SITE ACCESS TEST FIT REPORT

COMPLETED FOR THE MUNICIPALITY OF ANCHORAGE, PLANNING DEPARTMENT

March 30, 2024

Executive Summary

This study uses testing of site layout concepts to assess potential design hurdles for infill housing when complying with Title 21 site access and street frontage standards. It tests the viability of small infill multifamily developments with three or four dwelling units on typical small urban lots without secondary street or alley access. This report outlines the site design process for five site layout concepts on 7500 square foot (SF) lots with a 50-foot (50') frontages that meet Municipality of Anchorage (MOA) Title 21, Table 21.07-2 Pedestrian Frontage Standards for Urban Neighborhood Contexts (Site Access) code and additional specific parameters set by the MOA Planning Department. The concepts are illustrated with a plan and a graphic for each concept. Design decisions made along the way are recorded in a log that details the specific site condition issue or section of code that presented challenges and the resulting design changes or considerations. A narrative accompanies each concept with descriptions of the concept and a summary of the concept's benefits and drawbacks.

FINDINGS INDICATE THE FOLLOWING:

- Meeting all code requirements for a triplex or fourplex on a 7500 SF lot with a 50' width was possible under the following conditions:
    - **Eliminating the 1+ parking target parameter.** The 7500 SF lot was large enough for a triplex or fourplex that did not include the target number of parking spaces (1 or more per unit), whether the dwelling units were grouped in a single building or split into multiple buildings.
    - **Favorable site conditions.** Meeting the target number of parking spaces on the site was challenging for all configurations tested. Except for a site configuration that includes no surface parking larger than a driveway (see Appendix B, Figure 2), the surface parking configurations included in this report worked on paper but may present challenges when applied on site. The surface parking layouts in all configurations tested, in front or behind the buildings, may not be viable without being granted relief from code if site conditions exist that were not included in the site test fit scenarios. These potential additional site conditions may include, but would not be limited to, the following:
        - Moderate changes in topography (in excess of 3' relief across the site).
        - L1 or L2 Landscape requirements.
        - Utility easements or manholes.
        - Special limitations requirements.
        - Variations in lot width narrower than 50'.
- For interior lots under 50' in width in the R-2M zoning district and subject to the Urban Neighborhood Context requirements, on-site parking will be limited to a two-car parking garage in the back or a one-car parking garage on the building frontage (See Figure 2 in Appendix B).
- For interior lots over 50' in width in the R2M zoning district and subject to the Urban Neighborhood Context requirements, assuming favorable site conditions, it is possible to meet the requirements in Table 21.07-2 when providing fewer than 10 parking spaces.

RECOMMENDATIONS FOR AMENDMENTS TO AMC 21.07.060 TO HELP ELIMINATE CONFUSION OR SITE DESIGN BARRIERS TO MULTIFAMILY DEVELOPMENTS ON SMALL LOTS ARE INCLUDED AT THE END OF THE REPORT AND IN APPENDIX C.

Introduction

This Site Access Test Fit Report was prepared at the request of the Municipality of Anchorage Planning Department. The Planning Department made the request at the end of January 2024, with a deadline for completion in early March 2024. The purpose of the study was to assess potential design hurdles for three- or four-unit multifamily infill housing in R-2M zoning districts subject to the Urban Neighborhood Context requirements in AMC 21.07.060.

Parameters of note for the study were as follows:

- The site test fit concepts were to be placed on an interior lot (no corner, secondary frontage, or alley).
- The lot size was set at 7500 square feet with 50' wide street frontage.
- The test fit was to meet code requirements for a new development in the R-2M zoning district subject to the Urban Neighborhood Context requirements contained in Table 21.07-2.
- R-2M was selected as the zoning district for the test fits because it is the most restrictive of the multifamily zoning districts, has smaller average lot sizes, makes up over 2/3 of the Anchorage Bowl's multifamily zoning, and has the highest potential for small-scale multifamily infill development.
- The Planning Department requested the team test different building layouts, including an apartment building, townhouses, two duplexes, and individual cottages for both fourplexes and triplexes.
- Neighboring lots are zoned R-2M (i.e. no higher landscaping standards along perimeter lot lines).
- Target snow storage: 20%. The code minimum is 10%.
- Target open space: 250 SF per dwelling unit. Current code does not require open space for multifamily buildings under five units. Concepts were originally tested with a 400 SF open space target based on R-2M requirements for multifamily developments with over five dwelling units. This 400 SF open space requirement was amended by A.O. No. 2024-16 to 200 SF during the course of this study.
- Target parking space and dimensions:
    - 1+ parking space per dwelling unit.
    - 9'x20' parking stalls
    - 24' maneuvering aisle
    - Min. 10' driveway width between lot line and structure with min. 2' shoulder where possible.
- Follow applicable building, fire, driveway, and drainage codes and conduct the study with a focus on the following recently adopted code: Off-Street Parking Amendments A.O. No. 2022-80(S), Site Access and Street Frontage Amendments A.O. No. 2023-50, and the 3- and 4-Plex Title 21 and Title 23 Amendments, A.O. No. 2023-103(S) and A.O. No. 2023-130.
- Conduct the study following the recently adopted code, including the recommended clean-up amendments to the Parking and Site Access code in draft A.O. No. 2024-24 (from Planning and Zoning Case No. 2024-0011).

Additional parameters for the study are included as Appendix A for reference.

Final Deliverable:

- Five site concepts that meet municipal code,
- rough order of magnitude (ROM) cost estimates, included for comparison purposes only, for each concept,
- a report describing the initial findings and process, including decisions made during the design process,
- a log of any regulatory difficulties, impediments, and questions that were identified during the design process,
- and recommendations for changes to the code to facilitate the design and development of small multifamily sites based on questions or impediments encountered during the design process.

Initial Findings and Process

At the start of the project, the design team immediately established that building a three-plex or four-plex, whether housed in one structure or multiple structures, on a 7500 SF lot in R-2M was possible while meeting all code requirements, if no parking is provided on-site. Infill multifamily housing on interior lots is feasible on lots with a much smaller frontage than the 50' wide lot used for the study when not designing for surface parking. Case studies for narrow multifamily housing that would meet all applicable Municipality of Anchorage code may be found in cities across the US and include a seven-unit building on a 913 SF lot in Philadelphia that was completed in 2016.[1]

The real design challenge was accommodating the 1+ parking space per dwelling unit target set for the study, along with the associated on-site vehicular maneuvering space. A simple matter of geometry; the more cars housed on the site, the more difficult it became to find room for housing on the site. In addition, as the vehicular parking and circulation pavement surface grew, so did the amount of space required for snow storage.

Open space requirements had a similar effect. Although the open space may technically overlap with setbacks and snow storage, the minimum 15' dimension of the open space severely limited options for placement of open space on the site and constrained either the building footprint or the space available for parking. Based on practical experience, dwelling units are usually deleted from developments to provide enough room for desired parking numbers per unit plus the required open space. Upon consultation, the Planning Department reminded the team that the open space parameter was 250 SF per dwelling, not the original 400 SF originally required for all multifamily in R-2M prior to recent code changes, and directed the team to prioritize maximum build-out of the residential square-footage and inclusion of the 1+ parking stall per unit target while attempting to maximize snow storage and open space where possible.

Design Log

The Design Log and Recommendations Table in Appendix C contains a full log of additional issues discovered during design with the corresponding associated responses, results, or impacts on the design.

Select Concepts

The final five concepts (shown in the following pages and summarized in Appendix B) were chosen as representative of the multiple possible iterations of building form and parking layouts because they provide:

- A maximum build-out of residential space balanced with a target parking number of 1+ parking space per unit.
- The most efficient parking layout with snow storage possible, considering the limitations of the code and the site.
- They meet the code parameters provided by the Planning Department
- They came closest to meeting the variety of different scenarios originally requested by the Planning Department

Some building layouts requested by the Planning Department were not included in the Select Concepts because they could not meet the parking target while also meeting minimum building separation requirements and maintaining a reasonably sized footprint (three cottages) or the initial ROM cost estimate came in so high they were eliminated as

[1] https://www.inquirer.com/real-estate/inga-saffron/narrow-apartment-building-philadelphia-isa-microunits-callahan-ward-20190131.html This building specifically would be permissible in Anchorage's Downtown and R-4A zoning districts. It is provided as an extreme example of what is possible on a narrow lot. R-2M zoning district requirements limit buildings like this in height and require side setbacks from the lot line for all structures except townhouses and single-family attached.

impractical for anything but a luxury market (under-building parking). A few layouts were eliminated because the parking would have required two or three point turns to maneuver into the parking spaces. Other building layouts were not included because the differences in the layouts were small enough to be negligible. In those instances, the team chose the layout with the most residential space and most reasonable parking and maneuvering layout.

As noted above, it is possible to fit 7920 SF of Gross Floor Area (GFA) on a 7500 SF lot.[2] The 7920 SF of building space could be comprised of one to four buildings and could include an ADU. In a single building that size, even if 40% of that space is taken up by internal circulation, shared amenity spaces, and storage, that leaves room for three 3-bedroom units and a studio, or two one-bedroom units, one two-bedroom unit, and one three-bedroom unit.

The maximum build-out of residential space was not included as one of the five concepts below due to the desire to include 1+ parking space per unit on the site. The parking layouts and resulting required snow storage space constrained the size and shape of the buildings in all five of the concepts included below.

All of the below concepts represent the maximum build out of GFA possible. The boxy architectural style was used as the simplest representation of the architectural massing possible under code and site restrictions. Under real-life conditions, architectural styles would vary, and smaller or shorter structures may better meet market demand.

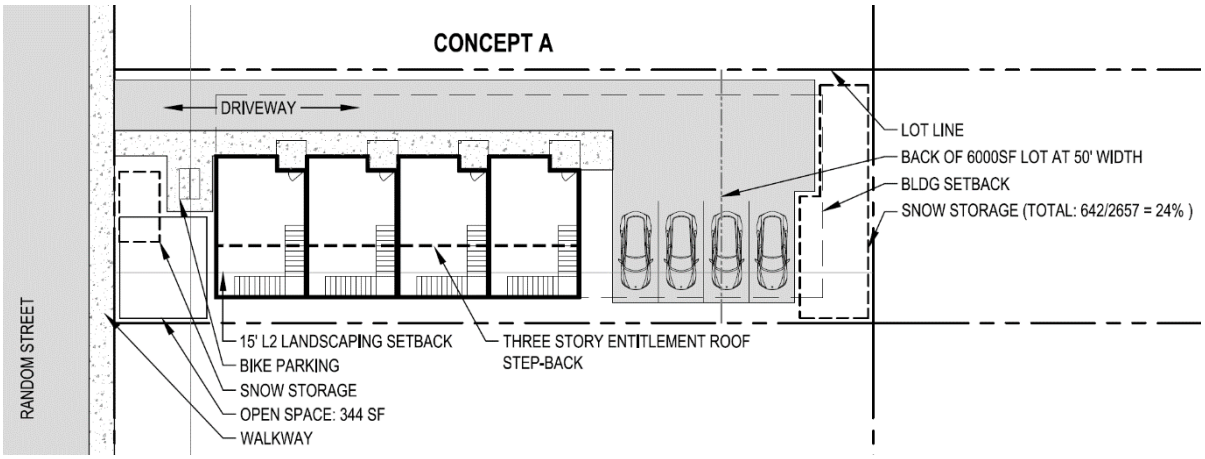
Cost Estimates

The cost estimates are not to be used for construction purposes. The estimates provided for each concept are intended as a tool for comparison purposes only.

Approximate development costs for each site concept were calculated using current market pricing and are representative of Civil and Architectural costs only. Civil costs are based on pavement quantities and any additional permitting or materials costs that differ between the concepts. The architectural costs are based on a cost per square foot that reflects whether the building would fall under International Building Code (IBC) or International Residential Code (IRC). All costs assume construction is occurring in 2024 in Anchorage, AK. Soft costs and site-specific costs, such as the cost of the property, cost to connect to utilities, contractor mobilization, etc., are not included in this report. The civil and architectural cost estimate may be found in Appendix D.

[2] This calculation assumes: three stories, that the building meets the R2-M zone 72' length limit for permitting 5' side setbacks, and that a portion of the third story is impacted by the roofline step-back from the adjacent lot line required by Section 21.06.030D.7.c (see Item 15 in Appendix C).

Concept A



Cost Comparison

5310 SF GFA	Civil: $37,767.00	Architectural: $1,460,250	**Total: $1,498,017**

Concept A Narrative

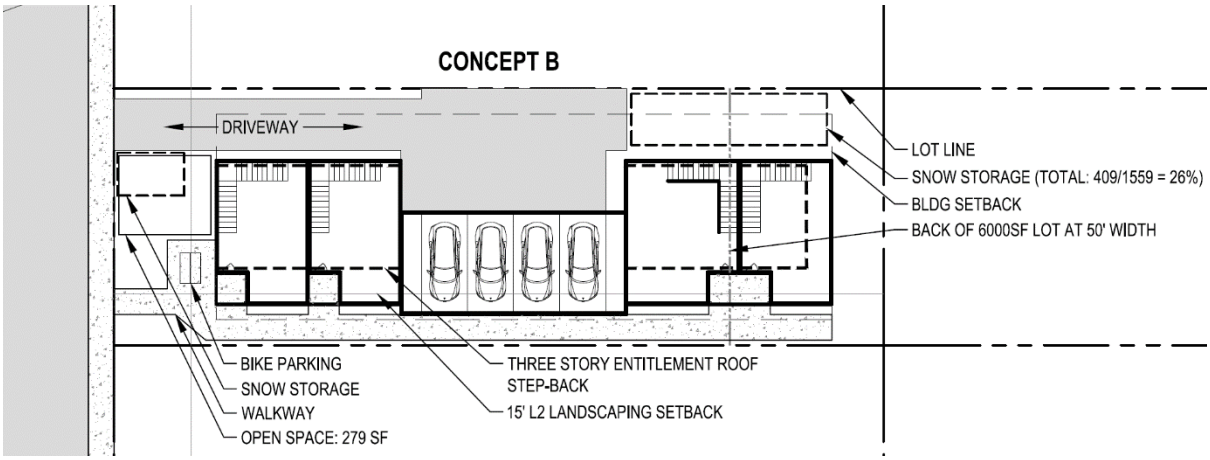
Concept A consists of a single building with a maximum build-out of 5310 SF of GFA and four parking spaces at the back of the lot. The driveway to the back is 10' wide and is kept 2' clear of the property line. A walkway immediately adjacent to the driveway provides access from the ROW to the front doors of the individual units. Snow storage areas occur at the front and back of the lot. Some common private open space is available at the front of the lot in the front setback, separate from the snow storage area. A bike rack is provided at the front of the lot.

The plan, graphic, and cost estimate are based on (4) 28'x18' townhouse-style units, but this site layout and building footprint would accommodate an apartment building as well. An apartment building in this layout and at this square footage could include four apartments and an ADU.

Items of Note:

- Out of all the conceptual parking area layouts that meet the new Urban Neighborhood Context requirements (Concepts A through D), this was the team's preferred layout for car maneuverability, snow storage, open space, and walkway location.
- This Concept and all of the following include a roofline step-back from the adjacent lot line required by Section 21.06.030D.7.c (see Item 15 in Appendix C).

Concept B



Cost Comparison

5694 SF GFA	Civil: $84,533	Architectural: $1,565,850	**Total: $1,650,383**

Concept B Narrative

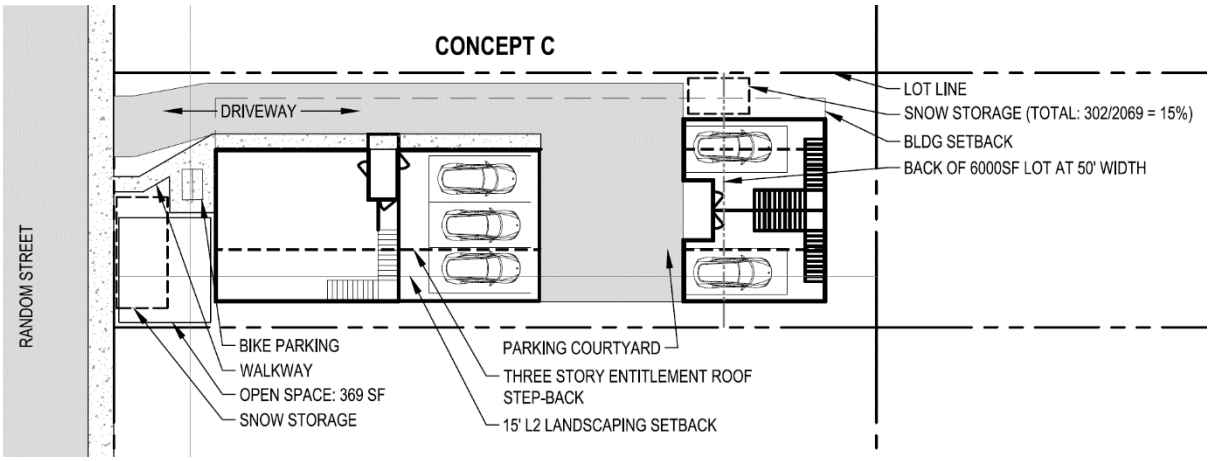
Concept B consists of two duplex style buildings with 5694 SF of GFA. A carport between the buildings provides some protection from the elements and slightly reduces the required snow storage area. A walkway from the ROW provides access to the front door of all of the units and the carport. A bike rack is provided at the front of the lot and snow storage occurs at the front and northeast corner of the lot. The team considered this the least successful of the five concepts. It is included because it illustrates many of the challenges with placing multiple structures with on-site parking on a narrow interior lot.

As with Concept A, the units are depicted as townhouse-style units, but either of the buildings could be stacked, apartment style, and one of them could include a small ADU.

Items of note:

- Snow storage and clearing in this concept is complicated by the narrow width of the back snow storage area and its proximity to the building.
- In order to provide a walkway to the buildings at the back of the lot without having to cross the driveway, parking area, or snow storage area, the walkway had to be placed on the south edge of the lot between the building and the fence. Unless the walkway is well lit, well designed, and vigilantly cleared of snow, the entry sequence for this concept has the potential to feel narrow, dark, and unpleasant to navigate.
- A garage with an ADU on the second story would have been preferable to a carport in this configuration, but it was eliminated as a possibility by the 72’ limit on the length of the building for permitting a 5’ side setback.
- The 5’ side setback on the 50’-width lot limits garage placement to the east-west configuration seen in Concept C. A garage in the north-south configuration would be possible on a 60’-width lot with favorable grading and drainage site conditions.
- Multiple buildings on one lot creates additional challenges from both a permitting and utility service perspective. Two primary structures requires an additional master fill and grade permit (thus requiring a civil design). Water and sewer service is more expensive due to branched connections and longer service runs.

Concept C



Cost Comparison

7625 SF GFA	Civil: $138,019	Architectural: $2,602,575	**Total: $2,740,594**

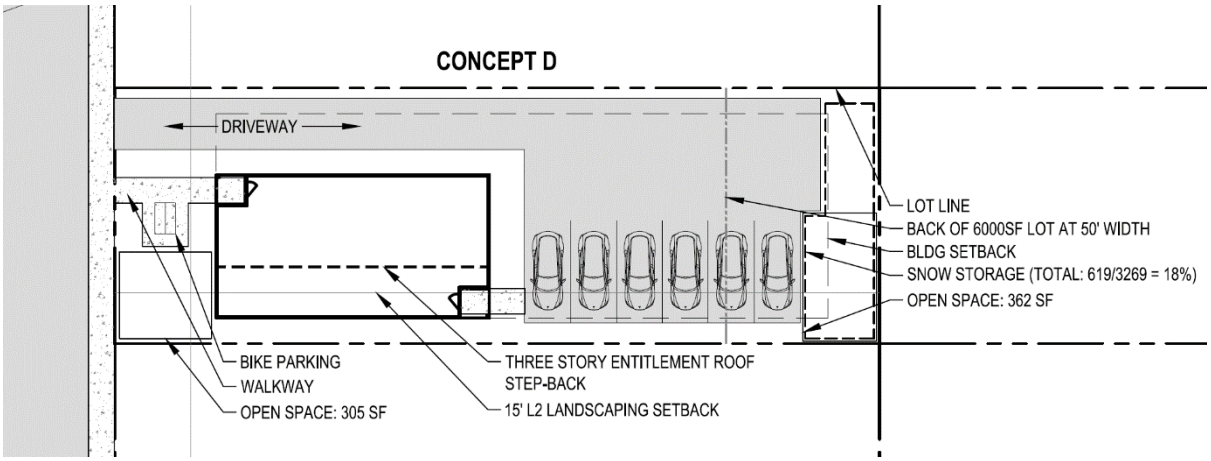
Concept C Narrative

Concept C is the only concept that provides indoor vehicle storage. The building at the rear of the lot is made up of two townhouses, each with its own single-car garage. The building at the front of the lot is an apartment style building that could include two large apartments or two smaller apartments and an ADU. The garage in the building at the front of the lot has space for three vehicles. To accommodate the garage layout, the vehicular maneuvering area between the buildings had to be larger than the usual 24' backout dimension included in the other concepts. A parking courtyard provides pedestrian access to the buildings in the rear of the lot and a walkway from the ROW provides access to the building at the front of the lot and the parking courtyard. Because garages were provided, snow storage requirements were reduced slightly but still had to account for the pavement added for maneuverability.

Items of note:

- Snow storage locations in this concept are very problematic. It is likely that snow clearing operations would struggle to find space for snow storage in heavy snow years and maneuverability for a snowplow truck in the parking courtyard would be limited. This parking configuration would be more successful if the concept became a triplex. Eliminating one of the townhouses would provide more space for snow storage.
- As noted in the Design Log, the team struggled with the idea that the parking courtyard and driveway had to be designed for pedestrian use, but the driveway could not function as a pedestrian connection to the ROW for the buildings in the back of the lot.
- As noted in Concept B, multiple structures increases development costs from permitting and utility service perspective.

Concept D



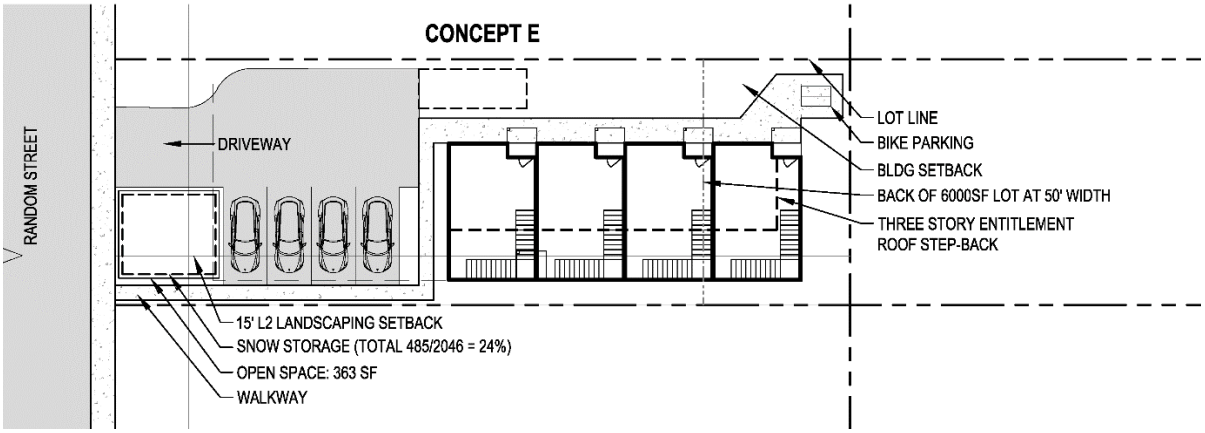
Cost Comparison

3964 SF GFA	Civil: $40,129	Architectural: $1,486,500	**Total: $1,526,629**

Concept D Narrative

Concept D is similar to Concept A but provides more parking at the expense of building space. Concept D's 3964 SF of building space is comprised of four stacked apartments instead of townhouses. Being able to stack the units provided more space on site for parking, but also requires IBC review instead of IRC review, adding cost. This concept was included to provide a cost comparison to Concept A, which does not require an IBC review and may be reviewed under IRC, similar to a single-family home.

Concept E



Cost Comparison

5521 sf GFA	Civil: $39,305	Architectural: $1,435,775	**Total: $1,475,080**

Concept E Narrative

Concept E does not meet the new Urban Neighborhood Context requirements. This concept places parking in front of the entire width of the building, which is prohibited under the code. This concept was included to provide a baseline to illustrate the difference in cost of development for a concept that does meet the Urban Neighborhood Context requirements (Concept A) and a concept that does not meet the Urban Neighborhood Context requirements (Concept E). Both concepts are comprised of the same elements, but Concept E has a longer walkway and a shorter driveway.

Items of note:

- Like Concept B, it was difficult to provide a walkway from the building entries to the ROW without crossing the snow storage areas or the driveway. A 3' walkway was substituted for the usual 5' width walkway in order to meet the requirement for a pedestrian connection to the street and maintain a 20' length parking stall. Wheel-stops would need to be provided to prevent vehicles from overhanging the sidewalk. The wheel-stops would complicate snow removal.
- Similar to the other concepts, because the walkway pushes the parking area closer to the lot line, this concept is also dependent on extremely favorable site conditions and would fail if there were even a moderate grade to the front of the property.

Recommendations:

The following is a summary of recommendations for code or process changes based on the site test fit findings. The recommendations are intended as an addition to the clean-up amendments in draft A.O. No. 2024-24 and may be found listed in their entirety in Appendix C, Table 1. Table 2 in Appendix C provides additional items that may be considered for future code amendments. *The changes we believe would be the most impactful for small infill developments are listed in the summary here. Please see Appendix C for the full list of recommendations.*

- **For all interior lots with a street frontage of less than 50', increase the maximum allowed width of residential garage entrance on the ground-floor street-facing building elevation to 65%. Additionally, amend Row B of Table 21.07-2 to increase the maximum allowed residential garage width from 40% to 50% to align with the requirements of Row A and to provide design flexibility upon conflict with site constraints.** (Item 2 in the Design Log and Recommendations Table) (also see Figure 2 in Appendix B).
- **Eliminate the requirement for a walkway from the main entry for multifamily and townhouse developments with less than five units:** Allow small multifamily developments to match single-family residential which may use the driveway as a pedestrian walkway (Item 6).
- **Eliminate or reduce the L2 landscape requirements under certain circumstances**: Multifamily zoning districts should not be considered equivalent under code to "nuisance" zoning districts like high-intensity business districts or industrial (Item 7).
- **Eliminate the requirement for a walkway from a parking courtyard to the street.** If the parking courtyard meets all requirements for a parking courtyard, including providing a driveway that is design for pedestrian use, there is no need for an additional walkway (Item 3).
- **Clarify Urban Neighborhood Context locations:** Since the adoption of the Site Access code and creation of the Urban Neighborhood Context areas, conditions have changed and multifamily developments on small lots are now allowed city-wide. In response to this change, the team suggests aligning the Urban Neighborhood Context site parking requirements with areas with small minimum lot sizes or where high density infill and/or high pedestrian activity is likely to occur and make the boundaries of those areas predictable and easily discoverable (Item 5).

During the design process the team discussed three other recommendations that aren't directly related to code issues encountered during the development of the above concepts but could impact multifamily developments in real-world circumstances:

- **Consider the adjacent road conditions:** Multifamily zoning, especially R3, is often located on collectors and arterials, while lower density housing tends to be located on low-speed local roads. Placing residential buildings up at the front of the lot on roads with higher speeds results in an uncomfortable, and potentially hazardous, environment for residents.
    - Consider allowing property owners on roads that meet a certain hazard threshold (such as roads with high-speed, high-volume, high traffic accident numbers, or narrow ROW with narrow sidewalks and no street landscape) to place buildings at the back of the lot, even if that means the parking lot will be located at the front of the lot.
    - Meanwhile, work to reduce speeds, widen sidewalks, and improve the streets to get them below the hazard threshold so that future developments will be required by code to be oriented to the street.
- **Amend the Pedestrian Amenities requirements:** It is unclear which of the "pedestrian amenities" menu items address health and safety and which are aesthetic recommendations. *The team suggests removing all standards that are optional or are only included for aesthetics.* Amend 21.07.060G to select items on the menu that are considered vital for residential design in Anchorage (i.e. covered and well-lit entries) and make them a code

requirement for all developments. Move all other menu items to the DCM as "Urban Design and Winter City Recommendations" and as reference for design of public buildings (Item 8).

- **Applicability of the Urban Neighborhood Context requirements to Single and Two-Family Homes:** After completing the study to determine the minimum lot width that would allow two-car and single-car garages on a building frontage Appendix B, Figure 2), the design team could not come to a consensus on a recommendation regarding the application of the frontage requirements to multifamily vs. single and two-family developments.
    - Some members of the team felt that single and two-family developments should be exempt from the frontage requirements to make it easier to meet the Anchorage 2040 Land Use Plan recommendations for smaller lot configurations and higher densities. The Site Access standards eliminate highly desirable two-car garages at a certain width, and even make single-car garages challenging to build.
    - Others felt that the suggested amendments to Table 21.07-2 (changing the allowance for all developments on interior lots to 65%) were sufficient to meet the goals of the 2040 LUP for Traditional Neighborhood Design while still allowing space for vehicle storage.

Additional Recommendations

Additional recommendations are included in the Design Log and Recommendations Table in Appendix C, organized as responses to the design issues listed in the Design Log.

Conclusion

We appreciate the opportunity to explore the implications of application of the Urban Neighborhood Context requirements in different scenarios and to provide feedback on the challenges and issues discovered during the process. We look forward to the community discussion of the issues and the recommendations herein.

Compiled March 2024
Design Team:
Mélisa Babb – Project Management, Site Planning, Graphics
Brandon Marcott (Triad Engineering) –Site Plan and Code Compliance Review, Civil Engineering Cost Est.
Heather Kapala (Bettisworth North) – Architectural Review and Cost Est.
Erik Jones (Bettisworth North) – 3D Modeling

Site Access Concept Study: Parameters and Initial Site Plan Scenarios Explored by Planning Staff

(2/7/2024 Revision per consultations with *Mélisa)*

Goal:

Show that 3 and 4-plex development can be built on standard-size urban lots, with pedestrian-oriented frontage and site access design and little to no parking between the residences and the street.

5 Site Plan Scenarios Initially Explored by Planning staff:

1. Parking in Rear
2. Parking between Units
3. Parking between Units (with a garage on front unit)
4. Tuck-under Parking
5. Parking in Front (not as a desired scenario but for comparison)

Self-imposed Parameters:

(Note: This list is revised since 2/2/24 consultation with Mélisa, by inserting new items b. and c., and revising item k.)

a. "Standard" urban lot, No alley.

b. Follow applicable building, fire, driveways, and drainage codes. *(Note: Added after 2-2-24 consultation with Mélisa)*

c. Housing target: Provide 4 dwelling units. Second best option: At least 3 principal units. Adding an ADU is welcome. *(Note: Added after 2-2-24 consultation with Mélisa)*

d. Parking target: 1+ parking space/unit, if practical, based on documented avg. utilization rate.

e. Parking stall size, driveway width, and vehicle maneuvering width should adhere to needs and code requirements.

f. Snow storage area needs to be equivalent to >10% and preferably 20% of the paved area to be plowed. *(Illustrate allowed overlap with areas used for private open space, setbacks is ok.)*

g. Building Height: 2 stories above grade; or up to 3 if needed.

h. Dwelling unit size and dimensions: Width at least 20 feet; Length of townhouses at least 28 to 32 feet (i.e., typical min. dimensions built in Anchorage.). Bedrooms: 2-BR is ideal; 1-BR if necessary. ADUs can be 1-BR or studio.

i. Use minimum setbacks for access, parking, landscaping, porches or stoops, usable open space, and snow storage.

j. Pedestrian Access and Primary Entrances: Meet walkway and residential covered entrance requirements. But most importantly: Design for *pedestrian* access first; car access is necessary but secondary. So potentially *exceed* the minimum walkway standard. What would it be like to walk to the front door of each unit under the site plan scenario? *(Note: per 2-2-24 consultation, driveway lanes that access/serve more than 1 unit cannot be the walkway.)*

k. Usable Outdoor Space: Although private open space is not required, provide a usable outdoor amenity space that comes as close as practical to meeting the R-3 zone's 250 sf private open space requirement and dimensional standards of Title 21 section 21.07.030. At a minimum provide some kind of usable yard or stoop area for each unit or easily accessible to the units sharing the space that comes as close to practical as meeting the 15x15 dimensions (or 60 sf for stoops and decks) but mainly being a desirable or usable space. Illustrate the ability to overlap with snow storage areas and walkways. If necessary to fit all units, private open space is not a requirement. *(Note: This parameter was changed after consultation and correspondence with Mélisa)*

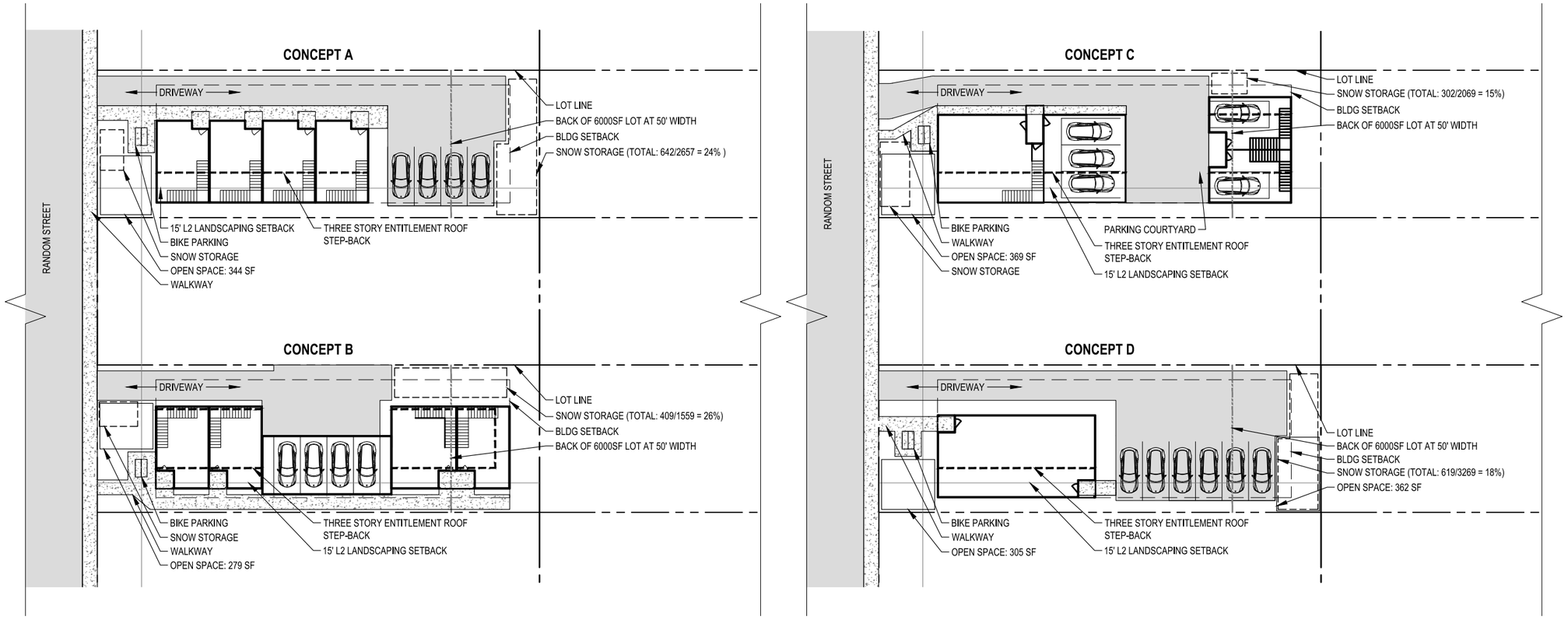
l. Design as if you will live here, own it, or live next door. Make this livable, desirable. Minimize negative externalities to neighbors: Would you want to live next to this?

IF THIS DIMENSION DOES NOT MEASURE ONE INCH (1") EXACTLY, THIS DRAWING HAS BEEN ENLARGED OR REDUCED, AFFECTING ALL LABELED SCALES

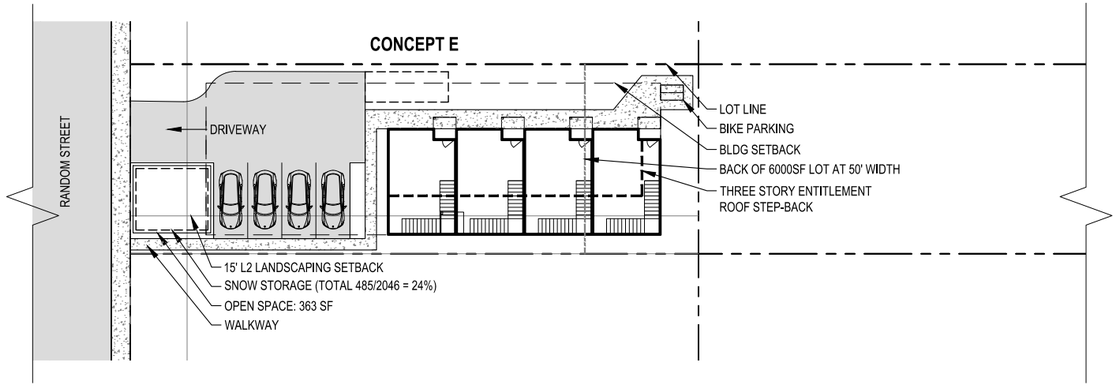
1" ACTUAL

Appendix B

SCENARIO 1: 4-PLEX - SITE ACCESS CODE IN EFFECT



SCENARIO 2: 4-PLEX - NO SITE ACCESS CODE



SITE CONDITIONS AND ASSUMPTIONS FOR ALL SCENARIOS AND CONCEPTS:

- R-2M ZONING DISTRICT
- 5' SIDE SETBACKS
- INTERIOR LOT
- NO ALLEY
- OPEN SPACE: NONE REQUIRED
- MIN. SNOW STORAGE: 10%
- MAX LOT COVERAGE: 40%

N

NOT FOR CONSTRUCTION

20 0 20 40
SCALE OF FEET

MUNICIPALITY OF ANCHORAGE PLANNING DEPARTMENT

SITE ACCESS TEST FIT REPORT

ANCHORAGE, ALASKA

CONCEPT

CONSULTANT:

PROJECT NO:	24-103
DATE:	2024-03-17
DRAWN BY:	MB
CHECKED BY:	

REVISION	DESCRIPTION	DATE
###	DESCRIPTION	YYYY-MM-DD

SITE TEST FIT CONCEPTS

FIGURE 1

NOT FOR CONSTRUCTION

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IF THIS DIMENSION DOES NOT MEASURE ONE INCH (1") EXACTLY, THIS DRAWING HAS BEEN ENLARGED OR REDUCED, AFFECTING ALL LABELED SCALES

1" ACTUAL

SITE CONDITIONS AND ASSUMPTIONS:

- R-2M ZONING DISTRICT
- 5' SIDE SETBACKS
- INTERIOR LOT
- NO ALLEY
- BUILDING FRONTAGE BUILT TO FULL WIDTH ALLOWED BY SIDE SETBACKS

WITH A LOT FRONTAGE OF 50' OR NARROWER, PARKING AND MANEUVERING ON SITE (EITHER IN FRONT OR IN BACK OF THE BUILDING) BECOMES DIFFICULT TO IMPOSSIBLE TO ACHIEVE FOR MORE THAN THREE VEHICLES, DEPENDING ON THE TOPOGRAPHY AND DEPTH OF THE LOT (SEE FIGURE 1).

THE BEST REMAINING OPTION FOR ON-SITE PARKING IS A DRIVEWAY WITH GARAGE ON THE FRONT OF THE BUILDING WHICH ALLOWS CARS TO USE THE STREET AS PART OF THE MANEUVERING SPACE.

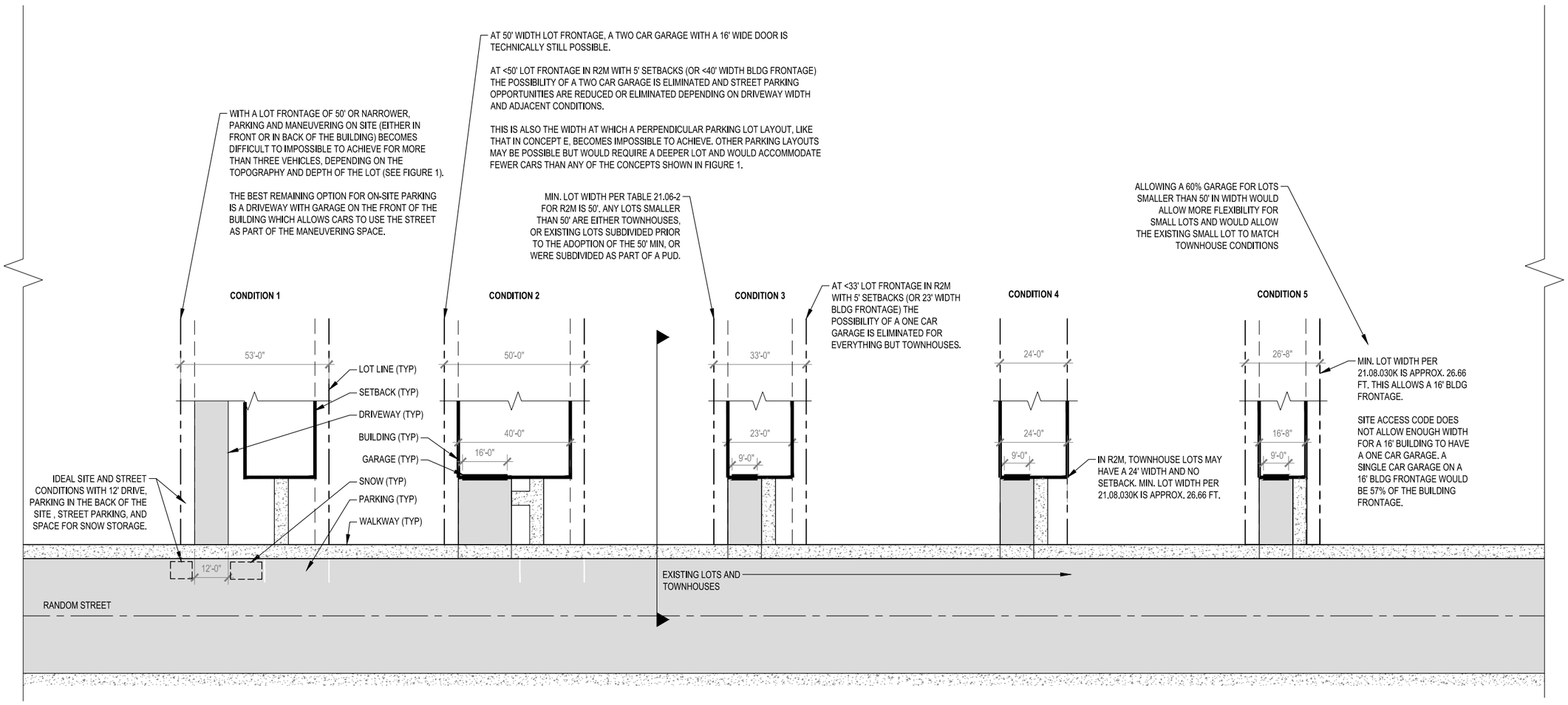
AT 50' WIDTH LOT FRONTAGE, A TWO CAR GARAGE WITH A 16' WIDE DOOR IS TECHNICALLY STILL POSSIBLE.

AT <50' LOT FRONTAGE IN R2M WITH 5' SETBACKS (OR <40' WIDTH BLDG FRONTAGE) THE POSSIBILITY OF A TWO CAR GARAGE IS ELIMINATED AND STREET PARKING OPPORTUNITIES ARE REDUCED OR ELIMINATED DEPENDING ON DRIVEWAY WIDTH AND ADJACENT CONDITIONS.

THIS IS ALSO THE WIDTH AT WHICH A PERPENDICULAR PARKING LOT LAYOUT, LIKE THAT IN CONCEPT E, BECOMES IMPOSSIBLE TO ACHIEVE. OTHER PARKING LAYOUTS MAY BE POSSIBLE BUT WOULD REQUIRE A DEEPER LOT AND WOULD ACCOMMODATE FEWER CARS THAN ANY OF THE CONCEPTS SHOWN IN FIGURE 1.

MIN. LOT WIDTH PER TABLE 21.06-2 FOR R2M IS 50'. ANY LOTS SMALLER THAN 50' ARE EITHER TOWNHOUSES, OR EXISTING LOTS SUBDIVIDED PRIOR TO THE ADOPTION OF THE 50' MIN, OR WERE SUBDIVIDED AS PART OF A PUD.

ALLOWING A 60% GARAGE FOR LOTS SMALLER THAN 50' IN WIDTH WOULD ALLOW MORE FLEXIBILITY FOR SMALL LOTS AND WOULD ALLOW THE EXISTING SMALL LOT TO MATCH TOWNHOUSE CONDITIONS



NOT FOR CONSTRUCTION

20 0 20 40
SCALE OF FEET

MUNICIPALITY OF ANCHORAGE PLANNING DEPARTMENT

SITE ACCESS TEST FIT REPORT

ANCHORAGE, ALASKA

CONCEPT

CONSULTANT:

PROJECT NO:	24-103
DATE:	2024-03-17
DRAWN BY:	MB
CHECKED BY:	

REVISION	DESCRIPTION	DATE
###	DESCRIPTION	YYYY-MM-DD

BUILDING FRONTAGE TEST

FIGURE 2

NOT FOR CONSTRUCTION

03/17/2024 03:28:28 PM P:\24-103 Site Access Concept Test Study\2-CAD\Drawings\LA\24-103 Site Access_PLANS.dwg

Appendix C

Table 1

RECOMMENDATIONS THAT DIRECTLY APPLY TO T21 PARKING AND SITE ACCESS STANDARDS FOR 3-AND 4-PLEX DEVELOPMENTS.

Item	Associated Code Section (if any)	Design Issue	Design Log	Recommendations
1	Table 21.07-2	Applicable frontages	During the initial code review, before the team was directed to focus on interior lots, there was some confusion about which or how many of the frontages were affected by the garage and vehicular circulation area code restrictions. The parameters of the study only included one street frontage, so the question was shelved for later consideration. The team later found that code in 21.07.060F.4 clarifies that the standard applies to one primary frontage and one secondary frontage.	Consider updating the table to include the information in 21.07.060F.4.
2	Table 21.07-2	The surface parking concepts included are barely possible at 50' lot width with perfect site conditions. The team assumed a flat site with favorable soils for minimum grading. Pavement was kept min. 2' clear of fencing, lot lines, and structures where possible. Any topographic irregularities or slopes on the site would either render the parking and car storage concepts unachievable at the	Due to both potential adverse site conditions and the dimensional restrictions of a 50' (or narrower lot), parking on small lots will occur in driveways or one- or two-car garages. Narrower apartment style buildings may accommodate parking behind the building on a lot slightly narrower than 50' but then the car storage and maneuvering area in the back of the lot becomes limited and will not accommodate more than two or three cars.	• **For all interior lots with a street frontage of less than 50', increase the maximum allowed width of residential garage entrance on the ground-floor street-facing building elevation to 65%. (See Figure 2 in Appendix B).** • **Additionally, amend Row B of Table 21.07-2 to increase the maximum allowed residential garage width from 40% to 50% to align with the requirements of Row A and to provide design flexibility upon conflict with site constraints.** • Decrease the Minimum required ground-floor, street-facing building elevation with on-site walkways, pedestrian amenities, or landscaping in front – and no off-street automobile parking or circulation to 30%.

		dimensions used for parking stalls and maneuvering space or would add cost in the form of retaining walls and underground drainage structures.	At less than 50', a garage door for a two-car garage on the front of the building would be too wide to meet the requirements of Table 21.07-2 (See Figure 2 in Appendix B).	This will proportionately match existing code for townhouses and will allow residential developments on narrow existing interior lots to include two-car garages on lots with frontages greater than 35' wide and single car garages on lots greater than 24' wide, promoting infill. Except for townhouses, the minimum lot width allowed for subdivisions, per 21.08.030K, is approximately 26.66'. **Note that under favorable site conditions it is possible to meet the Site Access code requirement to put the parking behind the building on lots with alleys, corner lots,[1] or interior lots over 50' in width, with the natural consequence that the more parking provided, the less room there is for the building.** **Lots over 10 parking spaces are required to meet standards in 21.07 that will require more space than the standards applied to the small lots included in this study.**
3	Parking courtyard 21.07.060G.23	To resolve the issues with the walkway, the design team explored using a parking courtyard as an alternative. However, the parking courtyard presented its own difficulties: • It requires an administrative site plan review. • The common access driveway for the parking courtyard does not qualify as a pedestrian walkway that meets 21.07.060E.4, even though it must be designed for pedestrian use. An additional walkway must be provided from the parking courtyard to the street. • There is very little space available for accommodating both landscaping and vehicular maneuvering space. • It is unclear what would be required to meet items e, f, and g on the list.	The additional cost for materials, uncertainty of outcome, and administrative site plan review is reflected in the cost estimate.	• Consider eliminating the requirement for a walkway from the parking courtyard to the street. • Items e, f, and g are unspecific and undefined. Suggest eliminating these and replacing them with "materials and design to be determined during review." • Anchorage is a winter city with snow on the ground 9 months out of the year. Special paving is a cost that is orders of magnitude higher than just asphalt or concrete. Consider eliminating the requirement for special pavement.

[1] This assumes that the Site Access code only applies to the Primary Front Setback (see Item 2 in this table).

4	Under-building parking (Study Parameters)	N/A	After consultation with the Planning Department, the under-building parking concept was discarded in favor of other alternatives for the following reasons: • Not enough space on the lot to meet the requirements for the driveway ramp unless the under-building parking is only 5ft below grade or unless the building shrinks • The garage door needs to be wide enough for two-way traffic (building frontage limits from Table 21.07-2 restrict the width of the garage) • Table 21.05-1 and 21.06.030D.7.c height limits restrict the building to maximum 2 or 2.5 floors of GFA. • Maximum lot coverage, combined with side setbacks, in Table 21.06-1 limits the space under the building to 4 cars + maneuvering area • ROM cost would be minimum $35,000 per parking space • Cost is prohibitive for very little return in functionality, parking numbers, and GFA.	N/A
5	Table 21.06-1 Minimum lot dimensions for multifamily buildings under 5 dwelling units: 6000 SF	The original scope of this project set the parameter that the test lot be 50'x150' (7500 SF). A recent change to Title 21 allows multifamily buildings under 5 dwelling units in R-2M to be located on lots as small as 6000 SF.	Each plan includes a dashed line that notes where on the lot the back property line would fall if the lot were 6000 SF instead of 7500 SF. In all five of the concepts included in this report, the reduction of the size of the lot either reduced the concept by two dwelling units or two parking spaces. The reduction in the size of the lot reduces the maximum build-out of GFA to about 6300 SF, which is still enough space for four dwelling units and a small ADU. It is unlikely that a full build-out of the maximum lot coverage on a 6000 SF lot would allow space for more than two on-site parking spaces.	**The recent change to lot size minimums in R-2M impacts all R-2M zoning districts in the municipality, not just those in the Urban Neighborhood Context areas.** **New small multifamily buildings on small lots, and the associated desire for parking, will be encountered city-wide - in or out of the Urban Neighborhood Context areas.** **In response to this change, the team suggests aligning the Urban Neighborhood Context site parking requirements with areas where high density infill and/or high pedestrian activity is likely to occur and make the boundaries of those areas predictable and easily discoverable. During the course of this study the Urban Neighborhood Context area boundaries were changed, and will change again if the clean-up amendments in A.O. 2024-24 are adopted.**

6	21.07.060E.4	All multifamily buildings on the lot required walkway that connected the primary entrance to the abutting primary street frontage. The width of the lot combined with the Planning Department's preference (as stated during discussions about the design parameters, not as dictated by code) to separate the walkway from the drive means that the walkway is forced between the building and the fence in the townhouse style concepts. This presents challenges for snow removal and results in a narrow and shaded building entry sequence. The team questioned the need for a walkway from the buildings in the rear when there were only four or five cars using the driveway.	The team provided walkways from the buildings in the rear of the lot and explored using a parking courtyard as a substitute for the requirement. • In most cases, the team provided a 5' width walkway except where conditions would not allow a full 5' the team provided a 3' width walkway which is the minimum allowed for residential developments.	• Consider eliminating the requirement for a walkway from the main entry for 4 or fewer dwelling units when a driveway serving less than 10 vehicles is available for pedestrian access, unless there is a walkway at the front of the property in the ROW to connect to, and • Consider eliminating the requirement for a walkway to the front of the lot from the buildings in the back of the lot when a driveway that serves less than 10 vehicles is available to serve as the pedestrian connection. or • **Consider eliminating the requirement for a walkway from the main entry for multifamily and townhouse developments with less than five units and allow small multifamily developments to match single-family residential which may use the driveway as a pedestrian walkway.** Elimination of the requirement altogether is supported by the recent move toward treating small multifamily as equivalent under code to single-family. (Equivalent exceptions also exist in 21.07.060E.2.c.i: "For cul-de-sacs with fewer than 150 average daily trips and with speeds limited to 25 miles per hour by design, no walkways are required on the cul-de-sac stem or bulb.")
7	Tables 21.07-4 and 21.07-5	L2 landscaping is required where R-2M lots are adjacent to most other zoning districts and arterial roads (see Table 21.07-5 for the full list). L2 landscaping requires a 15' planting bed and two trees and 6 shrubs per 20 linear feet.	None of the concepts included in this report would be able to meet the L2 requirements on the side lot line and few would be able to meet L2 requirements at the front or back lot lines if the lot were in a location that required an L2 landscape bed.[2]	Reconsider the landscape bed widths for all multifamily residential. **Multifamily zoning districts should not be considered equivalent under code to "nuisance" zoning districts like high-intensity business districts or industrial.** • Eliminate the requirement for landscape beds between residential zones. • Eliminate the requirement for multifamily lots to provide site perimeter landscaping when adjacent to non-residential zones. Non-residential zones are already required to provide site perimeter landscaping. **As an example of how excessive this last requirement is in practice, under the existing requirements a new development in the B-3 district and an adjacent new R-2M development would**

[2] The 21.07-4 L2 requirements for R-2M lots creates a condition wherein developments along the edges of the zoning district boundary will require larger lots than those in the interior of the zoning district. This may reduce opportunities for multifamily development along collectors and arterials, which is contradictory to the Transit-Supportive Corridor goals in the 2040 LUP.

				have a combined 30' wide landscape bed along the property line between the two developments.

Table 2

RECOMMENDATIONS HAVING TO DO WITH OTHER SECTIONS OF CODE INCLUDED FOR CONSIDERATION FOR FUTURE CODE AMENDMENTS.

Item	Associated Code Section (if any)	Design Issue	Design Log	Recommendations
8	Table 21.07-2	Pedestrian Amenities	All of the concepts are able to meet the pedestrian amenities requirement by providing either item 16, 17, 20, or 23. The team questioned whether many of the other items on the amenities list would be provided very often due to the added cost and little to no associated incentive to do so. Upon follow-up with Planning staff, it was determined that the pedestrian amenity requirement is not applicable to the tested concepts because their GFA is less than 10,000 SF.	It is unclear which of the "pedestrian amenities" menu items address health and safety and which are aesthetic recommendations. Remove all standards that are optional or are only included for aesthetics. **Amend 21.07.060G:** • **Select items on the menu that are considered vital for residential design in Anchorage (i.e. covered and well-lit building entries) and make them a code requirement for all developments. Move all other menu items to another document or manual, such as the DCM, and list them as "Urban Design and Winter City Recommendations" and as reference for design of public buildings.**
9	Table 21.06-1	Multifamily in R-2M with single- or two-family style construction of multiple buildings on a lot requires a minimum lot area of 3000 SF per unit. This would limit a four-plex built as two duplexes to a 12,000 SF lot minimum.	The Planning Department instructed the design team to include a four-plex made up of multiple buildings on a 7500 SF lot as at least one of the final concepts.	Update Table 21.06-1 so that the minimum lot size for multifamily with single- or two-family construction on one lot matches the 6000sf minimum for a single multifamily building.
10	AMC Grading and Drainage requirements	Multiple structures per lot triggers the master fill and grade permitting step.	The extra cost for time and effort for a master fill and grade permit is reflected in the cost estimates.	Consider adjusting the master fill and grade permitting process so that it is not triggered by multiple structures on one lot for residential construction under 5 dwelling units.

11	General Design and Cost Consideration regarding Parameters set by Planning Department	Multiple habitable structures create system redundancies (more walls, separate utility systems, etc.)	The extra cost for redundant systems is reflected in the cost estimates.	N/A
12	21.04 District-Specific Requirements vs. Table 21.06-1 Requirements	The language in the two sections appears to conflict in regard to the minimum building setback. It was also unclear if the 5000 SF building area referred to the gross floor area or the building footprint. A 10' side setback would have made it impossible to provide any parking on the site except a single car garage on the front of the building or a two-car garage (or two parking spaces) in the back of the building (Table 21.07-2).	The Planning Department directed the team to assume that the minimum setback was 5', unless the length of the building exceeded 72'.	Update code language for clarity.
13	21.04 district Specific Requirements for R-2M	A building over 72' in length requires a 10' setback and building articulation. If the building were longer than 72', on a lot with a 50' width, a driveway to the back of the lot, a walkway along the driveway, the building width would be limited to 22'.	The concepts were adjusted to keep the total building length under 72'. This meant that the townhouse-style four-plex could not meet the minimum width of 20' requested by the Planning Department. However, the 18' width townhouse footprints included in the concepts will meet building code. Note: combined with the 5' setbacks, this 72' maximum building length effectively reduces the buildable footprint on a 7500 SF lot from the 3000 SF maximum lot coverage allowed per Table 21.06-1 to 2880 SF.	Consider eliminating this length restriction because it has an undue impact on smaller lots and is redundant to the maximum lot coverage restriction.
14	Tables 21.06-1 and 21.07-2	The 5' min. side setbacks combined with the placement of the driveway along the side of the building limited the length of the	The width of the units had already been reduced from 20' to 18' and the site layout limitations reduced the length of the units from 32' to 28'.	N/A

		townhouse units.		
15	21.06.030D.7.c	R-2M three story entitlement code requires that the building start stepping back at an 8:12 rise-to-run angle 20' above the lot line.	This reduced the GFA (gross floor area) of the third story for all of the dwelling units.	Three stories are allowed by-right in R-2M. Section 21.06.030D.7.c is an entitlement to allow three story buildings in zoning districts that do not allow them by right. If the purpose behind the interpretation of this section is to provide a transition to lower density neighborhoods or as a volume reduction for three story buildings within R-2M, consider updating the code so that the language of the code aligns with the interpretation.
16	Study Parameters and 21.07.040F	The study parameters originally included a 20% snow storage requirement. 21.07.040F sets that requirement at 10%.	The team was able meet the 20% snow storage requirement for some layouts, and the 10% minimum for all layouts, but Concept C includes the least favorable layout for snow clearing operations.	No change recommended. The challenges snow storage presented in this exercise were due to the provision of parking and all the associated impermeable surfacing, not the existence of snow storage requirements.
17	Study Parameters	Meeting open space requirements.	All of the concepts include areas that may technically meet the definition of open space but would probably not function well as outdoor "yard" space for the residents. The exception to this would be the few concepts where snow storage or pavement does not take up the entire front setback.[3]	For future consideration in discussion regarding open space in larger multifamily development: Open space is a luxury that residents pay for via increased rent (to pay for the square footage of real estate it occupies and its upkeep) or via fewer opportunities for housing because there is less room for more housing on the lot due to the open space requirement. Private open space has become a common requirement in zoning due to the deterioration of our public streets and disinvestments in social public places like plazas and parks. Furthermore, in practice, the private open space in new market-rate developments is crammed into whatever leftover space is available when all other site and building needs have been met. It rarely functions well. The design team was relieved that open space requirements for small multifamily developments are no longer required and fervently encourages the municipality to focus on improving public spaces so that private open space is not needed in our more urban environments.
18	21.90.001 (from the amendments going to the	There was confusion amongst the team members regarding the applicability of the guest parking requirement included in the amendments to 21.90.001.	The parking requirement does not apply.	The team was under the impression that all required parking minimums had been eliminated from code. It appears that 21.90.001 is an attempt to solve for a right-of-way management problem. Consider eliminating the guest parking requirement in 21.90.001 and improving street parking ordinance enforcement

[3] Technically, open space may overlap with snow storage space, but in practice the snow storage leaves behind gravel and other debris and also compacts the soil. Unless the soil and vegetation in the snow storage area is replaced regularly, the lawn or other vegetation in those areas becomes unsightly.

	Assembly in Feb/March)			in areas where this is an issue instead.
19	21.05.070D.1 vs. Table 21.06-1	There was some confusion regarding seemingly conflicting information in the two sections noted at left about the maximum height allowed for ADUs over a garage.	An ADU on its own may be up to 25' in height. If the ADU is located over a garage, it may be up to 30' in height.	Update code language for clarity.
20	IRC vs IBC for stacked units	The recent amendments to Title 21 and Title 23 in AO 2023-103(S) and AO 2023-130 were intended to ease restrictions on multifamily buildings with fewer than 5 dwelling units. Some of these changes allowed builders to use IRC rather than IBC code for construction, reducing cost.	The team explored both townhouse-style and apartment style buildings for each concept. The team determined that the intent of the recent IRC amendment applies to fire separation in a townhouse configuration, and once the units are stacked the building would need to meet IBC requirements. Based on this determination, the team assumed townhouse style construction for most of the final concepts but included two apartment-style buildings for cost comparison.	Because this has to do with fire safety, the team does not have a recommendation for change. Instead, please consider clarifying the conditions under which IRC and IBC apply for stacked multifamily units under the new Title 23 code. The team did reach out to the Building Department but are still uncertain we came to a real conclusion. The cost estimates for the stacked multifamily concepts reflect the more expensive of the two possibilities (IBC).

Appendix D

ENGINEER'S PRELIMINARY OPINION OF COST
MOA Site Access Code Test Fit
Paving & Sidewalk Improvements
3.4.24

ITEM NO.	DESCRIPTION	UNIT	EST'D QUANTITY	UNIT COST	TOTAL COST
	CONCEPT A				
100	2" Paving, 2" Leveling Course, 18" Gravel Section	sf	2,657	$ 10.50	$ 27,898.50
101	4" PCC Sidewalk, 6" Gravel Section	sf	459	$ 21.50	$ 9,868.50
					$ 37,767.00
	CONCEPT B				
200	2" Paving, 2" Leveling Course, 18" Gravel Section	sf	1,704	$ 10.50	$ 17,892.00
201	4" PCC Sidewalk, 6" Gravel Section	sf	774	$ 21.50	$ 16,641.00
202	Additional Costs to Water/Sewer Services	ls	1	$ 20,000.00	$ 20,000.00
203	Additional Permitting Costs (Mater F&G Permit)	ls	1	$ 30,000.00	$ 30,000.00
					$ 84,533.00
	CONCEPT C				
300A	* 2" Paving, 2" Leveling Course, 18" Gravel Section (Alternative)	sf	2,070	$ 10.50	$ 21,735.00
300	6" Colored Stamped Concrete, Wire Reinforcement, 18" Gravel Section	sf	2,070	$ 35.00	$ 72,450.00
301	4" PCC Sidewalk, 6" Gravel Section	sf	259	$ 21.50	$ 5,568.50
302	Additional Costs to Water/Sewer Services	ls	1	$ 20,000.00	$ 20,000.00
303	Additional Costs for Admin Site Plan Review	ls	1	$ 10,000.00	$ 10,000.00
304	Additional Permitting Costs (Mater F&G Permit)	ls	1	$ 30,000.00	$ 30,000.00
	** Provided for reference, not included in total cost*				**$ 138,018.50**
	CONCEPT D				
400	2" Paving, 2" Leveling Course, 18" Gravel Section	sf	3,269	$ 10.50	$ 34,324.50
401	4" PCC Sidewalk, 6" Gravel Section	sf	270	$ 21.50	$ 5,805.00
					$ 40,129.50
	CONCEPT E				
500	2" Paving, 2" Leveling Course, 18" Gravel Section	sf	2,050	$ 10.50	$ 21,525.00
501	4" PCC Sidewalk, 6" Gravel Section	sf	827	$ 21.50	$ 17,780.50
					$ 39,305.50

Cost Estimate Notes

1. Engineer's estimate captures changes in costs to hardscape and bulding configuration. Costs associated with land clearing, grading and overall site development are beyond the scope of this study.
2. Additional permitting costs include geotechnical reports, civil engineer efforts and estimated fees for the Master Fill & Grade Permit.

Architectural ROM Cost Estimate

CONCEPT	GFA (STACKED)	GFA (TOWNHOUSE)	STACKED UNITS WITH IBC REVIEW	TOWNHOUSE-STYLE UNITS	TOTAL ARCHITECTURAL COST	CIVIL	TOTAL
			$375/SF	$275/SF			
A		5310	$0	$1,460,250	$1,460,250	$37,767	$1,498,017
B		5694	$0	$1,565,850	$1,565,850	$84,533	$1,650,383
C	5057	2568	$1,896,375	$706,200	$2,602,575	$138,019	$2,740,594
D	3964		$1,486,500	$0	$1,486,500	$40,129	$1,526,629
E		5221	$0	$1,435,775	$1,435,775	$39,305	$1,475,080