



RESIDENT TECHNICAL STUDY · SAN JUAN COUNTY CAO / SMP UPDATE · PCODES-23-0002

Who the Proposed Rules Reach

A parcel-level estimate, from San Juan County's own GIS data, of the existing homes and vacant lots inside the proposed shoreline and critical-area buffers, compared with the rules in force today.

Prepared by Philip Emanuele, San Juan County resident

Submitted to San Juan County Planning Commission and County Council; Washington Department of Ecology

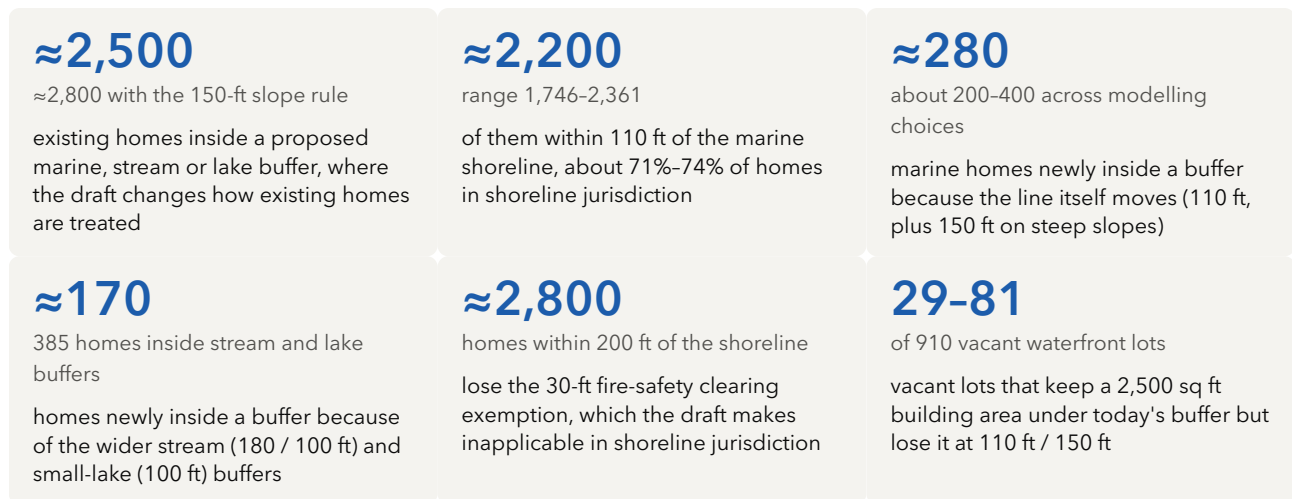
Version 1.0 · October 2026 · Data downloaded from the County GIS server 10-11 October 2026

Cover: County 2025 aerial imagery. Cyan: County mapped shoreline. Yellow: 75 ft. Orange: 110 ft (proposed buffer). White: 200 ft (shoreline jurisdiction). Pink: houses.

Summary

On September 30, 2026, County staff were asked how many shoreline structures the proposed buffers would make non-conforming. The answer, as transcribed: *“The short answer is I don't know, but probably the vast majority of them would be.”* This study supplies the numbers, using only the County's published GIS layers and a method anyone can rerun.

The draft also changes how existing homes are treated. Away from the shoreline, today's code draws existing homes out of the buffers and says they *“will not be considered nonconforming”*; the draft says they *“are considered nonconforming as a result of critical area requirements.”* On the shoreline, today's code says existing structures *“may continue as a conforming use”*; the draft deletes that sentence and leaves them to the shoreline program's nonconforming rules, under which work on a home may not encroach further into areas closed to new construction without a shoreline variance. Those rules reach every existing home inside a proposed buffer, whether or not the line itself moved.



How to read these numbers. They are estimates from public map data, not a survey: the legal line (the ordinary high water mark) is set in the field, lot by lot. Marine figures carry a range from two County shoreline lines, each shifted 15 ft either way. On beaches the County's line follows the water's edge, which sits seaward of the high-water line, so the counts most likely run **low**. Section 9 lists every limitation. A further ≈530 parcels (≈260 homes) are newly brought within critical-area review by the move from 200 to 300 ft; that figure is a floor, because County maps are only a guide and field conditions control.

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1 Why this study

The draft update to SJCC 18.35 replaces today's marine buffer with a 110-foot buffer and adds a 150-foot setback on some marine shorelines; widens stream buffers to 180 feet for fish-bearing streams and 100 feet for others; extends critical-area review from 200 to 300 feet; removes the fire-safety clearing exemption inside shoreline jurisdiction; and changes how existing homes are treated. Each change moves a line on the ground or changes what a line means for the people already living inside it. The County's consultant described the mechanism in November 2025:

“Because the updated CAO increases buffer widths and protection standards for wetlands and FWHCAs, more developments would become non-conforming and therefore ineligible for certain exemptions or allowances, even if they were compliant under existing regulations.”

Facet (Plumb) to Maycock, Nov. 2025; County records production P010084-051426, Bates -015168. The same email recommends retaining the term “date of this ordinance” to limit that effect.

At the September 30, 2026 public information meeting, staff were asked how many shoreline structures would be affected, and whether the change in review distance had been analyzed:

“The short answer is I don't know, but probably the vast majority of them would be”

Colin Maycock, Sept. 30, 2026, County-posted automatic transcription, p. 12 (37:04). Machine transcription; quoted as transcribed.

“there's not been an analysis done on that.”

Maycock, on the 200 to 300 ft review distance; same transcription, p. 19 (59:27).

No count, map, or cost of affected properties appears in the 20,170 pages the County has produced to date in response to public records request P010084-051426. The County's GIS server, however, publishes every layer needed to make the estimate. This study does that, documents each step, and states its limits, so that the Commission, the Council, Ecology and the public can check it, or improve on it.

What this study is not. It is not a legal determination of any property's status, not a survey, and not an estimate of dollar loss. It counts buildings and lots that fall inside lines drawn from the County's own data, under the rules as written in the County's posted drafts.

2 What changes: today's rules and the proposed rules

“Today” is the text shown as struck or unchanged in the County's tracked-changes draft (V7, August 13, 2026); “proposed” is the clean draft. Because the tracked draft's text layer merges struck and inserted words, every reading below was checked against the rendered page image, and each “today” entry was checked against the code in force (San Juan County Code on eCode360, legislation through February 10, 2026).

Provision	Today	Proposed	Source
Existing homes 18.35.045 → .050; 18.35.025(A)	Existing structures and development areas <i>“are excluded from critical areas, their buffers or tree protection zones”</i> and <i>“will not be considered nonconforming.”</i> In shoreline jurisdiction they <i>“may continue as a conforming use”</i> (18.35.025(A)); SMP 18.50.090 limits changes that would <i>“Create a new nonconformance.”</i>	<i>“are considered nonconforming as a result of critical area requirements.”</i> Exclusion and the shoreline conforming-use sentence deleted; shoreline structures left to a reworded SJCC 18.50.090.	SJCC 18.35.025, .045, 18.50.090 (in force); V7 tracked p. 16; V7 clean p. 14
Marine buffer 18.35.130 → .135(B)	75 ft (residential at not more than 1 unit/acre) or 100 ft (more than 1 unit/acre); increased 50% on slopes over 30% (112.5 / 150 ft)	<i>“A marine FWHCA buffer of 110 feet”, “in all cases”</i>	V7 tracked pp. 30, 62; V7 clean p. 43
150-ft line 18.35.135(C)	Report-set coastal geologic buffer on <i>“erodible marine shoreline (any shoreline that is not bedrock)”</i> ; no fixed width	Adds: <i>“The development shall not be closer than 150 feet from the OHWM of an erodible marine shoreline or slopes greater than 30 percent”</i> without a variance or averaging	V7 tracked p. 62; V7 clean p. 44
Sparse vegetation 18.35.135(F)	None found	Buffer <i>“increased by 33%”</i> unless enhanced	V7 clean p. 45
Streams and lakes 18.35.130	Same 75 / 100 ft water-quality buffer from bank-full width (×1.5 on steep slopes); tree-evaluation areas 110 / 50 / 30 ft	Type F 180 ft ; Np 100 ft ; Ns 100 ft ; lakes and ponds under 20 acres 100 ft	V7 tracked pp. 53, 62-63; V7 clean p. 39
Wetlands 18.35.100	Water-quality buffer plus habitat buffer (150-300 / 75-150 / 25-50 ft)	Single buffer, same widths as today's habitat buffer; Category IV exemption 2,500 → 4,000 sq ft	V7 tracked pp. 28-31; V7 clean pp. 24-25
Review distance 18.35.030, .055, .110	Geohazard 200 ft; FWHCA 200 ft; wetland 300 ft (SJCC 18.80.020(C)(11)(b), 18.35.110)	300 ft from any designated critical area	SJCC 18.80.020, 18.35.110 (in force); V7 tracked pp. 6-7, 17, 44; V7 clean pp. 6, 15, 31
Steep slopes 18.35.060-.065	Category I: slopes over 50% with 20 ft relief; report within 200 ft; no setback	Category I: slopes over 40% with 10 ft relief; new 50 / 75 / 100 ft setbacks by slope height; new coastal-bluff Category II	V7 tracked pp. 17-20; V7 clean pp. 15-17
Fire-safety clearing 18.35.030(D) → .035(E)	30 ft may be cleared around buildings <i>“lawfully existing on the effective date of the ordinance”</i> ; no shoreline exclusion	Buildings <i>“lawfully existing prior to March 31, 2014”</i> ; <i>“This exemption is not applicable within shoreline jurisdiction.”</i>	SJCC 18.35.030(D) (in force); V7 tracked p. 9; V7 clean p. 9
Habitat designations 18.35.115	Listed priority habitats and habitats of local importance	All WDFW Priority Habitats and Species List areas, <i>“most recently updated edition”</i>	V7 tracked p. 47; V7 clean p. 34

“may continue in perpetuity and are considered nonconforming as a result of critical area requirements.”

Proposed SJCC 18.35.050, V7 clean p. 14 (today's 18.35.045). In the tracked draft (p. 16) “will not be” is struck and “are” inserted, and the sentence excluding existing development areas from buffers is struck.

“Increase the extent of nonconformity by further encroaching upon or extending into areas where construction would not be allowed for new structures unless a shoreline variance is obtained”

Proposed SJCC 18.50.090(A)(3), SMP amendments V2 (Aug. 26, 2026), p. 3, a condition on moving, replacing, expanding or modifying a structure established before October 30, 2017. It rewords today's 18.50.090(B)(3): “Create a new nonconformance or increase the degree of inconsistency with the provisions of this SMP.”

About “110 rather than 75.” Staff summarized the marine change on September 30 as *“the minimum is going to be 110 rather than 75”* (transcription p. 22, as transcribed). That describes homes on lots of one acre or more per dwelling. For denser lots today's buffer is already 100 ft, and on slopes over 30% it is already 112.5 or 150 ft. This study models today's buffer lot by lot for that reason (Section 5.2).

3 Data

Every input is a public layer on San Juan County's GIS server (<https://gis.sanjuancountywa.gov/arcgis/rest/services/>). Each layer was downloaded in full through the server's standard query interface, paging by object ID. The download log records each layer's path, its record count on the server, and the count received; they match for every layer.

Layer	Service path (append to the server address)	Records	Downloaded
Island polygons: the County mapped shoreline (method A)	Polaris/Shorelines/MapServer/0	132	2026-10-10
Shoreline Jurisdiction (BUFF_DIST –200): the County's 200-ft line (method B)	Polaris/ComprehensivePlan/MapServer/3	52	2026-10-10
Slopes greater than 30%	CA0/Geologically_Hazardous_Areas/MapServer/21	19,694	2026-10-10
Bedrock (DNR-derived, "N/A (bedrock)" class)	CA0/Geologically_Hazardous_Areas/MapServer/19	334	2026-10-10
Building footprints (Discriptio, Sq_Ft, PIN, Source)	Polaris/Buildings/MapServer/3	30,966	2026-10-10
Tax parcels (PIN, land-use code, acres, waterfront length). Owner fields not downloaded.	OpenData/Parcels/MapServer/1	19,020	2026-10-10
SMP environment designations (context)	Polaris/ComprehensivePlan/MapServer/6	948	2026-10-10
Stream typing (water types F, Np, Ns, S, U)	CA0/Upland_FWHCA/MapServer/0	1,948	2026-10-10
Lakes and ponds (with acres)	CA0/Upland_FWHCA/MapServer/5	1,071	2026-10-11
Possible tidal wetlands	CA0/Wetlands/MapServer/0	84	2026-10-11
Possible non-tidal wetlands	CA0/Wetlands/MapServer/1	2,805	2026-10-11
National Wetlands Inventory wetlands	CA0/Wetlands/MapServer/2	2,532	2026-10-11
Feeder bluffs (2011)	ShorelineMasterProgram/Net_Shore_Drift_Feeder_Bluffs/MapServer/0	244	2026-10-11
Slopes greater than 50%	CA0/Geologically_Hazardous_Areas/MapServer/15	14,204	2026-10-11

Imagery for the accuracy check and figures: County Basemaps/Aerials_2025 (EagleView orthoimagery, rectified to a LiDAR-derived surface). **Projection:** Washington State Plane North, NAD83, US feet (EPSG:2285), the County's native system, so distances are in feet without conversion.

Rules come from the County-posted final draft of SJCC 18.35 (V7, August 13, 2026; clean and tracked-changes versions), the SMP amendments (V2, August 26, 2026), the BAS Crosswalk V2, and the Planning Commission hearing staff report (October 5, 2026). Section 2 cites each rule by page.

4 Method

4.1 The shoreline

The County publishes two lines that both stand in for the shoreline, and they do not sit exactly 200 ft apart. The **County mapped shoreline** is the outer edge of each island in the County *Shorelines* layer (463 miles of marine shoreline; lakes and lagoons inside islands are excluded). The **County's 200-ft line** is the inland edge of the County's own Shoreline Jurisdiction map, which is meant to sit 200 ft inland. Measured at 16,751 points, the County's 200-ft line actually sits a median of **189 ft** inland of the County mapped shoreline; half the points fall between 170 and 206 ft, and nine in ten between 137 and 237 ft.

So every distance was measured two ways, as a cross-check (Figure 1):

- **Method A:** the distance from the house's seaward wall to the County mapped shoreline.
- **Method B:** the distance from the house's seaward wall to the shoreline *implied* by the County's 200-ft line, that is, a line 200 ft seaward of it. (In practice: 200 ft minus the distance from the house to the County's 200-ft line.) This ignores the mapped shoreline entirely and relies only on the County's 200-ft line.

For individual houses the two methods agree closely: a median difference of about 5 ft, and under 16 ft for half of them. Method A is the main figure throughout, because the accuracy check (Section 8) found it the more reliable; method B is shown beside it so readers can see how much the answer depends on which County line is used.

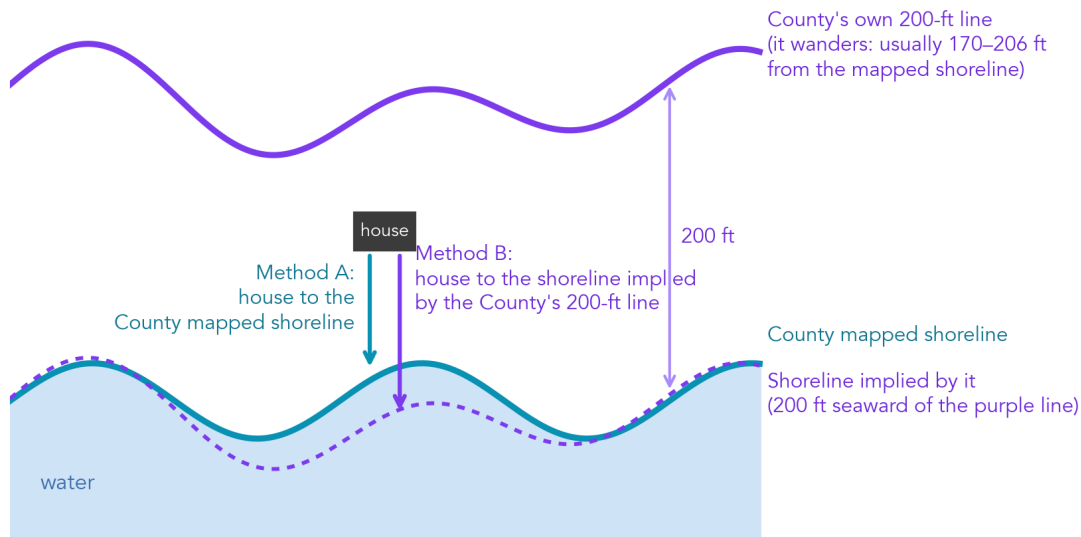


Figure 1. The two ways each distance was measured. Schematic, not to scale. The County's 200-ft line is meant to sit 200 ft inland, but it wanders: measured from the County mapped shoreline it usually sits 170–206 ft inland (median 189 ft), so the shoreline it implies does not match the mapped one exactly. Measuring both ways shows how much that matters.

4.2 Distance

Distance is measured from the **nearest point of each building footprint**, its seaward wall, to the shoreline, stream line, lake edge or wetland edge. A house counts as inside a buffer if any part of its footprint is inside.

4.3 Identifying homes

The County building layer labels fewer than 400 of its 30,966 footprints by use, so homes are identified from the **assessor's land-use code** on the parcel containing each footprint:

- **Main house:** the largest footprint (at least 400 sq ft, on land) on a parcel coded single-family, 2–4 unit, multi-unit, condominium or bed-and-breakfast, mobile-home park, or vacation/cabin (codes 1100–1599 and 1900–1920; Appendix A). This identifies 10,113 main houses countywide. Headline figures count main houses only.
- **ADU:** the second-largest footprint (at least 300 sq ft) on a parcel coded “with ADU.” Reported separately.
- **Upper set:** adds the largest building (at least 600 sq ft, with assessed building value) on farm, forest, open-space and “residential not coded elsewhere” parcels, where farmhouses often sit. Reported separately.

4.4 Today's buffer, lot by lot

Today's marine and stream buffer depends on land-use intensity: 75 ft for residential use at not more than one unit per acre, 100 ft above that, and 50% more on slopes over 30%. Density is dwellings on the parcel (main house plus ADUs; at least two for 2–4 unit and multi-unit codes) divided by the parcel's assessed acres. A home is treated as on a slope over 30% when the County slope layer covers at least 25 ft of the **path to the water:** the straight line from the nearest wall of the house to the nearest point of the County mapped shoreline. Proposed buffers follow Section 2.

4.5 Sensitivity and accuracy check

Each shoreline line is shifted 15 and 30 ft landward and seaward and every count recomputed; ranges use the ± 15 ft runs of both lines (Appendix B). Fifty main houses were drawn at random (fixed seed 20261010) and checked by eye against County 2025 aerial imagery, and the tiles were reviewed by the author (Section 8; every tile in Appendix C).



Figure 2. The method on one stretch of shoreline. County 2025 aerial imagery. The County's mapped shoreline (cyan) follows the water's edge, seaward of the beach and the vegetation line, so distances measured from it are longer than distances from the high-water line and the counts are conservative. The white dashed line is 200 ft from that shoreline; the purple line is the County's own 200-ft line, which here sits farther inland on the left and closer on the right. Some buildings visible in the imagery have no County footprint and are not counted.

5 Results: homes near the marine shoreline

5.1 How many homes sit how close to the shore

Table 5.1 · Main houses by distance from the County's mapped marine shoreline, countywide

Distance	Method A from County shoreline	Method B from County 200-ft line	Range (both methods, lines shifted ± 15 ft)
Within 75 ft	1,451	1,329	1,005–1,806
Within 110 ft (proposed buffer)	2,169	2,015	1,746–2,361
Within 150 ft (proposed 150-ft line)	2,586	2,493	2,336–2,708
Within 200 ft (shoreline jurisdiction)	2,929	2,849	2,754–3,011

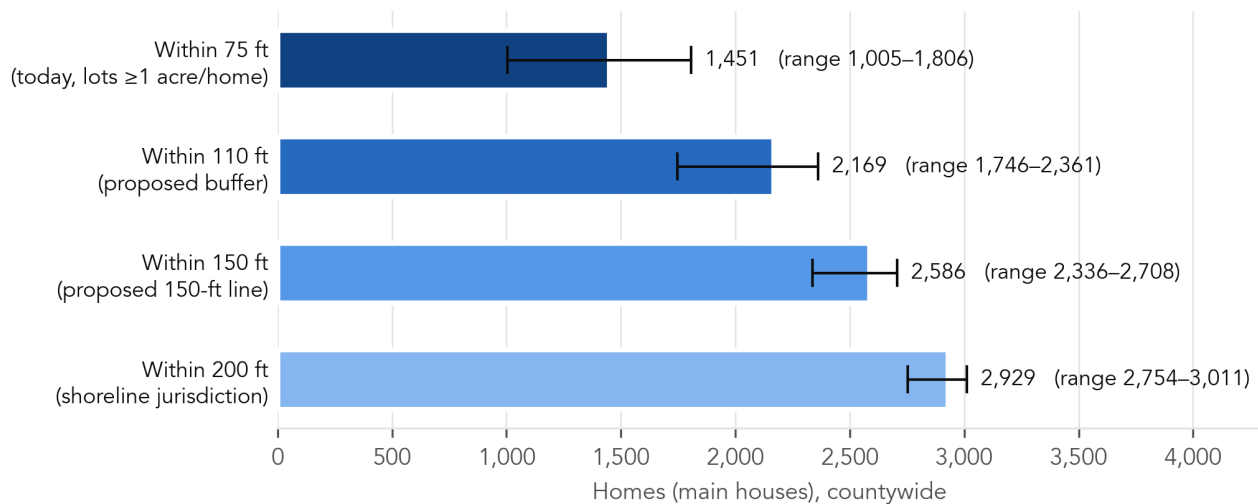


Figure 3. Homes within each distance of the shoreline. Bars: method A (from the County mapped shoreline). Whiskers: range across both methods with the lines shifted ± 15 ft.

Of the homes inside the 200-ft shoreline jurisdiction, 71%–74% sit within 110 ft and about 88% within 150 ft. Homes within 110 ft are roughly one in five of the 10,113 main houses identified countywide. **Staff's September 30 estimate, "probably the vast majority," is consistent with these figures.** Counting ADUs adds about 115–120 dwellings within 110 ft; counting every footprint, including garages, sheds and barns, gives about 3,600–3,800 buildings.

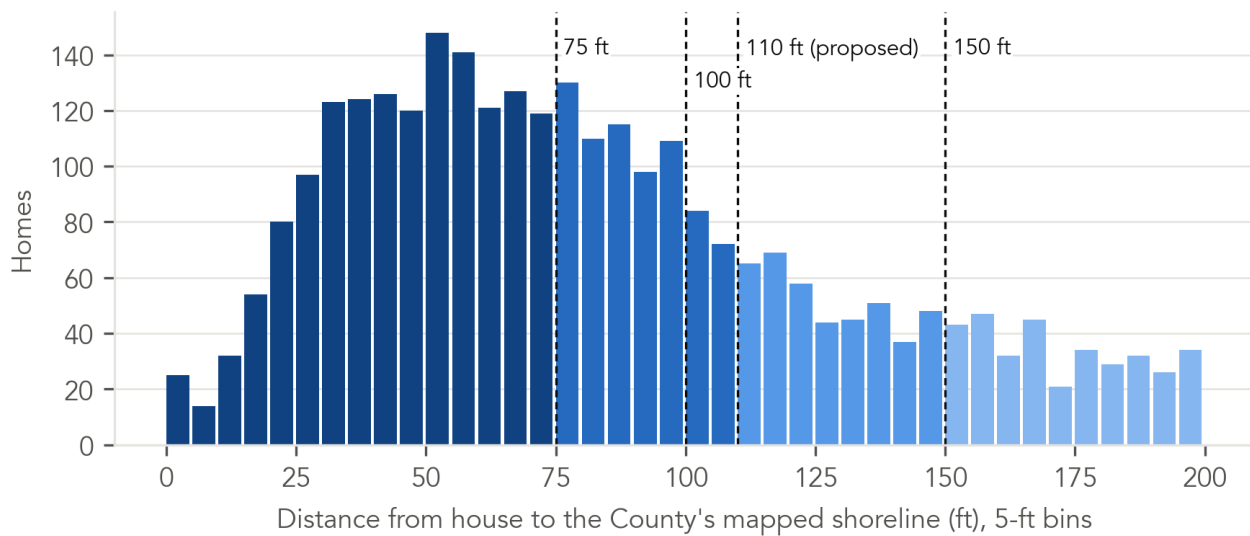


Figure 4. How far homes sit from the shoreline (method A). The distribution peaks between 30 and 75 ft. Dashed lines mark today's 75 and 100-ft buffers and the proposed 110 and 150-ft lines.

San Juan County, Washington — homes within 200 ft of the marine shoreline



Figure 5. Where the homes are. Every main house within 200 ft of the County's mapped marine shoreline, coloured by distance band (method A). Countywide; no owner information shown.

5.2 Today's buffer against the proposed buffer

Applying today's intensity-based buffer lot by lot (Section 4.4): of the homes within 110 ft, 58% are on lots with more than one dwelling per acre, where today's buffer is already 100 ft; of the homes within 150 ft, 48% have slopes over 30% between the house and the water, where today's buffer is already 112.5 or 150 ft.

Table 5.2 · Marine homes inside today's and the proposed buffers

	Method A	Method B	Range
Inside today's buffer (75 / 100 ft, ×1.5 on steep slopes)	2,168	2,043	1,772-2,345
Inside the proposed buffer: 110 ft only	2,169	2,015	1,746-2,361
Inside the proposed buffer: 110 ft, and 150 ft on slopes over 30%	2,452	2,321	2,121-2,520
Inside the proposed buffer: 150 ft on all non-bedrock or steep shore (as written)	2,534	2,426	2,247-2,620
Newly inside: 110 ft only	143	139	97-197
Newly inside: 110 ft, and 150 ft on slopes over 30%	284	278	175-358
Newly inside: as written	366	383	275-479
Inside today but outside under 110 ft only (steep lots)	142	167	81-192

So the width change by itself newly reaches a few hundred homes: about 140 at 110 ft alone, and about 280 once the 150-ft line applies on steep slopes. Under 110 ft alone, about 140 homes on steep lots would fall *outside* a buffer they are inside today; the 150-ft line covers all of them again.

These counts depend on two modelling choices: how much steep ground on the path to the water makes a lot “steep,” and whether ADUs count toward density. Varying both (method A, lines as mapped) gives:

Density counts	“Steep” if slopes over 30% cover at least ... of the path to the water	Newly inside at 110 ft	Newly inside with 150-ft slope line	Inside today, outside at 110 ft
main house plus ADUs	10 ft	52	223	178
main house plus ADUs	25 ft	143	284	142
main house plus ADUs	50 ft	284	384	101
main house only	10 ft	55	233	171
main house only	25 ft	150	297	136
main house only	50 ft	294	399	96

Combined with the shoreline-position range, the number of marine homes newly inside a buffer is best stated as **about 200–400**.

5.3 What changes for the homes already inside

For the ≈2,200 homes within 110 ft, today's critical-area code says shoreline structures established before the County's critical-area rules “*may continue as a conforming use*” (SJCC 18.35.025(A)). The draft deletes that sentence. The shoreline program already limits changes to existing structures today (SJCC 18.50.090), and the draft rewords the test: work may not “*Increase the extent of nonconformity by further encroaching upon or extending into areas where construction would not be allowed for new structures unless a shoreline variance is obtained.*” A wider buffer enlarges the area where any expansion counts as encroachment: inside a 110-ft buffer, that is most of the lot between the house and the water, and often beside it. The County may regard the deleted sentence as obsolete, because the statute it implements (RCW 36.70A.480(3)(c)) applies until Ecology approves a shoreline program.

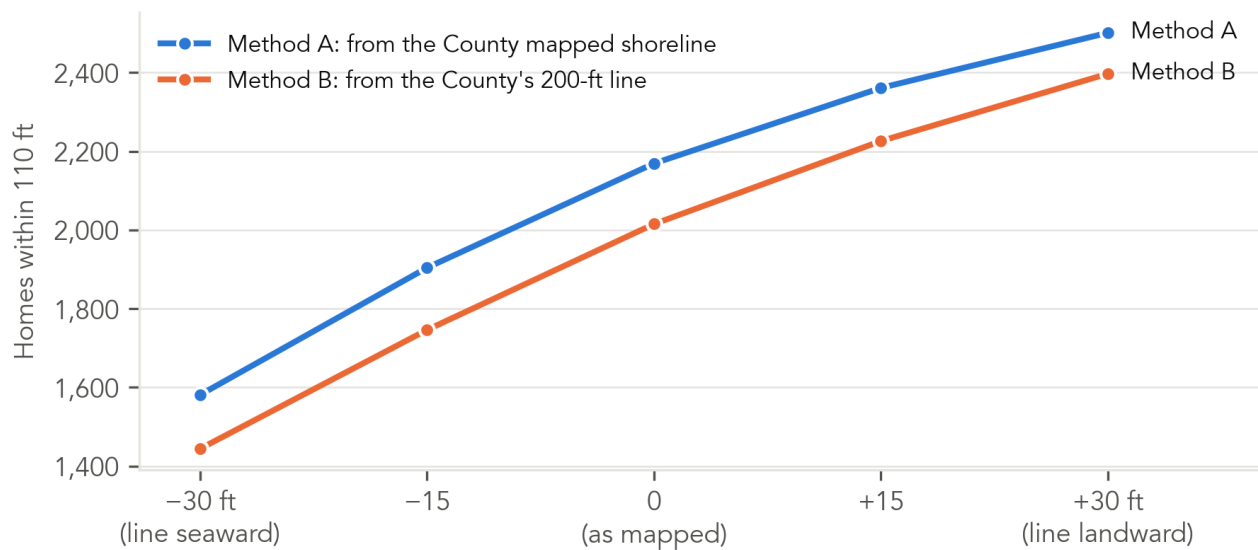


Figure 6. Sensitivity of the 110-ft count to the shoreline's position. Shifting the line 15 ft changes the count by roughly 200-300 homes; the ordering of results does not change.

6 Results: the 150-ft rule, vacant lots, and the review distance

6.1 Two readings of the 150-ft rule

As written, the 150-ft line applies to an “*erodible marine shoreline or slopes greater than 30 percent*,” and the existing code defines erodible shoreline as “*any shoreline that is not bedrock*” (V7 tracked p. 62). Staff and the technical memorandum describe it as applying on slopes over 30%. Both readings were tested on the 417 homes between 110 and 150 ft of the County mapped shoreline, using the County's bedrock layer at the nearest shoreline point and its slope layer along the path to the water (Section 4.4).

“Steep” if slopes over 30% cover at least ... of the path to the water	Slope-only reading	As written (non-bedrock or steep)
10 ft or more	349	400
25 ft or more	283	365
50 ft or more	201	336

The County slope layer shows steep ground between most shoreline homes and the water, so the readings differ by tens to about a hundred and fifty homes. The drafting question matters because the code as written is what will be applied, but its effect on the count is modest.

6.2 Vacant waterfront lots

Lots coded undeveloped by the assessor, with no building of 400 sq ft or more, touching the shoreline, with at least 5,000 sq ft of dry land, and not under a conservation easement: **910 lots** (median 1.25 acres of dry land). Today's buffer for a future home is 75 ft on lots of an acre or more (58% of these lots) and 100 ft on smaller lots. The area left outside each buffer ignores every other constraint (road and side setbacks, septic, wells, slopes), so it **overstates** what can be built.

	Today (75 / 100 ft)	110 ft	150 ft
Lots with more than half their dry land inside the buffer	274	342	465
Lots entirely inside the buffer	95	123	169
Lots with under 2,500 sq ft left outside the buffer	140	169	218
Lots that keep 2,500 sq ft today but lose it	–	29	81

On these lots a buffer change decides whether a house can be built without a variance. The hearing staff report notes that reasonable-use exceptions are not available within shoreline jurisdiction (p. 4).

6.3 Review distance: 200 to 300 ft

Critical-area review applies today within 200 ft of geologically hazardous areas and fish-and-wildlife habitat areas and within 300 ft of wetlands; the draft makes it 300 ft from any designated critical area. Using mapped marine shoreline, typed streams, lakes and wetlands, and slopes over 50% as a conservative stand-in for landslide hazard areas: 16,142 of 19,020 parcels are already within a review distance, and the change adds about **528 parcels** carrying **258 homes**. This is a floor: the code treats maps as a guide and lets field conditions control, so unmapped areas also trigger review, and habitat areas on the WDFW Priority Habitats and Species list are not in the County layers used here.

7 Results: streams, lakes, wetlands, fire clearing and slopes

7.1 Streams and small lakes

Distances are measured to the County's typed stream lines and lake edges; today's buffer is measured from bank-full width, the proposed buffer from the ordinary high water mark or stream edge, and both are approximated by the mapped line. Untyped (U) streams are not counted.

	Homes
Inside a proposed stream or small-lake buffer (F 180 ft; Np, Ns 100 ft; lakes under 20 acres 100 ft)	385
... of which outside marine shoreline jurisdiction	331
Within 180 ft of a Type F stream	201
... newly inside (beyond today's 75 / 100 ft)	142
Within 100 ft of a Type Np or Ns stream	5
Within 100 ft of a lake or pond under 20 acres	212
Newly inside any stream or small-lake buffer	172

Outside shoreline jurisdiction, the draft's nonconforming language applies directly: these homes “*are considered nonconforming as a result of critical area requirements*” (proposed 18.35.050, V7 clean p. 14), where today they are drawn out of the buffer (SJCC 18.35.045). Few homes sit near the mapped Np and Ns streams, which are sparsely mapped in the County layer.

7.2 Wetlands (indicative only)

Wetland buffer widths do not change, but the nonconforming language applies to homes inside them. The County's wetland layers are modelled “possible” wetlands without categories (27 of 2,805 non-tidal polygons are marked ground-truthed), so only a range can be given: about 329 homes sit within 40 ft of a mapped possible non-tidal wetland (the smallest moderate-intensity buffer), 1,008 within 110 ft (Category III), and 2,155 within 225 ft (Categories I and II). These figures are not added to the totals.

7.3 Fire-safety clearing

Today, 30 ft of vegetation may be cleared around buildings “*lawfully existing on the effective date of the ordinance*” (SJCC 18.35.030(D)), with no shoreline exclusion. The draft writes the date as March 31, 2014 and adds “*This exemption is not applicable within shoreline jurisdiction.*” About **2,929** main houses sit within 200 ft of the County mapped shoreline; **2,751** of them have footprints captured from imagery or LiDAR flown before 2014, and so would otherwise qualify.

7.4 Steep slopes (not estimated)

The new Category I setbacks (50, 75 or 100 ft by slope height, from slopes over 40% with 10 ft of relief) need a slope height and a 40% slope surface that the County does not publish as layers. The County's 2024 bare-earth LiDAR would support the calculation. This study does not estimate it.

8 Accuracy check

All 50 sampled tiles were reviewed against County 2025 aerial imagery (Appendix C).

Question	Result
Is the selected building a house?	43 clearly a house or cabin; 4 under tree canopy but consistent with a house; 3 hidden by canopy. No tile showed a garage, barn or shed selected instead of a house.
Where is the County mapped shoreline relative to the visible shore?	Rocky shores: at the rock and water edge (28 tiles). Beaches and tide flats: at the water's edge, seaward of the beach and vegetation line (22 tiles). No tile showed line A clearly landward of the high-water line.
Does the County's 200-ft line agree?	Generally; badly off in 4 tiles (for example, placing a house on the shoreline where method A measures about 60 ft). Method A is therefore the main figure.
Footprint registration	Footprints are sometimes offset 10-20 ft from the roof in the imagery; within the ± 15 ft sensitivity range.
Missing buildings	Some houses visible in the 2025 imagery have no footprint in the County layer (most footprints derive from 2009 LiDAR). These are not counted.

Net direction of error. On beaches the County mapped shoreline runs seaward of the high-water line, so distances are too long and houses are under-counted; missing footprints also reduce the counts. The main error that would push the other way, a non-house building picked as a house, was not observed. The estimates are more likely low than high.

9 Limitations

1. **Not the ordinary high water mark.** The County's lines approximate the shore; the regulatory line is set in the field. On beaches the approximation is seaward (counts low); elsewhere it may be off in either direction.
2. **Today's buffer is modelled, not determined.** Intensity is inferred from dwellings per assessed acre, and slope from the County slope layer along one path; on a real permit both are decided on site. The count of homes newly inside a buffer is sensitive to both (Section 5.2 shows the range).
3. **Legal status is not determined here.** The study quotes the code and the draft and counts homes inside the proposed lines. How proposed 18.35.050 and 18.50.090 apply to a given home is for the County and, for shorelines, Ecology. The County may regard the deleted shoreline conforming-use sentence as obsolete (Section 5.3).
4. **The 150-ft figures depend on which reading applies** (Section 6.1). Buffer averaging, variances, the 33% sparse-vegetation increase, and geotechnical setbacks can move the line on individual lots; none is modelled.
5. **Homes are inferred** from assessor codes and a largest-building rule. Codes can be stale; farm and forest houses appear only in the upper set; multi-unit buildings count once.
6. **Data vintage.** Most footprints derive from 2009 LiDAR, with updates through 2022–23. Recent houses are missing; some demolished buildings may remain.
7. **Sensitivity is large near the shore.** A 15-ft shift moves the within-75-ft count by about ± 350 homes. Only ranges are defensible; single figures are rounded.
8. **Map layers for streams and wetlands are incomplete**, and the County notes that maps are a guide and field conditions control. Section 7 figures are indicative.
9. **Excluded:** lakes and lagoons from the marine results; untyped streams; WDFW priority habitat areas; eagle, heron and falcon nest distances; steep-slope setbacks; over-water structures.
10. **No dollar figures.** This study does not estimate changes in property value.

10 What a public impact disclosure would include

The County has the data, the staff and consultant GIS support to produce figures like these, and to produce them more precisely than a resident can. This study asks for three things before a recommendation is made:

1. **Publish the County's own count**, by rule, of existing homes, accessory dwellings and vacant lots inside today's and the proposed buffers and review distances, with its method, so the Commission and Council can see the size of each choice before making it.
2. **Notify the owners**. Appendix D lists, by parcel number only, the 3,002 parcels this study finds inside a proposed line. The County holds the owners' mailing addresses. A mailed notice describing the change and how to comment would give the people most affected the chance to be heard. (This study does not compile owner names.)
3. **Publish a map** on which owners can see where today's and the proposed lines fall on their own lot.

Each of these concerns disclosure only. They ask for nothing the County does not already have, and they leave every policy choice where it belongs: with the Commission and the Council, on the record.

Respectfully submitted,

Philip Emanuele

San Juan County

11 Reproducing this study

The analysis runs in Python 3.9 with geopandas 1.0, shapely 2 and pandas, on a laptop, in a few minutes. The scripts and result tables are published with this study at velorete.com/cao#study (direct download: media.freewave.dev/y4t0u6/documents/sjc-cao-study-reproduction.zip), with a README giving the steps below.

Step	Script	What it does	Run time
1	<code>fetch_layers.py</code>	Downloads each County layer in full by object ID; writes GeoJSON and a log with record counts.	≈10 min
2	<code>phase1_homes.py</code>	Projects to EPSG:2285; joins footprints to parcels; classifies homes; measures distance to lines A and B.	≈20 s
3	<code>phase1_counts.py</code>	Counts by band for both lines and all shifts (Appendix B).	seconds
4	<code>phase2_distances.py</code>	Distances to streams by type, lakes, wetlands; bedrock, feeder-bluff and slope context.	≈2 min
5	<code>phase2_vacant_lots.py</code>	Dry land inside 75 / 100 / 110 / 150 ft on vacant waterfront lots.	≈1 min
6	<code>phase2_rules.py</code>	Applies today's and the proposed rules; review distance; fire clearing; Appendix D list.	≈20 s
7	<code>spotcheck_render.py</code>	Renders the 50 accuracy-check tiles on County 2025 imagery.	≈5 min
8	<code>report_figures.py</code> , <code>build_report.py</code>	Figures and this document; every number is read from the output tables.	≈1 min

Rerunning step 2 from a clean download reproduced every count in Table 5.1 exactly. Because County layers change over time, a later download may differ slightly; download dates are in Section 3.

Key parameters. Main-house minimum 400 sq ft; ADU minimum 300 sq ft; upper-set minimum 600 sq ft; steep path 25 ft; sensitivity ± 15 and ± 30 ft; inside test: any part of a footprint within the distance; vacant-lot minimum 5,000 sq ft dry land; building-area threshold 2,500 sq ft; random seed 20261010.

A Assessor land-use codes used to identify homes

Parcels counted in each set, with the number of parcels countywide carrying the code (County tax-parcel layer).

Code	Assessor description	Parcels	Set
1100	Household, Single Family Units	6,958	Main house
1101	Sgl Family Unit - Owner Built	258	Main house
1102	Sgl.Family Unit/Mfg Or Modular	715	Main house
1103	Sgl Family Unit With Dock	449	Main house
1107	Sfr W/ Freestanding Adu	1,129	Main house
1108	Sfr W/ Vaca Rent-Main House	311	Main house
1120	Sngl Fam Res W/Cons Esmt Or Restriction	173	Main house
1123	Sgl Family W/Dock & Cons Esmt Or Restriction	10	Main house
1128	Sgl Fam W/Adu W/Cons Esmt Or Restriction	24	Main house
1130	3 Or More Sfr'S	22	Main house
1137	Sfr With Internal Adu	57	Main house
1138	Sfr W/ Vaca Rent Internal Adu	7	Main house
1147	Sfr W/ Attached Adu	15	Main house
1148	Sfr W/ Vaca Rent Attached Adu	1	Main house
1158	Sfr W/ Vaca Rent Freestand Adu	34	Main house
1188	Sfr W/ Vaca Rent Mn House/Adu	6	Main house
1190	Improvement Only - Residence	112	Main house
1192	Improv Only - Res, Mobile, Etc	1	Main house
1200	Household, 2-4 Units In 1 Bldg	55	Main house
1201	Household,2-4 Unit,Ownerbuilt	2	Main house
1202	Household 2-4 Units In 1 Bldg W/Mfg Or Mod	1	Main house
1203	Household,2-4 Unit W/Dock	18	Main house
1207	Duplex W/ Freestanding Adu	4	Main house
1208	Duplex Vaca Rent Free St Adu	3	Main house
1220	Res 2-4 W/Cons Esmt Or Restriction	3	Main house
1223	Hshld,2-4 Unit,Cons Esmt Or Restriction &Dock	2	Main house
1300	Household, Multi-Units	71	Main house
1302	Household, Multi-Unit, Mod/Mfg	38	Main house
1400	Residential Hotels/Condos	208	Main house
1403	Condo Or B&B W/Dock	2	Main house
1407	Bed & Breakfast	28	Main house
1408	B & B W/ Detached Vaca Rental	3	Main house
1427	B & B W/Cons Esmt Or Restrict	1	Main house
1500	Mobile Home Parks Or Courts	11	Main house
1800	Residential W/Imp Val Not Coded Elsewhere	229	Upper set only
1803	Res With Dock	116	Upper set only
1820	Res W/Imp Val &W/Cons Esmt/Restrict Not Coded Else	29	Upper set only

Code	Assessor description	Parcels	Set
1823	Res W/Cons Esmt Or Restriction & Dock	10	Upper set only
1900	Vacation And Cabin	578	Main house
1901	Vacation & Cabin -Owner Built	72	Main house
1902	Vacation & Cabin/Mfg Or Mod	3	Main house
1903	Vacation & Cabin W/ Dock	39	Main house
1920	Vacation & Cabin W/Cons. Esmt Or Restriction	24	Main house
8300	Open Space - Farm & Ag	454	Upper set only
8303	Open Space - Farm & Ag W/Dock	2	Upper set only
8307	O/S Agricultural W/Guest House	14	Upper set only
8320	O/S Agricultural W/ Cons Esmt Or Restriction	107	Upper set only
8800	Designated Forest Land	415	Upper set only
8820	Dfl W/Cons Esmt Or Restriction	46	Upper set only
9400	Open-Open Space	83	Upper set only
9403	Open-Open Space With Dock	7	Upper set only
9408	Open Open Space W Vaca Rental	2	Upper set only
9420	Open-Open Space W/Cons Esmt Or Restriction	127	Upper set only
9423	Os/Os W/Cons Esmt Or Restriction & Dock	1	Upper set only
9430	Open Space Farm Conservation	38	Upper set only
9500	Open Space - Timber	88	Upper set only
9520	Open Space - Tbr W/Cons Esmt Or Restriction	10	Upper set only

B Full sensitivity tables

Counts within each distance for both County shoreline lines, with the line shifted landward (+) or seaward (–). “Main houses” is the headline measure; “+ ADUs” adds accessory dwellings; “Upper set” adds likely houses on farm, forest and open-space parcels; “All buildings” counts every footprint on land.

Line	Shift	Main ≤75	Main ≤110	Main ≤150	Main ≤200	+ADUs ≤110	Upper set ≤110	All bldgs ≤110
Line A	-30 ft	675	1,581	2,303	2,753	1,659	1,678	2,626
Line A	-15 ft	1,084	1,904	2,450	2,837	2,002	2,028	3,244
Line A	as mapped	1,451	2,169	2,586	2,929	2,289	2,318	3,823
Line A	+15 ft	1,806	2,361	2,708	3,011	2,513	2,551	4,348
Line A	+30 ft	2,097	2,501	2,808	3,090	2,675	2,715	4,820
Line B	-30 ft	712	1,444	2,169	2,660	1,512	1,531	2,441
Line B	-15 ft	1,005	1,746	2,336	2,754	1,835	1,861	3,019
Line B	as mapped	1,329	2,015	2,493	2,849	2,130	2,159	3,569
Line B	+15 ft	1,649	2,226	2,621	2,947	2,362	2,394	4,050
Line B	+30 ft	1,929	2,397	2,727	3,015	2,560	2,598	4,524

C Accuracy-check log and tiles

Each tile is 900 × 900 ft of County 2025 imagery centred on a randomly drawn main house (pink). Cyan: County mapped shoreline. Dashed yellow, orange, red: 75, 110 and 150 ft from it. White: other footprints. Tile titles give the County building ID (FID) and the measured distances, so any tile can be re-located in the County's own viewer.

Tile	Building	County mapped shoreline position	Note
00	house visible	ok (rocky)	
01	obscured by trees	ok (rocky/pocket beach)	
02	house	seaward on beach (conservative)	
03	small cabin	ok	
04	house	ok (rocky)	
05	house	seaward on wide beach (conservative)	
06	house	seaward on beach (conservative)	
07	cottage	seaward on wide beach (conservative)	
08	obscured by trees	ok	
09	house	seaward on wide beach (conservative)	
10	house	seaward on beach (conservative)	
11	house	ok	
12	small cabin (436 sf)	seaward on tide flat (conservative)	
13	house	seaward on wide beach (conservative)	
14	house	seaward on beach (conservative)	
15	house	ok	
16	house	ok (rocky)	
17	house	ok	
18	house	ok	
19	house	seaward on beach (conservative)	
20	house (visible in County 2025 imagery)	ok (forested bank)	cloud in earlier imagery
21	house	seaward on tide flat (conservative)	
22	cabin	ok; line B wrong here (dB=0 vs dA=60)	
23	house	ok	line B 45 ft closer than A
24	house	seaward on beach (conservative)	
25	house (image dim)	ok	
26	cabin	seaward on beach (conservative)	
27	house	seaward on wide beach (conservative)	
28	house under trees	ok	
29	house under trees	ok (rocky)	
30	house	seaward on tide flat (conservative)	
31	house	ok (rocky)	
32	house	ok (rocky); line B off (dB=193 vs dA=84)	
33	house	ok	
34	house	seaward on wide beach (conservative)	

Tile	Building	County mapped shoreline position	Note
35	house	seaward on wide beach (conservative)	
36	house	ok (rocky)	
37	house	ok	
38	house	ok (rocky)	
39	obscured by trees	ok	line B 66 ft closer than A
40	house	seaward on tide flat (conservative)	
41	house	ok	
42	house	ok	
43	house	seaward on wide beach (conservative)	line B 37 ft closer than A
44	house under trees	ok	line B off (dB=178 vs dA=89)
45	house	seaward on wide beach (conservative)	
46	house	seaward on beach (conservative)	
47	house	seaward on beach (conservative)	
48	house (visible in County 2025 imagery)	ok (rocky)	cloud in earlier imagery
49	house	ok (rocky); line B wrong here (dB=0 vs dA=59)	



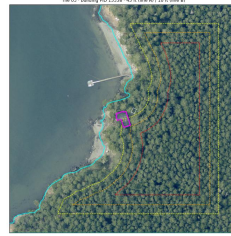
Tile 00



Tile 01



Tile 02



Tile 03



Tile 04



Tile 05



Tile 06



Tile 07



Tile 08



Tile 09



Tile 10



Tile 11



Tile 12



Tile 13



Tile 14



Tile 15



Tile 16



Tile 17



Tile 18



Tile 19



Tile 20



Tile 21



Tile 22



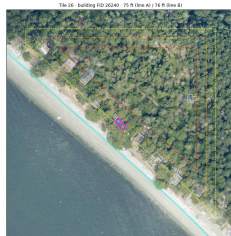
Tile 23



Tile 24



Tile 25



Tile 26



Tile 27



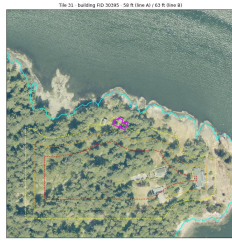
Tile 28



Tile 29



Tile 30



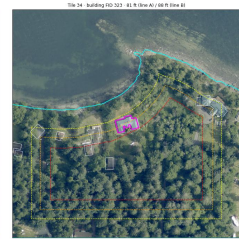
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Tile 32



Tile 33



Tile 34



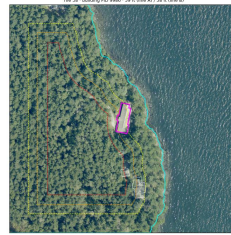
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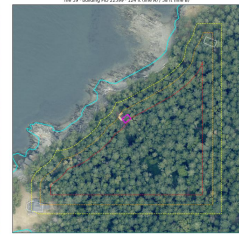
Tile 36



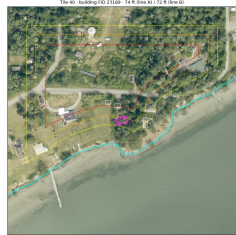
Tile 37



Tile 38



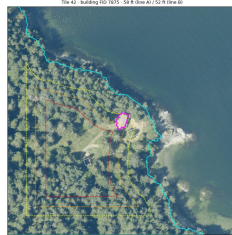
Tile 39



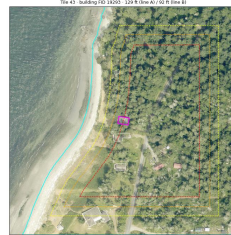
Tile 40



Tile 41



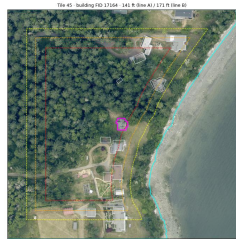
Tile 42



Tile 43



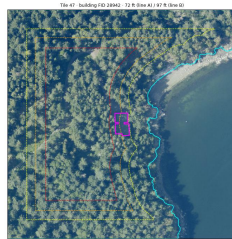
Tile 44



Tile 45



Tile 46



Tile 47



Tile 48



Tile 49

D Parcels inside the proposed lines (for owner notification)

The accompanying file `Appendix-D_Parcels-Inside-Proposed-Lines.csv` (also at velorete.com/cao#study) lists every parcel this study finds inside a proposed line, by County parcel number (PIN) only, with the reason(s) and the measured distance. It contains no owner names. The County can join it to the assessor's mailing records to send notice.

Reason (a parcel can have more than one)	Parcels
Main house within 110 ft of the marine shoreline	2,169
Main house newly inside a marine buffer (110 ft, and 150 ft on slopes over 30%)	284
Main house between 110 and 150 ft of the marine shoreline	417
Main house inside a proposed stream or small-lake buffer	385
Vacant waterfront lot that loses a 2,500 sq ft building area at 150 ft	79
Total parcels listed	3,002

Fields: PIN; category flags (marine 75–110 ft, marine 110–150 ft, vacant lot losing building area, review distance 200–300 ft, stream buffer); main-house distance to the County mapped shoreline (ft); assessor land-use code.

E Terms

OHWM (ordinary high water mark): the regulatory shoreline, set in the field. **Buffer**: an area landward of a critical area within which development is restricted. **Non-conforming**: a lawfully built structure that does not meet a later standard. **FWHCA**: fish and wildlife habitat conservation area; marine shorelines and typed streams are FWHCAs. **Shoreline jurisdiction**: the area within 200 ft of the OHWM regulated under the Shoreline Management Act. **Method A / method B**: distance measured from the County mapped shoreline, or from the County's 200-ft line (Section 4.1). **Water types**: F, fish-bearing; Np, non-fish perennial; Ns, non-fish seasonal; S, shoreline of the state; U, untyped. **PIN**: County parcel identification number.