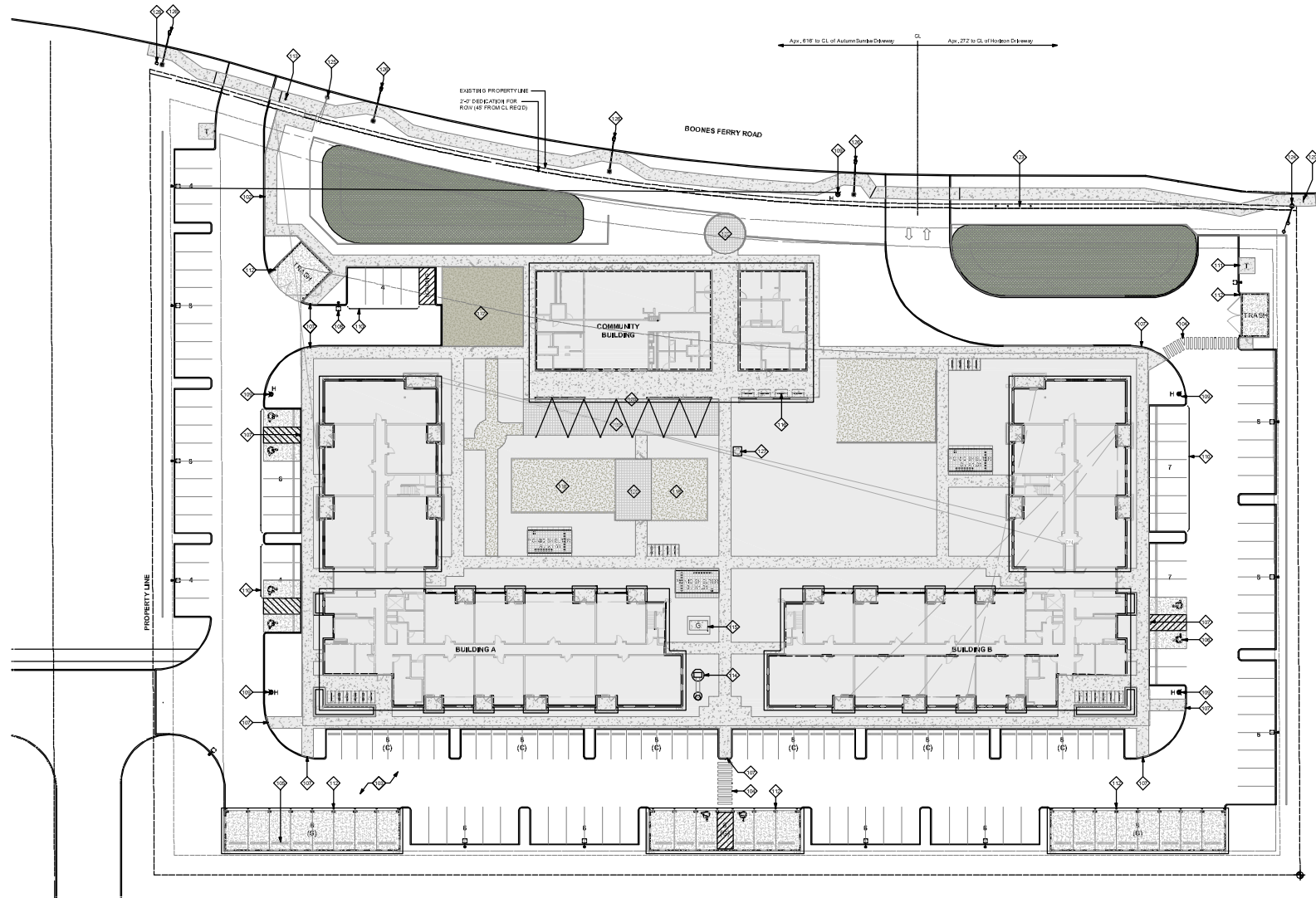
Plambeck Gardens Apartments will provide 170 on-site parking spaces which exceeds both the ITE maximum projection for spaces per unit and spaces per bedroom as well as exceeding the project parking demand of 151 parking spaces based on the survey's rate of 1.30 spaces per unit. Therefore, considering the maximum ITE's rate and the rate from several similar housing facilities, sufficient parking capacity will be provided at the Plambeck Gardens site.

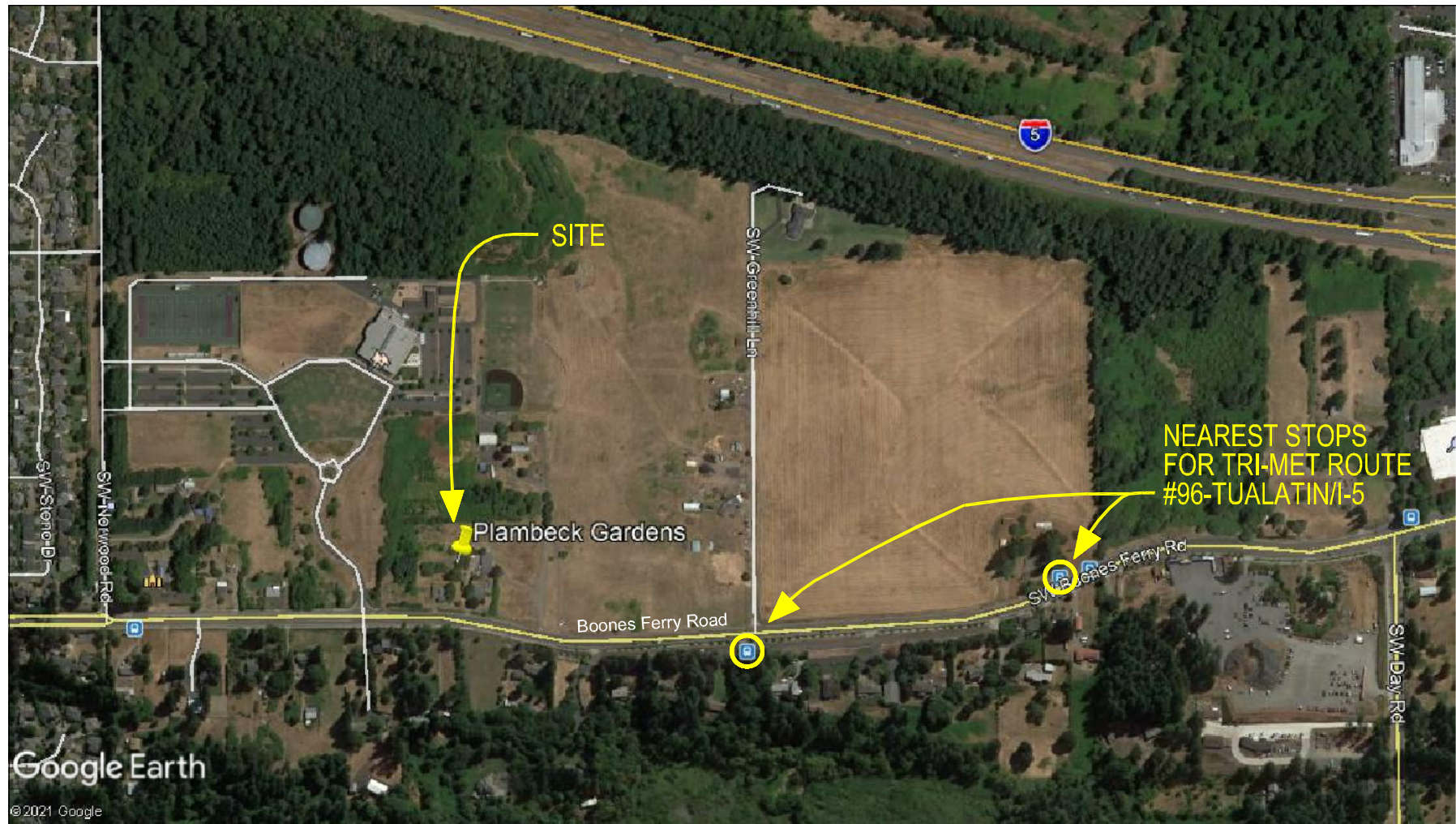
Based on these findings it is recommended that the City of Tualatin support the developer's proposal for 170 parking spaces.

If you should have any questions, please contact Frank Charbonneau, PE, PTOE at 503.293.1118 or email Frank@CharbonneauEngineering.com.

Appendix

- Figure `a` Site Plan
- Figure 1 Plambeck Gardens Vicinity Map with transit information
- Figure 2 Parking Survey Location & Transit Information, Autumn Park Apartments
- Figure 3 Parking Survey Location & Transit Information, Woodridge Apartments
- Figure 4 Parking Survey Location & Transit Information, Greenburg Oaks Apartments
- Parking Survey Data
 - Autumn Park Apartments
 - Woodridge Apartments
 - Greenburg Oaks Apartments
- ITE Hourly Peak Parking Demand for Apartments, Land Use #221
- ITE Parking Rates – Affordable Housing

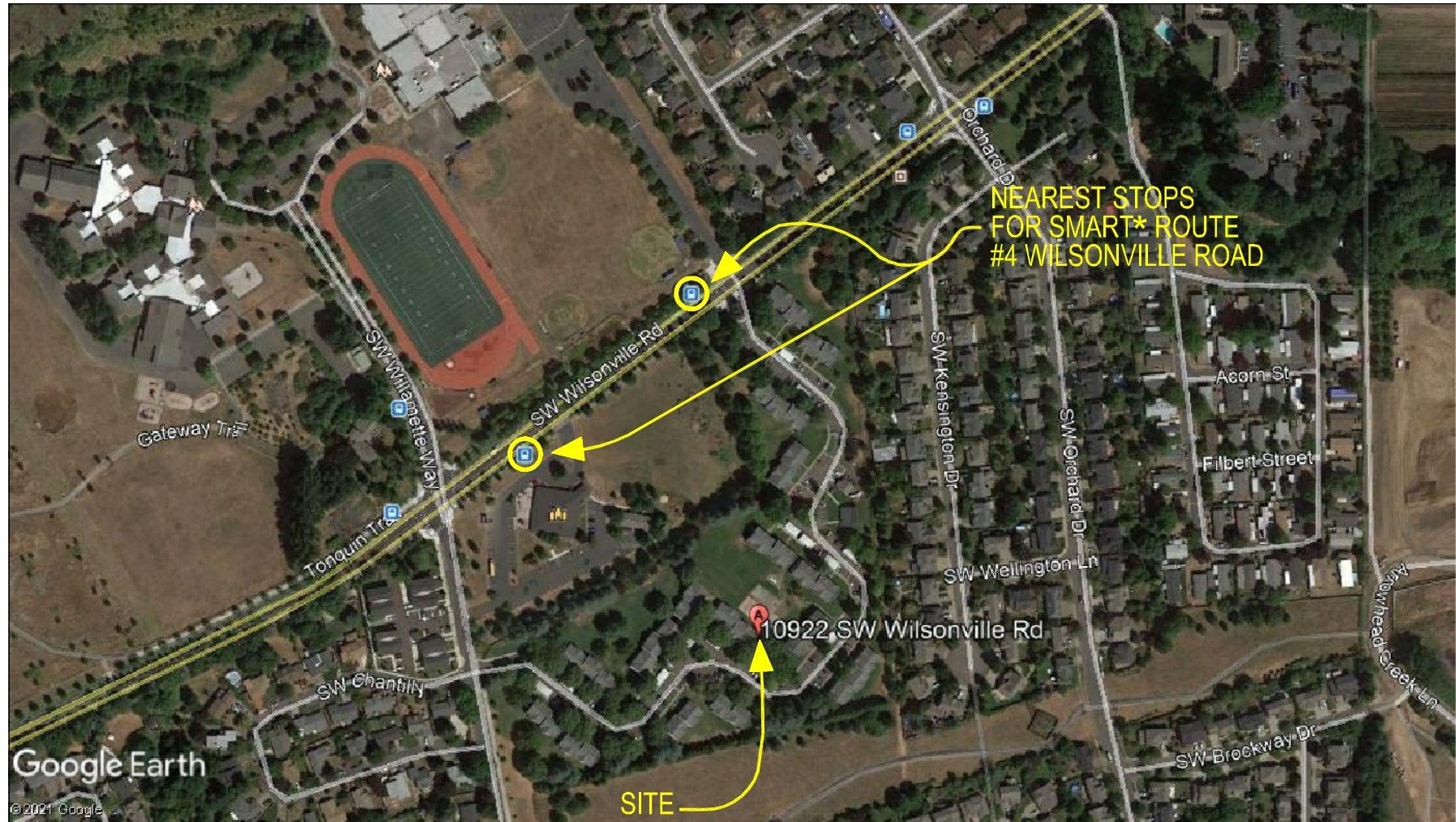




- THE STOP FOR NORTHBOUND TRAVEL IS LOCATED 1,190 FEET SOUTH OF GREENHILL LANE AND BOONES FERRY ROAD.
- THE STOP FOR SOUTHBOUND TRAVEL IS LOCATED AT THE GREENHILL LANE AND BOONES FERRY ROAD INTERSECTION.
- THE WALKING DISTANCE FROM THE SITE TO NEAREST BUS STOP IS 0.43 MILES (NB TRAVEL) AND 0.20 MILES (SB TRAVEL).
- THE NEAREST STOP FOR THE WESTSIDE EXPRESS SERVICE (WES) LIGHT RAIL IS LOCATED 2.4 MILES FROM THE SITE.



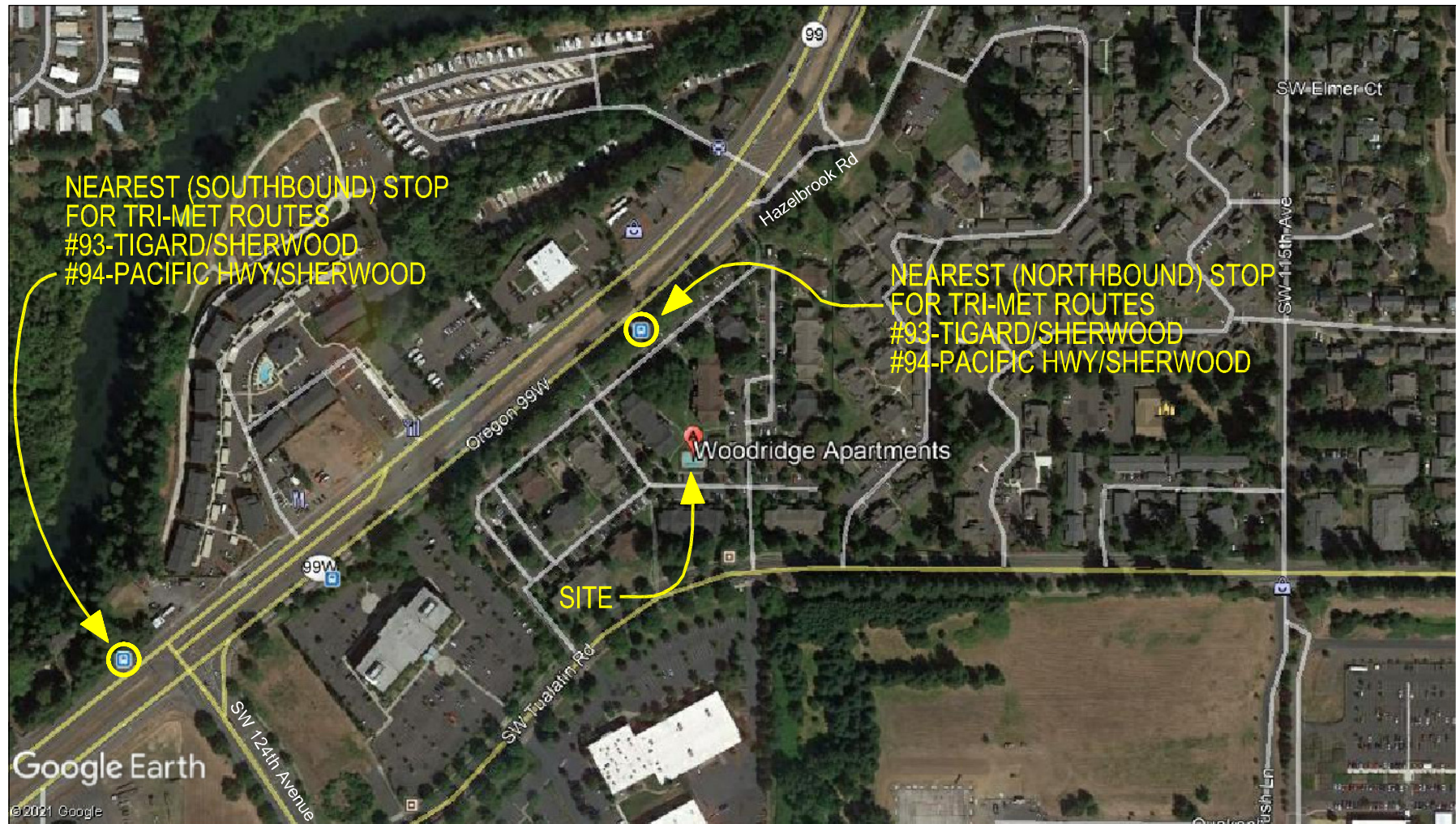
NO SCALE



- THE STOP FOR NORTHBOUND TRAVEL IS LOCATED 225 FEET NORTHEAST OF WILLAMETTE WAY & WILSONVILLE ROAD.
- THE STOP FOR SOUTHBOUND TRAVEL IS LOCATED 715 FEET NORTHEAST OF WILLAMETTE WAY & WILSONVILLE ROAD.
- THE WALKING DISTANCE FROM THE SITE TO NEAREST BUS STOP IS 1,300 FEET (SB TRAVEL) & 1,600 FEET (NB TRAVEL).
- THE NEAREST STOP FOR THE WESTSIDE EXPRESS SERVICE (WES) LIGHT RAIL IS LOCATED 1.6 MILES FROM THE SITE.



NO SCALE



- THE STOP FOR NORTHBOUND TRAVEL IS LOCATED 375 FEET SOUTHWEST OF HAZELBROOK ROAD AND HIGHWAY 99W.
- THE STOP FOR SOUTHBOUND TRAVEL IS LOCATED 165 FEET SOUTHWEST OF SW 124TH AVENUE AND HIGHWAY 99W.
- THE WALKING DISTANCE FROM THE SITE TO NEAREST BUS STOP IS 390 FEET (NB TRAVEL) & 1,760 FEET (SB TRAVEL).
- THE NEAREST STOP FOR THE WESTSIDE EXPRESS SERVICE (WES) LIGHT RAIL IS LOCATED 2.5 MILES FROM THE SITE.



NO SCALE



- THE STOP FOR NORTHBOUND TRAVEL IS LOCATED 175' SOUTH OF LINCOLN AVENUE AND GREENBURG ROAD.
- THE STOP FOR SOUTHBOUND TRAVEL IS LOCATED AT THE SOUTHWEST CORNER OF LINCOLN AVENUE AND GREENBURG ROAD.
- THE WALKING DISTANCE FROM THE SITE TO NEAREST BUS STOP IS 1,120 FEET (NB TRAVEL) AND 990 FEET (SB TRAVEL).
- THE NEAREST STOP FOR THE WESTSIDE EXPRESS SERVICE (WES) LIGHT RAIL IS LOCATED 0.5 MILES FROM THE SITE.



NO SCALE

Survey Location: Autumn Park Apartments, 10922 SW Wilsonville Road, Wilsonville, OR
Survey Date: 7/20/2021

Inventory 275 spaces provided

	<u>Occupied</u>
10:00 PM	206
10:15 PM	201
10:30 PM	207
10:45 PM	209
11:00 PM	210
11:15 PM	211
11:30 PM	213
11:45 PM	214
12:00 AM	215
12:15 AM	215
12:30 AM	215
12:45 AM	215
1:00 AM	216
1:15 AM	216
1:30 AM	215
1:45 AM	216
2:00 AM	216
Peak Max	216
Apartments	144
Parking Demand (vehicles/apt)	1.5

Survey Location: Woodridge Apartments, 11999 SW Tualatin Road, Tualatin, OR
Survey Date: 7/20/2021

Inventory 391 spaces provided

	<u>Occupied</u>
10:00 PM	306
10:15 PM	310
10:30 PM	308
10:45 PM	310
11:00 PM	315
11:15 PM	315
11:30 PM	315
11:45 PM	317
12:00 AM	316
12:15 AM	316
12:30 AM	313
12:45 AM	314
1:00 AM	315
1:15 AM	315
1:30 AM	317
1:45 AM	317
2:00 AM	317
Peak Max	317
Apartments	264
Parking Demand (vehicles/apt)	1.20

Survey Location: Greenburg Oaks, 11905 SW 91st Avenue, Tigard, OR
 Survey Date: 7/20/2021

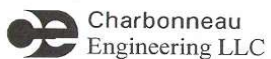
Inventory 107 spaces provided

	Occupied	On Street	Total Parked Vehicles
10:00 PM	95	7	102
10:15 PM	94	7	101
10:30 PM	95	7	102
10:45 PM	97	7	104
11:00 PM	97	7	104
11:15 PM	98	7	105
11:30 PM	99	7	106
11:45 PM	99	7	106
12:00 AM	99	6	105
12:15 AM	99	6	105
12:30 AM	99	7	106
12:45 AM	99	7	106
1:00 AM	99	7	106
1:15 AM	99	7	106
1:30 AM	99	7	106
1:45 AM	99	7	106
2:00 AM	99	7	106

Peak Max 106

Apartments 84

Parking Demand 1.26
 (vehicles/apt)



Land Use: 221 Multifamily Housing (Mid-Rise)

Description

Mid-rise multifamily housing includes apartments, townhouses, and condominiums located within the same building with at least three other dwelling units and with between three and 10 levels (floors) of residence. Multifamily housing (low-rise) (Land Use 220), multifamily housing (high-rise) (Land Use 222), and affordable housing (Land Use 223) are related land uses.

Time of Day Distribution for Parking Demand

The following table presents a time-of-day distribution of parking demand on a weekday (one general urban/suburban study site), a Saturday (two general urban/suburban study sites), and a Sunday (one dense multi-use urban study site).

Hour Beginning	Percent of Peak Parking Demand		
	Weekday	Saturday	Sunday
12:00–4:00 a.m.	100	100	100
5:00 a.m.	94	99	–
6:00 a.m.	83	97	–
7:00 a.m.	71	95	–
8:00 a.m.	61	88	–
9:00 a.m.	55	83	–
10:00 a.m.	54	75	–
11:00 a.m.	53	71	–
12:00 p.m.	50	68	–
1:00 p.m.	49	66	33
2:00 p.m.	49	70	40
3:00 p.m.	50	69	27
4:00 p.m.	58	72	13
5:00 p.m.	64	74	33
6:00 p.m.	67	74	60
7:00 p.m.	70	73	67
8:00 p.m.	76	75	47
9:00 p.m.	83	78	53
10:00 p.m.	90	82	73
11:00 p.m.	93	88	93

Affordable Housing - Income Limits (223)

Peak Period Parking Demand vs: Dwelling Units

On a: **Weekday (Monday - Friday)**

Setting/Location: General Urban/Suburban

Peak Period of Parking Demand: 10:00 p.m. - 5:00 a.m.

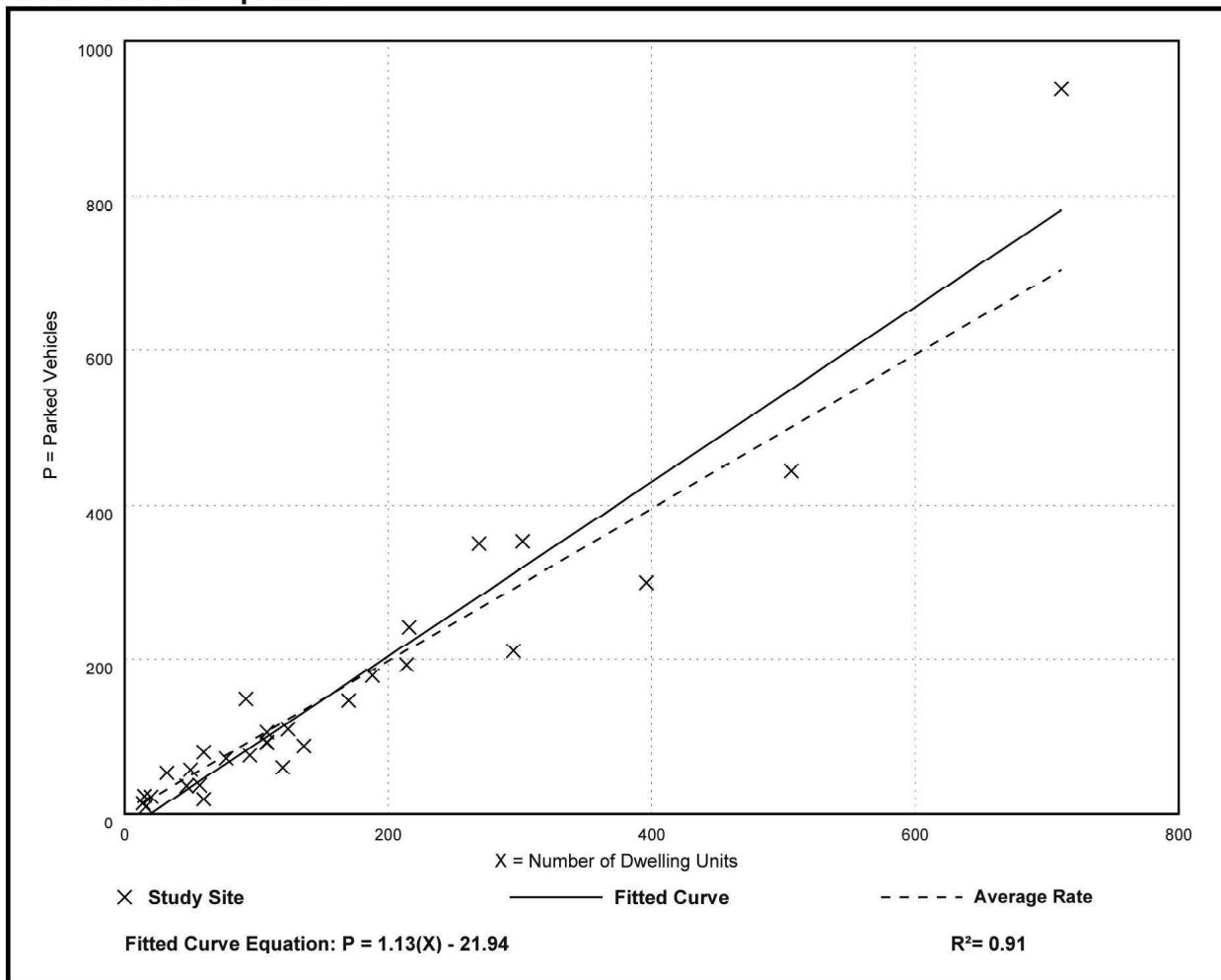
Number of Studies: 29

Avg. Num. of Dwelling Units: 159

Peak Period Parking Demand per Dwelling Unit

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
0.99	0.32 - 1.66	0.85 / 1.33	0.89 - 1.09	0.27 (27%)

Data Plot and Equation



Affordable Housing - Income Limits (223)

Peak Period Parking Demand vs: Bedrooms

On a: Weekday (Monday - Friday)

Setting/Location: General Urban/Suburban

Peak Period of Parking Demand: 10:00 p.m. - 5:00 a.m.

Number of Studies: 9

Avg. Num. of Bedrooms: 97

Peak Period Parking Demand per Bedroom

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
0.54	0.29 - 0.85	0.48 / 0.82	***	0.14 (26%)

Data Plot and Equation

