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MEMORANDUM

DATE: July 21, 2023

TO: City of Beaverton

FROM: Monica Leal, PE
              Richard Martin, EIT

REGISTERED PROFESSIONAL
ENGINEER
75, 113
OREGON
DECEMBER 12, 2012
MONICA TERESA LEAL
EXPIRES: DEC. 31, 2024

SUBJECT: REACH Elmonica Affordable Housing Development - Parking Study   P21-076

This memorandum summarizes the parking study associated with the proposed Elmonica development to be located at 17030 W Baseline Road in Beaverton, Oregon. The development proposes 81 affordable multifamily housing units, 46 parking spaces, five short-term bicycle parking spaces, and 81 long-term bicycle parking spaces. The development has site frontages on W Baseline Road and SW 170th Avenue and is near the Elmonica Park & Ride Station and bus stops for TriMet Lines 59 and 67.

BACKGROUND

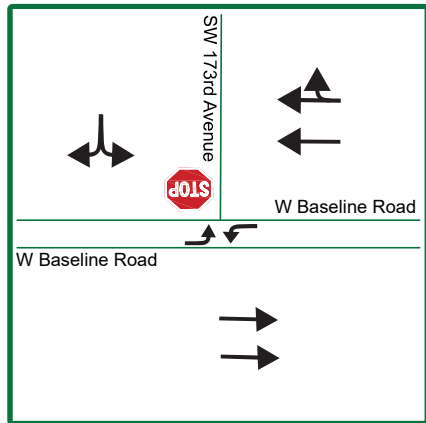The Elmonica development will be comprised of 81 dwelling units broken down as follows:

- 24 studio apartments
- 24 one-bedroom apartments
- 18 two-bedroom apartments
- 15 three-bedroom apartments

Figures 1 and 2 show the vicinity map and proposed site plan. The development proposes 46 parking spaces on site. The Elmonica development location and design emphasizes walking, biking, and transit as the primary modes of transportation. The Elmonica Park & Ride Station is located about 750 feet from the project site. Bus stops for TriMet Lines 59 and 67 are within one mile of the project site on Walker Road and SW Jenkins Road. Sidewalks exist along W Baseline Street and SW 170th Avenue within the study area. Bike lanes exist along W Baseline Road and the Elmonica development is adding a southbound bike lane along the project frontage on SW 170th Avenue. The Elmonica development design includes bicycle storage facilities, lockers, a garden, a play area, a picnic and BBQ space, and a plaza. All these amenities have the potential to reduce parking demand for the development.
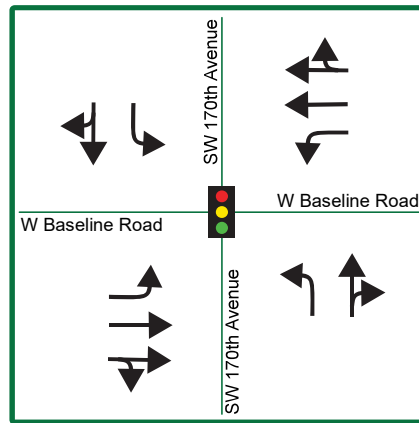
Based on the Beaverton Development Code (BDC), Table 60.30.10.5.A, the city requires a parking ratio of 1.0 parking space per unit for the proposed development based on its location in a Multiple Use Zone. The required number of parking spaces for the development is 81 as summarized in Table 1. The development proposes 46 parking spaces on site which requires a 43% parking reduction (0.57 parking spaces per unit).

Table 1: Parking Requirements and Proposed Spaces

Land Use Category	Beaverton Code Requirements			Proposed Parking Spaces on Site
	Spaces per Unit (Multiple Use Zones)	Proposed Units	Total Spaces Required	
Residential Attached - One bedroom attached (per unit)	1.0	48	48	46
Residential Attached - Two bedroom attached (per unit)	1.0	18	18	
Three or more bedrooms (per unit)	1.0	15	15	
	Total	81	46	

W Baseline Road

①

W Baseline Road

②

W Baseline Road

SW 170th Avenue

MAX Light Rail Line

W Baseline Road

③

SW Jenkins Road

Elmonica Park & Ride

NOT TO SCALE

N

① W Baseline Road at SW 173rd Avenue

SW 173rd Avenue

W Baseline Road

W Baseline Road

STOP

② W Baseline Road at SW 170th Avenue

SW 170th Avenue

W Baseline Road

W Baseline Road

SW 170th Avenue
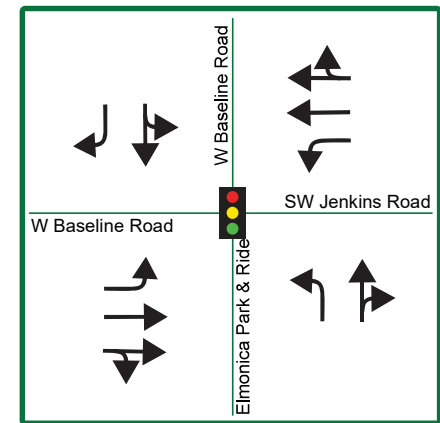
③ W Baseline Road / SW Jenkins Road at Elmonica Park & Ride

W Baseline Road

W Baseline Road

SW Jenkins Road

Elmonica Park & Ride

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= Project Site

= Traffic Signal

= Study Intersection

= Existing Lane Configuration

STOP = Stop Sign

Figure 1: Vicinity Map
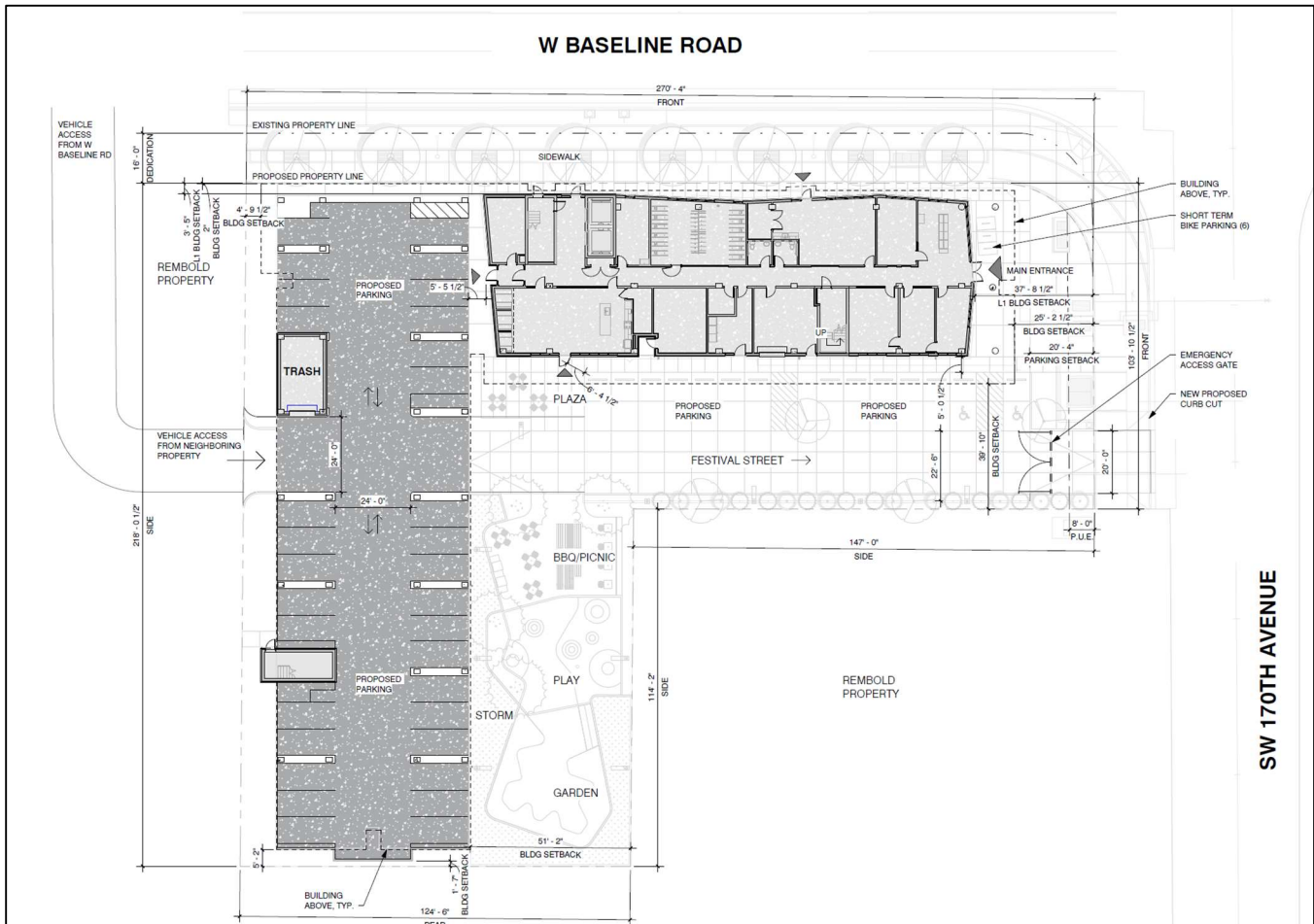
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Figure 2: Preliminary Site Plan

AFFORDABLE HOUSING PARKING REDUCTION POLICIES

City of Beaverton

The City of Beaverton, BDC Section 40.10.15.4.C allows major adjustments to vehicle parking requirements associated with affordable housing projects such as this project. The code requires examples of parking ratios for at least two similar projects to determine adequate parking reductions.

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Washington County

Washington County requires a minimum of 0.75 parking spaces per dwelling unit for affordable housing[1] and allows up to 30% reduction[2] for residential developments within a half-mile of major transit or quarter mile of high frequency bus. However, the parking ratio cannot go below 0.5 spaces per unit. The Elmonica development is located within a half-mile of the Elmonica Park & Ride Station and is a residential development. Assuming 0.75 parking spaces per dwelling unit with a 30% reduction, a parking ratio of 0.53 spaces per unit would apply to this project. This equates to 43 parking spaces for the 81 units of affordable housing.

PARKING RESEARCH AND DATA

Parking Generation Manual

The Institute of Transportation Engineers, *Parking Generation Manual, 5th Edition* provides parking generation rates for affordable housing developments under Land Use Code 223 – Affordable Housing – Income Limits, Dense Multi-Use Urban. Parking generation estimates for the proposed development were developed and are provided in Table 2.

Table 2: Parking Generation Requirements

Land Use	Code	Size (Dwelling Units)	Rate		Required Spaces	
			50th Percentile	85th Percentile	50th Percentile	85th Percentile
Affordable Housing – Income Limits	223	81	0.53	1	43	81

The demand numbers shown in Table 2 represent overnight parking demand, which is the highest parking demand period for a residential development. The ITE Parking Generation Manual draws from multiple similar sites for each land use in development of its rates. Table 2 shows an *average* parking demand of 43 parking spaces for 81 units of affordable housing. The ITE Parking Generation Manual data plot is included in Appendix A.

Historic Parking Data

A 2018 study conducted for the Cedar Grove Apartments development provided data from three affordable housing developments in Beaverton. The data from these developments showed maximum parking ratios ranging between 0.57 and 0.77 with an average of 0.68 parking spaces per unit. Detailed information is available in Appendix B.

Applying the average parking ratio of 0.68 results in a demand of 55 parking spaces for the 81 units of affordable housing. The proposed 46 parking spaces on site would fall nine parking spaces short of the calculated demand of 55 parking spaces. The City of Beaverton[3] requested new traffic count data at

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[1] Washington County Community Development Code, Section 413-6.1 Minimum Off-Street Parking Requirements.
[2] Washington County Community Development Code, Section 413-8.1(B) Reduction of Minimum Off-Street Parking Based on Access to Transit.
[3] Based on comments provided by the Facilities Review Committee on October 12, 2022

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three affordable housing sites that are more comparable to the proposed Elmonica development in terms of access to transit and services. The results of the new parking data is shown below.

New Parking Data

Additional parking count data was collected on September 14th and 22nd, 2022 at three affordable housing developments. The three selected sites are comparable to the Elmonica development in terms of access to transit and services. Parking count data was collected on a typical weekday night between 11:00 pm and 12:00 am to represent the peak parking demand for residential uses when nearly all residents are presumed to be home. Parking count data was collected at the following sites:

- Cedar Grove Apartments
- Sunset View Apartments
- Alma Gardens Apartments

Table 3 summarizes those developments, location, and parking ratios.

Table 3: New Affordable Housing Data

Development	Address	# Of Units	# Of Parking Spaces Provided	Max. # of Parked Vehicles	Max. Parking Ratio (Max. Parked Vehicles/# Units)
Cedar Grove Apartments	13400 NW Cornell Rd, Portland	44	30	29	0.66
Sunset View Apartments	1455 SW 163rd Ave, Beaverton	236	169	161	0.68
Alma Gardens Apartments	6300 NE Cherry Dr, Hillsboro	45	20	16	0.36
				Average	**0.57**

The data from these developments showed maximum parking ratios ranging between 0.36 and 0.68 with an average parking ratio of 0.57 parked vehicles per unit. Detailed information is available in Appendix C. This average parking ratio of 0.57 results in a demand of 46 parking spaces for 81 units of affordable housing, which is equal to the proposed 46 parking spaces.

CONCLUSION

The development proposes 81 affordable multifamily housing units. The City of Beaverton Development Code requires a parking ratio of 1.0 parking space per unit for the proposed development based on its location in a Multiple Use Zone. The development proposes 46 parking spaces on site.

The Elmonica development location and design emphasizes walking, biking, and transit as the primary modes of transportation which has the potential to reduce parking demand for the development.

BDC Section 40.10.15.4.C allows for reductions in the required number of parking spaces based on parking data from comparable affordable housing developments. Historic parking data from three affordable housing developments gathered in 2018 showed an average parking demand ratio of 0.68 parking spaces per unit. Applying the average parking ratio of 0.68 results in a demand of 55 parking spaces for the 81 units of affordable housing. The City of Beaverton requested new traffic count data at three affordable housing sites that are more comparable to the proposed Elmonica development in terms of access to transit and services.

New parking count data was collected at three affordable housing developments that are more comparable to the proposed Elmonica development. The new parking data shows an average parking rate of 0.57 spaces per unit, which would result in a demand of 46 parking spaces for this development. The Elmonica development proposes 46 parking spaces which equates to a parking ratio request of 0.57 parking spaces per unit or a 43% parking reduction.

Washington County requires a minimum of 0.75 parking spaces per dwelling unit for affordable housing and up to 30% reduction for residential developments within a half-mile of major transit or quarter mile of high frequency bus. However, the parking ratio cannot go below 0.5 spaces per unit. The Elmonica development is located within a half-mile of the Elmonica Park & Ride Station and is a residential development. Assuming 0.75 parking spaces per dwelling unit with a 30% reduction, a parking ratio of 0.53 spaces per unit would apply to this project. This equates to 43 parking spaces for the 81 units of affordable housing.

Additional parking generation research using the *ITE Parking Generation Manual, 5th Edition* showed an average parking demand of 0.53 parking spaces per unit, which equates to a demand of 43 parking spaces for 81 units of affordable housing.

Based on the reductions allowed by the City of Beaverton and Washington County, the ITE Parking Generation Manual, the development amenities, the pedestrian, bicycle, and transit facilities in the area, the potential shared parking at the Elmonica Park & Ride Station, providing 46 parking spaces on site is reasonable.

Appendix

Appendix A: Parking Generation Manual Data

Affordable Housing - Income Limits
(223)

Peak Period Parking Demand vs: Dwelling Units

On a: Weekday (Monday - Friday)

Setting/Location: Dense Multi-Use Urban

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

Number of Studies: 19

Avg. Num. of Dwelling Units: 109

Peak Period Parking Demand per Dwelling Unit

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
0.53	0.25 - 1.43	0.46 / 1.00	***	0.14 (26%)

Data Plot and Equation

X **Study Site**   ——— **Fitted Curve**   - - - - **Average Rate**

Fitted Curve Equation: P = 0.58(X) - 5.29   **R^2= 0.96**
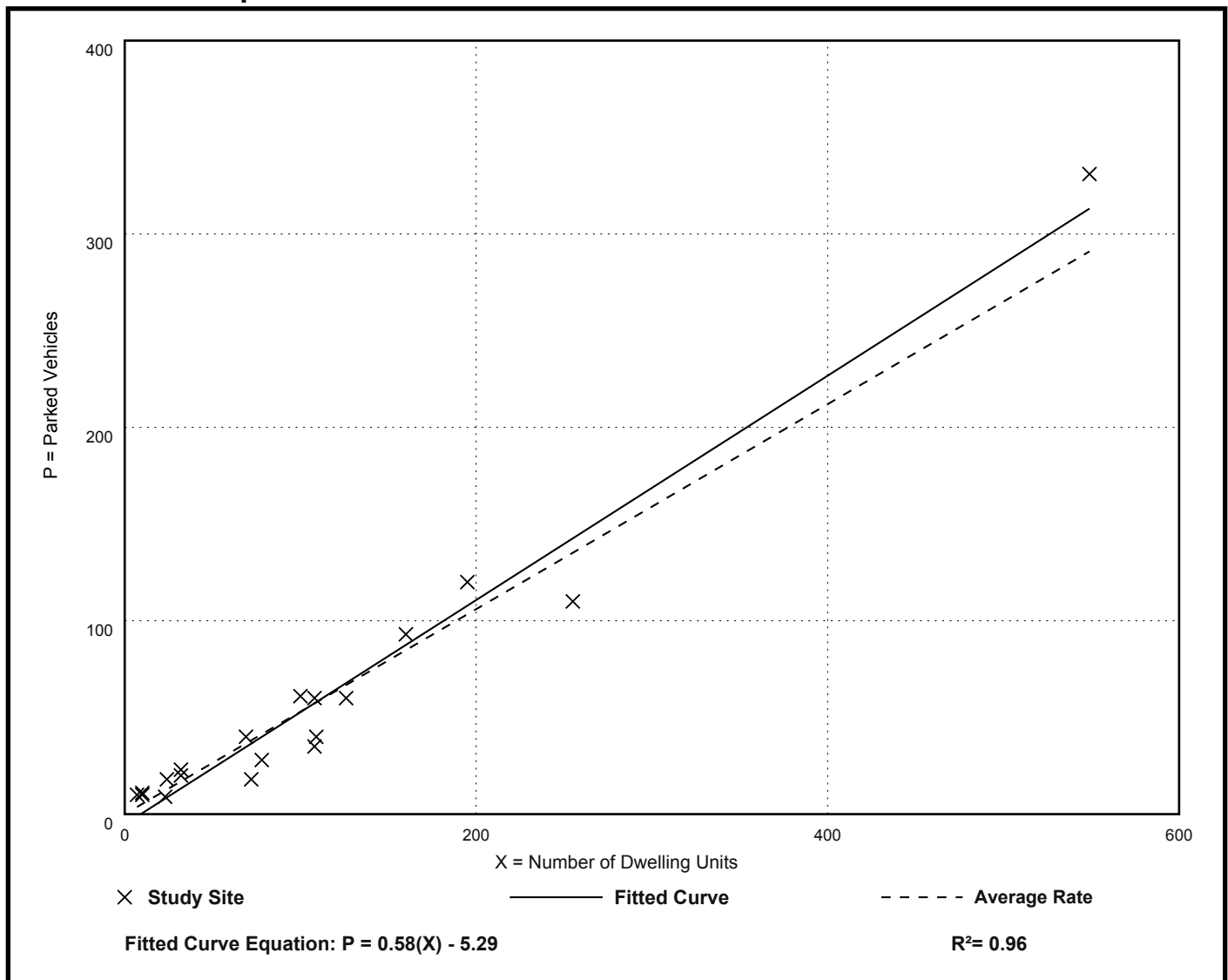
Appendix B: Historic Parking Data

Historic Affordable Housing Data

Development	Address	# Of Units	Max. # of Parked Vehicles	Max. Parking Ratio (Max. Parked Vehicles/# Units)
Barcelona Apartments	4747 SW Lombard Avenue	47	27	0.57
Spencer House Apartments	13665 SW Larch Place	48	37	0.77
Bridge Meadows Apartments	5995 SW Menlo Drive	41	29	0.71
			Average	**0.68**

CEDAR GROVE APARTMENTS					Project #18.43	
PARKING SURVEY RESULTS					**Charbonneau Engineering**	
Facility Name	Barcelona Apartments		Spencer House		Bridge Meadows	
Survey Date	12/13/2018		12/6/2018		12/6/2018	
Time	Cars Parked In Lots	Cars Parked In Street	Cars Parked In Lot	Cars Parked In Street	Cars Parked In Lot	Cars Parked In Street
5:00 PM	19		32		20	
5:15 PM	20	1	32		22	
5:30 PM	22		32	1	22	
5:45 PM	23		30		25	
6:00 PM	23	2	28		27	
6:15 PM	26		28		27	
6:30 PM	26		30		28	
6:45 PM	26	1	28		29	
7:00 PM	26		30		27	
7:15 PM	26		32		26	
7:30 PM	24		34		26	
7:45 PM	24		35		27	
8:00 PM	26		35		26	1
8:15 PM	26		34		27	
8:30 PM	26	1	36		27	
8:45 PM	27		36	1	28	
9:00 PM	27		37		29	
9:15 PM	26		37		29	
9:30 PM	26		36		29	
9:45 PM	27	2	36		28	
10:00 PM	27		35		29	
Cars Parked	523	7	693	2	558	1
Max # Parked	27		37		29	
No. Apt Units	47		48		41	
MaxPark/Unit	0.57		0.77		0.71	
All Sites Max Parked/Unit	**0.68**					

A trip generation analysis was prepared for comparing the number of trips associated with the former site uses and to the trips projected for 44 apartment units. The ITE Trip Generation manual (10th edition, year 2017) was used in making the calculations. The following tables present a summary of the results.

Appendix C: New Affordable Housing Data

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Project Name:	Parking Lot Counts

Date:	9/22/2022
Zone	**11PM-12AM**
Alma Gardens	16

Quality Counts
DATA THAT DRIVES COMMUNITIES

Project Number:	159462
Project Name:	Parking Lot Counts

Date:	9/14/2022
Zone	**11PM-12AM**
Cedar Grove Apartments	29
Sunset View Apartments	161

Cedar Grove

Sunset View