



PLANNING COMMISSION

WEDNESDAY, JUNE 9, 2021

III. WORK SESSIONS

- B. Middle Housing Infrastructure and Design Standards (Pauly) (65 Minutes)



PLANNING COMMISSION WORK SESSION STAFF REPORT

| | | | |
|---|--|---|--|
| Meeting Date: June 9, 2021 | | Subject: Middle Housing in Wilsonville Project | |
| | | Staff Member: Daniel Pauly, Planning Manager | |
| | | Department: Community Development | |
| Action Required | | Advisory Board/Commission Recommendation | |
| <input type="checkbox"/> Motion <input type="checkbox"/> Public Hearing Date: <input type="checkbox"/> Ordinance 1 st Reading Date: <input type="checkbox"/> Ordinance 2 nd Reading Date: <input type="checkbox"/> Resolution <input checked="" type="checkbox"/> Information or Direction <input type="checkbox"/> Information Only <input type="checkbox"/> Council Direction <input type="checkbox"/> Consent Agenda | | <input type="checkbox"/> Approval <input type="checkbox"/> Denial <input type="checkbox"/> None Forwarded <input checked="" type="checkbox"/> Not Applicable Comments: N/A | |
| Staff Recommendation: Provide additional project guidance | | | |
| Recommended Language for Motion: N/A | | | |
| Project / Issue Relates To: | | | |
| <input checked="" type="checkbox"/> Council Goals/Priorities: Thoughtful, Inclusive Built Environment; Equitable housing study and develop affordable housing strategies | <input type="checkbox"/> Adopted Master Plan(s): | <input type="checkbox"/> Not Applicable | |

ISSUE BEFORE PLANNING COMMISSION:

Review a number of materials for the Middle Housing in Wilsonville project relating to design standards and infrastructure impacts. Provide direction to the project team to further refine the draft of proposed policy amendments.

EXECUTIVE SUMMARY:

The City is undertaking a project to update rules related to the allowance of middle housing. Middle housing includes housing types where a few homes are on one lot (duplex, triplex) and where homes are on separate lots that share a common wall (townhouses). The project is driven by updates to state law as well as local equitable housing policy. This will be the Planning Commission's sixth work session on the topic. Since the last work session with the Commission, the project team has focused on continuing to develop design standards applicable to middle housing which are now reflected in the draft code in Attachment 1.

As a reminder, to assist in the review of the updates and help focus attention on the updates in need of the most attention, the project team categorized the updates. The draft amendments under review are color-coded by category as depicted below.

Category 1: Direct requirement for state compliance, no significant local flexibility.

Category 2: Indirect requirement for state compliance, no significant local flexibility. These updates make middle housing development feasible or acknowledge allowance of middle housing.

Category 3: Requirement of state compliance with local flexibility.

Category 4: Not necessary for compliance or feasibility and not directly related to middle housing. Includes technical code fixes and updates to the broader residential parking policy not required by the state. These updates are included out of convenience since much of the residential code is already being amended.

This June work session will focus on primarily Category 3 updates related to design standards. This work session also presents the entirety of the proposed updates to the Residential Neighborhood (RN) Zone and Frog Pond West Master Plan. The RN zone amendments include updates designated Category 1-3. The June work session will also share results of a variety of analyses completed to determine potential impact of middle housing on the City's infrastructure systems.

Design Standards: House Bill 2001 allows cities to regulate design of middle housing as long as design standards do not discourage middle housing through "unreasonable costs or delay." What is "unreasonable cost or delay" was among the major focuses of the subsequent administrative rulemaking. The adopted administrative rules offer four choices to cities for middle housing design standards as follows:

1. Have the same design standards as applicable to detached single-family homes.
2. Adopt middle housing type-specific design standards from the State Model Code with or without changes to single-family design standards.
3. Adopt middle housing type-specific design standards less restrictive than the State Model Code with or without changes to single-family design standards.
4. Adopt "alternative" middle housing type-specific design standards more restrictive than the State Model Code, accompanied by complex analysis, as outlined in the rules, to compare with options 1 through 3 above and determine there is not unreasonable cost or delay.

The same choice does not need to be made for each area of the City. The project team recommends the following choices.

Choice 1 (same as single-family) is the recommendation for Villebois, Frog Pond, and Old Town. Throughout the outreach process and Planning Commission discussions, the project team heard a strong desire to respect the previous work on these standards. The project team has examined the existing design standards and for the most part they also work well for middle housing. Minor changes for Frog Pond and Old Town, such as garage width standards in Old Town and entry height standards in Frog Pond, are recommended to adapt design standards for middle housing.

Choice 2 (model code plus) is the recommendation for the rest of the City. Based on community input thus far, the State Model Code is a good fit, with some additional design standards around rules of adjacency, including for detached single-family, and shared roof form for multi-plexes. These standards will provide additional certainty of quality design, while not unreasonably increasing cost of development. Many of the design standards from the State Model Code are similar to the design standards in the City's Residential Neighborhood (RN) Zone. These include standards around primary entry orientation, building articulation to break up long facades, amount of windows, garage width, and driveway size. In addition, the Model Code design standards address unique considerations for the various middle housing types, which are not adequately addressed in the City's current Code. This includes things like setbacks between residential structures on the same site, how different units in the same structure relate to each other, how cottage clusters orient to required courtyards, and unique parking and access considerations.

The project team encourages the Planning Commission to review the draft design standards Code text (Attachment 1) and provide any questions or feedback. This will be the last time a work session will focus discussion on the specific code updates in this packet.

Infrastructure Analysis: The new State law and resulting proposed amendments to City code, allows middle housing on each single-family lot, exempting these new units from existing density limits. If additional housing units are developed as a result, the number of residential units in a given area could exceed previous assumptions used for infrastructure planning. It was important for this project to determine the range of potential middle housing infill impacts to the City's existing infrastructure plans and systems. The City has a strong history of proactive infrastructure planning, so major potential impacts and unknown concerns were not anticipated.

The City worked with the consultants that previously worked on the various Citywide infrastructure Master Plans to run analyses to identify potential infrastructure issues resulting from the addition of residential units. The "stress test" analyses seek to understand much potential middle housing could the infrastructure systems absorb without major additional capital investments or infrastructure failure. The analyses, along with a cover memorandum from City staff, can be found in Attachment 2. An analysis is not included for stormwater infrastructure. An updated Stormwater Master Plan is currently underway and updated assumptions related to potential middle housing production are included as part of the update.

In summary, the infrastructure for most of the City can handle any added homes enabled by the new middle housing allowance. Additional analysis is needed to fully understand the potential increase in units over the previous forecast for Frog Pond East and South and the urban reserve north of Frog Pond West, and the associated infrastructure impacts of that change. This assessment is planned as part of the Frog Pond East and South Master Planning.

Discussion Items:

In summary, the project team requests the Commission's discussion and feedback focus on the following items:

1. Comments and questions about the draft Development Code updates related to design standards. Provide direction to the project team as they finalize amendments for the upcoming public hearing.
2. Provide comments and questions on the completed infrastructure analyses.

EXPECTED RESULTS:

Gather additional feedback and direction from the Planning Commission to continue to guide the Middle Housing in Wilsonville Project both in preparation of upcoming work sessions and the upcoming public hearing.

TIMELINE:

The Planning Commission is scheduled for two additional work sessions in July and August prior to a public hearing in September. The City Council will also review during work sessions over the coming months prior to their scheduled adoption in October.

CURRENT YEAR BUDGET IMPACTS:

The main consultant contract is for \$125,000. \$95,000 is covered by a grant from the Oregon Department of Land Conservation and Development (DLCD). The remaining amount is covered by funds budgeted in the City's FY 2020-2021 Budget. Specific outreach to the Latinx community and other historically marginalized communities is funded by an \$81,200 Metro grant.

COMMUNITY INVOLVEMENT PROCESS:

Opportunities to engage have included community meetings, stakeholder meetings, focus groups, online surveys, and other online materials. Outreach continues with the Latinx community supported by a Metro Community Engagement Grant. Additional outreach and stakeholder meetings are planned over the summer to review a complete package of proposed changes prior to moving forward with public hearings.

POTENTIAL IMPACTS or BENEFIT TO THE COMMUNITY:

A greater amount of middle housing in neighborhoods meeting standards with broad community support. A greater amount of middle housing will create more housing opportunities for a variety of incomes, needs, and preferences.

ALTERNATIVES:

The Commission may recommend additional or modified approaches that help the City achieve compliance with House Bill 2001 and implement a key strategy from the Equitable Housing Strategic Plan. If the City does not adopt compliant standards by June 30, 2022, a state model code will come into effect for Wilsonville.

ATTACHMENTS:

- Attachment 1 Draft Middle Housing Plan and Code updates package 2, dated June 2, 2021
(Category 3 updates and Residential Neighborhood (RN) Zone)
- Attachment 2 Middle Housing Infrastructure Memorandum, dated June 2, 2021

ATTACHMENT 1

Section 4.113. Standards Applying To Residential Developments In Any Zone.

*** Subsections (.1) - (.13) are not included in this review draft ***

Commentary

Draft subsection (.14) below is entirely new text. For ease of review, this proposed text is not shown with underline formatting.

(.14) Design Standards for Detached Single-family and Middle Housing.

- A. The design standards in this subsection apply generally throughout the city, except where conflicting design standards specific to certain zones are provided in the Code.
- B. For the purpose of this subsection the term “residential structure” is inclusive of a series of structures that are attached to one another such as a grouping of townhouses.

Commentary

The draft provisions in subsection C below would apply to both single-family homes and middle housing. These are intended to establish basic standards related to design variation for adjacent structures, consistency of design within a single structure, and articulation. These standards borrow from the approaches used in Villebois, Frog Pond, and Old Town and apply them to development throughout the city. These proposed standards respond to the results of the middle housing visual preference survey and focus groups.

Several standards in subsection (.14) use the term “public-facing facade.” A new definition in WC 4.001 is proposed for this term: *A building façade that faces a public or private street, public space, or public pedestrian connections.* The intent is to regulate design not only for street-facing facades, but also for facades that face a park or other public open space.

Note: the project team will continue to refine these standards for clarity and effectiveness. As a reminder, all standards that apply to housing must be clear and objective, per state law. For the Planning Commission’s review, we are seeking confirmation that you support these concepts, and that the standards appear to be on the right track.

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C. Standards applicable to all residential structures except as noted in I. below.

1. House Plan Variety. No two directly adjacent or opposite residential structures may possess the same front or public-facing elevation. This standard is met when elevations of front or public-facing facades (as defined in WC 4.001) differ from one another due to different materials, articulation, roof type, inclusion of a porch, fenestration, and/or number of stories. Where façades repeat on the same block face, they must have at least three intervening lots between them that meet the above standard.

2. Architectural Consistency and Interest.

a. Architectural styles shall not be mixed within the same residential structure. Architectural style consistency is defined by adherence to all of the following:

- i. Use of the same primary and supporting façade materials throughout the structure.
- ii. Use of no more than two roof pitch angles.
- iii. Use of the same door size for each primary entrance in the structure.
- iv. Consistent use of façade articulation features such as bay windows, balconies, awnings over entrances, and porches.

b. Articulation. Except as noted in 2.c. below, all public-facing facades of residential structures other than townhouses shall incorporate a selection of the following design features. Such elements shall occur at a minimum interval of 30 feet. For townhouse articulation standards, see subsection (.14) E.4.

- i. varying rooflines
- ii. offsets of at least 12 inches
- iii. balconies
- iv. projections of at least 12 inches and width of at least 3 feet
- v. porches
- vi. entrances that are recessed at least 24 inches or covered
- vii. dormers at least 3 feet wide

Commentary

The intent of the unified roof structure option in subparagraph c. below is to encourage “single-family appearance” for buildings with multiple dwellings by creating a single roof structure. These standards need further refining, but the project team would like the Planning Commission’s feedback on the general concept and approach—do you support this as an alternative to façade articulation?

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- c. Unified Roof Structure. As an alternative to meeting the articulation standards in b. above, a public-facing façade may have a single roof structure that unifies the building as one structure rather than a series of attached structures. To achieve a unified roof structure, the roofline parallel to the public-facing facade must include one of the following:
- i. A parallel roof ridge with a perpendicular gable end or hip end.
 - ii. The higher side of a shed roof.
 - iii. The sloping side of a shed roof.

Commentary

The proposed standards in subsections D. through G. for triplexes, quadplexes, townhouses, cottage clusters, and cluster housing are largely adapted from the Model Code for Large Cities, with some modifications to customize the standards for Wilsonville.

D. Standards applicable to Triplexes and Quadplexes except as noted in I. below.

1. Entry Orientation.

- a. At least one main entrance for each triplex or quadplex must meet the standards in subsections b. and c. below.
- b. The entrance must be within 8 feet of the longest street-facing exterior wall of the dwelling unit or if no exterior wall faces a street the front of the dwelling unit facing a common drive or open space as designated by the applicant; and
- c. The entrance must either:
 - i. Face the street (see Figure 2. Main Entrance Facing the Street);
 - ii. Be at an angle of up to 45 degrees from the street (see **Error! Reference source not found.**); or
 - iii. Open onto a porch (see Figure 4. Main Entrance Opening onto a Porch). The porch must:
 - Be at least 25 square feet in area; and
 - Have at least one entrance facing the street or have a roof.

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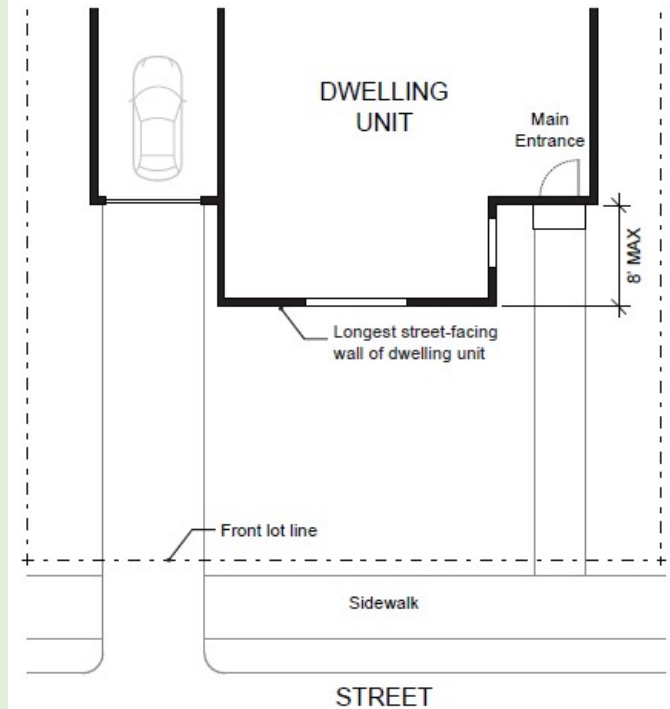


Figure 2. Main Entrance Facing the Street

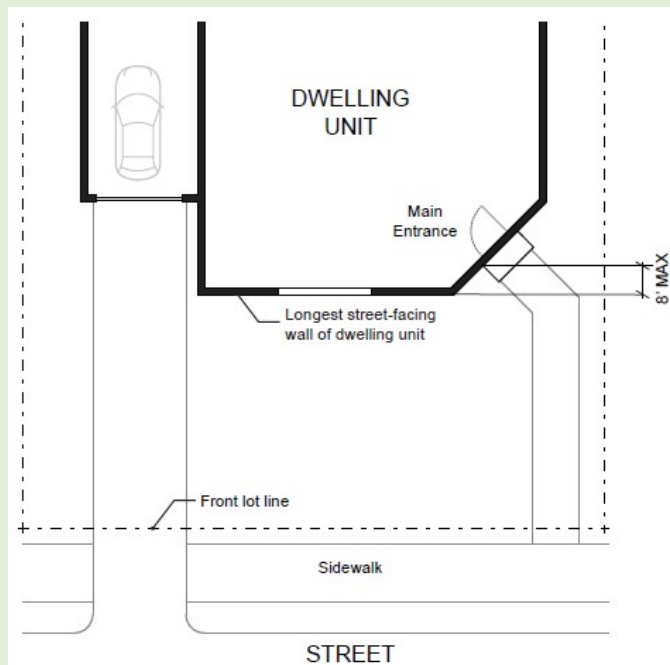


Figure 3. Main Entrance at 45° Angle from the Street

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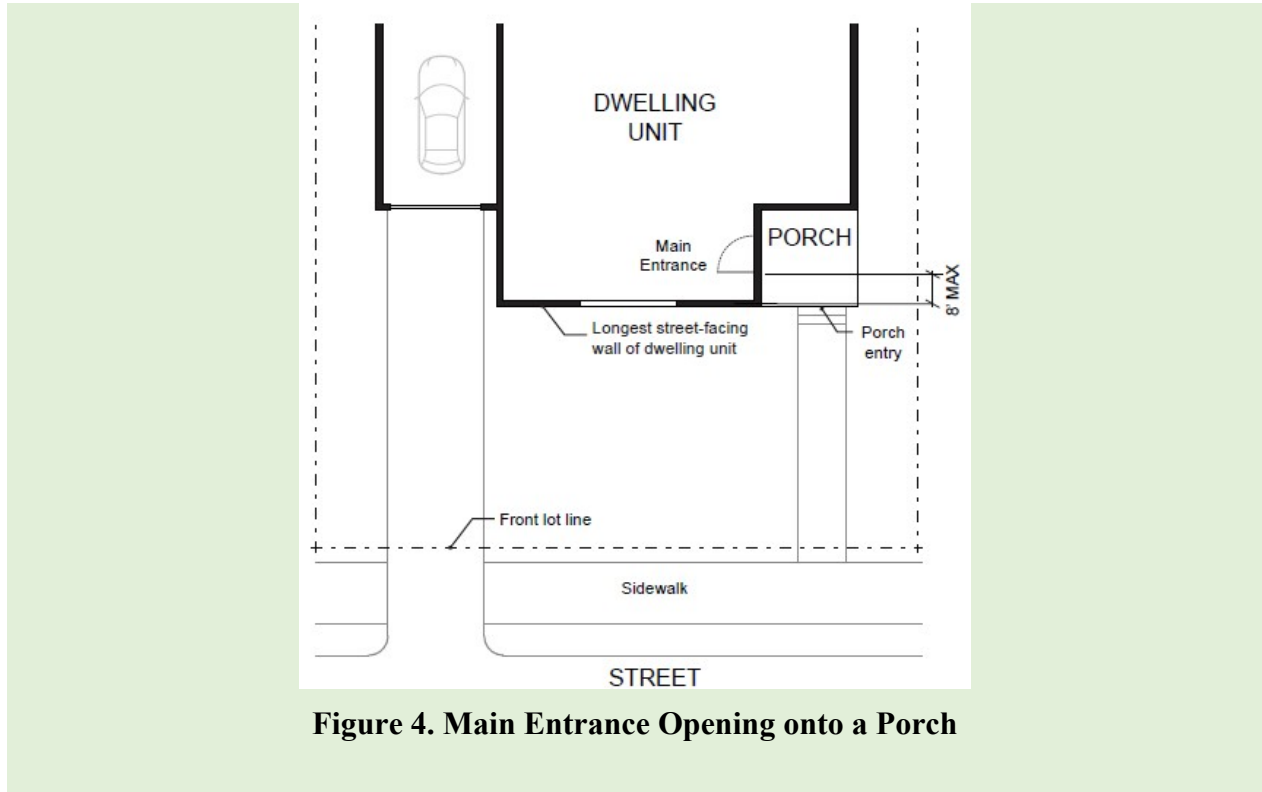


Figure 4. Main Entrance Opening onto a Porch

2. Windows. A minimum of 15 percent of the area of all street-facing facades must include windows or entrance doors. Facades separated from the street property line by a dwelling are exempt from meeting this standard. See Figure 5. Window Coverage.

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STREET-FACING FACADE

- Area subject to 15% window & entrance door coverage requirement
- ▨ Qualifying window coverage
- ▩ Qualifying entrance door coverage

Figure 5. Window Coverage

Commentary

We've included these draft driveway and parking provisions in the June PC packet for your reference, but we will focus more on parking provisions at the July PC work session.

3. **Garages and Off-Street Parking Areas.** Garages and off-street parking areas shall not be located between a building and a public street (other than an alley), except in compliance with the standards in subsections a and b below.
 - a. The garage or off-street parking area is separated from the street property line by a dwelling; or
 - b. The combined width of all garages and outdoor on-site parking and maneuvering areas does not exceed a total of 50 percent of the street frontage (see Figure 6. Width of Garages and Parking Areas).

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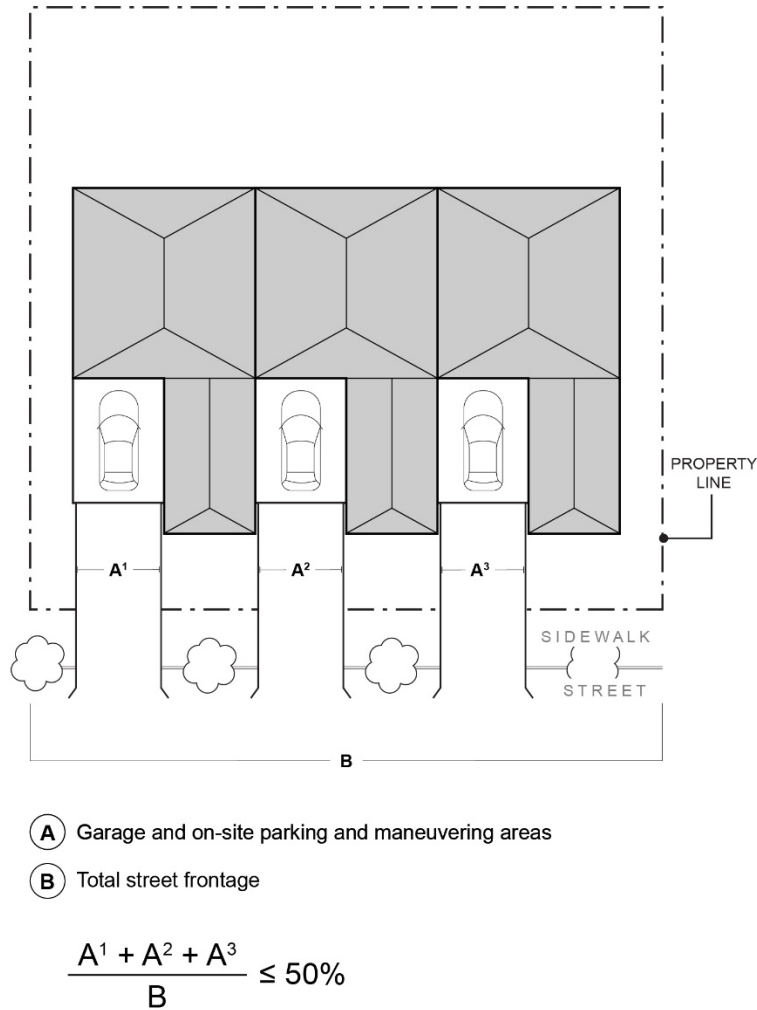


Figure 6. Width of Garages and Parking Areas

4. Driveway Approach. Driveway approaches must comply with all of the following:
 - a. The total width of all driveway approaches must not exceed 32 feet per frontage, as measured at the property line (see Figure 7. Driveway Approach Width and Separation on Local Street). For lots or parcels with more than one frontage, see subsection c.
 - b. Driveway approaches may be separated when located on a local street.
 - c. In addition, lots or parcels with more than one frontage must comply with the following:
 - i. Lots or parcels must access the street with the lowest transportation classification for vehicle traffic. For lots or parcels abutting an alley that is improved with a paved surface, access must be taken from the alley (see Figure 8. Alley Access).

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- ii. Lots or parcels with frontages only on collectors and/or arterial streets must meet the access standards in the Wilsonville Public Works Standards.
- iii. Lots or parcels with frontages only on local streets may have either:
 - Two driveway approaches not exceeding 32 feet in total width on one frontage; or
 - One maximum 16-foot-wide driveway approach per frontage (see Figure 9. Driveway Approach Options for Multiple Local Street Frontages).

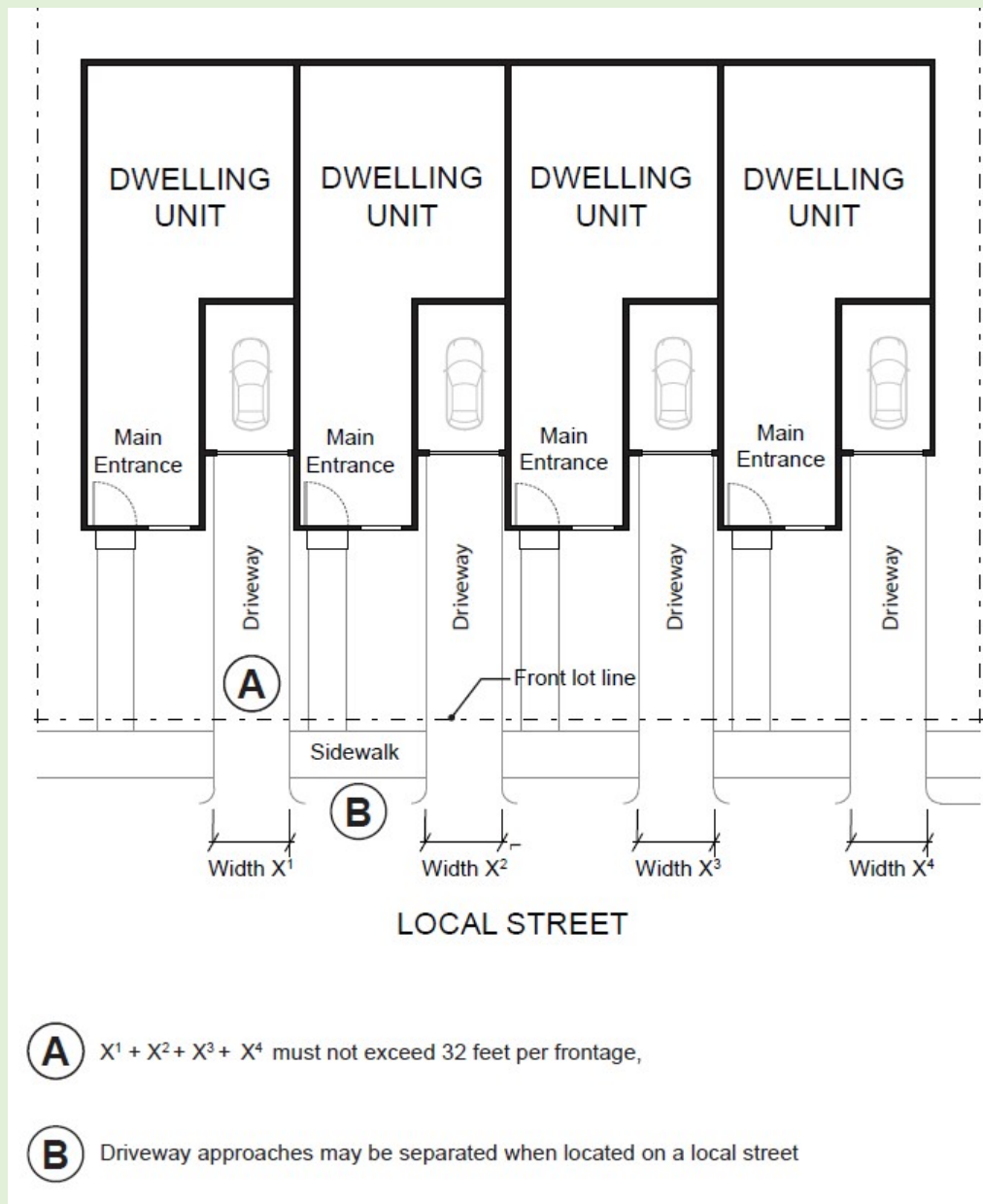


Figure 7. Driveway Approach Width and Separation on Local Street

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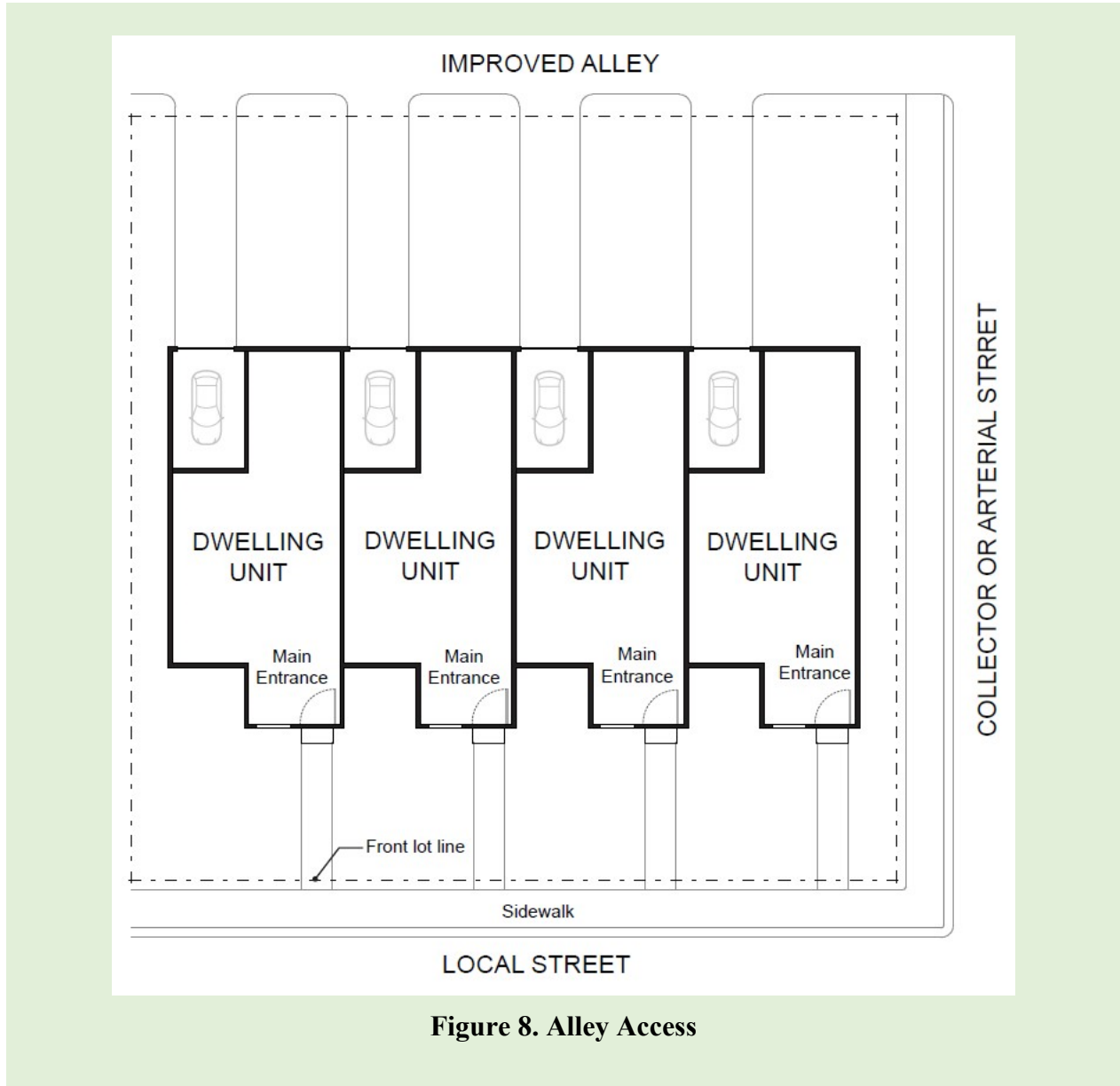
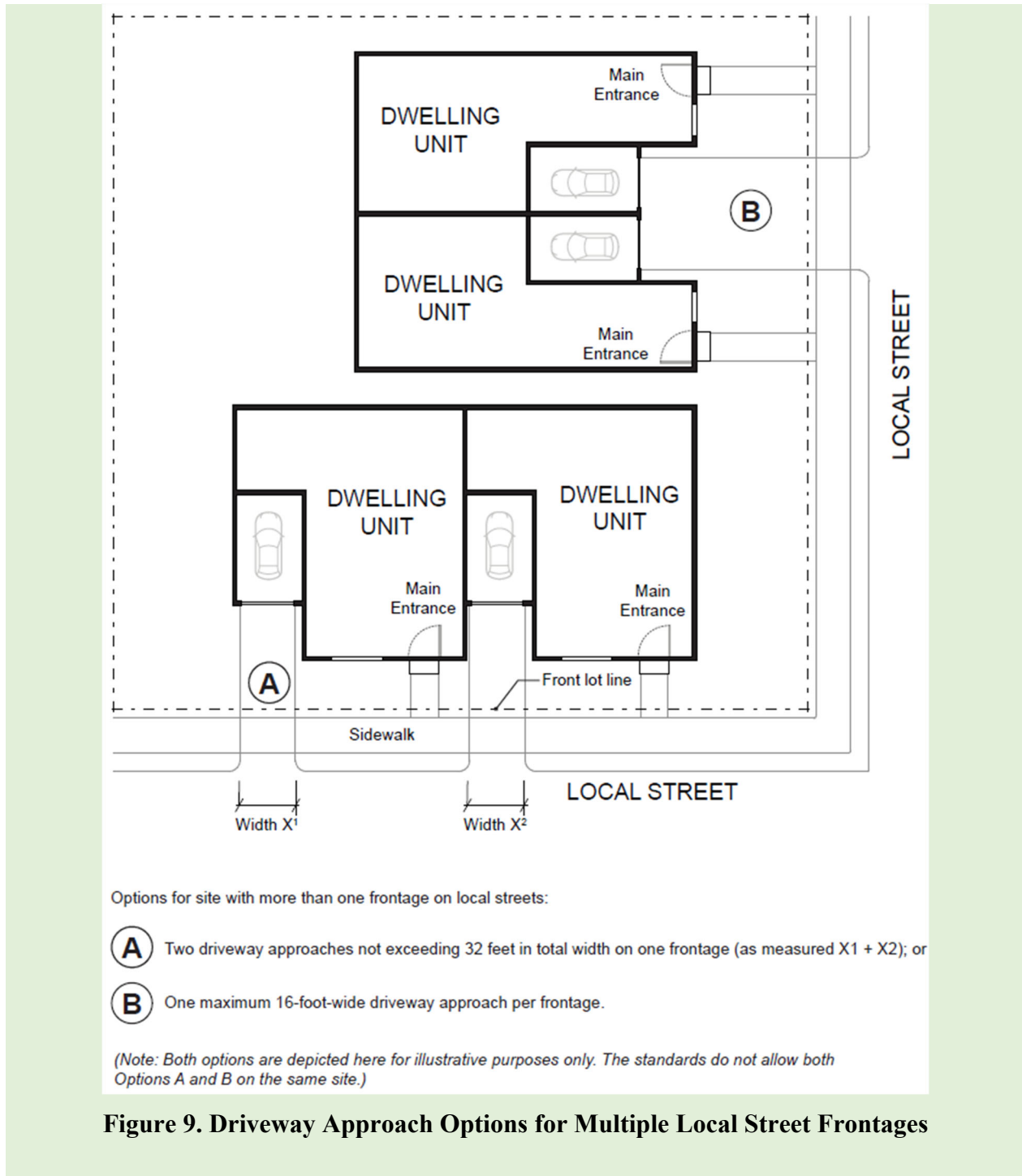


Figure 8. Alley Access

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E. Standards applicable to Townhouses.

1. Number of Attached Dwelling Units.

- a. Minimum. A townhouse project must contain at least two attached units.
- b. Maximum. The maximum number of townhouse units that may be attached together to form a group is specified below.

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- R, OTR, PDR-1 – PDR-3 Zones: maximum 4 attached units per group
- RN, V, PDR-4 – PDR-7 Zones: maximum 8 attached units per group

2. Entry Orientation. The main entrance of each townhouse unit must:

- a. Be within 8 feet of the longest wall of the dwelling unit facing a street or private drive; and
- b. Either:
 - i. Face the street or private drive (see Figure 2. Main Entrance Facing the Street);
 - ii. Be at an angle of up to 45 degrees from the street or private drive (see Figure 3. Main Entrance at 45° Angle from the Street);
 - iii. Face a common open space or private access or driveway that is abutted by dwellings on at least two sides; or
 - iv. Open onto a porch (see Figure 4. Main Entrance Opening onto a Porch). The porch must:
 - A. Be at least 25 square feet in area; and
 - B. Have at least one entrance facing the street or private drive or have a roof.

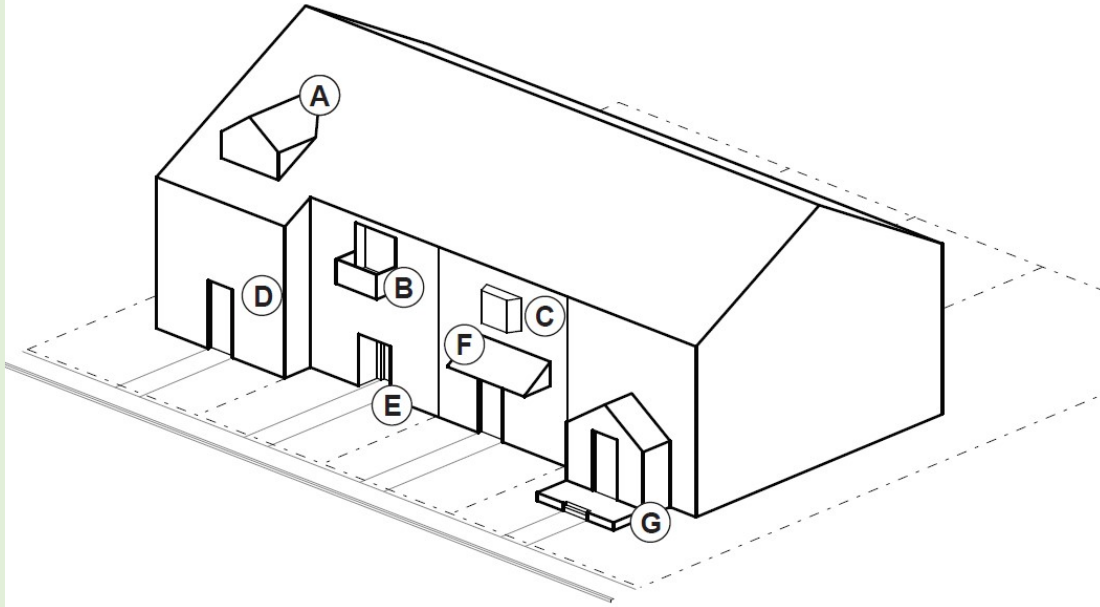
3. Windows. A minimum of 15 percent of the area of all public-facing facades on each individual unit must include windows or entrance doors. Half of the window area in the door of an attached garage may count toward meeting this standard. See Figure 5. Window Coverage.

4. Unit definition. Except as noted in 5. below, each townhouse unit must include at least one of the items listed in a. through g. below on at least one public-facing façade (see Figure 10. Townhouse Unit Definition):

- a. A roof dormer a minimum of 4 feet in width, or
- b. A balcony a minimum of 2 feet in depth and 4 feet in width and accessible from an interior room, or
- c. A bay window that extends from the facade a minimum of 2 feet, or
- d. An offset of the facade of a minimum of 2 feet in depth, either from the neighboring townhouse or within the façade of a single townhouse, or
- e. An entryway that is recessed a minimum of 3 feet, or
- f. A covered entryway with a minimum depth of 4 feet, or
- g. A porch meeting the standards of subsection (.14) E.2.b.iv.

Balconies and bay windows may encroach into a required setback area, pursuant to Section 4.180.

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- (A) Roof dormer, minimum of 4 feet wide
- (B) Balcony, minimum 2 feet deep and 4 feet wide. Accessible from interior room.
- (C) Bay window extending minimum of 2 feet from facade
- (D) Facade offset, minimum of 2 feet deep
- (E) Recessed entryway, minimum 3 feet deep
- (F) Covered entryway, minimum of 4 feet deep
- (G) Porch, meets standards of subsection (1)(b)(iv) of section (C)

Figure 10. Townhouse Unit Definition

Commentary

As noted above, the intent of the unified roof structure option in subparagraph 5. below is to encourage “single-family appearance” for townhouses by creating a single roof structure. These standards need further refining, but the project team would like the Planning Commission’s feedback on the general concept and approach.

5. Unified Roof Structure. As an alternative to meeting the unit definition standards in 4. above, a public-facing façade may have a single roof structure that unifies the townhouse structure as one structure rather than a series of

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attached structures. To achieve a unified roof structure, the roofline parallel to the public-facing facade must include one of the following:

- a. A parallel roof ridge with a perpendicular gable end or hip end.
- b. The higher side of a shed roof.
- c. The sloping side of a shed roof.

Commentary

As noted above, we've included draft driveway and parking provisions in the June PC packet for your reference, but we will focus more on parking provisions at the July PC work session.

4. Driveway Access and Parking. Townhouses with frontage on a street or private drive shall meet the following standards:

- a. Alley Access. Townhouse project sites abutting an alley that is improved with pavement shall take access to the rear of townhouse units from the alley rather than the public street.
- b. Front Access. Garages on the front façade of a townhouse, off-street parking areas in the front yard, and driveways in front of a townhouse are allowed if they meet the following standards (see Figure 11. Townhouses with Parking in Front Yard).
 - i. Each townhouse lot has a street frontage of at least 20 feet on a local street.
 - ii. A maximum of one (1) driveway approach is allowed for every townhouse. Driveway approaches and/or driveways may be shared.
 - iii. Outdoor on-site parking and maneuvering areas do not exceed 12 feet wide on any lot.
 - iv. The garage width does not exceed 12 feet, as measured from the inside of the garage door frame.

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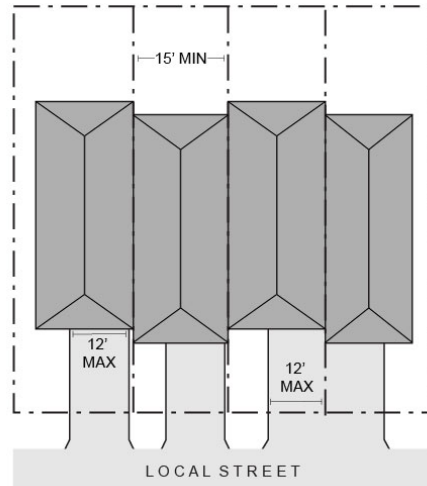


Figure 11. Townhouses with Parking in Front Yard

- c. Shared Access. The following standards apply to driveways and parking areas for townhouse projects that do not meet all of the standards in subsections a. or b.
 - i. Off-street parking areas shall be accessed on the back façade or located in the rear yard. No off-street parking shall be allowed in the front yard or side yard of a townhouse.
 - ii. A townhouse project that includes a corner lot shall take access from a single driveway approach on the side of the corner lot. See Figure 12. Townhouses on Corner Lot with Shared Access.

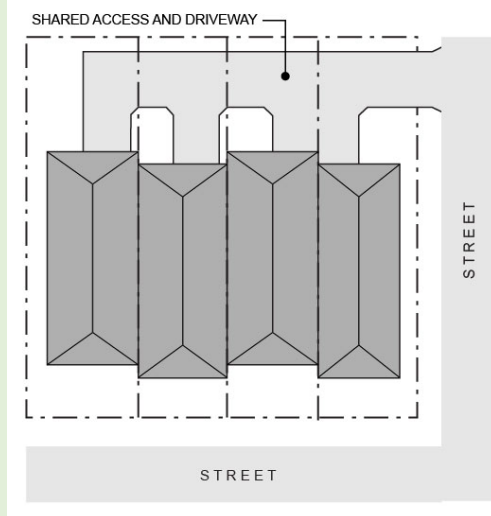


Figure 12. Townhouses on Corner Lot with Shared Access

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iii. Townhouse projects that do not include a corner lot shall consolidate access for all lots into a single driveway. The driveway and approach are not allowed in the area directly between the front façade and front lot line of any of the townhouses. See Figure 13. Townhouses with Consolidated Access.

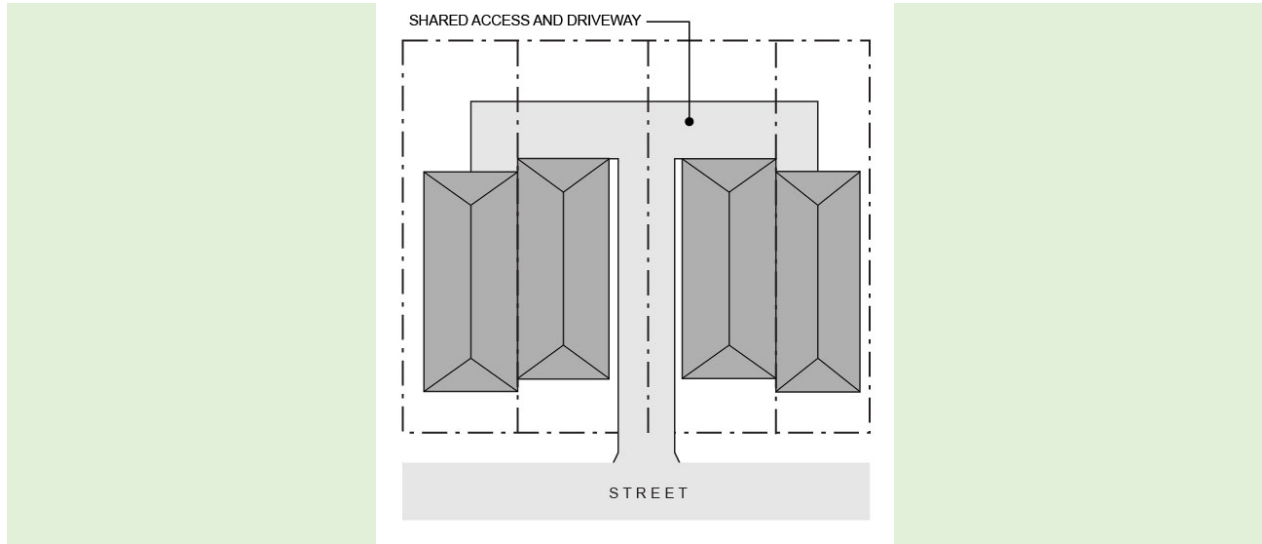


Figure 13. Townhouses with Consolidated Access

iv. A townhouse project that includes consolidated access or shared driveways shall grant access easements to allow normal vehicular access and emergency access.

F. Standards applicable to Cottage Clusters.

1. Courtyard Required. All cottages within a single cottage cluster must share a common courtyard. A cottage cluster project may include more than one cluster and more than one common courtyard.

2. Number of Dwellings.

a. A single cottage cluster shall contain a minimum of four (4) and a maximum of eight (8) cottages.

3. Setbacks.

a. Building Separation. Cottages shall be separated by a minimum distance of 6 feet. The minimum distance between all other structures, including accessory structures, shall be in accordance with building code requirements.

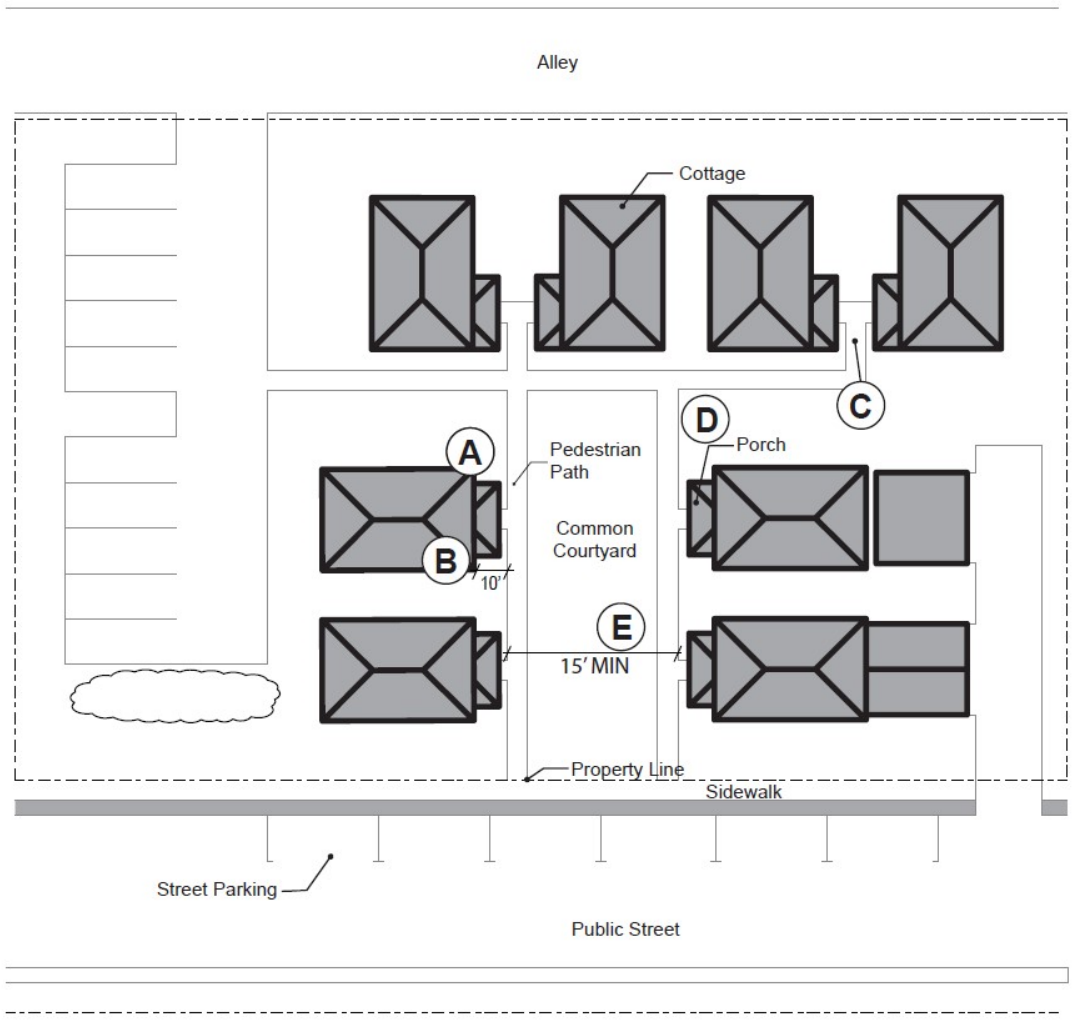
b. All other setbacks are provided in section (.02) or in the applicable base zone.

4. Building Height. The maximum building height for all structures is 25 feet.

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5. Footprint. The maximum building footprint for each cottage is 900 square feet. Individual attached garages up to 200 square feet shall be exempted from the calculation of maximum building footprint.
6. Maximum Habitable Floor Area. The maximum habitable floor area of each cottage is 1,400 square feet.
7. Cottage Orientation. Cottages must be clustered around a common courtyard and must meet the following standards (see Figure 14. Cottage Cluster Orientation and Common Courtyard Standards):
 - a. Each cottage within a cluster must either abut the common courtyard or must be directly connected to it by a pedestrian path.
 - b. A minimum of 50 percent of cottages within a cluster must be oriented to the common courtyard and must:
 - i. Have a main entrance facing the common courtyard;
 - ii. Be within 10 feet from the common courtyard, measured from the façade of the cottage to the nearest edge of the common courtyard; and
 - iii. Be connected to the common courtyard by a pedestrian path.
 - c. Cottages within 20 feet of a street property line may have their entrances facing the street.
 - d. Cottages not facing the common courtyard or the street must have their main entrances facing a pedestrian path that is directly connected to the common courtyard.
8. Common Courtyard Design Standards. Each cottage cluster must share a common courtyard in order to provide a sense of openness and community of residents. Common courtyards must meet the following standards (see Figure 14. Cottage Cluster Orientation and Common Courtyard Standards):
 - a. The common courtyard must be a single, contiguous piece.
 - b. Cottages must abut the common courtyard on at least two sides of the courtyard.
 - c. The common courtyard must contain a minimum of 150 square feet per cottage within the associated cluster.
 - d. The common courtyard must be a minimum of 15 feet wide at its narrowest dimension.
 - e. The common courtyard shall be developed with a mix of landscaping, lawn area, pedestrian paths, and/or paved courtyard area, and may also include recreational amenities. Impervious elements of the common courtyard shall not exceed 75 percent of the total common courtyard area.
 - f. Pedestrian paths must be included in a common courtyard. Paths that are contiguous to a courtyard shall count toward the courtyard's minimum dimension and area. Parking areas, required setbacks, and driveways do not qualify as part of a common courtyard.

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- A** A minimum of 50% of cottages must be oriented to the common courtyard.
- B** Cottages oriented to the common courtyard must be within 10 feet of the courtyard.
- C** Cottages must be connected to the common courtyard by a pedestrian path.
- D** Cottages must abut the courtyard on at least two sides of the courtyard.
- E** The common courtyard must be at least 15 feet wide at its narrowest width.

Figure 14. Cottage Cluster Orientation and Common Courtyard Standards

9. Community Buildings. Cottage cluster projects may include community buildings for the shared use of residents that provide space for accessory uses such as community meeting rooms, guest housing, exercise rooms, day care,

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or community eating areas. Community buildings must meet the following standards:

- a. Each cottage cluster is permitted one community building
- b. The community building shall have a maximum floor area of 1,400 sf.
- c. A community building that meets the definition of a dwelling unit must meet the maximum 900 square foot footprint limitation that applies to cottages (pursuant to subsection (.14) F.5.), unless a covenant is recorded against the property stating that the structure is not a legal dwelling unit and will not be used as a primary dwelling.

10. Pedestrian Access.

- a. An accessible pedestrian path must be provided that connects the main entrance of each cottage to the following:
 - i. The common courtyard;
 - ii. Shared parking areas;
 - iii. Community buildings; and
 - iv. Sidewalks in public rights-of-way abutting the site or rights-of-way if there are no sidewalks.
- b. The pedestrian path must be hard-surfaced and a minimum of four (4) feet wide.

11. Windows. Cottages within 20 feet of a street property line must meet any window coverage requirements of the applicable base zone.

12. Parking Design (see Figure 15. Cottage Cluster Parking Design Standards).

- a. Clustered parking. Off-street parking may be arranged in clusters, subject to the following standards:
 - i. A parking cluster must not exceed five (5) contiguous spaces.
 - ii. Parking clusters must be separated from other spaces by at least four (4) feet of landscaping.
 - iii. Clustered parking areas may be covered.
 - iv. Parking areas must also meet the standards in Subsections 4.155(.02)-(.03), except where they conflict with these standards.
- b. Parking location and access.
 - i. Off-street parking spaces and vehicle maneuvering areas shall not be located between a street property line and the front façade of cottages located closest to the street property line. This standard does not apply to alleys.
 - ii. Off-street parking spaces shall not be located within 10 feet of any property line, except alley property lines.
 - iii. Driveways and drive aisles are permitted within 10 feet of property lines.

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c. Screening. Landscaping, fencing, or walls at least three feet tall shall separate clustered parking areas and parking structures from common courtyards and public streets.

d. Garages and carports.

i. Garages and carports (whether shared or individual) must not abut common courtyards.

ii. Individual attached garages up to 200 square feet shall be exempted from the calculation of maximum building footprint for cottages.

iii. Individual detached garages must not exceed 400 square feet in floor area.

iv. Garage doors for attached and detached individual garages must not exceed 20 feet in width.

13. Accessory Buildings. Accessory buildings must not exceed 400 square feet in floor area.

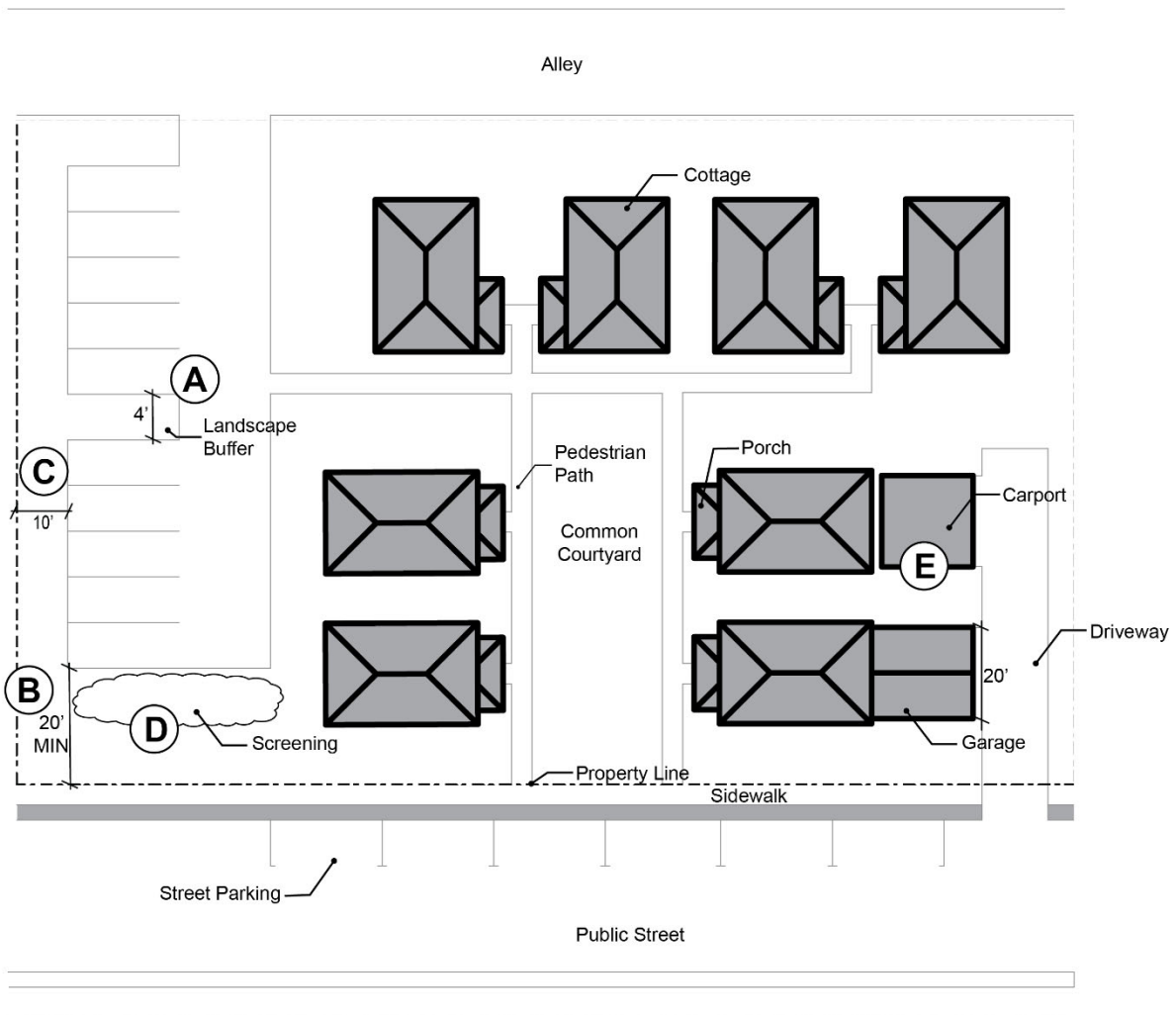
14. Existing Structures. On a lot or parcel to be used for a cottage cluster project, an existing detached single-family detached dwelling on the same lot at the time of proposed development of the cottage cluster may remain within the cottage cluster project area under the following conditions:

a. The existing dwelling may be nonconforming with respect to the requirements of this subsection (.14) F.

b. The existing dwelling may be expanded up to a maximum height of 25 feet or a maximum building footprint of 900 square feet; however, existing dwellings that exceed these maximum height and/or footprint standards may not be expanded.

c. The existing dwelling shall be excluded from the calculation of orientation toward the common courtyard, per subsection (.14) F.7.b.

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- (A)** Parking allowed in clusters of up to 5 spaces. Clusters separated by minimum 4 feet of landscaping.
- (B)** No parking or vehicle area within 20 feet from street property line (except alley).
- (C)** No parking within 10 feet from other property lines (except alley). Driveways and drive aisles permitted within 10 feet.
- (D)** Screening required between clustered parking areas or parking structures and public streets or common courtyards.
- (E)** Garages and carports must not abut common courtyards. Garage doors for individual garages must not exceed 20 feet in width.

Figure 15. Cottage Cluster Parking Design Standards

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G. Standards applicable to Cluster Housing besides Cottage Clusters

1. Architectural Consistency. Architecture shall be consistent within the same 2-unit, 3-unit, or 4-unit cluster. However, house plan variety standards in Subsection (.14) C.1. shall continue to apply. Architectural consistency is defined by adherence to all of the following:
 - a. Use of the same primary and supporting façade materials throughout the cluster.
 - b. Use of no more than two roof pitch angles.
 - c. Use of the same door size for each primary entrance in the structures.
 - d. Consistent use of façade articulation features such as bay windows, balconies, awnings over entrances, and porches.
2. Entry Orientation.
 - a. The entry orientation standards apply as follows:
 - i. At least one main entrance for each cluster home must meet the standards in subsections b and c below.
 - b. The entrance must be within 8 feet of the longest street-facing exterior wall of the dwelling unit or if no exterior wall faces a street the front of the dwelling unit, facing a common drive or open space as designated by the applicant; and
 - c. The entrance must either:
 - i. Face the street (see Figure 2. Main Entrance Facing the Street);
 - ii. Be at an angle of up to 45 degrees from the street (see Figure 3. Main Entrance at 45° Angle from the Street); or
 - iii. Open onto a porch (see Figure 4. Main Entrance Opening onto a Porch). The porch must:
 - Be at least 25 square feet in area; and
 - Have at least one entrance facing the street or have a roof.
3. Windows. A minimum of 15 percent of the area of all street-facing facades must include windows or entrance doors. Facades separated from the street property line by a dwelling are exempt from meeting this standard. See Figure 5. Window Coverage.
4. Garages and Off-Street Parking Areas. Garages and off-street parking areas shall not be located between a building and a public street (other than an alley), except in compliance with the standards in subsections a and b below.
 - a. The garage or off-street parking area is separated from the street property line by a dwelling; or

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- b. The combined width of all garages and outdoor on-site parking and maneuvering areas does not exceed a total of 50 percent of the street frontage (see Figure 6. Width of Garages and Parking Areas).

5. Driveway Approach. Driveway approaches must comply with all of the following:

- a. The total width of all driveway approaches must not exceed 32 feet per frontage, as measured at the property line (see Figure 7. Driveway Approach Width and Separation on Local Street). For lots or parcels with more than one frontage, see subsection c.
- b. Driveway approaches may be separated when located on a local street.
- c. In addition, lots or parcels with more than one frontage must comply with the following:

- i. Lots or parcels must access the street with the lowest transportation classification for vehicle traffic. For lots or parcels abutting an alley that is improved with pavement access must be taken from the alley (see Figure 8. Alley Access).
- ii. Lots or parcels with frontages only on collectors and/or arterial streets must meet the access standards in the Wilsonville Public Works Standards.
- iii. Lots or parcels with frontages only on local streets may have either:
 - Two driveway approaches not exceeding 32 feet in total width on one frontage; or
 - One maximum 16-foot-wide driveway approach per frontage (see Figure 9. Driveway Approach Options for Multiple Local Street Frontages).

6. Setbacks.

- a. **Building Separation.** Cluster housing structures shall be separated by a minimum distance of 6 feet. The minimum distance between all other structures, including accessory structures, shall be in accordance with building code requirements.
- b. All other setbacks are provided in the applicable base zone.

7. Pedestrian Access.

- a. An accessible pedestrian path must be provided that connects the main entrance of each unit to the following:
 - i. Shared open space;
 - ii. Shared parking areas; and
 - iv. Sidewalks in public rights-of-way abutting the site or rights-of-way if there are no sidewalks.
- b. The pedestrian path must be hard-surfaced and a minimum of four (4) feet wide.

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H. Combining Unit Types in One Development.

1. If a project proposes a mix of middle housing types which creates a conflict with various standards, the more restrictive standards shall apply.

I. Existing and Structures and Conversions:

1. Where a residential structure is converted from one type of dwelling unit to another without any additions, the design standards in C.-H. do not apply.
2. Where a residential structure is added on to, the design standards in C.-H. only apply if the footprint is expanded by 25% or more.

J. Alternative Discretionary Review: As an alternative to meeting one or more design standards of this subsection an applicant may request Site Design Review by the Development Review Board of a proposed design. In addition to the Site Design Review Standards, affirmative findings shall be made that the following standards are met:

1. The request is compatible with existing surrounding development in terms of placement of buildings, scale of buildings, and architectural design;
2. The request is due to special conditions or circumstances that make it difficult to comply with the applicable Design Standards, or the request would achieve a design that is superior to the design that could be achieved by complying with the applicable Design Standards;
3. The request continues to comply with and be consistent with State statute and rules related to Middle Housing, including being consistent with State definitions of different Middle Housing types.

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Section 4.127 Residential Neighborhood (RN) Zone.

(.01) Purpose.

The Residential Neighborhood (RN) zone applies to lands within Residential Neighborhood Comprehensive Plan Map designation. The RN zone is a Planned Development zone, subject to applicable Planned Development regulations, except as superseded by this section or in legislative master plans. The purposes of the RN Zone are to:

- A. Implement the Residential Neighborhood policies and implementation measures of the Comprehensive Plan.
- B. Implement legislative master plans for areas within the Residential Neighborhood Comprehensive Plan Map designation.
- C. Create attractive and connected neighborhoods in Wilsonville.
- D. Regulate and coordinate development to result in cohesive neighborhoods that include: walkable and active streets; a variety of housing appropriate to each neighborhood; connected paths and open spaces; parks and other non-residential uses that are focal points for the community; and, connections to and integration with the larger Wilsonville community.
- E. Encourage and require quality architectural and community design as defined by the Comprehensive Plan and applicable legislative master plans.
- F. Provide transportation choices, including active transportation options.
- G. Preserve and enhance natural resources so that they are an asset to the neighborhoods, and there is visual and physical access to nature.
- H. Create housing opportunities for a variety of households, including housing types that implement the Wilsonville Equitable Housing Strategic Plan and housing affordability provisions of legislative master plans.

(.02) Permitted uses:

- A. Open Space.
- B. Single-Family Dwelling Unit.
- C. ~~Attached Single Family Dwelling Unit~~ Townhouses. During initial development in the Frog Pond West Neighborhood, a maximum of 2 dwelling unit townhouses, not including ADU's, may be attached, except on corners, a maximum of 3 townhouses may be attached.
- D. Duplex.
- E. Triplex and quadplex. During initial development in the Frog Pond West Neighborhood, triplexes are permitted only on corner lots and quadplexes are not permitted.

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F. Cluster housing. During initial development in the Frog Pond West Neighborhood, only 2-unit cluster housing is permitted except on corner lots where 3-unit cluster housing is permitted.

~~D.G.~~ Multiple-Family Dwelling Units, except when not permitted in a legislative master plan, subject to the density standards of the zone. Multi-family dwelling units are not permitted within the Frog Pond West Master Plan area.

~~E.H.~~ Cohousing.

~~F.I.~~ Cluster Housing (Frog Pond West Master Plan).

~~G.J.~~ Public or private parks, playgrounds, recreational and community buildings and grounds, tennis courts, and similar recreational uses, all of a non-commercial nature, provided that any principal building or public swimming pool shall be located not less than forty-five (45) feet from any other lot.

~~H.K.~~ Manufactured homes.

(.03) Permitted accessory uses to ~~single family dwellings~~:

A. Accessory uses, buildings and structures customarily incidental to any of the principal permitted uses listed above, and located on the same lot.

B. Living quarters without kitchen facilities for persons employed on the premises or for guests. Such facilities shall not be rented or otherwise used as a separate dwelling unless approved as an accessory dwelling unit or duplex.

C. Accessory Dwelling Units, subject to the standards of Section 4.113 (.10).

D. Home occupations.

E. A private garage or parking area.

F. Keeping of not more than two (2) roomers or boarders by a resident family household.

G. Temporary buildings for uses incidental to construction work, which buildings shall be removed upon completion or abandonment of the construction work.

H. Accessory buildings and uses shall conform to front and side yard setback requirements. If the accessory buildings and uses do not exceed 120 square feet or ten (10) feet in height, and they are detached and located behind the rear-most line of the main buildings, the side and rear yard setbacks may be reduced to three (3) feet.

I. Livestock and farm animals, subject to the provisions of Section 4.162.

(.04) Uses permitted subject to Conditional Use Permit requirements:

A. Public and semi-public buildings and/or structures essential to the physical

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and economic welfare of an area, such as fire stations, sub-stations and pump stations.

- B. Commercial Recreation, including public or private clubs, lodges or meeting halls, golf courses, driving ranges, tennis clubs, community centers and similar commercial recreational uses. Commercial Recreation will be permitted upon a finding that it is compatible with the surrounding residential uses and promotes the creation of an attractive, healthful, efficient and stable environment for living, shopping or working. All such uses except golf courses and tennis courts shall conform to the requirements of Section 4.124(.04)(D) (Neighborhood Commercial Centers).
 - C. Churches; public, private and parochial schools; public libraries and public museums.
 - D. Neighborhood Commercial Centers limited to the provisions of goods and services primarily for the convenience of and supported by local residents. Neighborhood Commercial Centers are only permitted where designated on an approved legislative master plan.
- (.05) Residential Neighborhood Zone Sub-districts:
- A. RN Zone sub-districts may be established to provide area-specific regulations that implement legislative master plans.
 - 1. For the Frog Pond West Neighborhood, the sub-districts are listed in Table 1 of this code and mapped on Figure 6 of the Frog Pond West Master Plan. The Frog Pond West Master Plan Sub-District Map serves as the official sub-district map for the Frog Pond West Neighborhood.
- (.06) Minimum and Maximum Residential Units:
- A. The minimum and maximum number of residential units approved shall be consistent with this code and applicable provisions of an approved legislative master plan.

- 1. For initial development of the Frog Pond West Neighborhood, Table 1 in this code and Frog Pond West Master Plan Table 1 establish the minimum and maximum number of residential lots units for the sub-districts.
- 2. For ~~parcels or~~ areas that are a portion of a sub-district, the minimum and maximum number of residential lots units are established by determining the proportional gross acreage and applying that proportion to the minimums and maximums listed in Table 1. The maximum density on a parcel of the area may be increased, up to a maximum of 10% of what would otherwise be permitted, based on an

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adjustment to an SROZ boundary that is consistent with 4.139.06.

- B. The City may allow a reduction in the minimum density for a sub-district when it is demonstrated that the reduction is necessary due to topography, protection of trees, wetlands and other natural resources, constraints posed by existing development, infrastructure needs, provision of non-residential uses and similar physical conditions.

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Table 1. Minimum and Maximum Residential Lots/Dwelling Units by Sub-District in the Frog Pond West Neighborhood

| Area Plan Designation | Frog Pond West Sub-district | Minimum | Maximum |
|------------------------------|-----------------------------|--|--|
| | | <u>Dwelling Units</u> Lots in Sub-district ^{a,b,c} | <u>Dwelling Units</u> Lots in Sub-district ^{a,b,c} |
| R-10 Large Lot Single Family | 3 | 26 | 32 |
| | 7 | 24 | 30 |
| | 8 | 43 | 53 |
| R-7 Medium Lot Single Family | 2 | 20 | 25 |
| | 4 | 86 | 107 |
| | 5 | 27 | 33 |
| | 9 | 10 | 13 |
| R-5 Small Lot Single Family | 11 | 46 | 58 |
| | 1 | 66 | 82 |
| | 6 | 74 | 93 |
| Civic | 10 | 30 | 38 |
| | 12 | 0 | 7 ^{ad} |
| Public Facilities (PF) | 13 | 0 | 0 |

a. Each lot must contain at least 1 dwelling unit but may contain additional units consistent with the allowance for ADUs and middle housing.

b. For townhouses, the combined lots of the townhouse project shall be considered a single lot for the purposes of the minimum and maximum of this table. In no case shall the density of a townhouse project exceed 25 dwelling units per net acre.

c. For development proposals for initial development in Frog Pond West submitted on or after November 18, 2021, the development of middle housing units equivalent to 10% of the maximum lots, rounded up to the next whole number, is required. For example, if a development is permitted a maximum of 43 lots, at least 5 middle housing units must be provided. Middle housing types under this requirement are limited to those allowed during the initial development of Frog Pond West.

ad. These metrics apply to infill housing within the Community of Hope Church property, should they choose to develop housing on the site. Housing in the Civic sub-district is subject to the R-7 Medium Lot Single Family regulations.

C. Redevelopment to Add Middle Housing. After lots in the RN zone have been developed with at least one residential unit, redevelopment to add middle housing units other than townhouses shall be exempt from maximum density requirements. The maximum density for townhouses shall be the less of: (1) four times the density permitted for single-family detached dwellings, or (2) 25 dwelling units per net acre.

(.07) Development Standards Generally

- A. Unless otherwise specified by this the regulations in this Residential Development Zone chapter, all development must comply with Section 4.113,

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Standards Applying to Residential Development in Any Zone.

(.08) Lot Development Standards:

- A. Lot development shall be consistent with this code and applicable provisions of an approved legislative master plan.
- B. Lot Standards Generally. For the Frog Pond West Neighborhood, Table 2 establishes the lot development standards unless superseded or supplemented by other provisions of the Development Code.
- C. Lot Standards for Small Lot Sub-districts. The purpose of these standards is to ensure that development in the Small Lot Sub-districts includes varied design that avoids homogenous street frontages, creates active pedestrian street frontages and has open space that is integrated into the development pattern. Standards. Planned developments in the Small Lot Sub-districts shall include one or more of the following elements on each block:

1. Alleys.
2. Residential main entries grouped around a common green or entry courtyard (e.g. cluster housing (Frog Pond West Master Plan)).
3. Four or more residential main entries facing a pedestrian connection allowed by an applicable legislative master plan.
4. Garages recessed at least 4 feet from the front façade or 6 feet from the front of a front porch.

Table 2: Neighborhood Zone Lot Development Standards

| Neighborhood Zone Sub-District | Min. Lot Size (sq.ft.) ^{A,B} | Min. Lot Depth (ft.) | Max. Lot Coverage (%) | Min. Lot Width ^{L,G,I,H,J,N} (ft.) | Max. Bldg. Height ^{F,H} (ft.) | Setbacks ^{H,K,L,M} | | | | |
|--------------------------------|---------------------------------------|----------------------|-------------------------------|---|--|--|-----------------|------------------|--|--|
| | | | | | | Front Min. (ft.) | Rear Min. (ft.) | Side Min. (note) | Garage Min. Setback from Alley (ft.) | Garage Min. Setback from Street ^K Street ^{O,P} (ft.) |
| R-10 Large Lot Single Family | 8,000 ^A | 60' | 40% ^B _E | 40 | 35 | 20 ^C _E 20 | 20 | 1' | 18 ^D 18 ^G | 20 |
| R-7 Medium Lot Single Family | 6,000 ^{A,C} | 60' | 45% ^B _E | 35 | 35 | 15 ^E | 15 | 1' | 18 ^D 18 ^G | 20 |
| R-5 Small Lot Single Family | 4,000 ^{A,C} _D | 60' | 60% ^B _E | 35 | 35 | 12 ^E | 15 | 1' | 18 ^D 18 ^G | 20 |

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- Notes: A Minimum lot size ~~May~~ be reduced to 80% of minimum lot size where necessary to preserve natural resources (e.g. trees, wetlands) and/or provide active open space. Cluster housing (Frog Pond West Master Plan) may be reduced to 80% of minimum lot size. ~~Duplexes in the R-5 Sub-District have a 6,000 SF minimum lot size.~~
- B For townhouses the minimum lot size in all sub-districts is 1,500 square feet
- C In R-5 and R-7 sub-districts the minimum lot size for quadplexes and cottage clusters is 7,000 square feet
- D In R-5 sub-districts the minimum lot size for triplexes is 5,000 square feet
- BE On lots where detached accessory buildings are built, maximum lot coverage may be increased by 10%. Cottage clusters are exempt from maximum lot coverage standards.
- CF Front porches may extend 5 feet into the front setback.
- DG The garage setback from alley shall be minimum of 18 feet to a garage door facing the alley in order to provide a parking apron. Otherwise, the rear or side setback requirements apply.
- FH Vertical encroachments are allowed up to ten additional feet, for up to 10% of the building footprint; vertical encroachments shall not be habitable space.
- I For townhouses in all sub-districts minimum lot width is 20 feet.
- GJ May be reduced to 24' when the lot fronts a cul-de-sac. No street frontage is required when the lot fronts on an approved, platted private drive or a public pedestrian access in a cluster housing (Frog Pond West Master Plan) development.
- HK Front Setback is measured as the offset of the front lot line or a vehicular or pedestrian access easement line. On lots with alleys, Rear Setback shall be measured from the rear lot line abutting the alley.
- L For cottage clusters all setbacks otherwise greater than 10 feet for other housing types is reduced to 10 feet
- IM On lots greater than 10,000 SF with frontage 70 ft. or wider, the minimum combined side yard setbacks shall total 20 ft. with a minimum of 10 ft. On other lots, minimum side setback shall be 5 ft. On a corner lot, minimum side setbacks are 10 feet.
- JN For cluster housing (Frog Pond West Master Plan) with lots arranged on a courtyard, frontage shall be measured at the front door face of the building adjacent to a public right of way or a public pedestrian access easement linking the courtyard with the Public Way.
- KO All lots Duplexes with front-loaded garages are limited to one shared standard-sized driveway/apron per street regardless of the number of units on the lot.
- P The garage shall be setback a minimum of 18 feet from any sidewalk easements that parallels the street.

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D. Lot Standards Specific to the Frog Pond West Neighborhood.

1. Lots adjacent to Boeckman Road and Stafford Road shall meet the following standards:
 - a. Rear or side yards adjacent to Boeckman Road and Stafford Road shall provide a wall and landscaping consistent with the standards in Figure 10 of the Frog Pond West Master Plan.
2. Lots adjacent to the collector-designated portions of Willow Creek Drive and Frog Pond Lane shall not have driveways accessing lots from these streets, unless no practical alternative exists for access. Lots in Large Lot Sub-districts are exempt from this standard.

(.09) Open Space:

A. Purpose. The purposes of these standards for the Residential Neighborhood Zone are to:

1. Provide light, air, open space, and useable recreation facilities to occupants of each residential development.
2. Retain and incorporate natural resources and trees as part of developments.
3. Provide access and connections to trails and adjacent open space areas.

For Neighborhood Zones which are subject to adopted legislative master plans, the standards work in combination with, and as a supplement to, the park and open space recommendations of those legislative master plans. These standards supersede the ~~Outdoor Recreational Area~~ Open Space requirements in WC Section 4.113 (.01).

B. Within the Frog Pond West Neighborhood, the following standards apply:

1. Properties within the R-10 Large Lot ~~Single Family~~ sub-districts and R-7 Medium Lot ~~Single Family~~ sub-districts are exempt from the requirements of this section. If the Development Review Board finds, based upon substantial evidence in the record, that there is a need for open space, they may waive this exemption and require open space proportional to the need.
2. For properties within the R-5 Small Lot ~~Single Family~~ sub-districts, Open Space Area shall be provided in the following manner:
 - a. Ten percent (10%) of the net developable area shall be in open space. Net developable area does not include land for non-residential uses, SROZ-regulated lands, streets and private drives, alleys and pedestrian connections. Open space must include at least 50% usable open space as defined by this Code and other like space that the Development Review Board finds will meet the purpose of this section.
 - b. Natural resource areas such as tree groves and/or wetlands, and

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unfenced low impact development storm water management facilities, may be counted toward the 10% requirement at the discretion of the Development Review Board. Fenced storm water detention facilities do not count toward the open space requirement. Pedestrian connections may also be counted toward the 10% requirement.

- c. The minimum land area for an individual open space is 2,000 square feet, unless the Development Review Board finds, based on substantial evidence in the record, that a smaller minimum area adequately fulfills the purpose of this Open Space standard.
- d. The Development Review Board may reduce or waive the usable open space requirement in accordance with Section 4.118(.03). The Board shall consider substantial evidence regarding the following factors: the walking distance to usable open space adjacent to the subject property or within 500 feet of it; the amount and type of open space available adjacent or within 500 feet of the subject property, including facilities which support creative play.
- e. The Development Review Board may specify the method of assuring the long-term protection and maintenance of open space and/or recreational areas. Where such protection or maintenance are the responsibility of a private party or homeowners' association, the City Attorney shall review any pertinent bylaws, covenants or agreements prior to recordation.

(.10) Block, access and connectivity standards:

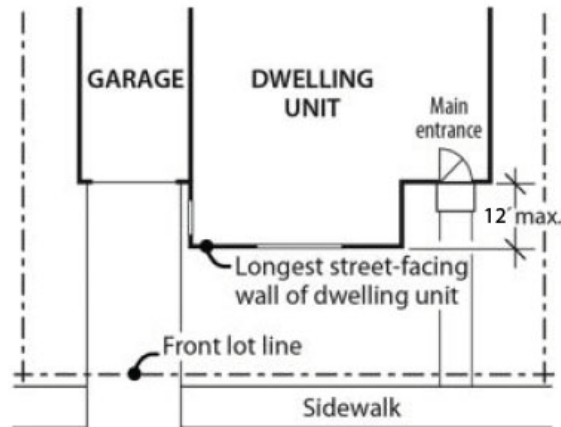
- A. Purpose. These standards are intended to regulate and guide development to create: a cohesive and connected pattern of streets, pedestrian connections and bicycle routes; safe, direct and convenient routes to schools and other community destinations; and, neighborhoods that support active transportation and Safe Routes to Schools.
- B. Blocks, access and connectivity shall comply with adopted legislative master plans.
 - 1. Within the Frog Pond West Neighborhood, streets shall be consistent with Figure 18, Street Demonstration Plan, in the Frog Pond West Master Plan. The Street Demonstration Plan is intended to be guiding, not binding. Variations from the Street Demonstration Plan may be approved by the Development Review Board, upon finding that one or more of the following justify the variation: barriers such as existing buildings and topography; designated Significant Resource Overlay Zone areas; tree groves, wetlands or other natural resources; existing or planned parks and other active open space that will serve as pedestrian connections for the public; alignment with property lines and ownerships that result in

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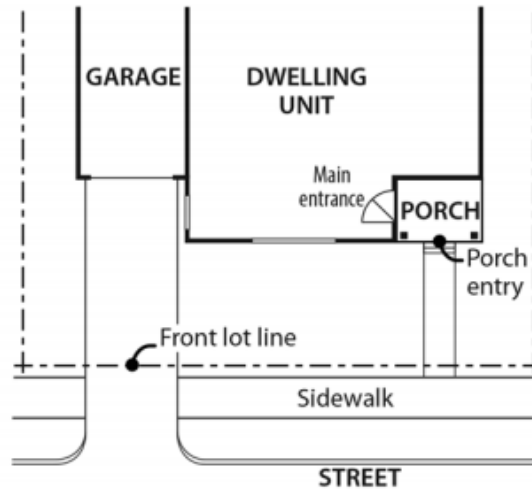
efficient use of land while providing substantially equivalent connectivity for the public; and/or site design that provides substantially equivalent connectivity for the public.

2. If a legislative master plan does not provide sufficient guidance for a specific development or situation, the Development Review Board shall use the block and access standards in Section 4.124 (.06) as the applicable standards.
- (.11) Signs. Per the requirements of Sections 4.156.01 through 4.156.11 and applicable provisions from adopted legislative master plans.
- (.12) Parking. Per the requirements of Section 4.155 and applicable provisions from adopted legislative master plans.
- (.13) Corner Vision Clearance. Per the requirements of Section 4.177.
- (.14) Main Entrance Standards
- A. Purpose. These standards:
 1. Support a physical and visual connection between the living area of the residence and the street;
 2. Enhance public safety for residents and visitors and provide opportunities for community interaction;
 3. Ensure that the pedestrian entrance is visible or clearly identifiable from the street by its orientation or articulation; and
 4. Ensure a connection to the public realm for development on lots fronting both private and public streets by making the pedestrian entrance visible or clearly identifiable from the public street.
 - B. Location. At least one main entrance for each structure must:
 1. Be within 12 feet of the longest street-facing front wall of the dwelling unit; and
 2. Either:
 - a. Face the street
 - b. Be at an angle of up to 45 degrees from the street; or
 - c. Open onto a porch. The porch must:
 - (i) Be at least 6 feet deep
 - (ii) Have at least one entrance facing the street; and
 - (iii) Be covered with a roof or trellis

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Main Entrance Opening onto a Porch



C. Distance from grade. Main entrances meeting the standards in subsection B., above, must be within 4 feet of grade. For the purposes of this Subsection, grade is the average grade measured along the foundation of the longest street-facing wall of the dwelling unit.

(.15) Garage Standards

A. Purpose. These standards:

1. Ensure that there is a physical and visual connection between the living area of the residences and the street;
2. Ensure that the location and amount of the living area of the residences, as seen from the street, is more prominent than the garages;
3. Prevent garages from obscuring the main entrance from the street and ensure that the main entrance for pedestrians, rather than automobiles, is the prominent entrance;

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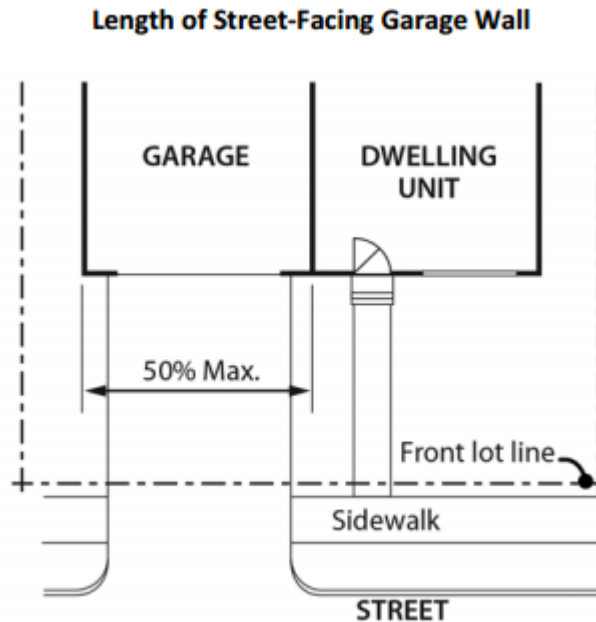
4. Provide for a pleasant pedestrian environment by preventing garages and vehicle areas from dominating the views of the neighborhood from the sidewalk; and
5. Enhance public safety by preventing garages from blocking views of the street from inside the residence.

B. Street-Facing Garage Walls

1. Where these regulations apply. Unless exempted, the regulations of this subsection apply to garages accessory to residential units.
2. Exemptions:
 - a. Garages on flag lots.
 - b. Development on lots which slope up or down from the street with an average slope of 20 percent or more.
3. Standards.
 - a. The length of the garage wall facing the street may be up to 50 percent of the length of the street-facing building façade. For ~~duplexes~~middle housing, this standard applies to the total length of the street-facing façades. For ~~all other lots~~detached single-family and accessory structures, the standards apply to the street-facing façade of each unit. For corner lots, this standard applies to only one street side of the lot. For lots less than 50 feet wide at the front lot line, the standard in (b) below applies.
 - b. For lots less than 50 wide at the front lot line, the following standards apply:
 - (i) The width of the garage door may be up to 50 percent of the length of the street-facing façade.
 - (ii) The garage door must be recessed at least 4 feet from the front façade or 6 feet from the front of a front porch.
 - (iii) The maximum driveway width is 18 feet.
 - c. Where a dwelling abuts a rear or side alley or a shared driveway, the garage shall orient to the alley or shared drive.
 - d. Where three or more contiguous garage parking bays are proposed facing the same street, the garage opening closest to a side property line shall be recessed at least two feet behind the adjacent opening(s) to break up the street facing elevation and diminish the appearance of the garage from the street. Side-loaded garages, i.e., where the garage openings are turned away from the street, are exempt from this requirement.

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- e. A garage entry that faces a street may be no closer to the street than the longest street facing wall of the dwelling unit. There must be at least 20 feet between the garage door and the sidewalk. This standard does not apply to garage entries that do not face the street.



(.16) Residential Design Standards

A. Purpose. These standards:

1. Support consistent quality standards so that each home contributes to the quality and cohesion of the larger neighborhood and community.
2. Support the creation of architecturally varied homesstructures, blocks and neighborhoods, whether a neighborhood develops all at once or one lot at a time, avoiding homogeneous street frontages that detract from the community's appearance.

B. Applicability. These standards apply to all façades facing streets, pedestrian connections, parks, open space tracts, the Boeckman Trail, or elsewhere as required by this Code or the Development Review Board. Exemptions from these standards include: (1) Additions or alterations adding less than 50% to the existing floor area of the structure; and, (2) Additions or alterations not facing a street, pedestrian connection, park, or open space tract.

C. Windows. The standards for minimum percentage of façade surface area in windows are below. These standards apply only to facades facing streets, and pedestrian connections, parks, and open space tracts.

1. For two-story homesstructures:

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- a. 15% - front facades
 - b. 12.5% – front facades if a minimum of six (6) design elements are provided per Section 4.127 (0.15) E, Design Menu.
 - c. 10% - front facades facing streets if a minimum of seven (7) design elements are provided per Section 4.127 (0.15) E, Design Menu.
2. For one-story homesstructures:
 - a. 12.5% - front facades
 - b. 10 % – front facades if a minimum of six (6) design elements are provided per Section 4.127 (0.15) E, Design Menu.
 3. For all homesstructures: 5% for street-side facades.
 4. Windows used to meet this standard must provide views from the building to the street. Glass block does not meet this standard. Windows in garage doors and other doors count toward this standard.
 5. Street-facing facades along Boeckman Road and Stafford Road must meet the standards for front facades.
- D. Articulation. Plans for residential buildings shall incorporate design features such as varying rooflines, offsets, balconies, projections (e.g., overhangs, porches, or similar features), recessed or covered entrances, window reveals, or similar elements that break up otherwise long, uninterrupted elevations. Such elements shall occur at a minimum interval of 30 feet on façades facing streets, pedestrian connections, parks, open space tracts, or elsewhere as required by this Code or the Development Review Board. Where a façade governed by this standard is less than 30 feet in length, at least one of the above-cited features shall be provided.
- E. Residential Design Menu. Residential structures shall provide a minimum of five (5) of the design elements listed below for front facades and facades facing Boeckman Road, unless otherwise specified by the code. For side facades facing streets, ~~or~~ pedestrian connections, parks, open space tracts, a minimum of three (3) of the design elements must be provided. Where a design features includes more than one element, it is counted as only one of the five required elements.
1. Dormers at least three (3) feet wide.
 2. Covered porch entry – minimum 48 square foot covered front porch, minimum six (6) feet deep and minimum of a six (6) foot deep cover. A covered front stoop with minimum 24 square foot area, 4 foot depth and hand rails meets this standard.
 3. Front porch railing around at least two (2) sides of the porch.
 4. Front facing second story balcony – projecting from the wall of the

ATTACHMENT 1

building a minimum of four (4) feet and enclosed by a railing or parapet wall.

5. Roof overhang of 16 inches or greater.
6. Columns, pillars or posts at least four (4) inches wide and containing larger base materials.
7. Decorative gables – cross or diagonal bracing, shingles, trim, corbels, exposed rafter ends or brackets (does not include a garage gable if garage projects beyond dwelling unit portion of street façade).
8. Decorative molding above windows and doors.
9. Decorative pilaster or chimneys.
10. Shakes, shingles, brick, stone or other similar decorative materials occupying at least 60 square feet of the street façade.
11. Bay or bow windows – extending a minimum of 12 inches outward from the main wall of a building and forming a bay or alcove in a room within the building.
12. Sidelight and/or transom windows associated with the front door or windows in the front door.
13. Window grids on all façade windows (excluding any windows in the garage door or front door).
14. Maximum nine (9) foot wide garage doors or a garage door designed to resemble two (2) smaller garage doors and/or windows in the garage door (only applicable to street facing garages).
15. Decorative base materials such as natural stone, cultured stone or brick extending at least 36 inches above adjacent finished grade occupying a minimum of 10 % of the overall primary street facing façade.
16. Entry courtyards which are visible from, and connected directly to, the street. Courtyards shall have a minimum depth of 10 feet and minimum width of 80% of the non-garage/driveway building width to be counted as a design element.

- F. House Plan Variety. No two directly adjacent or opposite dwelling units residential structures may possess the same front or street-facing elevation. A structure containing multiple middle housing units shall be considered a single residential structure for the purpose of house plan variety. This standard is met when front or street-facing elevations differ from one another due to different materials, articulation, roof type, inclusion of a porch, fenestration, and/or number of stories. Where façades repeat on the same block face, they must have at least three intervening lots-residential structures between them that meet the above standard. Small Lot developments over 10 acres shall include duplexes and/or attached 2-unit single family homes comprising 10% of the

ATTACHMENT 1

~~homes—corner locations are preferred.~~

G. Prohibited Building Materials. The following construction materials may not be used as an exterior finish:

1. Vinyl siding.
2. Wood fiber hardboard siding.
3. Oriented strand board siding.
4. Corrugated or ribbed metal.
5. Fiberglass panels.

(.17) Fences

A. Within Frog Pond West, fences shall comply with standards in 4.113 (.07) except as follows:

1. Columns for the brick wall along Boeckman Road and Stafford Road shall be placed at lot corners where possible.
2. A solid fence taller than 4 feet in height is not permitted within 8 feet of the brick wall along Boeckman Road and Stafford Road, except for fences placed on the side lot line that are perpendicular to the brick wall and end at a column of the brick wall.
3. Height transitions for fences shall occur at fence posts.

(.18) ~~Homes Residential Structures~~ Adjacent to Schools, Parks and Public Open Spaces

- A. Purpose. The purpose of these standards is to ensure that development adjacent to schools and parks is designed to enhance those public spaces with quality design that emphasizes active and safe use by people and is not dominated by driveways, fences, garages, and parking.
- B. Applicability. These standards apply to development that is adjacent to or faces schools and parks. As used here, the term adjacent includes development that is across a street or pedestrian connection from a school or park.
- C. Development must utilize one or more of the following design elements:
 1. Alley loaded garage access.
 2. On corner lots, placement of the garage and driveway on the side street that does not face the school, park, or public open space.
 3. Recess of the garage a minimum of four feet from the front façade of the home. A second story above the garage, with windows, is encouraged for this option.
- D. Development must be oriented so that the fronts or sides of ~~homes-residential structures~~ face adjacent schools or parks. Rear yards and rear fences may

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4.127 Residential Neighborhood (RN) Zone

Wilsonville Middle Housing Code Update
Draft Amendments 06.02.21

generally not face the schools or parks, unless approved through the waiver process of 4.118 upon a finding that there is no practicable alternative due to the size, shape or other physical constraint of the subject property.

[4.127 Residential Neighborhood Zone Section updated by Ord. No. 806, July 2017]

DRAFT



ATTACHMENT 1 FROG POND WEST

Master Plan



*A Vision and Implementation Strategy for
Wilsonville's Next Great Neighborhood*

Adopted by Wilsonville City Council

JULY 17, 2017

Planning Commission Meeting - June 9, 2021
Middle Housing Infrastructure and Design Standards



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A VISION FOR FROG POND IN 2035

The Frog Pond Area in 2035 is an integral part of the Wilsonville community, with attractive and connected neighborhoods. The community's hallmarks are the variety of quality homes; open spaces for gathering; nearby services, shops and restaurants; excellent schools; and vibrant parks and trails. The Frog Pond Area is a convenient bike, walk, drive, or bus trip to all parts of Wilsonville.

*Frog Pond Area Plan Vision Statement,
adopted by Wilsonville City Council November 16, 2015.*

Funding for the Frog Pond Area Plan was provided by a Metro Community Planning and Development Grant and the City of Wilsonville.



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Purpose and scope



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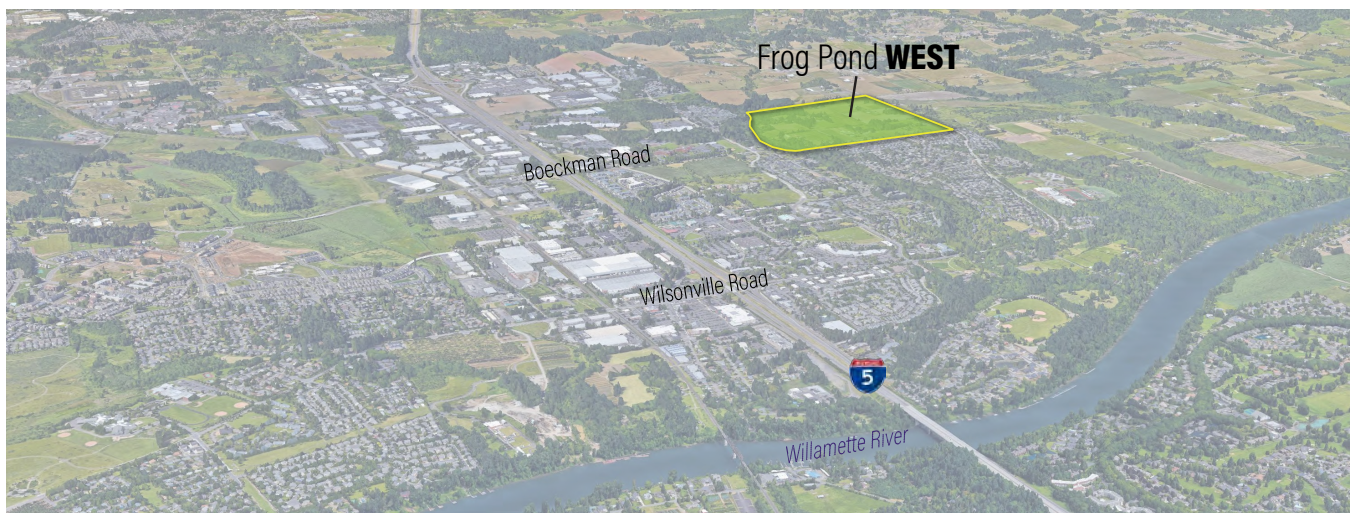
PURPOSE

The purposes of the Frog Pond West Master Plan (Master Plan) are to:

1. Establish the overall vision for the Frog Pond West Neighborhood.
2. Illustrate and define neighborhood-specific plans and requirements for land use, streets, pedestrian connections, bike routes, parks and open spaces, and natural resource areas.
3. Describe and illustrate the City's expectations for high-quality architectural and community design.
4. Serve as the guide for coordinating individual developments and public realm improvements into a cohesive whole.
5. Provide implementation strategies for land use regulations and infrastructure funding.

SCOPE AND REGULATORY ROLE

The Master Plan applies to the 181-acre area added to the Urban Growth Boundary (UGB) in 2002, located west of Stafford Road and north of Boeckman Road in East Wilsonville. Frog Pond West is approximately one-third of the area that was concept planned as part of the Frog Pond Area Plan (Area Plan), which was adopted by the Wilsonville City Council on November 16, 2015. The chapters of the Master Plan address Frog Pond West's intended vision; land use; residential and community design; transportation; parks and open spaces; and public lighting, street trees, gateways, and signage. Regulatory and infrastructure funding implementation are also included. Infrastructure plans were completed as part of the Area Plan, and are included in the Appendix for reference.



The Frog Pond West Master Plan is an adopted “supporting document” of the Wilsonville Comprehensive Plan (Plan), with the regulatory force and effect of the Plan. The Master Plan fits within a three-part regulatory structure for development review in Frog Pond West. The Comprehensive Plan provides the policies and high level intent for Frog Pond West. The Master Plan establishes the overall vision, descriptive and illustrative guidance, and geographically-specific requirements for development, with a focus on integrating private development with planned public realm improvements. The Development Code (Code) establishes the zoning, standards, and procedures for development. The Code references parts of the Master Plan as regulatory elements, which are applied as standards and review criteria. Those parts of the Master Plan not specifically referenced by the Code are descriptive and illustrative of the City’s general expectations for development—they will be used as guidance to the City’s discretionary review of development.

THE PLANNING PROCESS

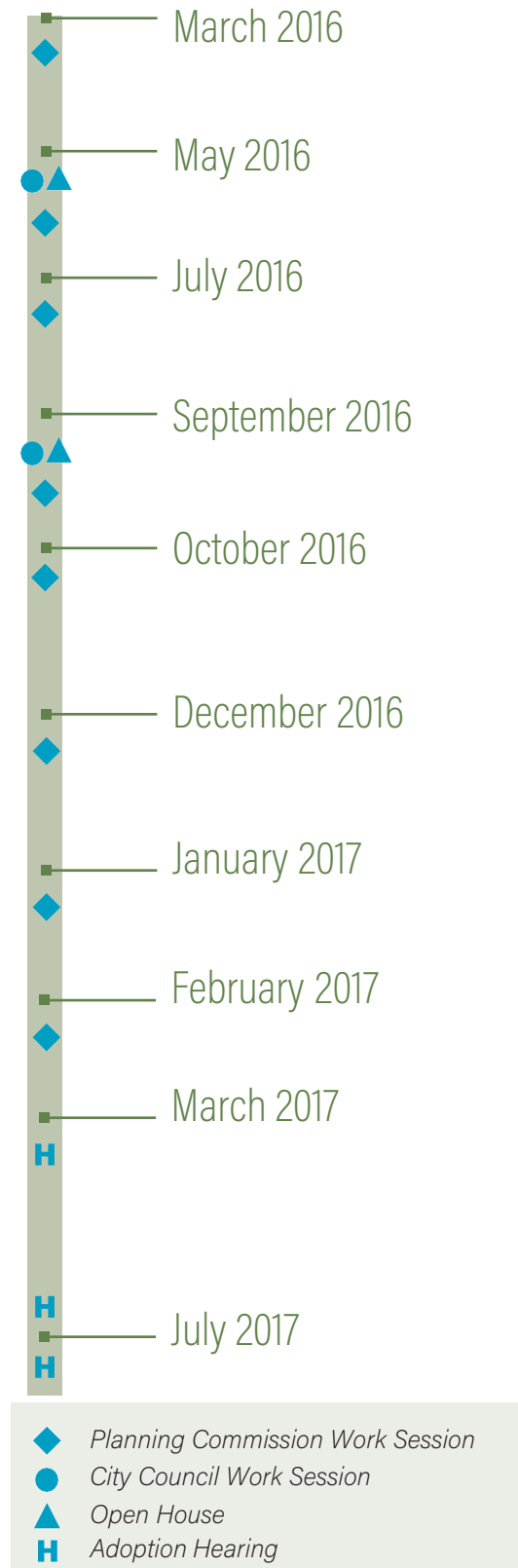
Planning for the Frog Pond Area as part of Wilsonville began with the City’s first City Plan in 1972, where it was shown as a residential area. The context for that vision evolved over time through the introduction of statewide planning, Wilsonville’s first Comprehensive Plan, the inclusion of the area in the UGB, and the designation of urban reserves. Figure 1 depicts key milestones during the four decades that led up to concept planning for the Frog Pond Area and master planning for Frog Pond West.

The Frog Pond Area Plan was a two-year planning process that provided extensive opportunities for community involvement, including:

Figure 1. Wilsonville Planning Milestones



Figure 2. Frog Pond Master Plan Timeline



- May 2014: Frog Pond Area Plan Kick Off
- October 2014: Open House and Online Survey
- January 2015: Joint City Council / Planning Commission Work Session
- April 2015: Open House and Online Survey
- June - August 2015: City Council / Planning Commission Work Sessions
- September - November 2015: Area Plan Adoption

Building from the community involvement process used for the Area Plan, the Master Plan was created through an open and inclusive process that began in March 2016 and continued through mid 2017. The process included:

- Eight work sessions with the Planning Commission.
- Two briefings with the City Council.
- Two community Open Houses.
- Ongoing maintenance of the project website.
- Ongoing distribution of information through email updates to the Interested Parties email list, articles in the Wilsonville Spokesman, updates in the Boones Ferry Messenger, and mailed notices of events.
- Stakeholder meetings with developers and property owners regarding the draft infrastructure funding plan.
- Many individual meetings and communications with property owners and interested parties.
- Public hearings in March (Planning Commission) and June-July (City Council), 2017.



MASTER PLAN UPDATE

Since adoption of the Frog Pond West Master Plan in 2017, additional plans and policies have been adopted at the State and City level addressing housing variety and affordability.

In 2019, the Oregon State Legislature passed House Bill 2001 (HB 2001) to help provide Oregonians with more housing choices. HB 2001 requires Oregon cities with populations over 25,000 and those within the Portland metro area (referred to as "Large Cities") to adopt zoning regulations and comprehensive plan amendments to allow middle housing in areas zoned for residential use that allow for the development of detached single-family dwellings. Specifically, Large Cities must allow:

- A duplex on each lot or parcel zoned for residential use that allows for the development of detached single-family dwellings; and
- Triplexes, quadplexes, cottage clusters, and townhouses in areas zoned for residential use that allow for the development of detached single-family dwellings.

Because the Frog Pond West Master Plan is considered a supporting document of the Wilsonville Comprehensive Plan, updates to the Master Plan are needed to comply with the requirements of HB 2001 and associated statutes and administrative rules (Oregon Revised Statutes [ORS] 197.758 and Oregon Administrative Rules [OAR] Chapter 660, Division 46).

OAR 660-046 provides alternative options for compliance with middle housing requirements in "existing Master Planned Communities." This provision allows Large Cities to limit development of middle housing types other than duplexes in undeveloped portions of master planned areas as long as a net residential density of 8 units per acre is permitted overall and duplexes are permitted on every lot that allows a detached single-family dwelling. After a master planned area is built out, cities cannot limit development of middle housing (i.e., as infill or redevelopment) and must comply with the minimum OAR standards.

As originally adopted, the Frog Pond West Master Plan did not allow for adequate density to qualify for this alternative compliance option. Therefore, amendments to the Master Plan were necessary to increase allowed density in Frog Pond West.

Updating the Master Plan to allow additional middle housing also implements recommendations from the Wilsonville Equitable Housing Strategic Plan (EHSP). The EHSP, adopted in June 2020, identifies a set of actions meant to move the city toward more equitable housing outcomes. Implementation Action 1B of the EHSP calls for the City to "Incorporate Equitable Housing Needs into Middle Housing

Planning” by expanding housing diversity in neighborhoods throughout the city. In recognition of the equitable housing goals in the EHSP, the City chose to exceed the State’s minimum requirements for middle housing in Frog Pond West—both by allowing additional housing types besides duplexes during initial buildout, and by requiring that a portion of each development include middle housing units. This expands the previous limited requirement for large developments over 10 acres in the R-5 small lot subdistricts, which required 10% of units to be duplexes or 2-unit townhouses. This 10% requirement has been expanded to include all subdistricts and to allow more types of middle housing to fulfill the requirement. This requirement recognizes that the remaining land in Frog Pond West is an opportunity to implement Wilsonville’s Equitable Housing Strategy, and does so in a way that balances the intent of the original Master Plan with ensuring a modest amount of middle housing is built.

The 2021 update to the Frog Pond West Master Plan and to the Residential Neighborhood Zone (Wilsonville Code Section 4.127) is intended to comply with state laws regulating middle housing, to guide what remains of the initial Frog Pond West build-out, as well as to guide future infill and redevelopment of additional housing in the Master Plan area.



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Vision, Principles, and Intent



*** This chapter is not included in this review draft ***



Land Use



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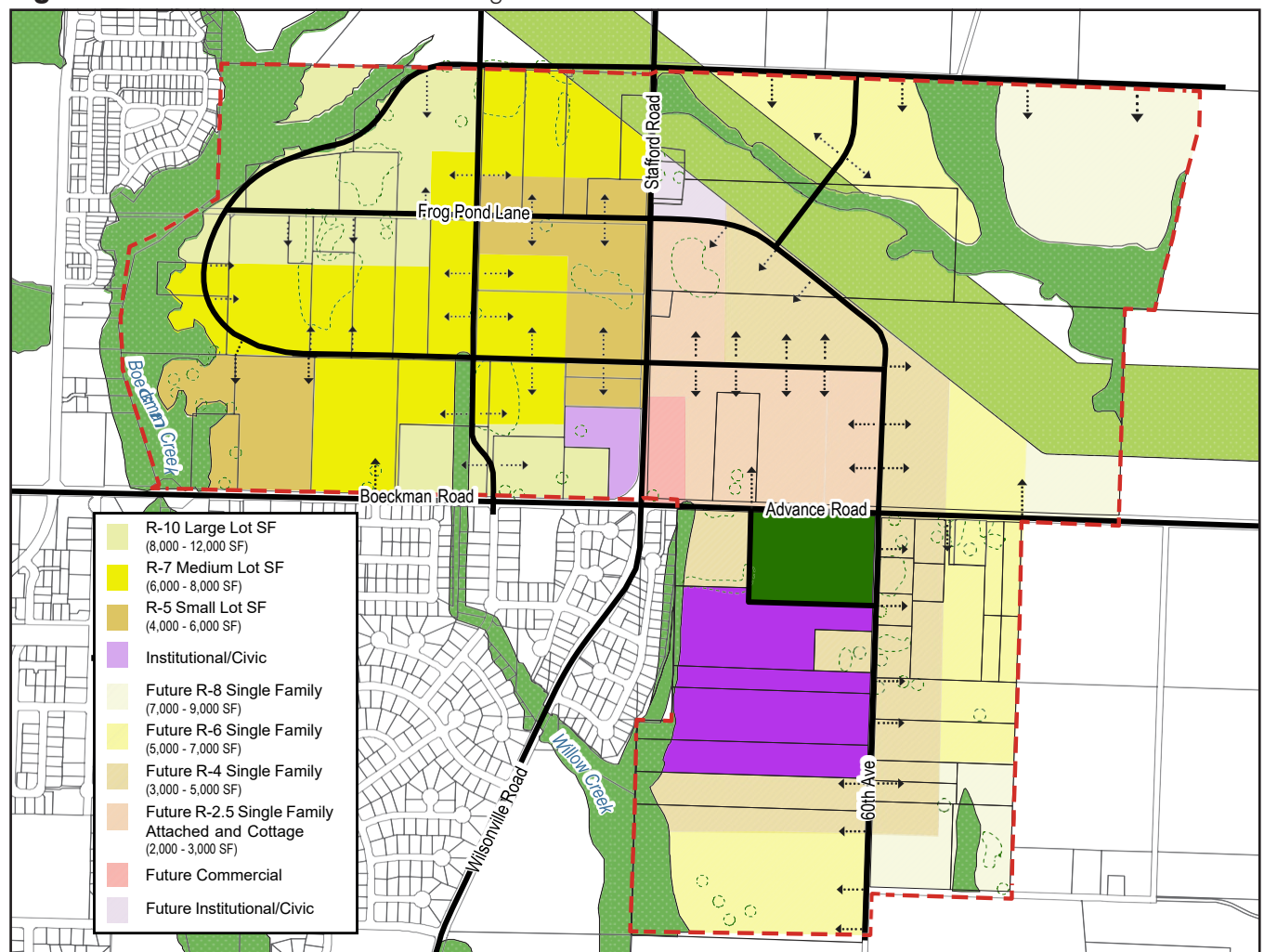
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FROG POND AREA PLAN CONTEXT

The 181-acre Frog Pond West Neighborhood is part of the larger 500-acre Frog Pond Area, which has been planned by the City in the adopted Frog Pond Area Plan.¹ The entire Frog Pond Area is a logical and intuitive extension of the City of Wilsonville. Historically, it was part of the City's early settlement pattern, with important gathering places for the rural farming community, such as the Grange Hall (originally the Frog Pond School) and the Frog Pond Church. Physically, it is adjacent to key connector streets (e.g. Wilsonville and Boeckman Roads), existing neighborhoods, and natural areas such as Boeckman Creek. Even the shape of the study area wraps around the edge of the community.

Figure 4. Land Use Framework from Frog Pond Area Plan



¹ The Frog Pond Area Plan, A Concept Plan for Three New Neighborhoods in East Wilsonville, was adopted by the Wilsonville City Council on November 16, 2015. The adopted Area Plan is shown above. The land use designations are subject to change as the Area Plan is implemented through adopted Master Plans, code updates, and development reviews.



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The Frog Pond Area is naturally comprised of three parts: the area west of Stafford Road, which is inside the Urban Growth Boundary and is the subject of the Master Plan; the area east of Stafford Road and north of Advance Road; and the area south of Advance Road. The Area Plan utilizes this framework to establish a vision for three new walkable neighborhoods: Frog Pond West, Frog Pond East, and Frog Pond South.

The Area Plan provides an area-wide concept plan that includes a land use framework, transportation framework, bicycle/pedestrian framework, and parks framework (see Appendix B). The Area Plan also includes the following elements that set the planning context for the Frog Pond West Master Plan:

- A vision statement and guiding principles for the Frog Pond Area.
- A framework for three walkable and connected neighborhoods.
- A phased residential land use strategy that emphasizes lower density and detached homes in the West Neighborhood, and a greater mix of housing types in the East and South Neighborhoods.
- Demonstration plans that illustrate community design principles.
- A future 3.2-acre neighborhood commercial center in the East Neighborhood.
- Five civic land uses: the Frog Pond Grange, the Community of Hope Church, the 10-acre Community Park, the 30-acre middle school and future school site south of Advance Road, and the 10-acre future school site in Frog Pond West—all connected by pedestrian routes, bike paths, and trails.²
- A network of streets, traffic controls, intersection treatments, and potential local street connections.
- A network of bicycle routes, pedestrian routes, and trails. The trails wrap around the area and include the Boeckman Trail, BPA Easement Trail, School Connection Trail, and 60th Avenue Trail.
- Two parks and a future school site in the West Neighborhood, a neighborhood park in the East Neighborhood, and schools in the South Neighborhood
- Infrastructure plans to support full buildout of the area.

² *The future school site in the West Neighborhood was added as part of the Frog Pond West Master Plan process.*

PLANNING AND ZONING DESIGNATION – RESIDENTIAL NEIGHBORHOOD

A new “Residential Neighborhood” Comprehensive Plan Map and Zoning Map designation will be applied to Frog Pond West. The purpose of the new designation is to explicitly implement the vision for Frog Pond West as a great neighborhood, as described in the following Comprehensive Plan policy:

Policy 4.1.7a *New neighborhoods in residential urban growth expansion areas may be designated “Residential Neighborhood” on the Comprehensive Plan Map.*

The purpose of the Residential Neighborhood designation is to:

1. Implement legislative area plans and master plans for new neighborhoods in Wilsonville.
2. Create attractive and connected residential neighborhoods.
3. Regulate and coordinate development to result in cohesive neighborhoods that include: walkable and active streets; a variety of housing appropriate to each neighborhood; connected paths and open spaces; parks and other non-residential uses that are focal points for the community; and connections to and integration with the larger Wilsonville community.
4. Encourage and require high-quality architectural and community design.
5. Provide transportation choices, including active transportation options.
6. Preserve and enhance natural resources so that they are an asset to the neighborhoods, and there is adequate visual and physical access to nature.

The Residential Neighborhood designation has been crafted so that it may be applied to the other neighborhoods within the Frog Pond Area Plan, as well as any other areas the City deems appropriate. Figure 5 shows the Residential Neighborhood designation in the context of surrounding Comprehensive Plan designations.

The Residential Neighborhood Zone district (RN) implements the Comprehensive Plan. It is a hybrid of the zoning approaches used within the City's Planned Development Residential Zones and the Villebois Village Zone. It includes the elements summarized below and is described in more detail in the Master Plan and in the Code.

- **Purpose.** The purpose statement mirrors the Comprehensive Plan policy cited above.
- **Planned Development Residential procedures.** The RN Zone will be administered through the same process as PDR Zones are in other areas of the City.



- **Uses similar to PDR but updated for Frog Pond.** The use lists from PDR have been used as a starting point for the RN Zone.
- **Subdistricts.** The Master Plan and the RN Zone establish “subdistricts” to geographically specify the minimum and maximum number of residential dwellings in each subdistrict area of the neighborhood.
- **Development standards tailored to Frog Pond.** Using the PDR and Villebois development standards as a base, development standards have been updated, as needed, to implement planning for Frog Pond.
- **Residential design standards.** The RN Zone includes residential design standards addressing main entrances, garages, architectural detailing and quality, and house plan variety.

FROG POND WEST RESIDENTIAL SUBDISTRICTS

The Master Plan establishes “subdistricts” to specify the minimum and maximum number of residential dwellings within twelve subareas of the neighborhood. The number of dwellings and density distribution are consistent with those adopted in the Frog Pond Area Plan. They are grouped into three “zones”: R-10 Large Lot, R-7 Medium Lot, and R-5 Small Lot districts. The key elements of the subdistrict approach include:

- **Net acreage calculations.** The density metrics are based on estimates of “net” buildable land, consistent with the Area Plan. Net buildable land is the remaining acreage after removing land for streets, Significant Resource Overlay Zones, storm water facilities, existing homes, wetlands, and the two planned parks.
- **Maximum densities.** For initial buildout, the maximum number of dwellings in a subdistrict is the net buildable acres divided by the average lot sizes assumed in the Area Plan: 10,000 net sq. ft. for R-10 Large Lot Single Family; 7,000 net sq. ft. for R-7 Medium Lot Single Family; and 5,000 net sq. ft. for Small Lot Single Family. Accessory Dwelling Units and Duplexes are exempt from maximum density requirements.
- **Middle Housing Requirement.** For initial buildout, proposals submitted on or after November 18, 2021 must include middle housing as a portion of every proposed development. Details are provided in WC 4.127(.06), Table 1.
- **Density exemptions for Middle Housing redevelopment - After**

ATTACHMENT 1

lots in the Master Plan area have been developed with at least one residential unit, redevelopment to add middle housing units other than townhouses shall be exempt from maximum density requirements. The maximum density for townhouses is established by the Residential Neighborhood Zone provisions (Wilsonville Code Section 4.127).

- **Minimum densities.** The minimum number of dwellings in a subdistrict is 80% of the maximum, as required by the Wilsonville Comprehensive Plan and Development Code.
- **Proportional basis for density calculations.** Where a subject property spans more than one subdistrict, or comprises only a portion of a subdistrict, the minimum and maximum densities are established on a proportional



basis, using gross acreage. See Appendix C for further information on the subdistrict metrics and method for calculating proportional density.

- Flexibility.** The City may allow a reduction in the minimum density for a subdistrict when it is demonstrated that the reduction is necessary due to topography; protection of trees, wetlands, and other natural resources; constraints posed by existing development; infrastructure needs; provision of non-residential uses; or similar physical conditions.

The subdistrict approach provides a straightforward and clear method of establishing lot types, densities, and standards that implement the Area Plan. It eliminates the uncertainty that the City, property owners, and developers often face when using the old formulas for density calculation in the Code. The draft Frog Pond West subdistrict method is simpler and more predictable for all parties, while still providing flexibility. Table 1 lists the minimum and maximum dwelling units in each subdistrict.

Table 1. Minimum and Maximum Dwelling Units Permitted in Each Subdistrict

(NOTE: This table does not reflect updated density provisions for middle housing. See WC 4.127 (.06), Table 1.)

| Area Plan Designation | Frog Pond West Subdistrict | Minimum Dwelling Units in Subdistrict | Maximum Dwelling Units in Subdistrict |
|--|----------------------------|---------------------------------------|---------------------------------------|
| R-10 Large Lot Single Family (8,000 – 12,000 SF) | 3 | 26 | 32 |
| | 7 | 24 | 30 |
| | 8 | 43 | 53 |
| R-7 Medium Lot Single Family (6,000 – 8,000 SF) | 2 | 20 | 25 |
| | 4 | 86 | 107 |
| | 5 | 27 | 33 |
| | 9 | 10 | 13 |
| | 11 | 46 | 58 |
| R-5 Small Lot Single Family (4,000 – 6,000 SF) | 1 | 66 | 82 |
| | 6 | 74 | 93 |
| | 10 | 30 | 38 |
| Civic | 12 | 0 | 7 ^a |
| Public Facilities (PF) | 13 | 0 | 0 |
| TOTAL | | 452 | 571 |



ATTACHMENT 1

- a These metrics apply to infill housing within the Community of Hope Church property, should the property owner choose to develop housing on the site. Housing in the Civic subdistrict is subject to the R-7 Medium Lot ~~Single-Family~~ regulations.



OTHER LAND USES

Land use in Frog Pond will be predominately, but not exclusively, residential. The streets, parks, future school, natural areas, and Community of Hope Church are important parts of the overall land use pattern. The following is an estimate of the acres of broad category land uses in Frog Pond West:

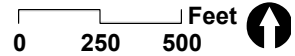
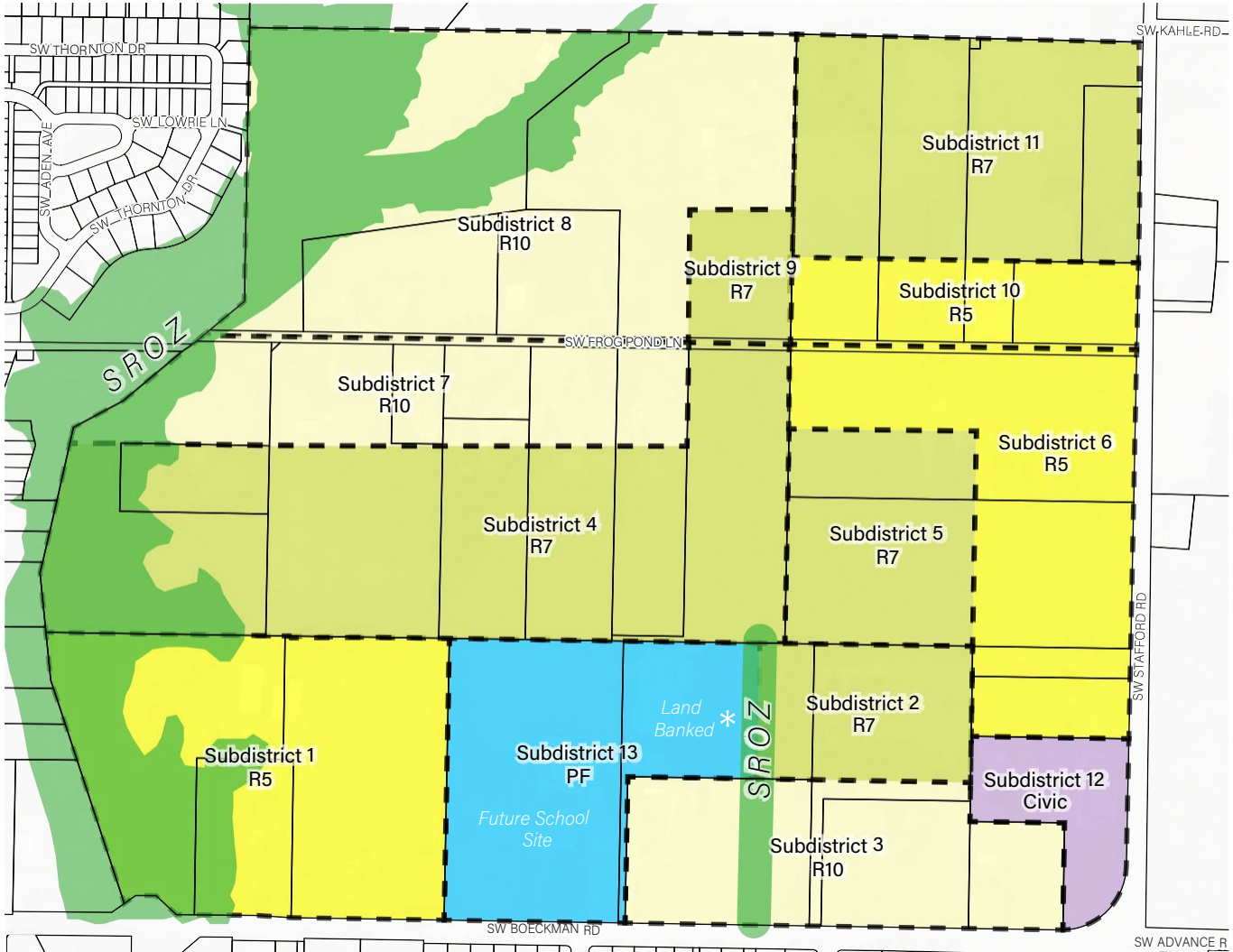
- **Net Residential Area:** 86.5 Acres
- **Significant Resource Overlay Zone (SROZ):** 27 Acres
- **BPA Corridor:** 2.8 Acres
- **Streets and Pedestrian Connections:** 46 Acres
- **Future School:** 10.9 Acres
- **Neighborhood Park:** 2.5 Acres
- **Trailhead Park:** 1.5 Acres
- **Community of Hope Church:** 3.8 Acres
- **Total Area:** 181 Acres







The West Linn-Wilsonville School District owns three tax lots comprising 25 acres within Frog Pond West. The 10-acre property that fronts on Boeckman Road is planned for a future school, which will provide a key civic land use serving the neighborhood and surrounding area. The adjacent 5-acre parcel is labeled "land banked". The intent for this parcel is for the School District to have options for its use including school facilities, a neighborhood park, and/or residential use. The district's remaining acreage fronts on Stafford Road and is land banked for future residential uses.



ATTACHMENT 1

Figure 6. Frog Pond West Land Use and Subdistricts



- | | | | |
|---|-------------------------------|--|---|
|  | R5 - Small Lot Single Family |  | Public Facilities |
|  | R7 - Medium Lot Single Family |  | Civic |
|  | R10 - Large Lot Single Family |  | Significant Resources Overlay Zone (SROZ) |

* Land banked for school facilities, a neighborhood park, and/or residential use.



Community Design



ATTACHMENT 1

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OBJECTIVES

Wilsonville places a high priority on quality design, as expressed in the following existing Comprehensive Plan implementation strategy:

Implementation Measure 4.1.5.ii *The design of developments within the community can be regarded from two viewpoints: the design of structures as they relate to site and function (architectural design) and, their relationship to the surrounding area (community design). Both aspects shall be considered to be of equal importance. Good architectural design is necessary to provide visual variety and allow for individual identity. At the same time, good community design provides a sense of unity with other development while eliminating conflicting appearances.*

The Master Plan further regulates and guides development in order to achieve quality and livability. In addition to the expectation cited above, it is the premise of the Master Plan that quality design will achieve the following benefits:

- **Economic value.** Property and structure values will be enhanced by quality development.
- **Compatibility with adjacent areas.** New development will be more acceptable to existing residents of Wilsonville if the City's high standards for quality design are implemented and enhanced.
- **Coordinated and cohesive development.** As described above, one of the key challenges for Frog Pond West is to knit individual developments together into a coordinated and cohesive whole. The design standards in the Master Plan are intended to help achieve that outcome.
- **Safety.** The Master Plan emphasizes walkability on multiple levels (e.g. street plan, orientation of residential main entrances toward streets). The intent is to create a neighborhood where walking is safe, inviting, and comfortable.
- **Precedence for future neighborhoods.** Frog Pond West is the first of the new residential expansion areas that will be developed in Wilsonville, principally in East Wilsonville. It is important that a successful precedent is set, and quality design is a key tool to achieve that outcome.



MAIN ENTRANCES

Principles

- Each home is part of the larger neighborhood and community.
- Front doors and walkways should face streets.
- The front yard and porch or stoop are “semi-public” spaces.

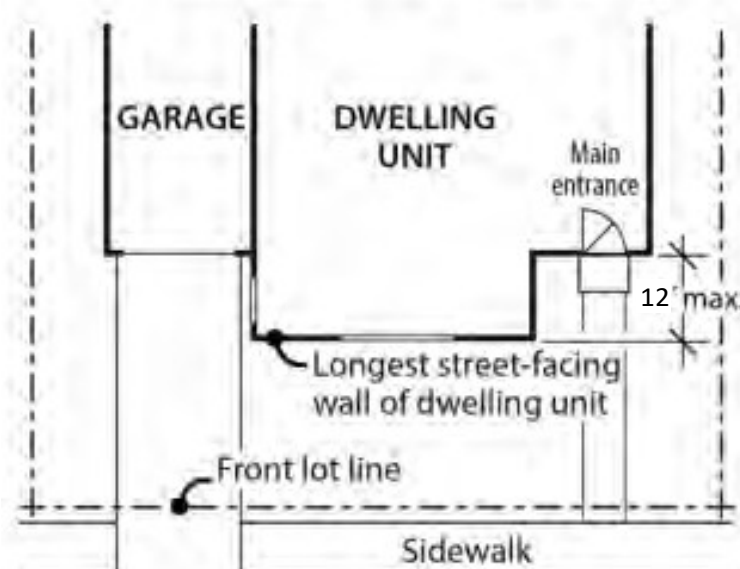
Master Plan Intent

The location of front doors, and their direct connections to the street, should:

1. Support a physical and visual connection between the living area of the residence and the street;
2. Enhance public safety for residents and visitors and provide opportunities for community interaction;
3. Ensure that the pedestrian entrance is visible or clearly identifiable from the street by its orientation or articulation; and
4. Ensure a connection to the public realm for development on lots fronting both private and public streets by making the pedestrian entrance visible or clearly identifiable from the public street.

The Code standards require a direct visual connection between the front door of the home and the front yard and street. Porches are an excellent way to emphasize this relationship and create a transition between the private realm of the home, the “semi-public” realm of the front yard, and the public realm of the sidewalk and street.

Figure 7. Main Entrances



Precedents:
Main Entrances



Porches and yards that blend with the streetscape invite play and relaxation, fostering a sense of community.



Doors and porches facing the street increase neighborhood safety and a sense of community.



Houses where windows and doors are hidden from the street detract from the perceived safety of the neighborhood, because no one is aware of what happens in the street.



Well-designed garage doors help to create a more attractive neighborhood street.



GARAGES

Principles

- *Parking and driveways should not dominate.*
- *Garages should not dominate.*

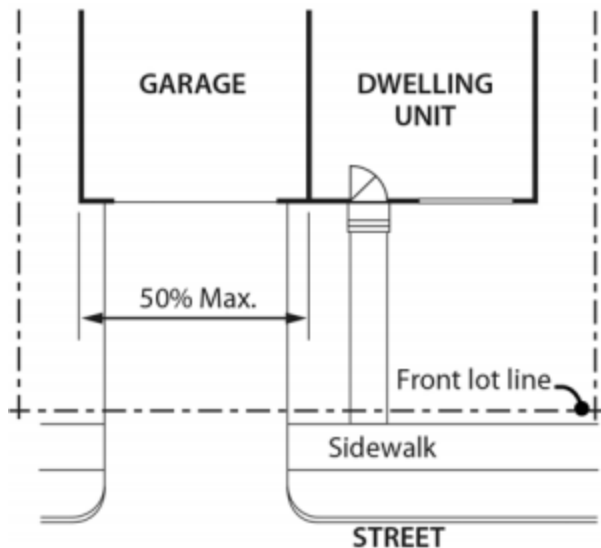
Master Plan Intent

The size and location of garages should be designed to:

1. Ensure that there is a physical and visual connection between the living area of the residence and the street;
2. Ensure that the location and amount of the living area of the residence, as seen from the street, is more prominent than the garage;
3. Prevent garages from obscuring the main entrance from the street and ensure that the main entrance for pedestrians, rather than automobiles, is the prominent entrance;
4. Provide for a more pleasant pedestrian environment by preventing garages and vehicle areas from dominating the views of the neighborhood from the sidewalk; and
5. Enhance public safety by preventing garages from blocking views of the street from inside the residence.

The Code standards require limitations on the length and setback of the front garage wall so that they do not dominate the façade. Alleys and shared driveways are encouraged as a solution to be used where applicable; alleys are a specified solution for Small Lot Residential blocks along some collector streets. There is flexibility to have larger 3-bay garages, but with a 2-foot offset so the additional garage space is diminished in appearance. A minimum setback of 20-feet is required so that off-street parking in the driveway can be accommodated without parked cars overhanging the sidewalk.

Figure 8. Length of front garage wall



Precedents:

Garages



Garages that are accessed from the side of a house can reduce the visual impact of the driveway.



Large driveway areas disconnect houses from the street and create an unattractive frontage.



Recessed garages help to create a more attractive neighborhood street.



RESIDENTIAL DESIGN STANDARDS

Principles

- *Each home is part of the larger neighborhood and community.*
- *Details are important.*
- *Variety is the spice of good design.*
- *Create great neighborhoods.*

Master Plan Intent

Detailed and varied home designs are intended to:

1. Support consistent quality standards so that each home contributes to the quality and cohesion of the larger neighborhood and community.
2. Support the creation of architecturally varied homes, blocks, and neighborhoods—whether a neighborhood develops all at once or one lot at a time—avoiding homogeneous street frontages that detract from the community's appearance.

There are three groups of standards to achieve quality residential design:

- **Windows and Articulation.** A percentage of the façade must be made up of windows, including glazed portions of doors. Varied rooflines, offsets, balconies, and other forms of articulation are required to add interest, shadow lines, and variety to the façade.
- **Design Menu.** Architectural detailing and variety is required through a flexible “menu” of standards. Builders may choose from a list of standards and meet a subset of them specified by the code. This system is in use in many cities and has proven to be effective and easily administered. Examples of the standards include: dormers, covered porch entries, second story balconies, roof overhangs (minimum 16”), decorative gables, stone or other decorative materials, transom windows, and decorative base materials (minimum 36” in height).
- **House Plan Variety.** The basic requirement is that no two adjacent or opposite dwellings residential structures may have the same elevation. Small lot developments over 10 acres are required to incorporate duplexes or attached 2-unit homes. These standards are intended to promote variety, create interesting streetscapes, and prevent monotony.



Precedents:

Residential Design Standards



Details are important.



Homogeneous homes, without adequate detailing and landscaping, detract from the attractiveness of the neighborhood.



Use of alleys and orientation to pedestrian connections provides pedestrian-friendly frontages.



High quality construction, detailing, and diverse architectural styles make a neighborhood more attractive.



LOT AND SITE DESIGN IN SMALL LOT SUBDISTRICTS

Principles

- *Each home is part of the larger neighborhood and community.*
- *Variety is the spice of good design.*
- *Design guidelines should be tailored to each zone.*

Master Plan Intent

Small Lot Subdistricts have unique lot and site design requirements in order to:

1. Ensure that development in the Small Lot Subdistricts is compatible with other developments in the Frog Pond West Neighborhood;
2. Ensure varied design that avoids homogenous street frontages;
3. Orient site design to support active pedestrian street frontages; and
4. Integrate open space into the development pattern.

Small lots present unique opportunities and challenges. On the positive side, they provide affordable housing choices, options for residents who do not want to maintain large homes and lots, and a solution for maintaining density while providing open space. They are an important part of Frog Pond's variety of housing. On the challenging side, they require careful site design to ensure an attractive street edge and compatibility with nearby larger lots. To address these issues, the Master Plan and the implementing code utilize a flexible system where one or more of the following site design elements are employed on each block:

- **Alleys**, so that streetscapes are "people places" and not dominated by closely-spaced driveways.
- **Residential main entries grouped around a common green or entry courtyard** (e.g. cluster housing) provide open space integrated with the small homes.
- **Four or more residential main entries facing a pedestrian connection** allowed by an applicable master plan to activate pedestrian connections with front doors and activity.
- **Garages recessed** at least 4 feet from the front façade or 6 feet from the front of a front porch.

***** The remainder of this chapter and all subsequent chapters are not included in this review draft *****

ATTACHMENT 2



Memorandum

From: Daniel Pauly AICP, Planning Manager
To: Planning Commission and City Council
Date: June 2, 2021
RE: Middle Housing Infrastructure Analyses

Attached you will find a series of sensitivity analyses exploring how potential middle housing could impact the City's infrastructure. Adopted by the Oregon Legislature in 2019, House Bill 2001 directs cities throughout Oregon to take a number of actions allowing more middle housing development; the most noteworthy being the requirements to allow duplexes on each lot that allows for development of detached single-family dwellings and allow triplexes, quadplexes, cottage clusters, and townhouses "in areas zoned for residential use." Requirements from House Bill 2001 increase the potential number of residential units on residentially-zoned land in Wilsonville, because middle housing must be allowed on all land that also allows for detached single-family homes. To do this, new middle housing construction is exempt from established density maximums. Whenever policy changes increase the allowed number of dwelling units in an area, it is important to understand potential impacts to infrastructure, particularly traffic increases. The City has a long-standing policy of infrastructure concurrency, meaning sufficient infrastructure is provided for all development in a timely manner. In order to understand the impacts of the new law and its intersection with City infrastructure plans and policies, the scope of the City's Middle Housing Project included analysis of the range of potential infrastructure impacts of the new middle housing policy.

To look at the infrastructure impacts, the City turned to the various Engineering consultants that had previously helped the City prepare the infrastructure Master Plans that are sub-components of the City's Comprehensive Plan. This approach brought a high level of familiarity with each specific piece of infrastructure to each analysis. An exception to this approach is that a stormwater analysis is not included at this time. A Stormwater Master Plan update is currently underway and is already incorporating new assumptions related to potential middle housing, and therefore, potential impacts will be addressed by the Plan.

General Approach

Wilsonville has a strong history of proactive infrastructure planning, including planning for future growth, so major issues were not anticipated. As such, the attached infrastructure system analyses do not perform an exhaustive analysis of all City infrastructure at a level done for a citywide infrastructure Master Plan. Rather, they perform a limited sensitivity or "stress test" analysis to look for potential failures or inadequacies of existing or planned infrastructure in

handling additional residential units than originally planned. The sensitivity analyses identify what, if any, areas will need more in-depth analysis as part of future updates to the respective infrastructure Master Plan or as a separate process as determined by the City.

The purpose of the analyses is to look at different growth scenarios to test what infrastructure has less excess capacity and that the City may need to further analyze. It is not forecasting actual number of additional units in these neighborhoods. The number of additional units reflected in the analyses are high, but potentially feasible numbers, for sensitivity analyses purposes. The numbers used do not reflect vetted forecasts of how many middle housing units each neighborhood will see. That level of forecasting is not part of the scope of the current project. Of note, other studies of suburban infill under House Bill 2001, such as one recently completed for Washington County by ECONorthwest, found the actual feasible infill rate of middle housing units in suburban areas to be 3%-4% at buildout.

Areas of Focus

The analyses focused on areas of the City where middle housing could potentially add units above previously assumed unit maximums for infrastructure planning purposes. This includes infill in existing, developed areas and increasing assumptions for the number of units in future growth areas, including Frog Pond.

Existing Developed Areas

For existing developed areas, the City focused on areas without existing, active homeowners' associations, which may have private restrictions on middle housing development. House Bill 2001 prohibits new private deed restrictions/agreement (such as CC&R's) from restricting Middle Housing, but does not apply retroactively. Existing neighborhoods with active HOA's generally have CC&R's that could restrict Middle Housing development; thus for this analysis, the City assumed no new or very few middle housing units would be built in these neighborhoods.

Neighborhoods/areas the City assumed, for this exercise, as not having restrictive covenants and having more potential to produce middle housing, include:

- Montgomery Way/Schroeder Way
- Courtyard Estates/Vlahos
- Canyon Creek Rd./Boeckman Rd. area properties not in subdivisions
- Daydream Ranch (plus nearby Village at Main Street single-family and Kalyca Terrace)
- Old Town
- Riverside lots adjacent to Morey's Landing
- Fox Chase
- Serene Acre/Jaci Park (Montebello area)
- Wilsonville Road/Brown Road area properties not in subdivisions
- Cyrus Estates (Queens Court)

The City provided the consultants assumed middle housing growth rates for the studied neighborhoods. The rates provided where 1.5% increase in units over 10 years, 5% over 25 years,

and 6% over 30 years. These rates started with a combination of numbers. This included growth forecasts for all housing from Metro and information from other jurisdiction about assumed middle housing infill rates. In addition, staff considered the rate of ADU development in Wilsonville as a representation of rate of development of additional housing when allowed. Knowing the purpose was to test the infrastructure system for potential issues, staff then added generous buffer amounts. The buffer amount is 0.5% for the 10-year growth rate and 2% for the 25 to 30-year growth rates. After calculating the increase based on the growth rates, staff reviewed and modified as appropriate the final forecasted numbers considering unique contexts of each neighborhood.

Frog Pond West

For Frog Pond West, the analyses used a specific number based on City staff's best "highest level of development" assumption. Frog Pond West must increase overall allowed number of units so the entire Master Plan area averages out to 8 dwelling units per net acre from about 6.5 units per net acre. This results in approximately 138 additional units being allowed. To test the infrastructure the entire new additional allowed capacity of 138 was considered. In addition, per State rules, duplexes do not count towards meeting the 8 dwelling unit per net acre. Staff, therefore, added in an assumption for some duplex units during initial build beyond the 138 addition allowed units, resulting in an analysis number of 200 additional units. Again, staff does not anticipate 200 additional units in Frog Pond West; rather, this is a high but potential number to test the infrastructure.

Other Future Urban Reserves

The State's Administrative Rules adopted to implement House Bill 2001 specifically require future growth areas to plan for 20 dwelling units per net acre to ensure capacity for middle housing. Based on these rules, the analyses for Frog Pond East and South and the three urban reserves included in Wilsonville's infrastructure forecasting reflect this specific requirement. The difference between any previous assumptions and the new 20-units per net acre assumption was incorporated into the analyses.

Summary of Findings

For most the City, the analyses did not find any areas of additional infrastructure needs or failure needing further study or action at this time. Existing and planned infrastructure can accommodate any infill middle housing in developed areas of the City. Infrastructure impacts warranting further study do exist for the Frog Pond area. This further study is already scoped as part of the Frog Pond East and South Master Plan.

Attachments:

Transportation Analysis (DKS)
Water Analysis (Keller and Associates)
Sanitary Sewer Analysis (MurraySmith)



MEMORANDUM

DATE: April 29, 2021

TO: Matt Palmer | City of Wilsonville
Daniel Pauly | City of Wilsonville

FROM: Scott Mansur, P.E., PTOE | DKS Associates
Jenna Bogert, E.I. | DKS Associates

SUBJECT: Wilsonville HB 2001 Transportation Evaluation



Project #18197-009

INTRODUCTION

This memorandum documents the evaluation of transportation impacts for increased residential density (duplexes, triplexes, quadplexes, cottage clusters, and townhomes) that is allowed under the recent House Bill (HB) 2001, which was passed by the Oregon Legislature in 2019. The allowance of the denser housing type, called middle housing, could cause an increase in the trip generation in Wilsonville during the PM peak hour as it allows a higher number of housing units per acre than what is currently allowable. Therefore, this memorandum will compare trip generation estimates based on previous land use assumptions to trip generation estimates based on denser middle housing allowed under HB 2001 to determine the impacts, if any, to Wilsonville streets and intersections. The trip generation representing the allowance of middle housing reported in this memorandum is conceptual as it is being used to estimate the extent of potential impacts to City streets.

The purpose of this evaluation is to identify any areas or intersections that may experience increases in vehicle trips due to the change in housing density. Particularly increased density for the future Frog Pond East & South development, which will have greater impacts than previously forecasted. However, the City already plans on doing this analysis as part of the Frog Pond East & South Master Plan project.

ATTACHMENT 2

TRIP GENERATION

Trip generation is the method used to estimate the number of vehicles that are added to the roadway network by the proposed project during a specified period (i.e., the PM peak hour). The PM peak hour refers to the hour with the highest volume of vehicles between 4 and 6 p.m. consistent with City of Wilsonville Code requirements. The trip generation rates used for single-family and middle housing trips are from the ITE Trip Generation Manual.¹ Typically, trip generation for middle housing (duplexes, triplexes, townhomes, etc.) is about half the rate of the trip generation for a single-family home.

The following two tables report the reasonable maximum potential increase in middle housing units and subsequent decrease in single-family housing units for future years 2025 and 2045 as well as the estimated net increase in trip generation. The estimated amount of increased middle housing units and decreased single-family units were provided by the City of Wilsonville for each transportation analysis zone (TAZ). For the majority of the TAZs, the number of single-family homes that were assumed to be replaced by middle housing was approximately 1.5% and 5% of the total housing in that TAZ in 2025 and 2045, respectively. Some variations to these percentages were needed to account for Homeowners Association restrictions, amount of existing multifamily housing, and TAZs that have very few housing units currently but could be fully built out by 2045 (i.e., Frog Pond). For the TAZs that contain future residential development areas, like Frog Pond, a conservative middle housing density (up to 15 dwelling units/acre) was assumed so as to estimate the higher end of potential trip generation.

Table 1 shows the higher end of potential trip generation for the PM peak hour for future year 2025 for each quadrant (NW, NE, SW, and SE). The NE quadrant is divided into TAZs. See the appendix for a map of where each quadrant is located.

As shown, there is an estimated increase of 681 housing units in Wilsonville based on conservative estimates for conversion of single-family housing to middle housing. If all those units are built, an additional 89 PM peak hour trips would be generated in Wilsonville. The NE quadrant, which includes future developments such as Frog Pond, would generate the majority of that trip increase with 77 PM peak hour trips. The remaining other quadrants (with primarily infill and redevelopment opportunities for middle housing) would generate less than 10 additional PM peak hour trips each.

¹ Trip Generation Manual, 10th Edition, Institute of Transportation Engineers (ITE), 2017. Average rates for Land Use 210 (single-family) and Land Use 220 (low-rise multifamily).

ATTACHMENT 2

TABLE 1: HIGH POTENTIAL PM PEAK HOUR TRIP GENERATION INCREASE (2025)

| QUADRANT (TAZ) | HOUSING UNITS | | | PM PEAK HOUR TRIPS | | |
|--------------------------------------|----------------------------------|---------------------------|---------------------|----------------------------------|---------------------------|---------------------|
| | SINGLE-FAMILY HOUSING (DECREASE) | MIDDLE HOUSING (INCREASE) | NET UNIT DIFFERENCE | SINGLE-FAMILY HOUSING (DECREASE) | MIDDLE HOUSING (INCREASE) | NET TRIP DIFFERENCE |
| SW | -32 | +65 | +33 | -32 | +37 | +5 |
| SE | -66 | +129 | +63 | -66 | +73 | +7 |
| NW | -1 | +2 | +1 | -1 | +1 | 0 |
| NE | -583 | +1,167 | +584 | -577 | +654 | +77 |
| <i>(FRONG POND EAST & SOUTH)</i> | -474 | +948 | +474 | -469 | +531 | +62 |
| <i>(FROG POND WEST)</i> | -100 | +200 | +100 | -99 | +112 | +13 |
| <i>(ELDIGEN URBAN RESERVE)</i> | 0 | 0 | 0 | 0 | 0 | 0 |
| <i>(CANYON CREEK)</i> | -9 | +19 | +10 | -9 | +11 | +2 |
| TOTAL | -682 | 1,363 | +681 | -676 | +765 | +89 |

Table 2 shows the higher end of potential trip generation for the PM peak hour for future year 2045 for each quadrant. The NE quadrant is further divided into TAZs. See the appendix for a map of where each quadrant is located. As shown, by 2045, there would be a potential increase of 2,430 housing units in Wilsonville. If all those units are built, an additional 315 PM peak hour trips would be generated in Wilsonville. Again, the majority of those trips would occur in the NE quadrant, specifically in Frog Pond East & South.

ATTACHMENT 2

TABLE 2: HIGH POTENTIAL PM PEAK HOUR TRIP GENERATION INCREASE (2045)

| QUADRANT (TAZ) | HOUSING UNITS | | | PM PEAK HOUR TRIPS | | |
|--------------------------------------|----------------------------------|---------------------------|---------------------|----------------------------------|---------------------------|---------------------|
| | SINGLE-FAMILY HOUSING (DECREASE) | MIDDLE HOUSING (INCREASE) | NET UNIT DIFFERENCE | SINGLE-FAMILY HOUSING (DECREASE) | MIDDLE HOUSING (INCREASE) | NET TRIP DIFFERENCE |
| SW | -124 | +249 | +125 | -123 | +140 | +17 |
| SE | -240 | +479 | +239 | -238 | +268 | +30 |
| NW | -339 | +678 | +339 | -336 | +380 | +44 |
| NE | -1,729 | +3,456 | +1,727 | -1,711 | +1,935 | +224 |
| <i>(FRONG POND EAST & SOUTH)</i> | -985 | +1,970 | +985 | -975 | +1,103 | +128 |
| <i>(FRONG POND WEST)</i> | -267 | +533 | +266 | -264 | +298 | +34 |
| <i>(ELLIGSEN URBAN RESERVE)</i> | -462 | +923 | +461 | -457 | +517 | +60 |
| <i>(CANYON CREEK)</i> | -15 | +30 | +15 | -15 | +17 | +2 |
| TOTAL | -2,432 | +4,862 | +2,430 | -2,408 | +2,723 | +315 |

IMPACTED STREETS AND INTERSECTIONS

This section contains a list of intersections that would see an increase in residential trips under the potential 2025 trip generation show in Table 1. As stated earlier, the addition of middle housing is estimated to generate an addition 89 PM Peak hour trips in Wilsonville, with 77 of those trips originating/destined for the NE quadrant of the City (i.e., Frog Pond, the City’s new urban growth area). Based on trip distribution data from the Frog Pond Master Plan², the following intersections in the NE quadrant are expected to see the highest trip generation increase in 2025.

Primary Intersections

100% of potential additional trips (77 trips) in NE quadrant will travel through this intersection:

- Stafford Road/Wilsonville Road/Advance Road/Boeckman Road (Signalized)

55% of potential additional trips (42 trips) in NE quadrant will travel through this intersection:

- Stafford Road/Elligsen Road/65th Avenue (Two-Way Stop)

Secondary Intersection

30% of additional trips (23 trips) in NE quadrant will travel through this intersection:

- Canyon Creek Road/Boeckman Road intersection (All-Way Stop)

² Frog Pond Area Master Plan, Adopted on July 17, 2017.

ATTACHMENT 2

No other intersections in the NE quadrant or the other quadrants of the City are expected to be significantly impacted by the change in number of housing units in 2025. The impact on these study intersections will be analyzed as part of the upcoming Frog Pond East & South Master Planning project. The Frog Pond Master Plan will not be limited to these study intersections but will also include other intersections that may also see a trip generation increase due to middle housing.

SUMMARY

The following are a list of the key findings from the potential trip generation analysis for the allowable middle housing under HB 2001.

- In both 2025 and 2045, most of additional potential household trips in Wilsonville would occur in the NE quadrant, specifically in the Frog Pond East & South development area.
- The potential PM peak hour trip increase at the intersections of Stafford Road/Wilsonville Road/Advance Road/Boeckman Road and Stafford Road/Elligsen Road/65th Avenue will be analyzed as part the upcoming Frog Pond East & South Master Plan project.
- No other intersections in the NE quadrant or other quadrants of the City are expected to be significantly impacted by the change in number of housing units. Therefore, no additional analysis is needed for other areas beside the Frog Pond East & South development.

TO: City of Wilsonville – Matt Palmer, P.E.

FROM: James Bledsoe P.E.

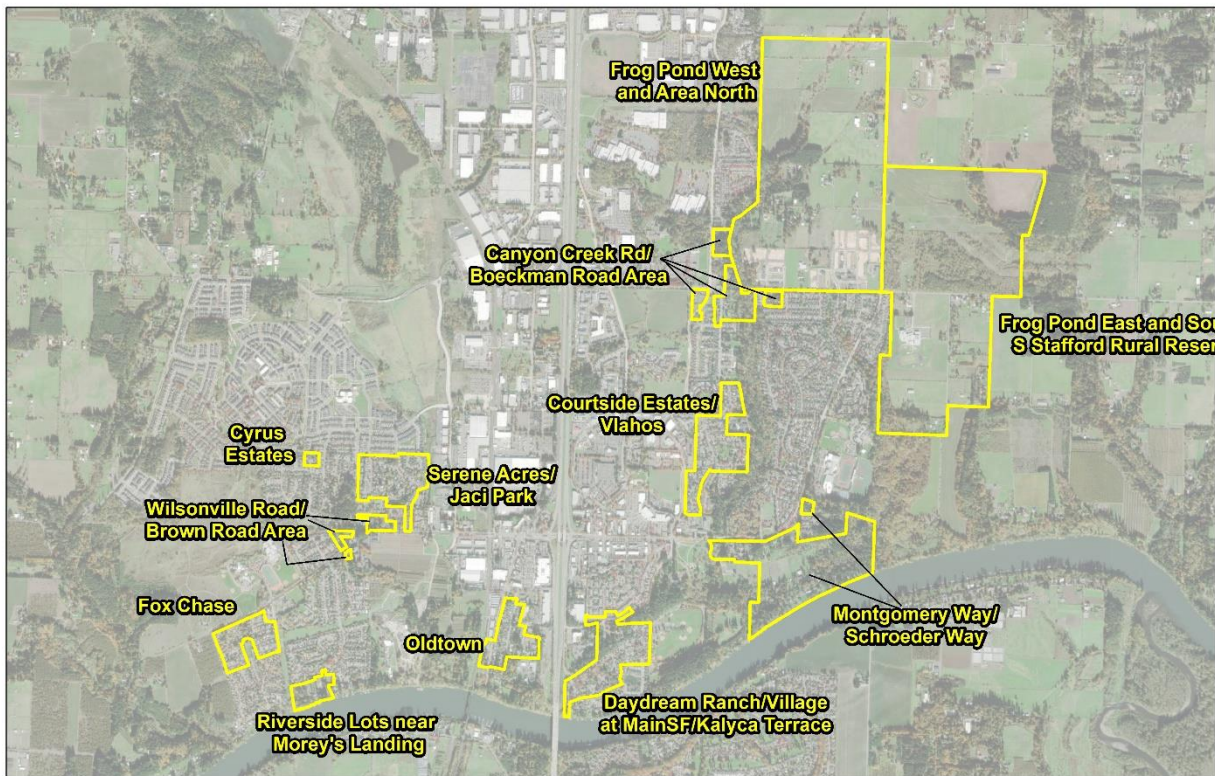
DATE: May 4, 2021

SUBJECT: Middle Housing Water Infrastructure Sensitivity Analysis

BACKGROUND

The City of Wilsonville (City) is investigating the impacts of additional housing in several areas associated with increased development densities that may be triggered by HB 2001. Figure 1 shows the areas where higher densities from HB 2001 could be anticipated. The potential additional homes for each of these areas assumed for purposes of this sensitivity analysis by the year 2050 is presented in Table 1.

FIGURE 1: MIDDLE HOUSING WATER INFRASTRUCTURE SENSITIVITY ANALYSIS AREAS



ATTACHMENT 2



TABLE 1: MIDDLE HOUSING WATER INFRASTRUCTURE SENSITIVITY ANALYSIS 2050
POTENTIAL ADDITIONAL HOUSEHOLDS

| Area | 2050 Additional Homes |
|---|-----------------------|
| Daydream Ranch/Village at MainSF/Kalyca Terrace | 10 |
| Montgomery Way/Schroeder Way | 4 |
| Courtside Estates/Vlahos | 9 |
| Canyon Creek Rd/Boeckman Road Area | 3 |
| Riverside Lots near Morey's Landing | 1 |
| Oldtown | 6 |
| Serene Acres/Jaci Park | 8 |
| Wilsonville Road/Brown Road Area | 2 |
| Cyrus Estates | 1 |
| Fox Chase | 6 |
| Frog Pond West and Area North | 275 |
| Frog Pond East and South | 985 |
| Total | 1,310 |

The City has requested the assistance of Keller Associates to exercise the City's potable water model to evaluate the impacts of the potential additional housing units with respect to peak hour demand (PHD) pressures and maximum day demand (MDD) available fire flow. This technical memorandum documents the results of Keller Associates' analysis.

DEMANDS

Planning criteria for MDD and PHD flows per household were taken from the City's 2013 Water Master Plan and coupled with the additional households expected in each area to estimate the additional demand. Table 2 provides the estimated additional demand for each individual area. Note that the 2013 Water Master Plan accounted for 1,000 additional homes associated with the Frog Pond development (see Section 2.2.2 of the Water Master Plan); therefore, it was assumed that only 260 additional homes would be expected in both of the Frog Pond areas ($275 + 985 - 1,000 = 260$). For the purpose of this analysis, it was assumed that these 260 homes would be split evenly between the two Frog Pond areas. Additional analysis will be done with the Frog Pond East and South Master Plan.

ATTACHMENT 2



TABLE 2: HB 2001 ADDITIONAL DEMAND

| Area | 2050 Potential Additional Homes | Area | Area Size (ac) | 2050 Additional Homes per Area ¹ | Additional MDD ² (gpd) | Additional MDD ³ (gpm) | Additional PHD ⁴ (gpm) |
|---|---------------------------------|----------|----------------|---|-----------------------------------|-----------------------------------|-----------------------------------|
| Daydream Ranch / Village at MainSF / Kalyca Terrace | 10 | 1 | 41.54 | 10.0 | 6,060 | 4.2 | 7.2 |
| Montgomery Way / Schroeder Way | 4 | 1 | 1.58 | 0.1 | 41 | 0.03 | 0.0 |
| Montgomery Way / Schroeder Way | | 2 | 91.27 | 3.9 | 2,383 | 1.7 | 2.8 |
| Courtside Estates / Vlahos | 9 | 1 | 39.2 | 9.0 | 5,454 | 3.8 | 6.4 |
| Canyon Creek Rd / Boeckman Road Area | | 1 | 4.47 | 0.5 | 315 | 0.2 | 0.4 |
| Canyon Creek Rd / Boeckman Road Area | | 2 | 15.11 | 1.8 | 1,066 | 0.7 | 1.3 |
| Canyon Creek Rd / Boeckman Road Area | 3 | 3 | 2.66 | 0.3 | 188 | 0.1 | 0.2 |
| Canyon Creek Rd / Boeckman Road Area | | 4 | 3.54 | 0.4 | 250 | 0.2 | 0.3 |
| Riverside Lots Near Morey's Landing | 1 | 1 | 10.16 | 1.0 | 606 | 0.4 | 0.7 |
| Old Town | 6 | 1 | 22.57 | 6.0 | 3,636 | 2.5 | 4.3 |
| Serene Acres / Jaci Park | 8 | 1 | 33.63 | 8.0 | 4,848 | 3.4 | 5.7 |
| Wilsonville Road / Brown Road Area | | 1 | 4.16 | 1.2 | 733 | 0.5 | 0.9 |
| Wilsonville Road / Brown Road Area | 2 | 2 | 0.44 | 0.1 | 78 | 0.1 | 0.1 |
| Wilsonville Road / Brown Road Area | | 3 | 2.28 | 0.7 | 402 | 0.3 | 0.5 |
| Cyrus Estates | 1 | 1 | 1.89 | 1.0 | 606 | 0.4 | 0.7 |
| Fox Chase | 6 | 1 | 21.95 | 6.0 | 3,636 | 2.5 | 4.3 |
| Frog Pond West and Area North | 130 | 1 | 340.27 | 130.0 | 78,780 | 54.7 | 93.0 |
| Frog Pond East and South, S Stafford Rural Reserve | 130 | 1 | 325.67 | 130.0 | 78,780 | 54.7 | 93.0 |
| Total | 310 | - | 962.39 | 310 | 187,860 | 130.5 | 221.8 |

1. The additional homes per area of the Montgomery Way / Schroeder Way, Canyon Creek Road / Boeckman Road, and Wilsonville Road / Brown Road Areas were split proportionally between their sub areas based on the size of the sub area.
 2. Additional MDD is based on the planning criteria of 606 gallons per day (gpd) from the 2013 Water Master Plan (see Table 2.8 of the Water Master Plan).
 3. The additional MDD in gpd converted to gallons per minute (gpm).
 4. The additional PHD, in gpm, was calculated based off the MDD to PHD peaking factor of 1.7 from the 2013 WMP (see Section 2.2.5 and Chart 2.1 of the Water Master Plan).

MODEL ANALYSIS

The City’s potable water model from the 2013 Water Master Plan was used to evaluate the impact to PHD pressures and MDD available fire flows from the potential additional homes from HB 2001. The Buildout model scenario with and without the increased demands were used to evaluate the impacts. The build-out scenario was used rather than the existing model as it included transmission pipelines that have been constructed since 2013 as well as future pipeline networks intended to service the Frog Pond area.

For the build-out fire flow analysis, the City confirmed with the local fire authority that the same minimum fire flow requirements identified in the master plan would apply to the areas where increased development densities were expected even with the Middle Housing added. Available fire flows reported in the model reflect how much water could be pulled from a location in the mainline without dropping system pressures below 20 psi. Actual available fire flows will be a function of hydrant locations and may be subject to peak velocity constraints. Additionally, while reported values from the model may exceed 3,000 gpm, the local fire authority requirements (as well as pumping and fire storage requirements in the master plan) were based on an upper limit of 3,000 gpm target fire flow.

The Buildout MDD model scenario (~36.1 MGD of demand) was exercised to evaluate available fire flows. A peaking factor of 1.7 was applied to the MDD demands (~46.7 MGD of demand) to simulate peak hour demand pressures (the 1.7 peaking factor was taken from the Water Master Plan, Section 2.2.5). These two model runs were again performed with the potential additional demands from HB 2001 added to their respective areas. The differences between the two model runs, with and without the HB 2001 demands, are compared in the following figures.

The addition of the potential demands related to increased development of Middle Housing have minimal effects on pressures and available fire flows; the effects are de minimis.

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FIGURE 2: DAY DREAM RANCH / VILLAGE AT MAINSF / KALYCA TERRACE PHD PRESSURES

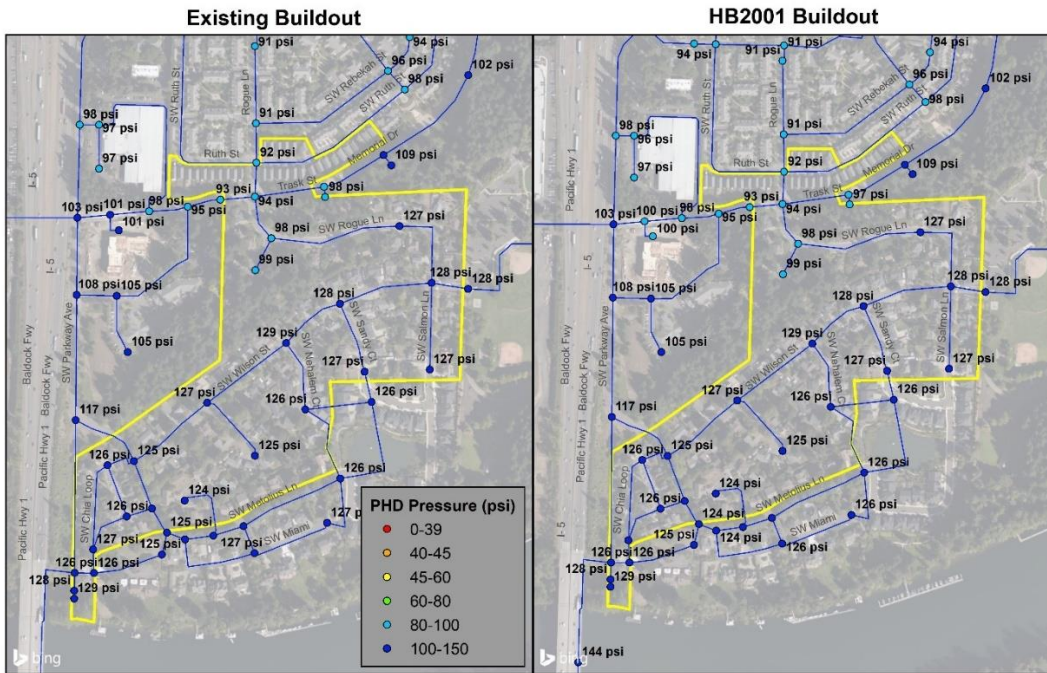
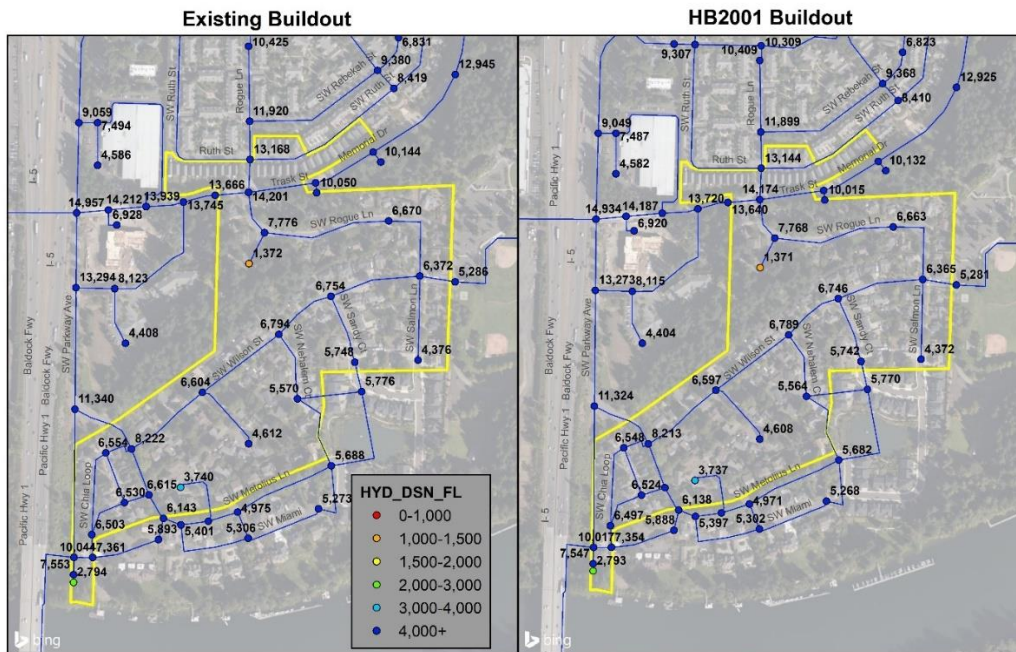


FIGURE 3: DAY DREAM RANCH / VILLAGE AT MAINSF / KALYCA TERRACE MDD AVAILABLE FIRE FLOWS



For the Day Dream Ranch / Village at Main SF / Kalyca Terrace the PHD pressures are essentially unchanged. Available fire flows decrease by less than 50 gpm and were still above minimum targets.

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FIGURE 4: MONTGOMERY WAY / SCHROEDER WAY
PHD PRESSURES

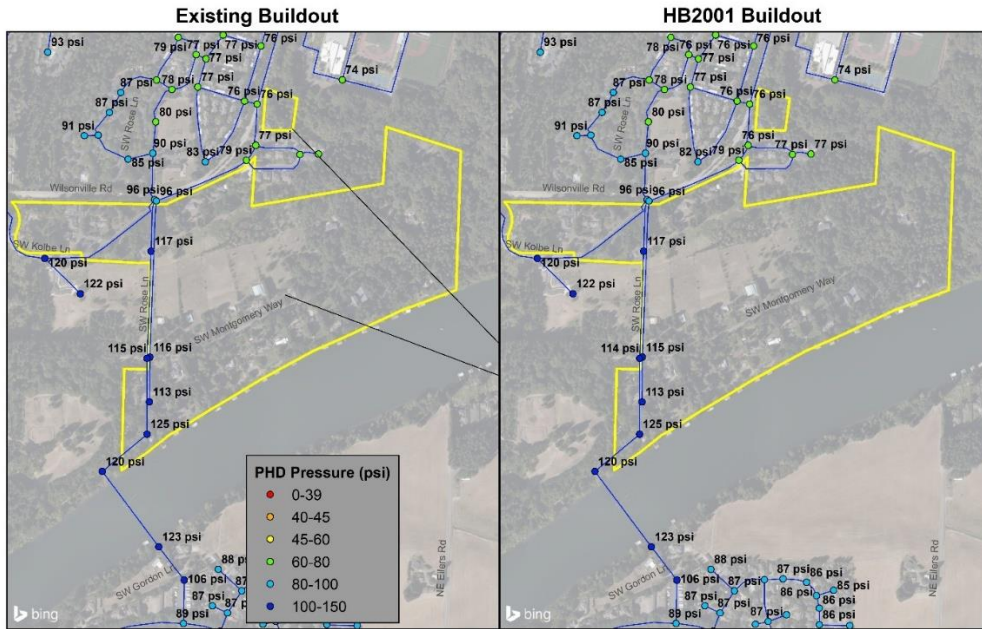
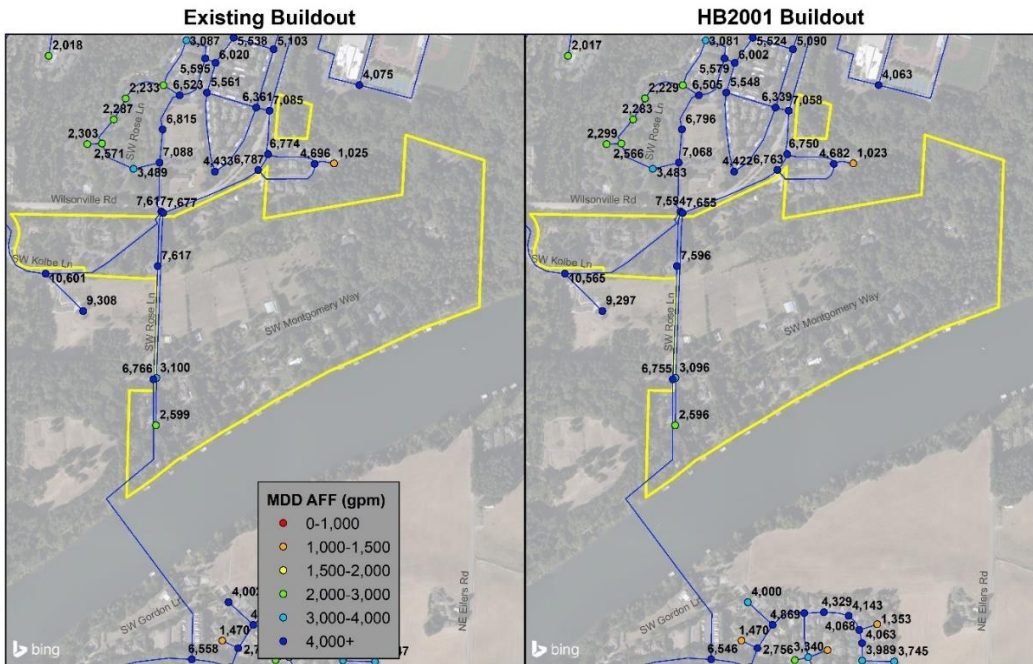


FIGURE 5: MONTGOMERY WAY / SCHROEDER WAY
MDD AVAILABLE FIRE FLOWS



For the Montgomery Way / Schroeder Way area the PHD pressures are essentially unchanged. Available fire flows decrease by approximately 20 gpm in one location but are essentially unchanged in the majority of this area.

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FIGURE 6: COURTSIDE ESTATES / VLAHOS PHD PRESSURES

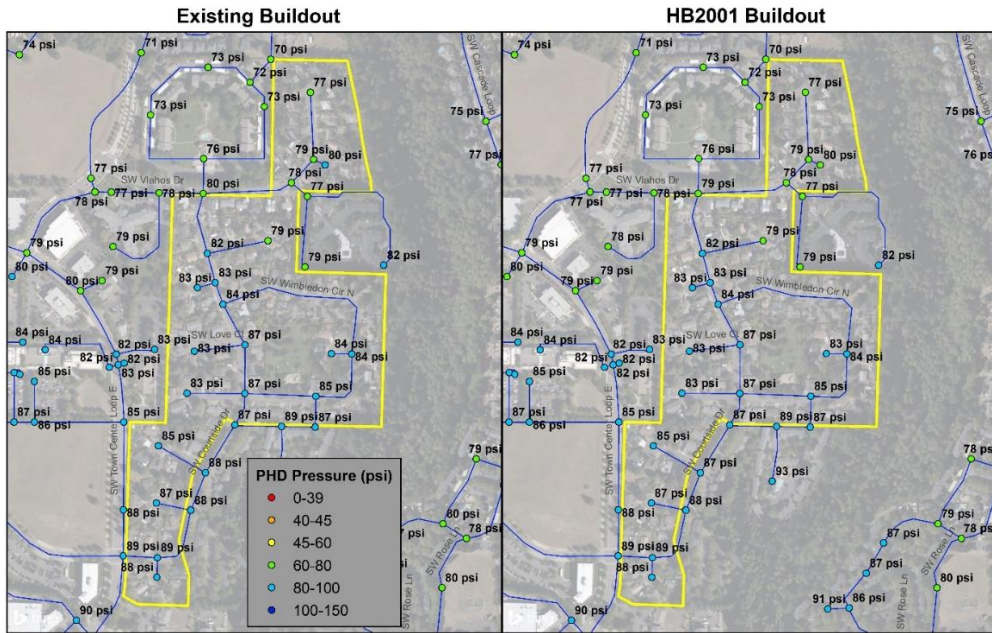
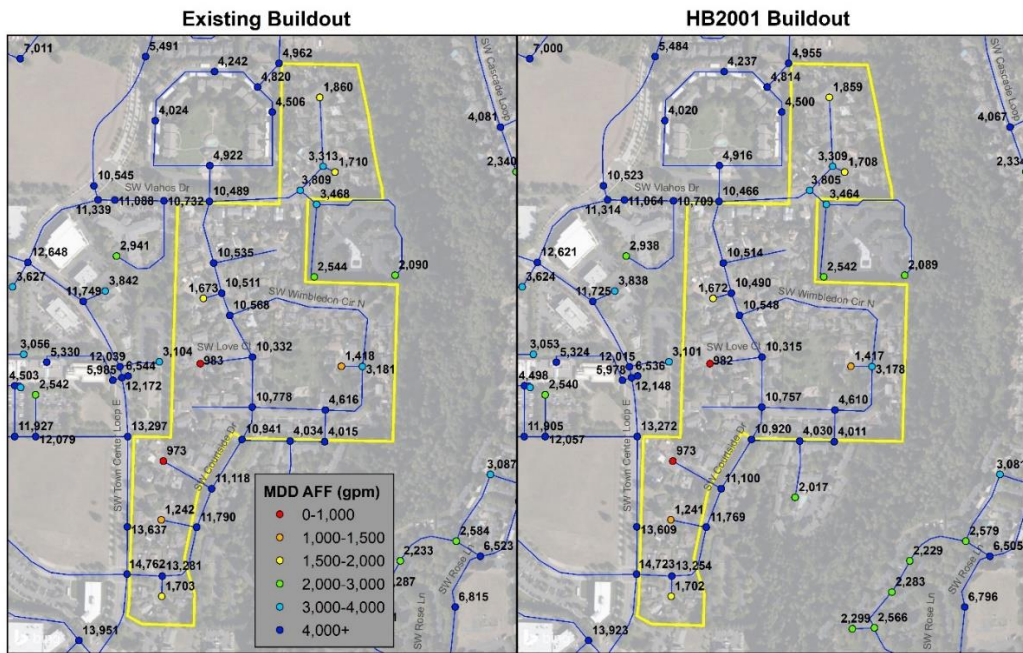


FIGURE 7: COURTSIDE ESTATES / VLAHOS MDD AVAILABLE FIRE FLOWS



For the Courtside Estates / Vlahos area the PHD pressures are essentially unchanged. Available fire flows decrease by approximately 20 gpm in some locations, but this small decrease is a relatively insignificant based on the amount of available fire flow.

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FIGURE 8: RIVERSIDE LOTS NEAR MOREY'S LANDING & FOX CHASE PHD PRESSURES

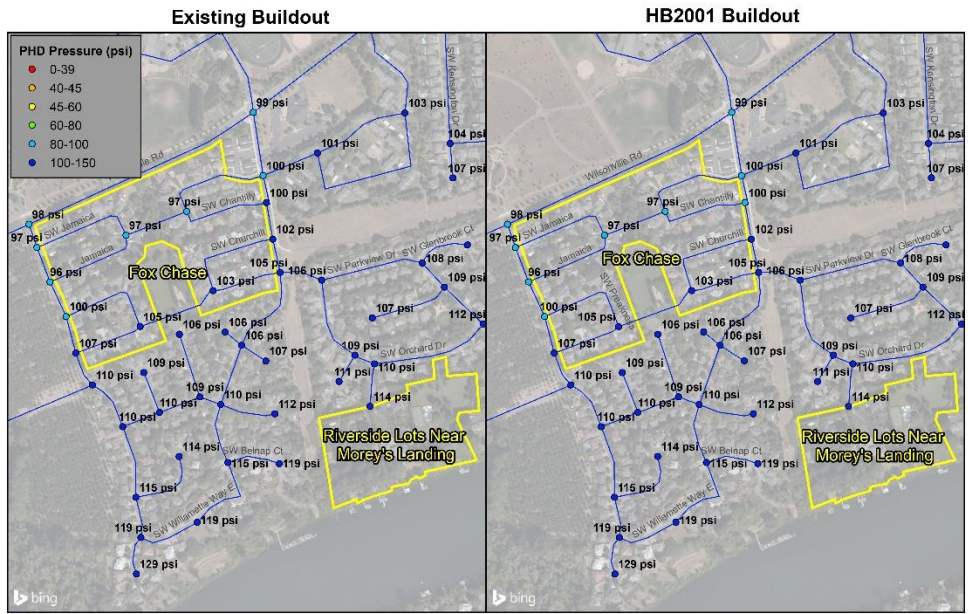
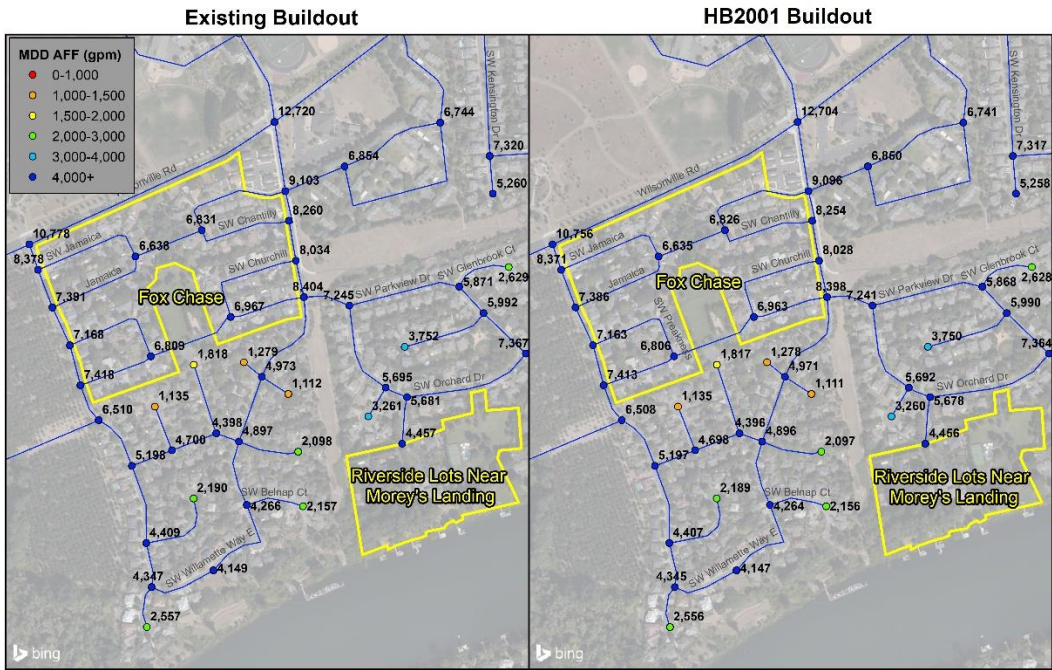


FIGURE 9: RIVERSIDE LOTS NEAR MOREY'S LANDING & FOX CHASE MDD AVAILABLE FIRE FLOWS



For the Fox Chase and Riverside Lots Near Morey's Landing areas the PHD pressures are essentially unchanged. Available fire flows decrease by approximately 3-5 gpm in some locations, but this small decrease is insignificant based on the amount of available fire flow.

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FIGURE 10: CANYON CREEK ROAD / BOECKMAN ROAD AREAS PHD PRESSURES

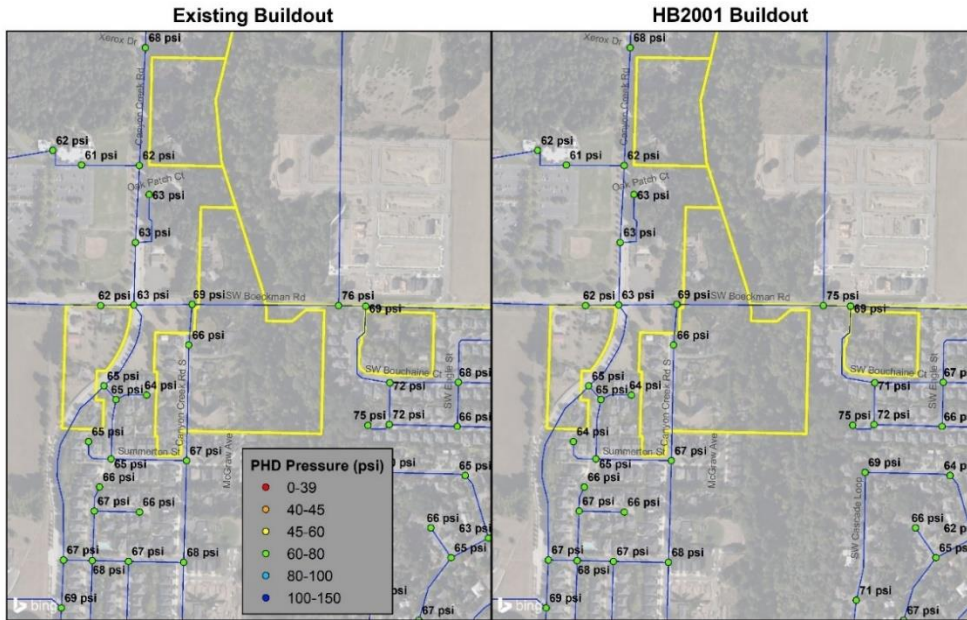
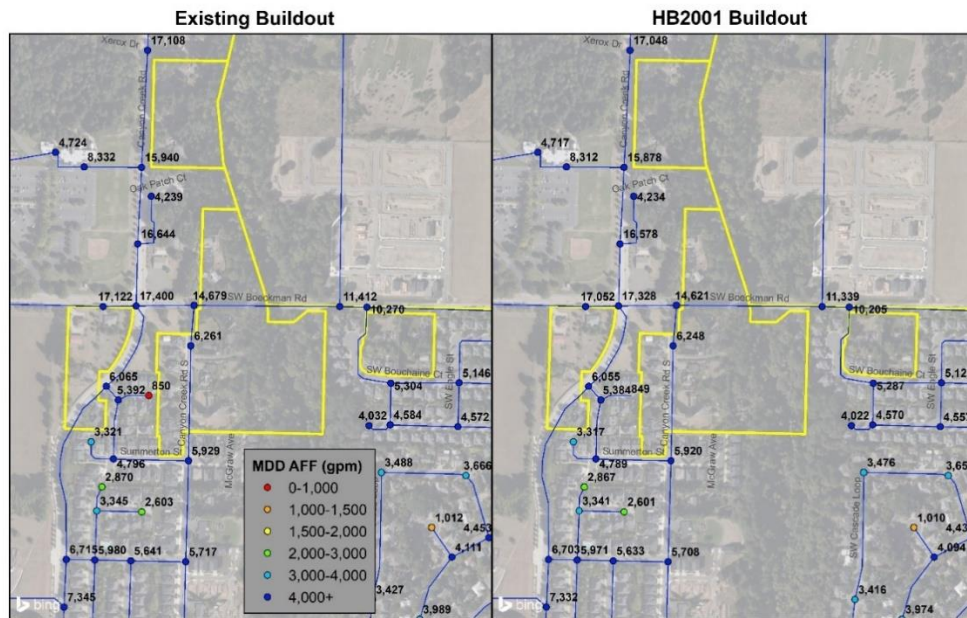


FIGURE 11: CANYON CREEK ROAD / BOECKMAN ROAD AREAS MDD AVAILABLE FIRE FLOWS



For the Canyon Creek Road / Boeckman Road areas we understand that there are planned system improvements that will account for the larger planned demands in this area. However, even with these additional demands the PHD pressures are essentially unchanged. Available fire flows decrease by up to approximately 70 gpm. The larger fire flow decrease is associated with this area being located adjacent to the Frog Pond areas where the majority of additional homes and existing master planned demands are located. This decrease in available fire flow is relatively insignificant based on the amount of available fire flow.

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FIGURE 12: OLD TOWN
PHD PRESSURES

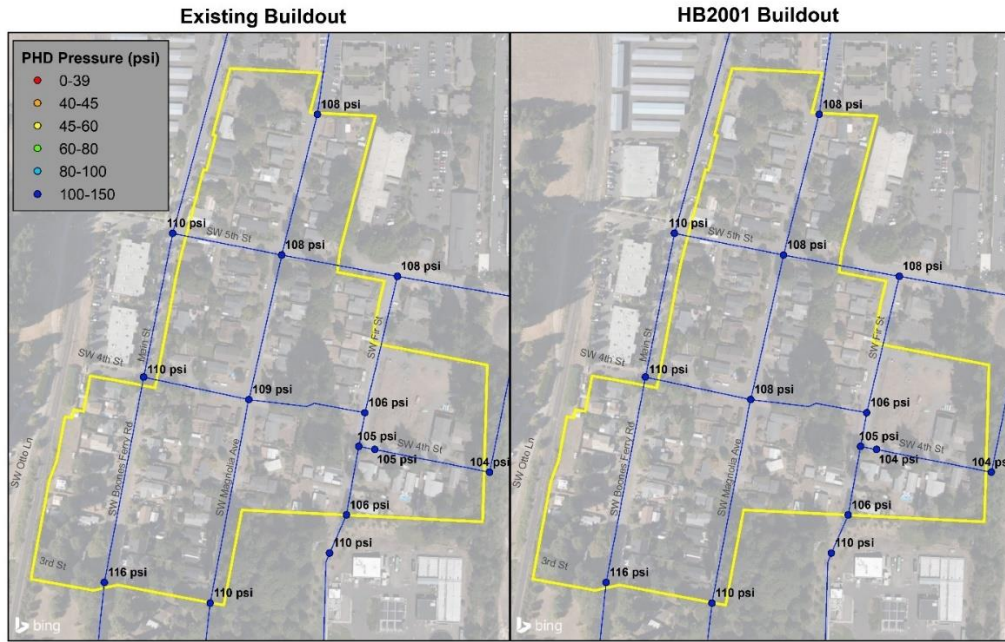
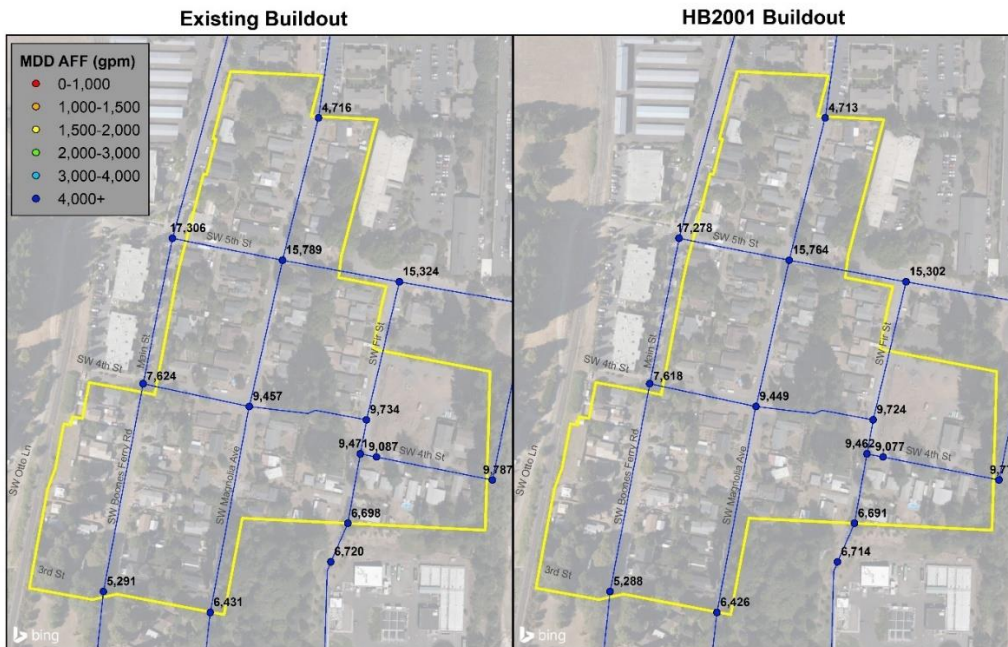


FIGURE 13: OLD TOWN
MDD AVAILABLE FIRE FLOWS



For the Old Town area, the PHD pressures are essentially unchanged. Available fire flows decrease by up to approximately 30 gpm. This decrease in available fire flow is relatively insignificant based on the amount of available fire flow.

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FIGURE 14: SERENE ACRES / JACI PARK, CYRUS ESTATES, AND WILSONVILLE ROAD / BROWN ROAD AREAS PHD PRESSURES

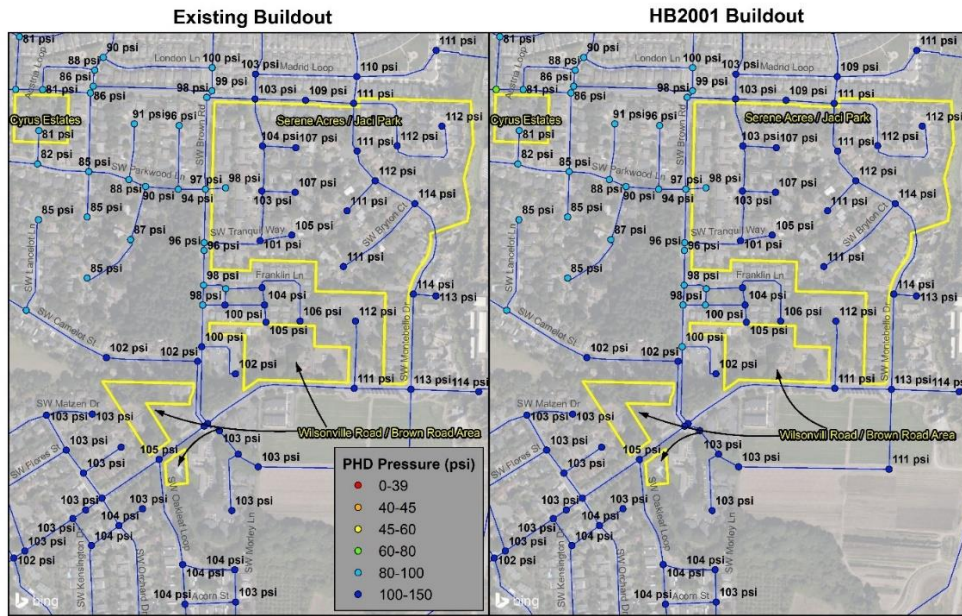
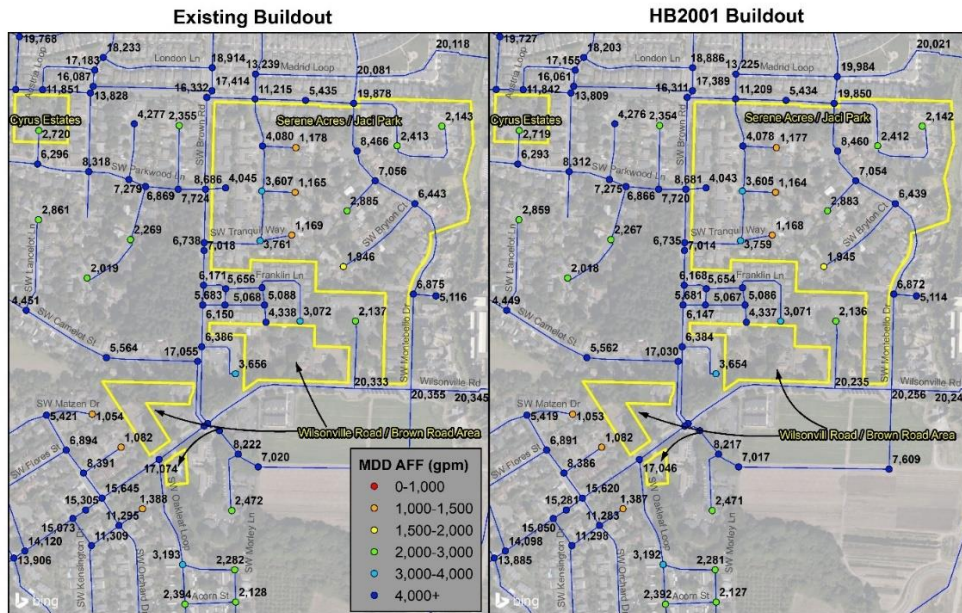


FIGURE 15: SERENE ACRES / JACI PARK, CYRUS ESTATES, AND WILSONVILLE ROAD / BROWN ROAD AREAS MDD AVAILABLE FIRE FLOWS



For the Serene Acres / Jaci Park, Cyrus Estates, and Wilsonville Road / Brown Road Areas the PHD pressures are essentially unchanged. Available fire flows decrease by 1-5 gpm in the Cyrus Estates and Serene Acres / Jaci Park areas. Fire flow in the 18-inch main line along Wilsonville Road near the Wilsonville Road / Brown Road Areas decreased by approximately 30 gpm. These decreases in available fire flow is relatively insignificant based on the amount of available fire flow.

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FIGURE 16: FROG POND AREAS
PHD PRESSURES

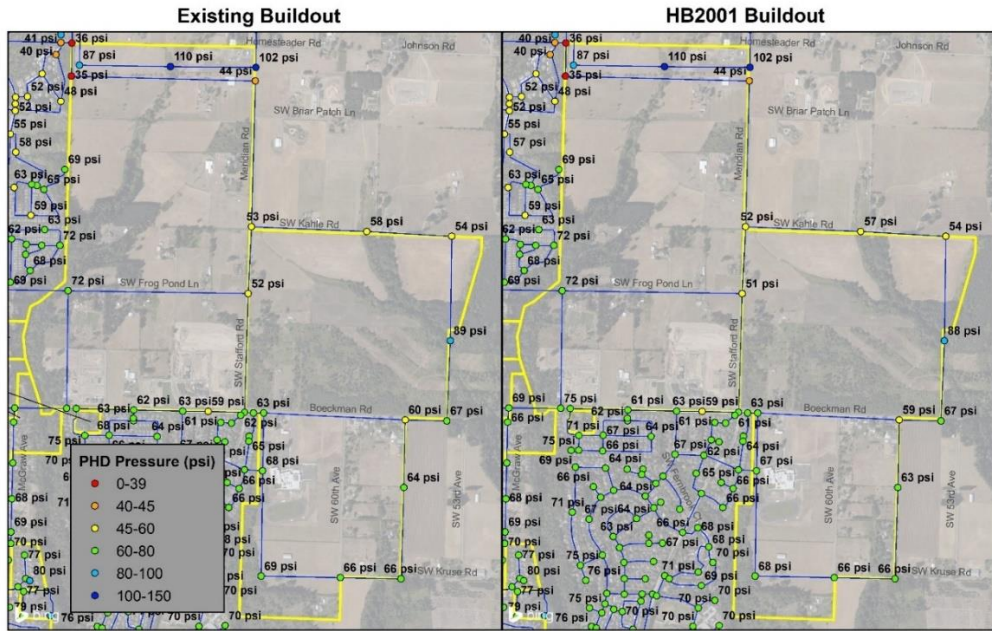
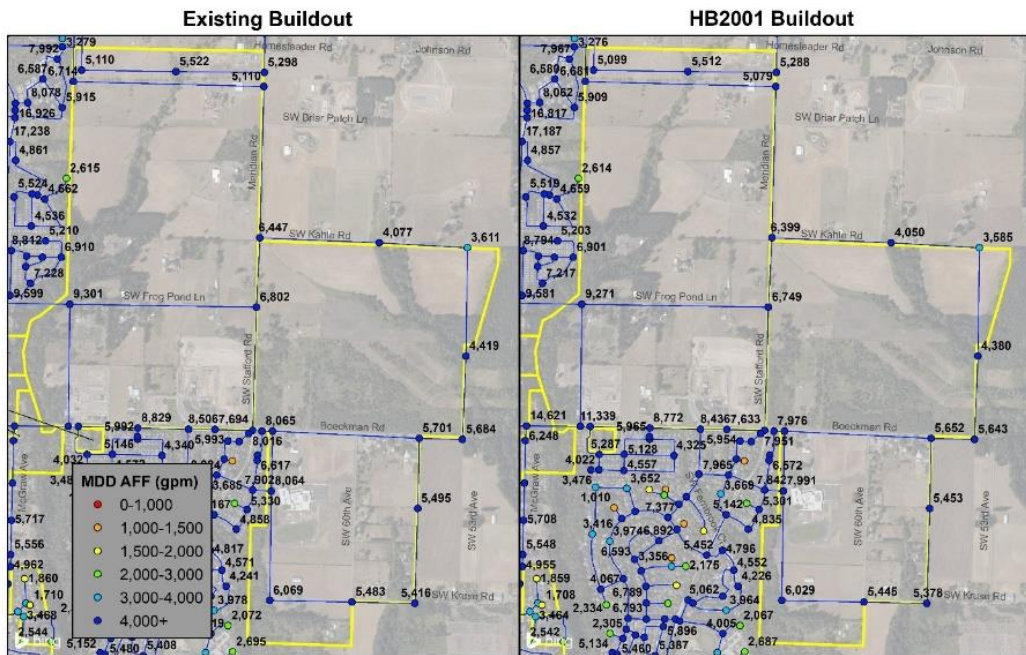


FIGURE 17: FROG POND AREAS
MDD AVAILABLE FIRE FLOWS



For the Frog Pond areas, the PHD pressures decreased slightly by 1 psi. The available fire flow in these areas has decreased by 30-90 gpm. This decrease in available fire flow is relatively insignificant compared to the amount of available fire flow.



OTHER IMPACTS

The potential additional homes will also have an impact on the water system’s treatment and storage facilities. The water treatment system will need to be able to accommodate an additional 130.5 gpm (the MDD). Storage facilities have several storage components including operational, equalization, fire, and emergency storage. These storage component requirements are outlined in the Water Master Plan (Table 3.1). The additional storage needed for the potential additional homes is as shown in Table 3.

TABLE 3: STORAGE REQUIREMENTS FOR THE POTENTIAL ADDITIONAL HOMES

| Component | Requirement | ADD ² | MDD | Storage Requirement Rounded (gal) |
|--|-------------|------------------|-------|-----------------------------------|
| Operational | 10% MDD | - | 130.5 | 18,800 |
| Equalization | 14.6% MDD | - | 130.5 | 27,400 |
| Fire ¹ | 0% | - | - | 0 |
| Emergency | 2x ADD | 41.3 | - | 119,000 |
| Total | - | - | - | 165,200 |
| 1. Assumes fire storage is already provided. 2. ADD calculated by dividing the ADD to MDD peaking factor of 3.16 (calculated from projected Master Plan demands). | | | | |

The Water Master Plan identifies a future storage deficit of 8.97 million gallons (MG). This value is very conservative and does not factor in any of the City’s backup wells. The Master Plan lists a preferred storage analysis scenario where all but the Nike and Canyon Creek backup wells are factored into the storage analysis. In this preferred scenario, the Master Plan identifies a future storage deficit of 2.05 MG. It is Keller Associates’ understanding that the City had identified a site near Tooze Road and Baker Road where a new 3.0 MG storage reservoir would be constructed. The planned storage appears to have adequate capacity to meet the 2.05 MG deficit and the potential additional 165,200-gallon storage requirement from HB 2001.

CONCLUSION

Modeling results indicate that the potential increase in demands due to HB 2001 will have minimal effects on the system’s ability to provide sufficient pressures and available fire flows provided that the City continues to implement improvements as outlined in the existing master plan.

The buildout model assumes that several system improvements have been implemented. To refine the more immediate impacts of the potential density increases on the existing system, the City should move forward with an existing system model update that would include updated system demands and infrastructure improvements completed since 2013.



Technical Memorandum

Date: May 20, 2021

Project: HB 2001 Sanitary Sewer Sensitivity Analysis

To: Dan Pauly
City of Wilsonville

From: Andrew Henson, PE (Murraysmith)

Reviewed By: Mike Carr, PE (Murraysmith)

Re: Findings of HB 2001 Sensitivity Analysis

Introduction

The City of Wilsonville (City) has requested Murraysmith perform a high-level sensitivity analysis on the sanitary sewer system regarding potential change in housing density in portions of their service area related to the passing of House Bill 2001 (HB 2001) by the Oregon Legislature in 2019. The City has prepared an estimate of the potential number of dwelling units (DUs) per Metro transportation Analysis Zone (TAZ) that could result from HB 2001 as discussed in a memorandum “Middle Housing Infrastructure Analysis” by the City of Wilsonville dated May 5, 2021. The City has identified 6 TAZ areas that would allow higher number of DUs than were anticipated when the City’s Wastewater Collection System Master Plan (WCSMP) was adopted in 2014.

This technical memorandum (TM) summarizes the analysis and findings of the sensitivity analysis. This document references many figures and tables found in the WCSMP and should be considered alongside that document.

Sensitivity Analysis

The City provided summary information regarding their projected DUs per TAZ that may result through implementation of HB 2001. Each TAZ consists of multiple sub-TAZ areas. Based on review of the available sewer system maps and the City’s existing infrastructure as described in the WCSMP, a given TAZ can potentially contribute flow to multiple sewer basins.

The estimated number of DUs per TAZ was apportioned to a sub-TAZ based on City-provided locations that would allow additional housing units (referred to as “Analyzed Neighborhoods”). Identified sub-TAZ areas were correlated to the WCSMP sewer basins they drain to as represented

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in the WCSMP (particularly Figure 6-6 of the WCSMP, “Sanitary Sewer Collection System Build-Out System Loading”). **Table 1** summarizes this information.

Table 1 Estimated Additional DU by Sub-TAZ

| TAZ | Sub-TAZ | Sewer Basin | Potential Additional HB 2001 Units in TAZ | Analyzed Neighborhood Proportion of Sub-TAZ | Potential Additional HB 2001 Units in Sub-TAZ |
|------|---------|--------------|---|---|---|
| 965 | 8090 | Charbonneau | 89 | 100% | 89 |
| 966 | 907 | Canyon Creek | 142 | 50% | 71 |
| 966 | 4051 | Boeckman | 142 | 50% | 71 |
| 967 | 4001 | Old Town | 132 | 10% | 13 |
| 967 | 4002 | Old Town | 132 | 20% | 26 |
| 967 | 4006 | Wood School | 132 | 40% | 53 |
| 967 | 4007 | Wood School | 132 | 20% | 26 |
| 967 | 4009 | Wood School | 132 | 10% | 13 |
| 972 | 900 | Villebois | 344 | 30% | 103 |
| 972 | 4015 | Villebois | 344 | 5% | 17 |
| 972 | 4022 | Villebois | 344 | 30% | 103 |
| 972 | 4023 | Villebois | 344 | 10% | 34 |
| 972 | 4024 | Villebois | 344 | 15% | 52 |
| 972 | 4025 | Villebois | 344 | 10% | 34 |
| 976 | 905 | Boeckman | 275 | 50% | 138 |
| 976 | 4040 | Boeckman | 275 | 50% | 138 |
| 977 | 1016 | Canyon Creek | 501 | 60% | 301 |
| 977 | 4141 | Boeckman | 501 | 40% | 200 |
| 1128 | 908 | Boeckman | 985 | 80% | 788 |
| 1128 | 4052 | Boeckman | 985 | 10% | 99 |
| 1128 | 4053 | Boeckman | 985 | 10% | 99 |

The additional DUs estimated for each sub-TAZ area were used, in conjunction with the unit flow rate and recommended peaking factors from the WCSMP, to estimate peak dry weather flow (DWF) rates from each area that could result from HB 2001. (Note, the WCSMP uses a unit rate of 166 gallons per day (gpd) per unit, and DWF peaking factors can be estimated from WCSMP Table 5-6, “Existing Dry Weather Flow Summary by Basin”) The estimated dry weather peak flows potentially resulting from HB 2001 in each sub-TAZ were then summed and compared to the estimated total future flows (peak DWF plus peak wet weather flow) for each sewer basin as shown in WCSMP Table 5-15, “Future Total Peak Flow Estimates”. This comparison provides context for the magnitude of the estimated additional DWF that could result with the additional DUs due to HB 2001 as compared to the future flows expected in the WCSMP. The information is summarized in **Table 2** below. Based on this information, the most impacted basins are likely to

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be Boeckman and Canyon Creek. However, the increase is less than 10 percent of what was planned for in the 2014 WCSMP.

Table 2 Estimated Peak DWF from HB 2001 DU Compared to WCSMP Estimated Future Flow

| Basin | Est. Additional HB 2001 DUs | Est. Peak DWF HB 2001 (mgd) | WCSMP Future Total Flow (mgd) ¹ | Percent Increase (%) |
|--------------|-----------------------------|-----------------------------|--|----------------------|
| Charbonneau | 89 | 0.023 | 0.78 | 3% |
| Boeckman | 1531 | 0.445 | 5.31 | 8% |
| Canyon Creek | 372 | 0.123 | 3.14 | 4% |
| Coffee Creek | 0 | 0.000 | 0.00 | 0% |
| Old Town | 40 | 0.009 | 0.94 | 1% |
| Villebois | 344 | 0.098 | 3.15 | 3% |
| Wood School | 92 | 0.031 | 1.43 | 2% |

¹Values taken from WCSMP Table 5-15, "Future Total Peak Flow Estimates"

The existing sanitary sewer system analysis presented in the WCSMP, along with planned capital improvement projects (CIPs), were also reviewed for potential areas of concern due to estimated increases in DWF due to HB 2001. Figures ES-4 ("Existing System Capacity Upgrades"), 6-6 ("Build-out System Loading"), 6-7 ("Build-out Wet Weather Flow Scenario, Deficiencies (High Density)"), and 6-8 ("Build-out Wet Weather Flow Scenario, Improved (High Density)") of the WCSMP were used to inform this qualitative analysis. The TAZ for each sub-TAZ discussed below is indicated in parenthesis.

- Sub-TAZs 4051 (966), 905, 4040 (976), 4141 (977), 4053, 908 and 4052 (1128) in the Frog Pond Area all drain to the Boeckman Interceptor. This pipeline was already identified to have capacity limitations under build-out conditions (build-out includes Urban Growth Boundary (UGB) and Urban Reserve Area (URA)). Additional middle-housing DUs could impact the sizing of the CIPs and should be further analyzed once the upcoming Frog Pond East and South Master Plan project has better established future housing needs in the area. This basin was estimated to have the highest potential increase in flows due to HB 2001. CIPs for this basin for existing system capacity upgrades for future development included (WCSMP Table 7-1):
 - CIP-05 Boeckman Interceptor Phase 1
 - CIP-06 Boeckman Interceptor Phase 2
 - The Boeckman Interceptor drains to the Memorial Park PS. The Memorial Park PS is currently being replaced to provide a future build-out capacity of 3,200 gpm (identified as CIP-03 in the WCSMP). This build-out capacity was developed using assumptions for growth in the Frog Pond East, South, and West Neighborhoods as well as the Elligsen URA. Additional DUs resulting from HB 2001 could use up capacity estimated for other portions of the pump station service area (e.g. additional DUs in the Frog pond area could leave little excess capacity for the Elligsen URA). It is recommended this be analyzed in more detail following the

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completion of the upcoming Frog Pond East and South Master Plan project. Based on this preliminary analysis, HB 2001 could potentially increase peak DWF by 0.445 mgd or 310 gallons per minute (gpm), as shown in **Table 2** above. This is nearly 10 percent of the build out capacity of the Memorial Park PS.

- Portions of sub-TAZs 907 (966) and 1016 (977) would likely drain to the Canyon Creek Interceptor. This pipeline was shown in the WCSMP to have moderate capacity constraints, but not enough to trigger an improvement project. A project to upsize the Canyon Creek PS was identified in the WCSMP (CIP-08), driven by URA development and was sized at 1100 gpm. Increases from HB 2001 are a minor concern for this CIP but should be considered when the project advances in the future. There is one section of the interceptor that was estimated to have a depth over diameter ratio (d/D) of 0.9 in the build-out condition along SW Canyon Creek Rd and SW Daybreak St that could become surcharged with more DUs that included in the build-out condition; however, this section of pipe is of little concern as no capacity issues are apparent under existing conditions.
- Sub-TAZ 8090 (965) drains to the Charbonneau PS. The WCSMP did not identify any deficiencies in the local collection system in the Charbonneau sewer basin nor at the Charbonneau PS. WCSMP Table 6-6 (“Future Pump Station Capacity”) indicates the PS has 530 gpm of excess capacity in the future development scenario that was used. Using the assumptions for per capita flows in the WCSMP, this excess capacity could support more than 1,000 additional DUs. Further study of this area is needed to develop a more precise number of additional units that the Charbonneau sewer system could handle. However, the 89 potential DUs estimated by the City falls well under the excess capacity of the PS.
- The WCSMP assumed that all of TAZ 972 would flow to the Coffee Creek Interceptor via the Villebois sewer basin. The WCSMP does indicate deficiencies in the existing conditions in the upper portions of this pipeline and identified CIP projects to address existing capacity concerns (CIP-01, CIP-02, CIP-04, and CIP-10). Additional middle-housing DUs could impact the sizing of CIPs depending on how flows are routed. However, the CIP most likely to be impacted would be CIP-10 Coffee Creek Interceptor Phase 3 which was driven by URA development (flows from the Villebois basin connect to the portion of the interceptor included in this CIP). Therefore, HB 2001 is likely a minor concern at this time but future wastewater system planning efforts should take into account potential density impacts.
- The City indicated that any additional middle-housing DUs in TAZ 967 would be in sub-TAZs 4001 (Old Town), 4002 (Old Town), 4006 (Wood School), 4007 (Wood School), and 4009 (Wood School). These areas would all drain to areas along the Wood School Interceptor upstream of the connection to the Coffee Creek Interceptor. Sub-TAZs 4001 and 4002 would likely drain to the interceptor closer to the Wastewater Treatment Plant (WWTP). No existing capacity deficiencies were noted in these areas; however, the portions of the interceptor near the WWTP were predicted to have a 0.9 d/D in the WCSMP build-out scenario. Sub-TAZs in the Wood School basin could rely on a future PS to convey flow to the interceptors (WCSMP Figure 7-3 New Infrastructure) and any future PS sizing should consider increased density from HB 2001. Potential increase in flows were estimated to be more modest in these areas, therefore impacts from HB 2001 are of minor concern.
- Wastewater from the Wood School sub-TAZs flows through the Seely Ditch crossing which was identified as a condition-based CIP (CIP-13). This CIP had a more immediate timeframe

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as of the completion of the WCSMP, and the assumptions used to determine the size should be reviewed prior to design.

Summary of Findings

The estimated increase in flows resulting from additional DUs due to HB 2001 represents less than a 10 percent overall increase over projected future flows in the WCSMP.

The largest anticipated impact would be to the Boeckman Sewer Basin, with an estimated 8% increase in flow due to HB 2001. The Boeckman Interceptor was already determined by the WCSMP to have the most significant capacity deficiencies in future build-out scenarios prior to HB 2001.

The Memorial Park PS, located in the Boeckman Sewer Basin, is currently being replaced with a new larger-capacity station. The station will have sufficient capacity for middle-housing in Frog Pond as that area builds out. However, if the PS service area grows further to the north and east, its ability to serve full build-out of the intended service area could be impacted by HB 2001.

Many of the other TAZ locations where the City expects additional DUs to be located already have capacity-related CIP projects identified in the WCSMP. Sizing and timing of all planned CIP projects should consider the potential of increased DUs due to HB 2001, and the CIP should be adjusted accordingly. This is recommended to be done through a comprehensive update of the sewer collection system master plan, once the City has better defined and understood the specifics of implementing HB 2001.

cc: Matt Palmer, City of Wilsonville