

MEMORANDUM

To: Nazan Wolfe, Aurora Mental Health Center
From: Cassie Slade, PE, PTOE
Date: June 30, 2022
Project: Potomac Mental Health Facility and Housing
Subject: Parking Analysis

The Fox Tuttle Transportation Group has completed a review of the proposed Potomac Mental Health Facility and Housing project with respect to peak parking demand and feasibility of sharing parking spaces with the proposed mix of land uses that will have varied peak parking periods. Potomac Mental Health Facility and Housing is located in Aurora, CO with Potomac Street to the west, I-225 to the east, and Mississippi Avenue to the north, and the I-225 Medical and Business Plaza to the south, as shown to the right. The most current land plan includes 30,000± square feet of space for a medical clinic, 50,000± square feet of space for a behavioral health facility, and up to 40 affordable housing units. This memorandum summarizes our analysis and findings related to parking.



City of Aurora Requirements

Parking supply for projects within the City of Aurora are based on the guidelines set for in the Unified Development Ordinance (Chapter 146, Section 4.6.3). **Table 1** summarizes the anticipated land use types, sizes and required off-street parking supply rate.

Table 1. City of Aurora Off-Street Parking Supply Requirements

Land Use Type	Size	Aurora Code	
		Requirement	Spaces
Medical Clinic	30,000 sq. ft.	2.5 per 1,000 sq. ft.	75
Behavioral Health	50,000 sq. ft.	2.5 per 1,000 sq. ft.	125
Affordable Housing	40 units	0.85 per 1 unit + 1 per 5 units	42
Total			242

Directly applying the City parking rates to the anticipated land use types and sizes equates to a parking supply requirement of 242 spaces.

Estimated Peak Parking Demand – Medical Facility

One of leading industry parking resources was reviewed within the context of this project and discussed in this memorandum: Institute of Transportation Engineers' (ITE) Parking Generation, 5th Edition (2019). ITE publishes parking generation data for various land uses based on numerous studies and empirical data calculating average peak parking demand. For majority of land uses, ITE provides both urban and suburban parking formulas, near and not near rail transit, to predict peak parking demand.

The Potomac Mental Health Facility and Housing is within an urban/suburban environment where rail transit is located within ½ mile walking distance. ITE does not have parking rates for mental health facilities or the specific services that will be provided at the proposed project. Therefore, the parking rate for “ITE 610 – Hospital” was utilized.

Based on discussions with similar existing facilities that provide behavioral health services, patients are usually driven to the site by another person or shuttle service and the driver does not typically park and stay. It is understood that patients have limited visitors as well. Therefore, the parking needs at mental health center is typically for employees that serve and treat the patients.

The applicable ITE rates were multiplied by the square footage to calculate the peak parking demand as shown in **Table 2** (weekday) to estimate the accumulative parking demand for the medical clinic and behavioral health center.

Table 2. ITE Parking Demand - Weekday

Land Use Type	Size	ITE		Parking Demand
		Code	Rate	
Medical Clinic / Behavioral Health	80,000 sq. ft.	610	2.25	180

Based on the national parking demand rates, the average parking demand for the Potomac Mental Health Facility was calculated to be 180 spaces. This is 20 fewer spaces than required by the City of Aurora.

Estimated Peak Parking Demand – Low-Income Housing

It is generally agreed that affordable housing generates less automobile trips, and subsequent parking demand, than other residential uses. This observation is supported by various field studies that have been conducted nationally, field studies that we have conducted in the region for other projects, and local field studies conducted at similar projects in Front Range communities. Unfortunately, there is no industry standard for how to reduce typical residential trip generation and parking rates for lower-income residential projects. The reduction of auto trips and parking demand for low-income housing communities is due to these projects typically being located in more urban conditions with better access to transit use and closer proximity to retail, schools, and employment use where non-auto modes can be effectively utilized. Lower-income residents are also less likely to own a vehicle, or multiple vehicles, given these factors as well as the cost of automobiles and maintenance.

National Data – Institute of Transportation Engineers

ITE published a Parking Generation report (5th Edition) that summarizes data obtained from research and experience by transportation engineering and planning professionals. This publication contains peak parking demand data and parking rates based on field studies at specific land use categories. The Parking Generation report provides parking demand for “Multifamily Housing (Mid-Rise)” housing type. This residential land use type is defined in ITE as:

Mid-rise multifamily housing includes apartments, townhouses, and condominiums

located within the same building with at least three other dwelling units and that have between three and 10 levels (floors).

The ITE data for “Multifamily Housing (Mid-Rise)” within ½ mile of a transit station was based on 27 sites which had an average parking demand of 1.12 space per dwelling unit with the lowest demand at 0.55 spaces per dwelling unit. Note that these rates are for market-rate housing projects and not necessarily low-income or workforce housing.

Applying the ITE average rate of $P = 1.12x$ for this land use, the housing at the Potomac Mental Health site is anticipated to generate a peak parking demand of 45 parking spaces for 40 apartment units if it were located in a suburban area and be market-rate.

National Data – LADOT and San Diego

LADOT Measuring the Miles¹. This study was commissioned by the City of Los Angeles, California with the purpose of determining links between affording housing variables (income, age, transit accessibility, lane use context and housing type) to develop adjusted trip generation rates and parking requirements for affordable housing for their *Traffic Impact Study Guidelines*. The data was collected for four affordable housing categories: family, senior, special needs, and supportive housing.

Based on the data collected and findings of the parking analysis of the LADOT Study, low-income and supportive housing was found to have a parking demand between 0.29 to 0.43 per unit depending on the proximity to the transit area. The Potomac Mental Health site is located near the Florida Station that provides light rail and bus services to local and regional destinations, including the airport, downtown Denver, and surrounding communities. Using the LADOT rates for low-income, supportive housing, the **projected parking demand is between 12 to 18 spaces**. This includes parking spaces for residents, visitors, and staff.

The San Diego Affordable Housing Parking Study² was commissioned by the City of San Diego, California with the purpose of determining links between affording housing variables (income, age, transit accessibility, lane use context and housing type) to develop a corresponding regulatory framework for City parking requirements. Screening was conducted at 265 projects and the study included field parking observations at 21 affordable housing communities. The San

¹ LADOT Measuring the Miles Study. Portland State University. 2015.

² San Diego Affordable Housing Parking Study. Wilbur Smith Associates. December 2011.

Diego study represents the most comprehensive field data collection effort performed specifically for affordable housing parking requirements in the country.

The findings of the study showed that parking demand for affordable projects was about half of that for typical rental units and almost 50% of the units surveyed had no vehicle. The study also showed that household vehicle availability varies significantly with income and parking demand is less in areas with walkable destinations and more transit services.

Based on the data collected and findings in the statistical analysis for the San Diego Study, a parking model was developed to provide empirically-based rates for four types of affordable housing. The parking requirements are determined based on type of affordable housing and its context in terms of transit availability and walkability (“low”, “medium” and “high”). The report provides an index to score each site for walkability/transit based on specific site characteristics, such a proximity to commercial uses, density of nearby commercial uses, office/civic/education services, and frequency and proximity of transit services. Using this index, the Potomac Mental Health site would scores “medium” walkability/transit site per the San Diego study criteria.

Applying the San Diego model for the “studio/1-bed room” housing type, with a “medium” transit and walkability factor, yields the results shown in **Table 3**.

Table 3: Parking Requirement based on San Diego Affordable Housing Parking Study

Unit Type	# DU	Parking Type (Rate)	Parking Demand
			“Med” Walkability/ Transit
1-bed	40	Base Rate (0.5)	40 x 0.5 = 20
		Visitor (0.15)	40 x 0.15 = 6
		Staff (0.05)	40 x 0.05 = 2
		Total	28

As shown on **Table 3** above, using the San Diego criteria and incorporating parking spaces for visitors and staff parking, the projected **parking demand is 28 parking spaces**. This would correspond to an effective parking rate of 0.70 spaces per unit for a “medium” walkability/transit housing type. This includes parking spaces for residents, visitors, and staff. These values demonstrate that majority of residents do not own or have access to a vehicle and do not need a parking space.

Local Data – Low-Income Housing

To further understand the parking demand for the housing portion of Potomac Mental Health site, local data of similar low-income housing properties was collected, evaluated, and applied. Surveys on parking supply, vehicle ownership, property AMI, and parking utilization have been compiled by various sources and at several sites throughout the Front Range.

The local parking utilization data for existing affordable housing complexes is listed in **Table 4** and includes the number of dwelling units, number of parking spaces on-site, number of observed spaces occupied in early morning hours, and the calculated parking demand.

Based on the available local data for similar housing options, it was estimated that the **project is anticipated to have an average parking demand of 25 spaces** to accommodate residents, staff, and visitors [40 units x 0.61].

Table 4: Local Parking Demand Data at Low-Income Housing

#	Property Name and City	AMI	Existing Data			Parking Calculations		
			Number of Dwelling Units	Number of Parking Spaces	Occupied Spaces	Supply Ratio	Occupancy Rate	Demand Rate
Broomfield								
1	Village Square Apartment Homes	60%	108	146	86	1.35 /unit	59%	0.80 /unit
Westminster								
2	Walnut Creek	60%	220	374	304	1.70 /unit	81%	1.38 /unit
3	St. Marks Village	60%	216	264	247	1.22 /unit	94%	1.14 /unit
4	Alto at Westminster (Maiker)	50%-60%	70	112	77	1.6 /unit	69%	1.10 /unit
5	Eaton Street Apartments	60%	118	118	74	1 /unit	63%	0.63 /unit
Arvada								
6	Parkview Village	50%	130	133	79	1.02 /unit	59%	0.61 /unit
Lakewood								
7	Lamar Station Crossing	60%	175	102	71	0.58 /unit	70%	0.41 /unit
8	Flats at Two Creeks	30%-60%	78	78	40	1.00 /unit	51%	0.51 /unit
9	40 West	30%-60%	60	60	25	1.00 /unit	42%	0.42 /unit
Pueblo								
10	Mountain View / Uplands Townhomes	50%	51	115	95	2.25 /unit	83%	1.86 /unit
11	Bethlehem Square Apts.	30%-60%	130	157	81	1.21 /unit	52%	0.62 /unit
12	Pueblo Village Apts	30%-60%	128	184	142	1.44 /unit	77%	1.11 /unit
13	Oakshire Trails	60%	45	95	48	2.11 /unit	51%	1.07 /unit
Greeley								
14	Guadalupe Apts Archdiocesan Housing	30%-60%	47	77	20	1.64 /unit	26%	0.43 /unit
Aurora								
15	Second Chance Center: PATH	30%	50	42	21	0.84 /unit	50%	0.42 /unit
Boulder								
16	Attention Homes	30%	40	68	4	1.70 /unit	6%	0.10 /unit
17	Lee Hill	30%	31	14	3	0.45 /unit	21%	0.10 /unit
Denver								
18	CCH: Renaissance West End Flats	30%-60%	101	53	41	0.52 /unit	77%	0.41 /unit
19	CCH: Renaissance Stout Street Lofts	30%-60%	78	102	15	1.31 /unit	15%	0.19 /unit
20	CCH: Renaissance at N. Colorado Station	30%-60%	103	63	17	0.61 /unit	27%	0.17 /unit
21	CCH: Reniassance Riverfront Lofts	30%-60%	100	60	52	0.6 /unit	87%	0.52 /unit
22	CCH: Reniassance Uptown Lofts	30%-60%	98	22	15	0.22 /unit	68%	0.15 /unit
23	Brandon Apartments	30%-60%	103	70	42	0.68 /unit	60%	0.41 /unit
24	Arroyo Village - Workforce	50%	95	78	75	0.82 /unit	96%	0.79 /unit
25	Arroyo Village - The Delores Project	30%	35	8	6	0.23 /unit	75%	0.17 /unit
26	St. Francis Center's Cathedral Square	30%	49	13	2	0.27 /unit	15%	0.04 /unit
			Overall Average			1.06 /unit	58%	0.61 /unit
			Overall AMI <60%			1.15 /unit	64%	0.73 /unit
			Overall AMI <30%			0.70 /unit	33%	0.17 /unit

Comparison of Parking Data for Housing

Table 5 summarizes the parking demand rates and calculations based on the city requirements, national studies, and localized studies. Based on the data and characteristics of low-income housing and proximity to transit, it is recommended that the parking supply for the housing on the Potomac Mental Health site be 0.65 space per unit.

Table 5: Parking Analysis Comparison for Housing

Source	Parking Rate	Parking Demand
City of Aurora Requirements	0.85 + 0.20	42 spaces
ITE Parking Generation – Market Rate	1.12	45 spaces
LADOT Study – Low-Income	0.43	18 spaces
San Diego Study – Low-Income	0.70	28 spaces
Local Data – Low-Income (Front Range)	0.61	25 spaces
Recommended Parking Supply for Housing	0.65 per unit	26 spaces

Maximum Parking Demand

In summary, the evaluation based on local and national data estimated that the site will have a maximum parking demand of 206 spaces [26 residential + 180 medical] without reductions for proximity to transit or alternative transportation modes or shared parking. The national and local data is an accumulative parking demand and does not consider the ability for parking spaces to be shared between land uses throughout the day based on the fluctuation in parking needs.

Shared Parking

The complementary land uses found in mixed-use developments allow for the required number of parking spaces to be reduced. The mix of residential and medical office uses on the Potomac Mental Health site allow for shared parking to occur because most parking spaces are only used part time by an individual user, and the highest parking demand for the two land use types occur at different times of the day. Most land uses have parking demand that accumulates at specific, predictable times of the day and week. It is anticipated that the residential parking spaces will

be mostly utilized during the evening and late-night hours when residents are home for the day. These spaces can be shared with medical office employees, patients, and staff that typically need parking during the daytime when residents are most likely away from home. When business hours are over, then medical parking spaces will not be needed and can be occupied by the residents.

Per the City of Aurora's Unified Development Code:

A reduction to the required parking may be granted by complying with any one or combination of the parking alternatives listed in this Section provided that the total reduction is not greater than 25 percent below the parking requirements in Section 146-4.6.3.C (Minimum Required Parking), and that the applicant provides a parking analysis and the Planning Director determines that the analysis provides adequate documentation of reduced parking demand and demonstrates that the reduction will not create significant adverse impacts on surrounding properties. Without limiting the generality of the previous sentence, parking alternatives may be applied to vertical mixed-use developments.

The Potomac Mental Health Facility and Housing project is located within ½ mile walking distance of transit (Florida Station); however, the City does not allow a reduction for sites above ¼ mile away from a transit station. There are other credits that are associated with shared transportation, electrical vehicle charging stations, bicycle parking, on-street parking, shared parking and transportation demand management. Several of the reduction credits cannot be applied to multi-family housing; however, the housing in this project is affordable housing and would benefit significantly from the listed amenities to reduce the need for vehicle ownership or parking. Table 4.6-3 of the Aurora Unified Development Code provides shared reduction factors based on land use types. **Table 6** summarizes the shared parking calculations.

Table 6. Shared Parking Calculation

Land Use Classification	City Parking Supply Requirement	City Shared Parking Reduction Factor	Parking Spaces
Medical Clinic/ Behavioral Health	200	1.3	154
Affordable Housing	42	1.0	42
Total Parking Supply with Shared Model			196
Reduction			19%

Land Use Classification	Parking Demand	City Shared Parking Reduction Factor	Parking Spaces
Medical Clinic/ Behavioral Health	180	1.3	139
Affordable Housing	26	1.0	26
Total Parking Supply with Shared Model			165
Reduction			31%

Recommended Parking Supply			182
Reduction			25%

Applying the City’s shared parking percentages to the City’s required parking supply, it was estimated that the project would need to provide 196 parking spaces. If the same methodology is applied to the calculated parking demand, then it is anticipated that the project site will need approximately 165 parking spaces to accommodate the demand. **Since the City will only grant a maximum of 25% reduction, then the total number of parking spaces would be 182 which would accommodate the estimated parking demand with anticipated excess parking spaces.**

Summary and Recommendations

The Potomac Mental Health Facility and Housing project is proposing to construct a medical clinic, behavioral health facility, and affordable housing on property located on the east side of Potomac Street, north of the I-225 Medical and Business Plaza. City of Aurora's Unified Development Code requires 196 parking spaces for this project (baseline with applied shared calculation); however, the parking demand was calculated to be up to 166 spaces (32% reduction). **It is recommended that the allowable 25% reduction be applied to reduce the City's off-street parking requirement, which would equate to 182 parking spaces. Based on the data, analysis, and proposed facility type, it is anticipated this parking supply would adequately accommodate the estimated parking demand for the proposed land uses.**

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