From:	Charles Bennett
To:	HAMPTON Matthew L * DLCD; YOUNG Kevin * DLCD; PUNTON Amanda * DLCD; AHRENS Melissa * DLCD
Cc:	MILLER Jess K * DLCD; TAYLOR Casaria * DLCD
Subject:	RE: Goal 5 Wetlands and Urbanization RAC Meeting #1 Follow-Up
Date:	Monday, December 22, 2025 3:59:54 PM
Attachments:	image003.png

Hello DLCD Team,

Thank you for the opportunity to provide comments.

Section 1:
Adding a definition of “upland areas” would be useful even if the definition only refers to a DSL determination of upland.

Section 6:

Was this section intended for all UGB amendments or only ones related to SB 1537? 6(b), So extensions of water, electric, and gas utility lines can be developed in wetlands? Section 6 prohibits development in wetlands but (b) allows development only in upland areas… except…utilities that serve upland areas. The sentence structure is confusing. It seems to read that utilities may be developed in wetlands if they serve upland areas. The comment (AP2) suggests additional qualifying language is still pending.

Section 8:

We support modernizing the Rule with new language that moves away from a static adopted paper map to utilizing a dynamic digital inventory with the “best data available”. Does Statewide Wetlands Inventory need to be defined in the Rule as well? What data layers officially make up the Statewide Wetlands Inventory? Does the Statewide Wetlands Inventory website disclaimer conflict with the proposed Rule?

Thank you,

Charles Bennett
Planner III
Jackson County Development Services
10 South Oakdale Ave, Room 100
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JACKSON COUNTY
Oregon

From: HAMPTON Matthew L * DLCD <matthew.l.hampton@dlcd.oregon.gov>
Sent: Friday, December 19, 2025 11:05 AM
To: YOUNG Kevin * DLCD <Kevin.YOUNG@dlcd.oregon.gov>; PUNTON Amanda * DLCD <Amanda.PUNTON@dlcd.oregon.gov>; AHRENS Melissa * DLCD <Melissa.Ahrens@dlcd.oregon.gov>
Cc: MILLER Jess K * DLCD <Jess.K.MILLER@dlcd.oregon.gov>; TAYLOR Casaria * DLCD <Casaria.TAYLOR@dlcd.oregon.gov>
Subject: EXTERNAL: FW: Goal 5 Wetlands and Urbanization RAC Meeting #1 Follow-Up

***This message has been bcc'd to all RAC members*.**

Hello Wetlands and Urbanization RAC Members,

This is a gentle reminder that if you would like your comments to be considered for the next round of draft rule revisions, please respond with your comments, questions, and suggestions on the rule amendments by the end of the day on **December 22nd.**

The document provided is a Word document and it should have "Track Changes" on. **Please leave "Track Changes on, if you plan to add suggestions and comments into your copy of the draft.** That will allow us to clearly see your questions, comments, and revisions when you send it back to us. Alternatively, you may wish to just comment via email or a separate document, which is also fine. Please include Amanda, Melissa, and Kevin in your response. We are cc'ed in this message and will be included if you "Reply All."

The team appreciates all the responses received so far.

Thank you and enjoy your weekend.

Matthew Hampton
Rules, Records, and Policy Coordinator | Director's Office
Pronouns: any

Oregon Department of Land Conservation and Development
635 Capitol Street NE, Suite 150 | Salem, OR 97301-2540
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I am usually in the office on Tuesdays.

From: HAMPTON Matthew L * DLCD
Sent: Tuesday, December 9, 2025 6:25 PM
To: YOUNG Kevin * DLCD <Kevin.YOUNG@dlcd.oregon.gov>; PUNTON Amanda * DLCD <Amanda.PUNTON@dlcd.oregon.gov>; AHRENS Melissa * DLCD <Melissa.Ahrens@dlcd.oregon.gov>
Cc: MILLER Jess K * DLCD <Jess.K.MILLER@dlcd.oregon.gov>; TAYLOR Casaria * DLCD <Casaria.TAYLOR@dlcd.oregon.gov>
Subject: Goal 5 Wetlands and Urbanization RAC Meeting #1 Follow-Up

This message has been bcc'd to all RAC members.

Hello Wetlands and Urbanization RAC Members,

Thanks for joining us for our first RAC meeting on Monday! We were very pleased that everyone could attend, and we appreciate your questions, comments, and insights. As promised, we have attached the following materials to this email:

- The draft rule amendments to OAR 660-023-0100 and -0250
- An outline of Rule 660-023-0100, and
- A copy of our power point presentation from yesterday

Please review the draft rule amendments and other materials. We would appreciate your comments, questions, and suggestions on the rule amendments by the end of the day on December 22nd. That will allow us time to review your comments and revise the draft in advance of our January meeting. The document provided is a Word document and it should have "Track Changes" on. **Please leave "Track Changes on, if you plan to add suggestions and comments into your copy of the draft.** That will allow us to clearly see your questions, comments, and revisions when you send it back to us. Alternatively, you may wish to just comment via email or a separate document, which is also fine. Please include Amanda, Melissa, and Kevin in your response. We are cc'ed in this message and will be included if you "Reply All."

We are working on a Doodle poll for our January meeting, which you should receive soon. A little later, we will also be sending a poll to determine our February and late April/early May meeting dates and times.

Thanks for your help with this important effort! - Amanda, Melissa, and Kevin.

Matthew Hampton
Rules, Records, and Policy Coordinator | Director's Office
Pronouns: any
Oregon Department of Land Conservation and Development
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I am usually in the office on Tuesdays.

660-023-0100

Wetlands

(1) For purposes of this rule, a "wetland" is an area that is inundated or saturated by surface water or ground-water at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

(2) Local governments shall address the requirements of this division to apply Goal 5 to wetlands, as required by OAR 660-023-0250.

(a) Cities shall amend acknowledged plans and land use regulations to meet Goal 5 for wetlands in areas added to a UGB, as set out in OAR 660-023-0250(3), and

(b) Local governments shall amend acknowledged plans and land use regulations ~~prior to or at periodic review~~ to address the requirements of this division, as set out in OAR 660-023-0250(5) through (7) prior to or at periodic ~~.~~review.

(3) The standard inventory process requirements in OAR 660-023-0030 do not apply to wetlands. Instead, local governments shall follow the requirements of section (~~3~~4) of this rule in order to inventory and determine significant wetlands.

(~~3~~4) For areas inside urban growth boundaries (UGBs) and urban unincorporated communities (UUCs), local governments shall:

(a) Conduct a local wetlands inventory (LWI) using the standards and procedures of OAR 141-086-~~0110~~ 0100 through 141-086-0240 and determine which wetlands are "significant wetlands" using the criteria adopted by the Department of State Lands (DSL) pursuant to ORS 197.279(3)(b) and OAR 141-086-0300 through 141-086-350~~adopt the LWI as part of the comprehensive plan or as a land use regulation~~; and

(b) ~~Determine which wetlands on the LWI are "significant wetlands" using the criteria adopted by the Division of State Lands (DSL) pursuant to ORS 197.279(3)(b)~~ Adopt the LWI and ~~adopt~~ the list of significant wetlands as part of the comprehensive plan or as a land use regulation.

(~~4~~5) For significant wetlands inside UGBs and UUCs, a local government shall:

(a) Complete the Goal 5 process and adopt a program to achieve the goal following the requirements of OAR 660-023-0040 and 660-023-0050; or

(b) Adopt a safe harbor ordinance to protect significant wetlands consistent with this subsection, as follows:

(A) The protection ordinance shall place restrictions on grading, excavation, placement of fill, and vegetation removal other than perimeter mowing and other cutting necessary for hazard prevention; and

(B) The ordinance shall include a variance procedure to consider hardship variances, claims of map error verified by DSL, and reduction or removal of the restrictions under paragraph (A) of this subsection for any lands demonstrated to have been rendered not buildable by application of the ordinance.

Commented [AP1]: Possibly expend in to a definitions section. Add "uplands"

Commented [MB2]: New section 4, when combined with section 6, means that there will be a moratorium on development of non-significant wetlands until (a) and (b) can be achieved. This is an unacceptable outcome in that it delays or inhibits use of property that has already gone through significant analysis as part of a UGB amendment and local comprehensive plan update process. I am opposed to language that restricts development on non-significant wetlands until the local jurisdiction and the state sign off on a LWI. These rule changes need to provide a path to development of non-significant wetlands that is no more onerous than the current process today.

(6) **Optional wetland avoidance program** - When applying Goal 5 in an area added to a UGB as set out in OAR 660-023-0250(3), a city may adopt a wetland avoidance program that prohibits grading, excavation, placement of fill, and vegetation removal in all wetlands until the avoidance program is replaced with a local wetland protection program consistent with sections (4) and (5). A wetland avoidance program shall:

(a) Require DSL approved delineations or a determinations of upland prior to development approval on all parcels for which development is proposed

(b) Allow development only in upland areas, provided a development proposal meets other local review criteria, except that the extension of water, electric, and gas utilities lines may be allowed to serve upland portions of a property.

RAC input is requested on:

1. *What the rule should require as a commitment to adopting and implementing a wetland avoidance program; and*
2. *When the commitment needs to be made.*

(7) For [*Some subset of UGB expansion areas*], a city's wetland avoidance program must replace the program with a full local Goal 5 wetland protection program consistent with sections 5 and 6, [*Within/before . . .*]

RAC input is requested on:

1. *When allowing a city to maintain a wetland avoidance program indefinitely is consistent with Statewide Land Use Planning Goals 3, 5, and 14; and*
2. *If transition to a full local wetland protection program is required for some cities, when should that the transition occur?*

(~~5~~8) For areas outside UGBs and UUCs, local governments shall ~~either adopt the statewide wetland inventory (SWI; see ORS 196.674) as part of the local comprehensive plan or as a land use regulation, or shall~~ use ~~a current version~~the Statewide Wetlands Inventory for the purpose of section (10~~7~~) of this rule.

(~~6~~9) For areas outside UGBs and UUCs, local governments are not required to amend acknowledged plans and land use regulations in order to determine significant wetlands and complete the Goal 5 process. Local governments that choose to amend acknowledged plans for areas outside UGBs and UUCs in order to inventory and protect significant wetlands shall follow the requirements of sections (4~~3~~) and (5~~4~~) of this rule.

(~~7~~10) All local governments shall adopt land use regulations that require notification of DSL concerning applications for development permits or other land use decisions affecting wetlands on the inventory, as per ORS 227.350 and 215.418, or on the SWI as provided in section (8~~5~~) of this rule.

Commented [MB3]: in all significant wetlands

Commented [MB4]: There should be an option for the city to adopt a localized determination of significance based on an actual wetland delineation on a property, and to approve and generate a Goal 5/ LWI compliant program for that property(ies) concurrently with the wetland permitting process.

Commented [MB5]: Many of these upland areas will be undevelopable, and therefore caught up in this rule, if you can't serve them with a roadway. There should be an exception here for roadways as well, on non-significant wetlands.

Commented [AP6]: This allowance is for when other reasonable options are not available, but the rule should avoid the use of subjective language.

Commented [AP7]: The SWI is not a static inventory. Data from DSL approved delineations are added over time. For this reason a locally adopted snapshot of the SWI would not include best available data. In 1996 DSL provided LGs with paper maps. Now The SWI is an online mapping tool.

(~~8~~11) All jurisdictions may inventory and protect wetlands under the procedures and requirements for wetland conservation plans adopted pursuant to ORS 196.668 et seq. A wetlands conservation plan approved by the director of DSL shall be deemed to comply with Goal 5 (ORS 197.279(1)).

Statutory/Other Authority: ORS 183 & 197
Statutes/Other Implemented: ORS 197.040 & 197.225 - 197.245
History:
LCDC 2-1996, f. 8-30-96, cert. ef. 9-1-96

660-023-0250
Applicability

(1) This division replaces OAR 660, division 16, except with regard to cultural resources, and certain PAPAs and periodic review work tasks described in sections (2) and (4) of this rule. Local governments shall follow the procedures and requirements of this division or OAR 660, division 16, whichever is applicable, in the adoption or amendment of all plan or land use regulations pertaining to Goal 5 resources. The requirements of Goal 5 do not apply to land use decisions made pursuant to acknowledged comprehensive plans and land use regulations.

(2) The requirements of this division are applicable to PAPAs initiated on or after September 1, 1996. OAR 660, division 16 applies to PAPAs initiated prior to September 1, 1996. For purposes of this section "initiated" means that the local government has deemed the PAPA application to be complete.

(3) Local governments are not required to apply Goal 5 in consideration of a PAPA unless the PAPA affects a Goal 5 resource. For purposes of this section, a PAPA would affect a Goal 5 resource only if:

(a) The PAPA creates or amends a resource list or a portion of an acknowledged plan or land use regulation adopted in order to protect a **significant Goal 5 resource** or to address specific requirements of Goal 5;

(b) The PAPA allows new uses that could be conflicting uses with a particular **significant Goal 5** resource site on an acknowledged resource list; or

(c) The PAPA amends an acknowledged UGB and **factual information** is submitted demonstrating that a resource site, or the impact areas of such a site, is included in the amended UGB area. For the purposes of this rule, Statewide Wetlands Inventory data indicating the presence of wetlands, predominantly hydric soil map units, or Agate-Winlo soil are recognized as a demonstration of wetland presence.

Commented [AP8]: This amendment recognizes Statewide Wetlands Inventory improvements over the past years and its utility for flagging wetlands in an area where LWI or on-site data is not available. At RAC mtg #2 we will consider an option for achieving this objective with an amendment to OAR 60-023-0100 instead of 023-0250. .

RAC input is requested on whether this rulemaking should add clarification to OAR 660-023-0250(3) on timing when a city is required to "apply Goal 5" under (c).

(4) Consideration of a PAPA regarding a specific resource site, or regarding a specific provision of a Goal 5 implementing measure, does not require a local government to revise acknowledged inventories or

other implementing measures, for the resource site or for other Goal 5 sites, that are not affected by the PAPA, regardless of whether such inventories or provisions were acknowledged under this rule or under OAR 660, division 16.

(5) Local governments are required to amend acknowledged plan or land use regulations at periodic review to address Goal 5 and the requirements of this division only if one or more of the following conditions apply, unless exempted by the director under section (7) of this rule:

(a) The plan was acknowledged to comply with Goal 5 prior to the applicability of OAR 660, division 16, and has not subsequently been amended in order to comply with that division;

(b) The jurisdiction includes riparian corridors, wetlands, or wildlife habitat as provided under OAR 660-023-0090 through 660-023-0110, or aggregate resources as provided under OAR 660-023-0180; or

(c) New information is submitted at the time of periodic review concerning resource sites not addressed by the plan at the time of acknowledgement or in previous periodic reviews, except for historic, open space, or scenic resources.

(6) If a local government undertakes a Goal 5 periodic review task that concerns specific resource sites or specific Goal 5 plan or implementing measures, this action shall not by itself require a local government to conduct a new inventory of the affected Goal 5 resource category, or revise acknowledged plans or implementing measures for resource categories or sites that are not affected by the work task.

(7) The director may exempt a local government from a work task for a resource category required under section (5) of this rule. The director shall consider the following factors in this decision:

(a) Whether the plan and implementing ordinances for the resource category substantially comply with the requirements of this division; and

(b) The resources of the local government or state agencies available for periodic review, as set forth in ORS 197.633(3)(g).

(8) Local governments shall apply the requirements of this division to work tasks in periodic review work programs approved or amended under ORS 197.633(3)(g) after September 1, 1996. Local governments shall apply OAR 660, division 16, to work tasks in periodic review work programs approved before September 1, 1996, unless the local government chooses to apply this division to one or more resource categories, and provided:

(a) The same division is applied to all work tasks concerning any particular resource category;

(b) All the participating local governments agree to apply this division for work tasks under the jurisdiction of more than one local government; and

(c) The local government provides written notice to the department. If application of this division will extend the time necessary to complete a work task, the director or the commission may consider extending the time for completing the work task as provided in OAR 660-025-0170.

Statutory/Other Authority: ORS 183 & 197
Statutes/Other Implemented: ORS 197.040 & 197.225 - 197.245

History:
LCDC 2-1996, f. 8-30-96, cert. ef. 9-1-96

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660-023-0100

Wetlands

(1) For purposes of this rule, a "wetland" is an area that is inundated or saturated by surface water or ground-water at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

(2) Local governments shall address the requirements of this division to apply Goal 5 to wetlands, as required by OAR 660-023-0250.

(a) Cities shall amend acknowledged plans and land use regulations to meet Goal 5 for wetlands in areas added to a UGB, as set out in OAR 660-023-0250(3), and

(b) Local governments shall amend acknowledged plans and land use regulations ~~prior to or at periodic review~~ to address the requirements of this division, as set out in OAR 660-023-0250(5) through (7) prior to or at periodic ~~.~~review.

(3) The standard inventory process requirements in OAR 660-023-0030 do not apply to wetlands. Instead, local governments shall follow the requirements of section (~~3~~4) of this rule in order to inventory and determine significant wetlands.

(~~3~~4) For areas inside urban growth boundaries (UGBs) and urban unincorporated communities (UUCs), local governments shall:

(a) Conduct a local wetlands inventory (LWI) using the standards and procedures of OAR 141-086-~~0110~~ 0100 through 141-086-0240 and determine which wetlands are "significant wetlands" using the criteria adopted by the Department of State Lands (DSL) pursuant to ORS 197.279(3)(b) and OAR 141-086-0300 through 141-086-350~~adopt the LWI as part of the comprehensive plan or as a land use regulation~~; and

(b) ~~Determine which wetlands on the LWI are "significant wetlands" using the criteria adopted by the Division of State Lands (DSL) pursuant to ORS 197.279(3)(b)~~ Adopt the LWI and ~~adopt~~ the list of significant wetlands as part of the comprehensive plan or as a land use regulation.

(~~4~~5) For significant wetlands inside UGBs and UUCs, a local government shall:

(a) Complete the Goal 5 process and adopt a program to achieve the goal following the requirements of OAR 660-023-0040 and 660-023-0050; or

(b) Adopt a safe harbor ordinance to protect significant wetlands consistent with this subsection, as follows:

(A) The protection ordinance shall place restrictions on grading, excavation, placement of fill, and vegetation removal other than perimeter mowing and other cutting necessary for hazard prevention; and

(B) The ordinance shall include a variance procedure to consider hardship variances, claims of map error verified by DSL, and reduction or removal of the restrictions under paragraph (A) of this subsection for any lands demonstrated to have been rendered not buildable by application of the ordinance.

Commented [AP1]: Possibly expend in to a definitions section. Add "uplands"

Commented [SC2R1]: Yes. I'm curious to see how uplands would be defined. Is it essentially areas that are not a wetland or water?

(6) **Optional wetland avoidance program** - When applying Goal 5 in an area added to a UGB as set out in OAR 660-023-0250(3), a city may adopt a wetland avoidance program that prohibits grading, excavation, placement of fill, and vegetation removal in all wetlands until the avoidance program is replaced with a local wetland protection program consistent with sections (4) and (5). A wetland avoidance program shall:

(a) Require DSL approved delineations or a determinations of upland prior to development approval on all parcels for which development is proposed

(b) Allow development only in upland areas, provided a development proposal meets other local review criteria, except that the extension of water, electric, and gas utilities lines may be allowed to serve upland portions of a property.

RAC input is requested on:

1. *What the rule should require as a commitment to adopting and implementing a wetland avoidance program; and*
   - ~~1.~~ *Suggestion: Commitment to transition to full program within some number of years – suggest 5 years*
2. *When the commitment needs to be made.*
   - ~~2.~~ *Suggestion: with adoption of avoidance program*

(7) For [*Some subset of UGB expansion areas*], a city's wetland avoidance program must replace the program with a full local Goal 5 wetland protection program consistent with sections 5 and 6, [*Within/before . . .*]

RAC input is requested on:

1. *When allowing a city to maintain a wetland avoidance program indefinitely is consistent with Statewide Land Use Planning Goals 3, 5, and 14; and*
   - ~~1.~~ *Suggestion: If subject area has fully developed under section 6 or LWI does not identify any significant wetlands in remaining UGB area*
2. *If transition to a full local wetland protection program is required for some cities, when should that the transition occur?*
   - ~~2.~~ *Suggestion: 5 years (Seems like a reasonable amount of time, if starting process after adoption of an avoidance program to find funding, hire a consultant, conduct the field work, prepare reports, hold open houses, review process and adoption process). Allow for one extension of 2 or 3 years.*

Commented [SC3]: Would this be through a comprehensive plan amendment or code (land use regulation)?

Commented [AP4]: This allowance is for when other reasonable options are not available, but the rule should avoid the use of subjective language.

Commented [SC5]: Exception list should also include sanitary sewer lines and stormwater outfalls. Usually these utilities are located within street rights-of ways or pedestrian pathways/crossings. Looking at the map provided in RAC #1 meeting presentation, page 10 includes a map of a site that identifies 'likely wetlands' and areas where 'upland development can proceed'. There's an existing development pattern shown west of the subject site that shows streets stubbing to the west property line. Most local concept plans, master plans or TSP's would show/require extension of streets into and through the subject site, with at least one street being planned to cross the 'likely wetlands' area. Could this exception be expanded to also allow street or pedestrian connection across a wetland/water when required by TSP and permitted by DSL/Corps Joint Permit Application process?

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Commented [SC6]: Should this be sections 4 &5?

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(~~5~~8) For areas outside UGBs and UUCs, local governments shall ~~either adopt the statewide wetland inventory (SWI; see ORS 196.674) as part of the local comprehensive plan or as a land use regulation, or shall~~ use ~~a current version~~the Statewide Wetlands Inventory for the purpose of section (10~~7~~) of this rule.

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Statutory/Other Authority: ORS 183 & 197
Statutes/Other Implemented: ORS 197.040 & 197.225 - 197.245
History:
LCDC 2-1996, f. 8-30-96, cert. ef. 9-1-96

Commented [AP7]: The SWI is not a static inventory. Data from DSL approved delineations are added over time. For this reason a locally adopted snapshot of the SWI would not include best available data. In 1996 DSL provided LGs with paper maps. Now The SWI is an online mapping tool.

660-023-0250
Applicability

(1) This division replaces OAR 660, division 16, except with regard to cultural resources, and certain PAPAs and periodic review work tasks described in sections (2) and (4) of this rule. Local governments shall follow the procedures and requirements of this division or OAR 660, division 16, whichever is applicable, in the adoption or amendment of all plan or land use regulations pertaining to Goal 5 resources. The requirements of Goal 5 do not apply to land use decisions made pursuant to acknowledged comprehensive plans and land use regulations.

(2) The requirements of this division are applicable to PAPAs initiated on or after September 1, 1996. OAR 660, division 16 applies to PAPAs initiated prior to September 1, 1996. For purposes of this section "initiated" means that the local government has deemed the PAPA application to be complete.

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(a) The PAPA creates or amends a resource list or a portion of an acknowledged plan or land use regulation adopted in order to protect a **significant Goal 5 resource** or to address specific requirements of Goal 5;

(b) The PAPA allows new uses that could be conflicting uses with a particular **significant Goal 5** resource site on an acknowledged resource list; or

(c) The PAPA amends an acknowledged UGB and **factual information** is submitted demonstrating that a resource site, or the impact areas of such a site, is included in the amended UGB area. For the purposes of this rule, Statewide Wetlands Inventory data indicating the presence of wetlands, predominantly hydric soil map units, or Agate-Winlo soil are recognized as a demonstration of wetland presence.

Commented [AP8]: This amendment recognizes Statewide Wetlands Inventory improvements over the past years and its utility for flagging wetlands in an area where LWI or on-site data is not available. At RAC mtg #2 we will consider an option for achieving this objective with an amendment to OAR 60-023-0100 instead of 023-0250. .

RAC input is requested on whether this rulemaking should add clarification to OAR 660-023-0250(3) on timing when a city is required to "apply Goal 5" under (c).

(4) Consideration of a PAPA regarding a specific resource site, or regarding a specific provision of a Goal 5 implementing measure, does not require a local government to revise acknowledged inventories or other implementing measures, for the resource site or for other Goal 5 sites, that are not affected by the PAPA, regardless of whether such inventories or provisions were acknowledged under this rule or under OAR 660, division 16.

(5) Local governments are required to amend acknowledged plan or land use regulations at periodic review to address Goal 5 and the requirements of this division only if one or more of the following conditions apply, unless exempted by the director under section (7) of this rule:

(a) The plan was acknowledged to comply with Goal 5 prior to the applicability of OAR 660, division 16, and has not subsequently been amended in order to comply with that division;

(b) The jurisdiction includes riparian corridors, wetlands, or wildlife habitat as provided under OAR 660-023-0090 through 660-023-0110, or aggregate resources as provided under OAR 660-023-0180; or

(c) New information is submitted at the time of periodic review concerning resource sites not addressed by the plan at the time of acknowledgement or in previous periodic reviews, except for historic, open space, or scenic resources.

(6) If a local government undertakes a Goal 5 periodic review task that concerns specific resource sites or specific Goal 5 plan or implementing measures, this action shall not by itself require a local government to conduct a new inventory of the affected Goal 5 resource category, or revise acknowledged plans or implementing measures for resource categories or sites that are not affected by the work task.

(7) The director may exempt a local government from a work task for a resource category required under section (5) of this rule. The director shall consider the following factors in this decision:

(a) Whether the plan and implementing ordinances for the resource category substantially comply with the requirements of this division; and

(b) The resources of the local government or state agencies available for periodic review, as set forth in ORS 197.633(3)(g).

(8) Local governments shall apply the requirements of this division to work tasks in periodic review work programs approved or amended under ORS 197.633(3)(g) after September 1, 1996. Local governments shall apply OAR 660, division 16, to work tasks in periodic review work programs approved before

September 1, 1996, unless the local government chooses to apply this division to one or more resource categories, and provided:

(a) The same division is applied to all work tasks concerning any particular resource category;

(b) All the participating local governments agree to apply this division for work tasks under the jurisdiction of more than one local government; and

(c) The local government provides written notice to the department. If application of this division will extend the time necessary to complete a work task, the director or the commission may consider extending the time for completing the work task as provided in OAR 660-025-0170.

Statutory/Other Authority: ORS 183 & 197
Statutes/Other Implemented: ORS 197.040 & 197.225 - 197.245
History:
LCDC 2-1996, f. 8-30-96, cert. ef. 9-1-96

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660-023-0100

Wetlands

(1) For purposes of this rule, a "wetland" is an area that is inundated or saturated by surface water or ground-water at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

(2) Local governments shall address the requirements of this division to apply Goal 5 to wetlands, as required by OAR 660-023-0250.

(a) Cities shall amend acknowledged plans and land use regulations prior to or at periodic review to address the requirements of this division, as set out in OAR 660-023-0250(5) through (7) prior to or at periodic -review.

(3) The standard inventory process requirements in OAR 660-023-0030 do not apply to wetlands. Instead, local governments shall follow the requirements of section (~~3~~4) of this rule in order to inventory and determine significant wetlands.

(~~3~~4) For areas inside urban growth boundaries (UGBs) and urban unincorporated communities (UUCs), local governments shall:

(a) Conduct a local wetlands inventory (LWI) using the standards and procedures of OAR 141-086-~~0110~~ 0100 through 141-086-0240 and determine which wetlands are "significant wetlands" using the criteria adopted by the Department of State Lands (DSL) pursuant to ORS 197.279(3)(b) and OAR 141-086-0300 through 141-086-350~~adopt the LWI as part of the comprehensive plan or as a land use regulation~~; and

(b) ~~Determine which wetlands on the LWI are "significant wetlands" using the criteria adopted by the Division of State Lands (DSL) pursuant to ORS 197.279(3)(b)~~ Adopt the LWI and ~~adopt~~ the list of significant wetlands as part of the comprehensive plan or as a land use regulation.

(~~4~~5) For significant wetlands inside UGBs and UUCs, a local government shall:

(a) Complete the Goal 5 process and adopt a program to achieve the goal following the requirements of OAR 660-023-0040 and 660-023-0050; or

(b) Adopt a safe harbor ordinance to protect significant wetlands consistent with this subsection, as follows:

(A) The protection ordinance shall place restrictions on grading, excavation, placement of fill, and vegetation removal other than perimeter mowing and other cutting necessary for hazard prevention; and

(B) The ordinance shall include a variance procedure to consider hardship variances, claims of map error verified by DSL, and reduction or removal of the restrictions under paragraph (A) of this subsection for any lands demonstrated to have been rendered not buildable by application of the ordinance.

(6) **Optional wetland avoidance program** - When applying Goal 5 in an area added to a UGB as set out in OAR 660-023-0250(3), a city may adopt a wetland avoidance program that prohibits grading, excavation, placement of fill, and vegetation removal in all wetlands until the avoidance program is replaced with a

Commented [AP1]: Possibly expend in to a definitions section. Add "uplands"

Commented [GH2R1]: It does seem necessary to have a definition of "upland".

Perhaps not a real problem, but one minor concern Metro might have is that our acknowledged functional plan under OAR 660-023-0080 uses the term "upland habitat" to refer to Goal 5 wildlife habitat beyond riparian areas. I foresee some confusion between these different "upland" areas.

Commented [GH3]: Is Metro a "local government" here?

Commented [GH4]: What about counties with urban land use jurisdiciton within UGBs?

Commented [GH5]: Is this redundant?

Commented [GH6]: Including Metro?

Commented [GH7]: Should this be "or"?

Commented [GH8]: Including Metro?

Commented [GH9]: Extra space

Commented [GH10]: Including Metro?

Commented [GH11]: Should counties that also have responsibility for planning and developing areas in UGBs also have this opportunity?

local wetland protection program consistent with sections (4) and (5). A wetland avoidance program shall:

(a) Require DSL approved delineations or a determinations of upland prior to development approval on all parcels for which development is proposed

(b) Allow development only in upland areas, provided a development proposal meets other local review criteria, except that the extension of water, electric, and gas utilities lines may be allowed to serve upland portions of a property.

RAC input is requested on:

1. *What the rule should require as a commitment to adopting and implementing a wetland avoidance program; and*
2. *When the commitment needs to be made.*

(7) For [*Some subset of UGB expansion areas*], a city's wetland avoidance program must replace the program with a full local Goal 5 wetland protection program consistent with sections 5 and 6, [*Within/before . . .*]

RAC input is requested on:

1. *When allowing a city to maintain a wetland avoidance program indefinitely is consistent with Statewide Land Use Planning Goals 3, 5, and 14; and*
2. *If transition to a full local wetland protection program is required for some cities, when should that the transition occur?*

(~~5~~8) For areas outside UGBs and UUCs, local governments shall ~~either adopt the statewide wetland inventory (SWI; see ORS 196.674) as part of the local comprehensive plan or as a land use regulation, or shall~~ use ~~a current version~~the Statewide Wetlands Inventory for the purpose of section (10~~7~~) of this rule.

(~~6~~9) For areas outside UGBs and UUCs, local governments are not required to amend acknowledged plans and land use regulations in order to determine significant wetlands and complete the Goal 5 process. Local governments that choose to amend acknowledged plans for areas outside UGBs and UUCs in order to inventory and protect significant wetlands shall follow the requirements of sections (4~~3~~) and (5~~4~~) of this rule.

(~~7~~10) All local governments shall adopt land use regulations that require notification of DSL concerning applications for development permits or other land use decisions affecting wetlands on the inventory, as per ORS 227.350 and 215.418, or on the SWI as provided in section (8~~5~~) of this rule.

(~~8~~11) All jurisdictions may inventory and protect wetlands under the procedures and requirements for wetland conservation plans adopted pursuant to ORS 196.668 et seq. A wetlands conservation plan approved by the director of DSL shall be deemed to comply with Goal 5 (ORS 197.279(1)).

Commented [GH12]: To me at least, this wording might only suggest a voluntary opportunity to do something *extra* (i.e., adoption of a wetlands avoidance program), with the validity of that avoidance program expiring when it is replaced with a full protection program. The wording may not clearly say, as it presumably should, that by doing the avoidance program, the city doesn't have to do the full protection program for the avoidance program area in the meantime.

Commented [GH13]: Delete this "s"

Commented [GH14]: See previous comment regarding definition of "upland" and Metro's use of the term "upland habitat" in our acknowledged Goal 5 program for riparian and wildlife habitat (Title 13).

Commented [GH15]: How is "development" defined? Does it include land divisions, even when no new structure or ground disturbance is proposed?

Commented [GH16]: "lots and parcels" (parcels being defined separate from lots)

Commented [GH17]: Might need a period

Commented [GH18]: What about sewer, stormwater, internet, etc?

Commented [AP19]: This allowance is for when other reasonable options are not available, but the rule should avoid the use of subjective language.

Commented [GH20]: See previous comment about including counties.

Commented [GH21]: "must be replaced by"?

Commented [GH22]: Including Metro?

Commented [AP23]: The SWI is not a static inventory. Data from DSL approved delineations are added over time. For this reason a locally adopted snapshot of the SWI would not include best available data. In 1996 DSL provided LGs with paper maps. Now The SWI is an online mapping tool.

Commented [GH24]: Including Metro?

Commented [GH25]: Why the use of this term "All jurisdictions", instead of "All local governments"?

Statutory/Other Authority: ORS 183 & 197
Statutes/Other Implemented: ORS 197.040 & 197.225 - 197.245
History:
LCDC 2-1996, f. 8-30-96, cert. ef. 9-1-96

660-023-0250
Applicability

(1) This division replaces OAR 660, division 16, except with regard to cultural resources, and certain PAPAs and periodic review work tasks described in sections (2) and (4) of this rule. Local governments shall follow the procedures and requirements of this division or OAR 660, division 16, whichever is applicable, in the adoption or amendment of all plan or land use regulations pertaining to Goal 5 resources. The requirements of Goal 5 do not apply to land use decisions made pursuant to acknowledged comprehensive plans and land use regulations.

(2) The requirements of this division are applicable to PAPAs initiated on or after September 1, 1996. OAR 660, division 16 applies to PAPAs initiated prior to September 1, 1996. For purposes of this section "initiated" means that the local government has deemed the PAPA application to be complete.

(3) Local governments are not required to apply Goal 5 in consideration of a PAPA unless the PAPA affects a Goal 5 resource. For purposes of this section, a PAPA would affect a Goal 5 resource only if:

(a) The PAPA creates or amends a resource list or a portion of an acknowledged plan or land use regulation adopted in order to protect a **significant Goal 5 resource** or to address specific requirements of Goal 5;

(b) The PAPA allows new uses that could be conflicting uses with a particular **significant Goal 5** resource site on an acknowledged resource list; or

(c) The PAPA amends an acknowledged UGB and **factual information** is submitted demonstrating that a resource site, or the impact areas of such a site, is included in the amended UGB area. For the purposes of this rule, Statewide Wetlands Inventory data indicating the presence of wetlands, predominantly hydric soil map units, or Agate-Winlo soil are recognized as a demonstration of wetland presence.

RAC input is requested on whether this rulemaking should add clarification to OAR 660-023-0250(3) on timing when a city is required to "apply Goal 5" under (c).

(4) Consideration of a PAPA regarding a specific resource site, or regarding a specific provision of a Goal 5 implementing measure, does not require a local government to revise acknowledged inventories or other implementing measures, for the resource site or for other Goal 5 sites, that are not affected by the PAPA, regardless of whether such inventories or provisions were acknowledged under this rule or under OAR 660, division 16.

Commented [GH26]: A reminder that cities/counties in the Metro region do not submit PAPAs for UGB amendments (Metro does). So, this would not be a trigger for Metro region cities/counties.

Commented [GH27]: Perhaps say "UGB expansion area" instead, to be clear that this does not include areas removed from a UGB?

Commented [GH28]: Perhaps this could just say "demonstrate"

Commented [AP29]: This amendment recognizes Statewide Wetlands Inventory improvements over the past years and its utility for flagging wetlands in an area where LWI or on-site data is not available. At RAC mtg #2 we will consider an option for achieving this objective with an amendment to OAR 60-023-0100 instead of 023-0250. .

(5) Local governments are required to amend acknowledged plan or land use regulations at periodic review to address Goal 5 and the requirements of this division only if one or more of the following conditions apply, unless exempted by the director under section (7) of this rule:

(a) The plan was acknowledged to comply with Goal 5 prior to the applicability of OAR 660, division 16, and has not subsequently been amended in order to comply with that division;

(b) The jurisdiction includes riparian corridors, wetlands, or wildlife habitat as provided under OAR 660-023-0090 through 660-023-0110, or aggregate resources as provided under OAR 660-023-0180; or

(c) New information is submitted at the time of periodic review concerning resource sites not addressed by the plan at the time of acknowledgement or in previous periodic reviews, except for historic, open space, or scenic resources.

(6) If a local government undertakes a Goal 5 periodic review task that concerns specific resource sites or specific Goal 5 plan or implementing measures, this action shall not by itself require a local government to conduct a new inventory of the affected Goal 5 resource category, or revise acknowledged plans or implementing measures for resource categories or sites that are not affected by the work task.

(7) The director may exempt a local government from a work task for a resource category required under section (5) of this rule. The director shall consider the following factors in this decision:

(a) Whether the plan and implementing ordinances for the resource category substantially comply with the requirements of this division; and

(b) The resources of the local government or state agencies available for periodic review, as set forth in ORS 197.633(3)(g).

(8) Local governments shall apply the requirements of this division to work tasks in periodic review work programs approved or amended under ORS 197.633(3)(g) after September 1, 1996. Local governments shall apply OAR 660, division 16, to work tasks in periodic review work programs approved before September 1, 1996, unless the local government chooses to apply this division to one or more resource categories, and provided:

(a) The same division is applied to all work tasks concerning any particular resource category;

(b) All the participating local governments agree to apply this division for work tasks under the jurisdiction of more than one local government; and

(c) The local government provides written notice to the department. If application of this division will extend the time necessary to complete a work task, the director or the commission may consider extending the time for completing the work task as provided in OAR 660-025-0170.

Statutory/Other Authority: ORS 183 & 197
Statutes/Other Implemented: ORS 197.040 & 197.225 - 197.245
History:
LCDC 2-1996, f. 8-30-96, cert. ef. 9-1-96

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Wetland and Land Use Change in the Willamette Valley, Oregon: 2005 to 2020

VOLUME 1: FINAL REPORT

Oregon Department of State Lands
U.S. Fish and Wildlife Service

April 2022

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WETLAND AND LAND USE CHANGE IN THE WILLAMETTE VALLEY, OREGON: 2005 TO 2020

Volume 1: Final Report

Prepared by:
Josh Moss, Tim Divoll, and Tim O'Neill
As adapted from the 1994–2005 report's text written by Janet C. Morlan
SWCA Environmental Consultants

The report is composed of two volumes:
Vol. 1: Final Report and Vol. 2: Technical Appendices (available online)

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1.0 INTRODUCTION

Wetland status and trends information is important for managing Oregon's wetland resources and objectively assessing the effectiveness of the various state, federal, and local programs and regulations aimed at protecting, managing, or restoring wetlands. This study of wetland and land use change in Oregon's Willamette Valley, together with the previous studies covering the period 1982 to 1994 (Daggett et al., 1998; Bernert et al., 1999; Morlan and Peters, 1999) and 1994 to 2005 (Morlan et al., 2010), provides quantitative information about wetland changes in the Willamette Valley over a period of 38 years. Together, these reports provide statistically valid information about changes in wetland acreage, by wetland type, and the land uses associated with wetland gains, losses, and change in the Willamette Valley.

The concept of "no *net* loss" of wetland area as a public policy was first articulated by the National Wetlands Policy Forum (The Conservation Foundation, 1988) and was later adopted as federal policy by President George H.W. Bush. This policy has since been incorporated into many federal regulations, and in a 2004 speech President George W. Bush announced a policy objective to increase the overall quality and quantity of wetlands.

Oregon has adopted policies aimed at maintaining or increasing the state's wetland resource base, like the federal government's no net loss of wetlands policies. Although Oregon's wetland management and protection programs date back to the early 1970s, legislation passed in 1989 adopted clear policies directed at maintaining the acreage, functions, and values of the state's wetlands. Oregon has also adopted no net loss of freshwater wetlands and net gain of estuarine wetlands goals as part of its Benchmark Program that sets public policy goals and measures the effectiveness of state programs (Oregon Progress Board, 1994).

The Oregon Department of State Lands (DSL), which administers the state Removal-Fill Law and issues permits for impacts to wetlands and other waters of the state, maintains a database of permitted activities. DSL generates information on wetland losses that result from permitted wetland fills, and offsetting gains from required compensatory mitigation (wetland creation or restoration), as well as voluntary wetland restoration projects that require a state permit. However, these data do not capture actual wetland changes and losses that are not subject to, or otherwise not captured by, the state permit process.

Sturgeon Lake on Sauvie Island, Multnomah County

This study and the original studies were proposed by DSL to provide an independent evaluation of the effectiveness of the state regulatory program and other state and federal programs that address wetlands. The first study was developed to establish a statistically valid estimate of wetland change from the mid-1980s to the mid-1990s using aerial photographic interpretation. The primary objectives were to identify the nature of wetland changes, land uses associated with wetland loss, and wetland change dynamics over the last decade. The subsequent studies use the same sampling methodology (including the same sample plots) to extend the period from 1994 to

2005 and from 2005 to 2020. This allows us to analyze not only wetland and land use changes over a longer period, but to evaluate differences between the three time periods (1982–1994, 1994–2005, 2005–2020) and thus better assess trends. This is particularly important because, as noted in the conclusions and discussion in the original study report, the 1982 baseline predated most state and federal wetland protection and restoration programs. The current study replicates the methodology of the 1994–2005 study while taking advantage of the most current geographic information system (GIS) technology and aerial imagery to arrive at the most accurate statistical conclusions about wetland gain, loss, and change in the Willamette Valley.

The Willamette Valley was selected as a pilot region for a stratified sampling approach to estimate wetland losses throughout an ecoregion (Figure 1). This was done, in part, because of its importance to the economy of the state and because of the high degree of alteration it has experienced and continues to experience (see Section 2.0).

DSL entered into a cooperative agreement with the U.S. Fish and Wildlife Service (USFWS) to conduct the wetland and land use change aerial photo interpretation and change mapping for previous studies. The USFWS has conducted wetland status and trends studies for the nation for more than 30 years and reports the results of the studies periodically to Congress, as required by federal law. The collaboration with the USFWS ensured that the technical work would be conducted by experienced staff following USFWS photo interpretation and mapping conventions and standards. This allowed for quality control by the USFWS and comparison of study results with national status and trends study results (Dahl, 2006). For the current study, DSL has contracted with SWCA Environmental Consultants (SWCA) to conduct the wetland and land use change aerial photo interpretation, wetland change mapping, and field verification. This continues the methodological and quality control legacy from previous studies as SWCA has more than a decade of experience conducting federal-level era-to-era wetlands status and trends analyses in collaboration with the National Standards and Supports Team (NSST) and the USFWS.

The original study mapped all wetland and land use changes, classifying wetlands according to the "Cowardin" (Cowardin et al., 1979) classification and upland habitat types according to the USFWS wetland status and trends mapping conventions (see Section 3.0). For this study, wetlands were also classified according to the hydrogeomorphic (HGM) classification developed for Oregon (Adamus, 2001). The USFWS status and trends studies and these two studies provide information on the acreages and types of wetland changes; they do not explicitly evaluate wetland condition, quality, or functions. However, by using both classification systems, more information can be obtained about what types of wetlands are most common in the study area and what types have experienced the most loss, gain, or change in type (wetland-to-wetland changes). While some conclusions may be made about the probable effect of these changes on wetland functions and values based upon the best professional judgment of wetland scientists, none of these studies address changes in wetland "quality." The U.S. Environmental Protection Agency 2011 National Wetland Condition Assessment (Scozzafava et al., 2007), was the first attempt to fill that need.

*Signature species of Willamette Valley wet prairies include tufted hairgrass (*Deschampsia cespitosa*), American slough grass (*Bechmannia syzigachne*) and one-sided sedge (*Carex unilateralis*). Photograph by Janet Morlan*

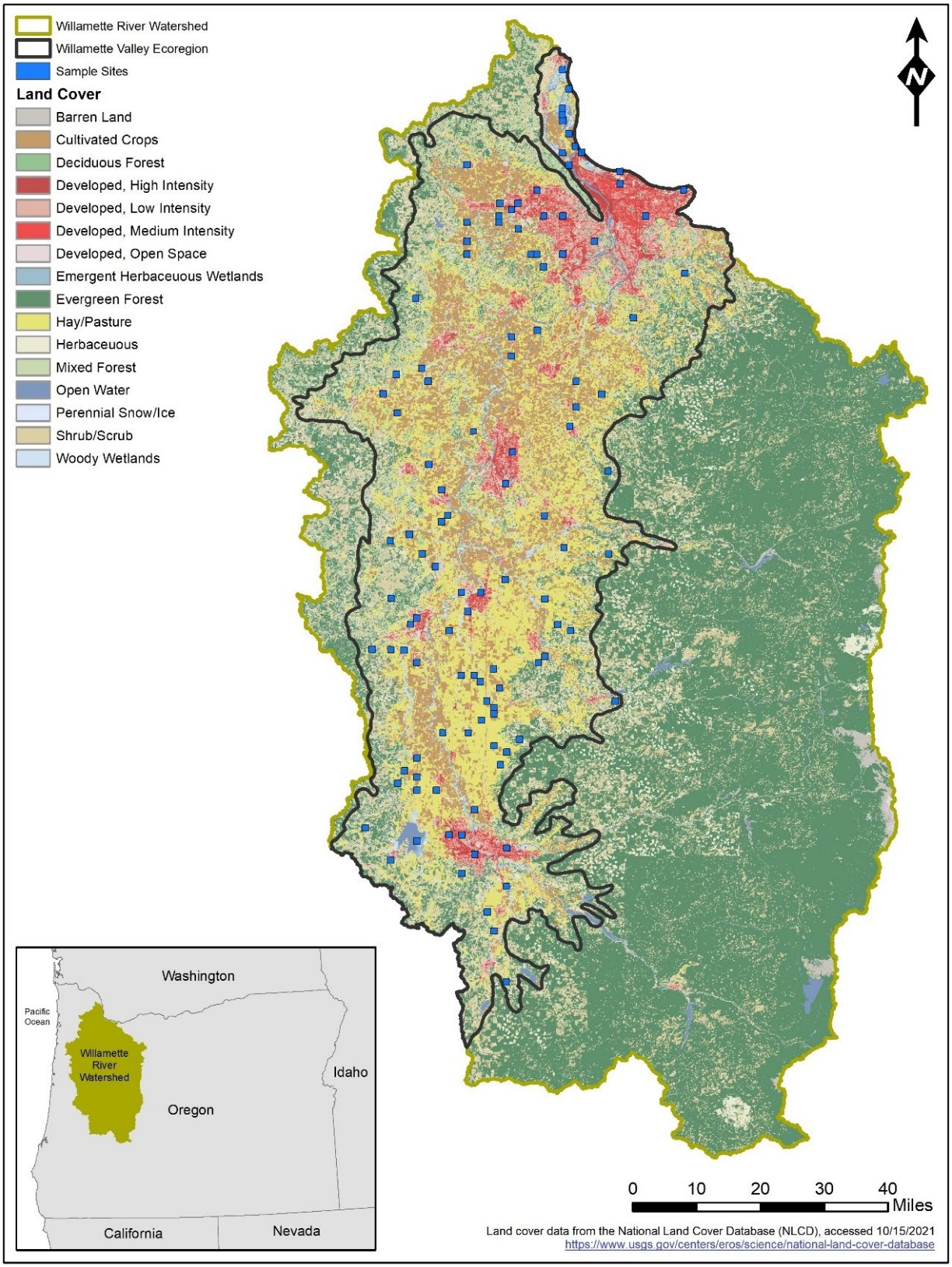

Figure 1. Location Map Showing the Willamette Valley Ecoregion Study Area and Location of Sample Plots

2.0 STUDY AREA DESCRIPTION

The Willamette Valley ecoregion lies between the Coast Range on the west and the Cascade Range on the east and extends approximately 180 miles from the Columbia River to the south. The Willamette River runs north through the valley to its confluence with the Columbia River near Portland. The Willamette River—the 13th largest river in the conterminous United States in terms of stream flow—is a major tributary of the Columbia River (Hulse et al., 2002). The valley consists of nearly level to gently sloping broad alluvial floodplains of the Willamette River system, scattered low hills, and adjacent mountain foothills (Pater et al., 1998). Due to the maritime influence of the Pacific Ocean, the valley has a mild climate. Winters are cool and wet, and summers are warm and dry. Average annual precipitation is from 30 to 60 inches in much of the region. Snow is infrequent in the valley bottom but is heavy in the Cascade Range.

The Willamette Valley accounts for more than 70% of the state's population, most of its industry, and almost half of its farmland. Most of the state's major cities (Portland, Salem, Corvallis, and Eugene) are in the Willamette Valley along the Interstate 5 corridor. Due to the long growing season and deep, fertile soils, the Willamette Valley is a major agricultural region. More than 50% of the valley bottom is in agricultural land use. A little more than 50% of Oregon's $3 billion in agricultural sales are derived from the more than 100 commodities grown in the Willamette Valley (Oregon Progress Board, 2000).

As a result of the valley's importance as an economic and agricultural region, the Willamette Valley is the most altered region in the state (Oregon Progress Board, 2000). Human alterations began with Native Americans who regularly burned the valley to maintain open prairies that favored certain game species and native plants such as camas that were a staple of their diet. When settlers arrived in the Willamette Valley, they found wide swaths of tall grass prairie dominated by tufted hairgrass (*Deschampsia cespitosa*). Prior to the 1840s, the valley was a mosaic of wetland and upland prairies, oak savanna dominated by Oregon white oak (*Quercus garryana*), extensive bottomland riparian forests with associations of Oregon ash (*Fraxinus latifolia*), black cottonwood (*Populus trichocarpa*), red alder (*Alnus rubra*), big-leaf map le (*Acer macrophyllum*), western red cedar (*Thuja plicata*), willows (*Salix* spp.) and Douglas-fir (*Pseudotsuga menziesii*), numerous wetlands and sloughs, and Douglas-fir forests on hilltops and better drained soils (Christy et al., 1998; Hulse, 1998; Pater et al., 1998). In winter, the Willamette River and its tributaries flooded the valley floor through numerous braided channels. This braided wetland pattern can still be seen in many areas in the winter despite conversion to agricultural use.

Muddy Creek in Linn County, with surrounding palustrine scrub/shrub and forest areas and agricultural fields

Palustrine emergent wetland, Sauvie Island, Multnomah County

Palustrine emergent meadow used for agriculture, Lane County, west of Crestwell

Early settlers drained the floodplain wetlands for agriculture, and flood control modifications have fundamentally altered the natural hydrologic dynamics of the river system and floodplain wetlands in the valley. The U.S. Army Corps of Engineers constructed 11 major water storage reservoirs on tributaries of the Willamette River between 1941 and 1969 (Hulse et al., 2002). Dams, diversions, levees, and similar alterations have largely disconnected the Willamette River from its braided channels, oxbows, and sloughs (Oregon Progress Board, 2000); as a result, more than 50% of the channel length of the Willamette River has been lost (Hulse, 1998).

The Willamette Valley has lost approximately 57% of its original wetlands area (Morlan, 2000). Approximately 80% of the once abundant riparian, bottomland forest has been converted to agricultural and urban land uses (Oregon Progress Board, 2000). Today, the bottomland wet prairie is the rarest of the native plant communities, reduced by an estimated 99% (Christy et al., 1998). Many wetland restoration strategies and efforts now focus on these heavily impacted wetland types.

3.0 METHODS

A summary of the methods used for this study is presented in this section. Complete descriptions of the methods are included in the technical appendices in Volume 2 of this report, available online.

The main objectives of this study were to quantify land cover changes between 2005 and 2020, with an emphasis on wetland change, and compare the results of this study with the previous study covering the period of 1994 to 2005. Based on these objectives, the same probabilistic sample design that was developed for Wetland and Land Use Change in the Willamette Valley, Oregon: 1982 to 1994 (Daggett et al., 1998) was used.

Of the potential sample designs, the probabilistic sample has multiple advantages, including:

- It is a reliable and repeatable method
- Information collected at a few locations can be used to make estimates for the entire study area, thereby greatly reducing sampling and analytical costs
- The statistical methods employed are easily transferable to other areas
- Uncertainty in the estimates can be tracked and quantified

The most important aspect of the sample design is that it allows detailed information from a limited number of sites to be extrapolated, with known uncertainty, to the entire study area.

A stratified systematic sampling method was chosen for this project because it performs well for geographic data. The sampling method used a two-stage process: 1) identify areas where wetland occurrence was most probable; and 2) perform detailed upland and wetland land cover mapping for the selected sample plots. The key elements of the sample design, mapping, and change analysis are described below.

3.1 Select and Refine the Study Area

The study area was the Willamette Valley ecoregion (Clarke et al., 1991). This ecoregion is geographically restricted to the lowland areas of the Willamette River basin where the probability of wetlands being present is relatively high.

3.2 Identify Population and Create Initial Sampling Frame

For the purposes of this study, it was decided that State Plane sections from the Public Land Survey System were the most easily identified land unit for the purpose of aerial photography interpretation; therefore, the population unit of interest was defined as all sections (generally 0.7 to 1.3 square miles) within the boundaries of the Willamette Valley ecoregion (4,790 square-mile sections).

3.3 Stratify the Population

The 1994 study stratified the valley using information from STATSGO—the statewide soils database (U.S. Department of Agriculture, 1991) and from GAP—a regional land cover database (Kagan and Caicco, 1992), both at a scale of 1:250,000. The principal reason for stratifying the valley using the soils database was that wetlands are not randomly or uniformly distributed and represent a minority of land

cover type throughout the state. By stratifying the study area using the soils data, the sampling could be focused on areas with potential for the presence of wetlands.

This had the effect of increasing the precision of the estimates of wetland changes while maintaining the statistical rigor required to estimate wetland change within the study area.

Land use strata were included in the sample design to ensure that adequate sample sizes were maintained within each major land use type. The Willamette River basin is dominated by forest and agricultural land uses, which account for 73% and 22% of the basin, respectively. Urban areas account for less than 5% of the entire basin. If land use strata had not been incorporated into the sampling design, the sample sizes would have been approximately proportional to the areal coverage of the various land uses. This would have resulted in excessive representation of wetlands in forested areas and inadequate representation of wetlands in agricultural and urban areas.

3.4 Collect the Stage 1 Sample

The number of samples was selected to minimize errors associated with the probability design. The minimum sample size in any of the 15 strata was 20 with a maximum of over 100 in agricultural land use. The margin of error was between 5% and 15%. This resulted in the selection of 711 sections for the sample.

3.5 Stratify Verified Soils and Land Use Based on Verified Hydric Soils

The second sample was stratified based only on the percentage of hydric soil units relative to non-hydric soil units, as verified with county soil surveys. Thirty percent of the high hydric soil units, 20% of the moderate, 10% of the low, and none of the 0% hydric soils units were resampled (Technical Appendix A).

3.6 Verify the Sample

Since the datasets used to stratify the study area (STATSGO and GAP) are regional-scale data and have inaccuracies, the 711 sections were verified by examining each selected section for the presence of hydric soils and land use category (agriculture, urban, forest, water) from the large-scale county soil survey photo map base.

3.7 Collect Stage 2 Sample

Photointerpretation of 711 sections would be extremely costly and time consuming, so a subsample was selected. Areas with greater amounts of hydric soils were sampled more intensely than were areas with less hydric soil, since the probability of wetland occurrence was expected to be proportional to the number of hydric soils verified on large-scale soil survey maps. The resulting Stage 2 sample used for photo interpretation consisted of 114 square-mile plots, or 72,960 acres that compose the sample for this study. For a more detailed discussion the sampling design, see Bernert et al. (1999).

3.8 Aerial Photographic Interpretation and Mapping Conventions

Procedures and protocol for this study closely followed those used by the USFWS National Wetlands Inventory (NWI) for its periodic national status and trends of wetlands reports to Congress (Dahl, 2004). The design of these procedures allows for future "continuous" analysis, at periodic intervals, of wetland change in the Willamette Valley. This study was based on interpretation of existing National Agriculture Imagery Program (NAIP) imagery acquired on July 8, 13, 18, 19, and 20, 2020.

The classification system used for this study includes wetlands, deepwater habitats, and uplands. Wetlands and deepwater habitats were identified and classified based on a modified version of the Classification of Wetlands and Deepwater Habitats of the United States (Cowardin, et al., 1979). The upland categories were identified and classified based on a modified version of the national status and trends classification system as defined in Continuous Wetland Trend Analysis Project Specifications (Dahl, 2004). The classification categories are described in Table 1 and defined in Technical Appendix B.

For this study, in addition to the classification of wetlands and deepwater habitats using Cowardin, we also classified wetlands according to the Guidebook for Hydrogeomorphic (HGM)-based Assessment of Oregon Wetland and Riparian Sites: Statewide Classification and Profiles (Adamus, 2001). The HGM classification is based upon a wetland's landscape position and hydrodynamics (Table 2).

Because these factors have been shown to exert a controlling influence on a wetland's ecological processes, wetlands of the same HGM classification in a particular ecoregion will likely support similar functions.

Table 1. Wetland, Deepwater, and Upland Cover Types

Attribute	**Wetland Types**	**Common Description**
PFO	Palustrine Forested	Forested Wetlands
PSS	Palustrine Scrub Shrub	Shrub Wetlands
PEM	Palustrine Emergent	Marshes/Wet Pastures
PUS	Palustrine Unconsolidated Shore	Shallow/Unvegetated Ponds
PUB	Palustrine Unconsolidated Bottom	Open Water Ponds
PAB	Palustrine Aquatic Bed	Floating or Submerged Vegetation
Pf	Palustrine Farmed	Farmed Wetlands
WFP	Wet Forested Plantation	Planted Pine/Cottonwoods in Wetland Conditions
Attribute	**Deepwater Habitat Types**	**Common Description**
LAC	Lacustrine	Lakes/Reservoirs
RIV	Riverine	River Systems
Attribute	**Upland Land Use/Cover Types**	**Common Description**
UA	Upland Agriculture	Crop Producing/Pasture
UB	Upland Built (Urban)	Cities and Towns
URD	Upland Rural Development	Rural Building/Development
UFP	Upland Forested Plantation	Christmas Tree Farms; Cottonwood Plantations (drained)
UO	Upland Other	Uplands not fitting other category

Table 2. Hydrogeomorphic Classification of Wetlands

HGM Code	HGM Class	HGM Subclass
DCNP	Depressional	Closed, Nonpermanently flooded
DCP	Depressional	Closed, Permanently flooded
DO	Depressional	Outflow (open)
F	Flats	None defined
LFV	Lacustrine Fringe	Valley
RFT	Riverine	Flowthrough
RI	Riverine	Impounding
SH	Slope	Headwater
SV	Slope	Valley

3.9 1982–1994 GIS Data Input Methods

GIS databases were prepared in ARC/INFO according to the following steps:

1. Prepare maps
2. Digitize map coverages
3. Identify and correct digitizing errors
4. Define features and build topology
5. Identify and correct topological errors
6. Assign attributes to coverage features
7. Identify and correct attribute coding errors
8. Print final maps

3.10 1994–2005 GIS Data Input Methods

Despite the primary objective of replicating the original study plots and methods, to reveal long-term trends and make comparisons between the first two study periods, two adjustments to the 1994 baseline data were made due to technological advances for the 1994 to 2005 study.

Originally, the 1982 delineated data and the change overlays were transferred from the aerial photographs to overlays on U.S. Geological Survey 1:24,000-scale topographic maps following Cartographic Conventions for the National Wetlands Inventory (USFWS, 1994a). Using the 1982 maps and 1994 change maps, wetlands, deep-water habitats, and upland information and changes were digitized into a GIS database. This methodology created alignment issues for the update. Therefore, the first adjustment was to correct any major alignment errors on each 1994 plot before delineating the change polygons on the 2005 plots.

In the 1982 to 1994 study, narrow wetlands and deep-water habitats, those that were too narrow to be mapped in areal units (<33 feet), were mapped as linear features, and measured in linear distance (miles). These were reported separately because of the uncertainty in determining their width (which would have allowed calculations of area). The 1994 to 2005 study was completed without the use of hard-copy imagery and stereoscopic interpretation. Instead, 1-meter digital imagery was used. This removed the limitations associated with scale from using 1:24,000-scale aerial photographs in the first study. Therefore, the second adjustment was to convert all linear features to polygon features using a standard

buffer of 2.5 meters. This is the buffer size used by the NWI for mapping in the west, creating a polygon width of 5 meters (~25 feet). In the previous study, palustrine emergent wetlands made up the greatest linear wetland type. Most linear palustrine emergent wetlands in agricultural areas were ditches. Therefore, there is a small increase in palustrine emergent wetlands in the adjusted 1994 acreage numbers when compared to the original study (Table 3).

The adjustment of alignment and buffering of the linear features created minor changes in the acreage and relative proportion of wetlands, deep-water, and upland habitats. Wetland acreage increased and upland acreage decreased, as the buffered streams and wetlands occupy area that was previously counted as uplands. Table 3 shows the 1994 acreage numbers reported in the original report compared to the adjusted/edited acreage.

The GIS data layers were brought into ArcInfo 9.2 and edited according to the following steps:

1. GIS data layers from the 1982 to 1994 study were brought into a geodatabase.
2. Major alignment issues were adjusted on the 1994 layer using 2005 NAIP imagery.
3. Linear features were buffered into the polygon layer using a standard 2.5-meter buffer.
4. Areas where overlaps occur due to the buffering were corrected.
5. Topological errors were identified and corrected.
6. Change analysis was completed.

Table 3. Comparison of Land Cover Acreages after Adjustments

Category	Land Cover Type	1994		1994 After Edits	
		acres	Percent of Total Area	acres	Percent of Total Area
Wetland	**PEM**	82,468	2.6%	89,245	2.8%
	PFO+PSS	105,051	3.3%	127,542	4.0%
	Other Palustrine	78,884	2.5%	98,644	3.1%
	Total	266,403	8.3%	315,431	9.9%
Deepwater	**RIV**	91,197	2.9%	83,593	2.6%
	LAC	78,531	2.5%	64,934	2.0%
	Total	169,728	5.3%	148,527	4.6%
Upland	**UA**	1,588,672	49.7%	1,697,578	53.1%
	UB	423,501	13.3%	411,671	12.9%
	URD	59,996	1.9%	72,330	2.3%
	UO	666,480	20.9%	531,036	16.6%
	UFP	20,611	0.6%	18,818	0.6%
	Total	2,759,260	86.4%	2,731,433	85.5%
Total		3,195,391	100.0%	3,195,391	100.0%

3.11 2005–2020 GIS Data Input Methods

GIS technology, aerial imagery quality, mapping methods and reference scales were similar enough between 2005 and 2020 that no baseline adjustments to the 2005 linework/GIS data were required prior to beginning the mapping phase of this analysis (Figure 2). The standard buffering procedure for linear features described in Step 3 of Section 3.10 was also already completed for the 2005 data and did not need to be repeated. Still, technological advances over the last 15 years have resulted in improvements to the remote mapping, identification, and classification of upland, wetland, and deepwater environments. While no changes to feature boundaries were done with the goal of improving the positional accuracy of the sample data (i.e., baseline adjustments), a limited number, less than 1%, of the total sample plot features from the past report were determined to have been misclassified, in portion or in whole. These misclassified data had their 2020 attributions noted as corrections. When a correction was limited to a portion of a feature, the feature was cut/split and had the miss attributed portions noted as a correction in a "CORRECTIONS" attribute field. These corrections were limited to features larger than a half-acre (see Figure 2). Efforts were made to limit this technological variability in data comparisons by reviewing the past aerial photography of the area with the modern technologies and techniques to verify changes to attributions were representative of true changes.

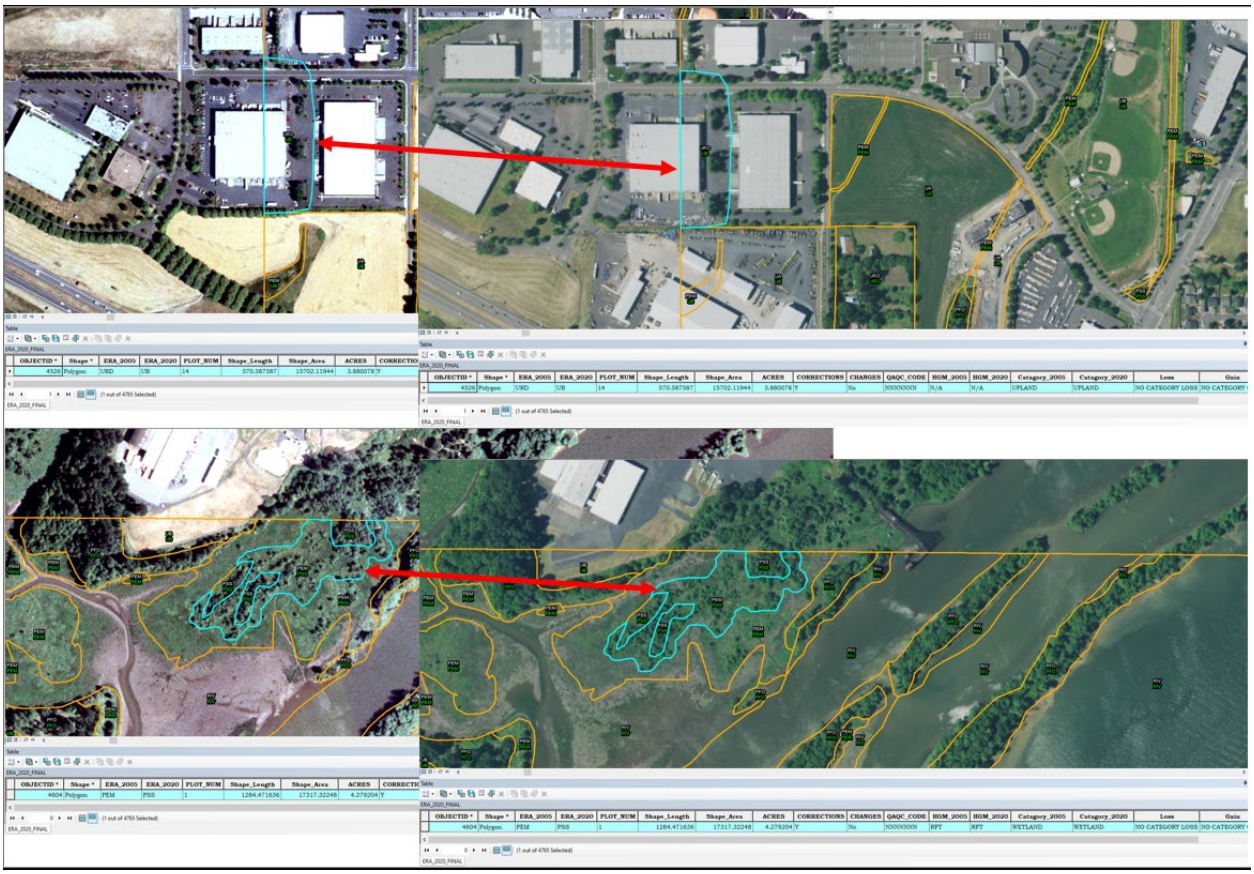

Figure 2. Two Examples of Features Noted as Corrections, Not True Change, in the 2020-era Data

The GIS data layers were brought into ArcMap 10.8 and edited according to the following steps:

1. GIS data layers from the 1994 to 2005 study were brought into a file geodatabase.
2. Classification/Attribution errors greater than half an acre were identified in the 2005 data layer. These features had their 2020 attributions changed and noted as corrections in a "CORRECTIONS" attribute field. In cases were only a portion of the original feature was incorrectly attributed, the incorrect portion of the polygon was cut/split from the original feature. In these cases, only the split portion of the polygon was noted as a correction. This tracking of "corrections" vs. "changes" enables this study to provide two change analysis. One analysis can be directly compared to the 2005 data values provided in the last report. The other analysis allows for a comparison as if the past study had been done with current technological advances, by excluding the areas identified as corrections from the change in area calculations.
3. Topological errors were identified and corrected.
4. Change analysis was completed as illustrated in Figure 3.

4.0 RESULTS

This study focused on change analysis using the processes outlined in the previous study reports. Data analysis was performed using the process outlined in Volume 2: Technical Appendices of *Analysis of Wetland and Land Use Change in the Willamette Valley, Oregon: 1982 to 1994* (Daggett et al., 1998). The associated script, input, and output data can be found in this report's appendices. This process was used to determine the error rates associated with each of the wetland, deepwater, and upland land cover types.

The Willamette Valley ecoregion's spatial data were acquired from the last study. Calculations using ArcGIS Desktop built-in geometry calculations results in an acreage of 3,265,963 acres versus the previous report's stated 3,195,391 acres. The discrepancy of an additional 70,572 acres found by calculating the spatial data is of unknow origin; therefore, calculations made in this report use the updated Willamette Valley ecoregion spatial data value.

Figure 3. 2005 Linework and NWI/Cowardin Classifications in Red

Figure 4. 2020 Mapping (in orange) and Imagery Depicting Change from Wetland (2005 mapping in red) to Upland Due to Development

4.1 Willamette Valley Land Cover Status in 2005

Based on the statistical sampling and aerial photointerpretation in this study, wetlands composed approximately 9.8% of the Willamette Valley ecoregion study area in 2005, deepwater habitats covered 4.7%, and 85.6% of the study area was upland. The specific wetland, deepwater, and upland cover types and the extent of their coverage within the study area in 2005 are shown in Table 4 and Figure 5. The study area is dominated by *upland agriculture*, which accounted for 52.1% of the study area and represented 60.9% of the upland land cover types. *Palustrine forested* was the most extensive wetland cover type, representing 3.3% of the study area and 33.5% of the wetland cover types. Other major wetland types were *palustrine emergent* at 2.8% and *palustrine farmed* at 2.6% of the study area.

Table 4. Estimate of Willamette Valley Wetlands, Deepwater Habitats, and Uplands in 2005

Land Cover Category	Land Cover Type	2005 Willamette Valley Estimate (acres)	Standard Error (acres)	Percent of Total	Percent of Category Sub-Total
Wetland	**PFO**	106,575.0	545.1	3.26%	33.48%
	PEM	90,375.7	1,579.7	2.77%	28.39%
	Pf	83,514.1	589.9	2.56%	26.23%
	PSS	21,887.5	360.8	0.67%	6.88%
	PUB	11,675.9	218.5	0.36%	3.67%
	PAB	4,159.9	431.0	0.13%	1.31%
	PUS	170.0	16.8	0.01%	0.05%
	WFP	0.0	0.0	0.00%	0.00%
	Total	318,358.1	3,741.9	9.75%	100.00%
Deepwater	**RIV**	85,504.1	3,632.1	2.62%	56.30%
	LAC	66,355.1	13,610.5	2.03%	43.70%
	Total	151,859.2	17,242.6	4.65%	100.00%
Upland	**UA**	1,702,816.9	9,000.4	52.14%	60.91%
	UO	523,684.9	6,667.8	16.03%	18.73%
	UB	467,809.3	21,635.2	14.32%	16.73%
	URD	84,086.6	2,335.1	2.57%	3.01%
	UFP	17,347.6	1,204.9	0.53%	0.62%
	Total	2,795,745.2	40,843.4	85.60%	100.00%
Total		3,265,962.6	61,827.8	100.00%	

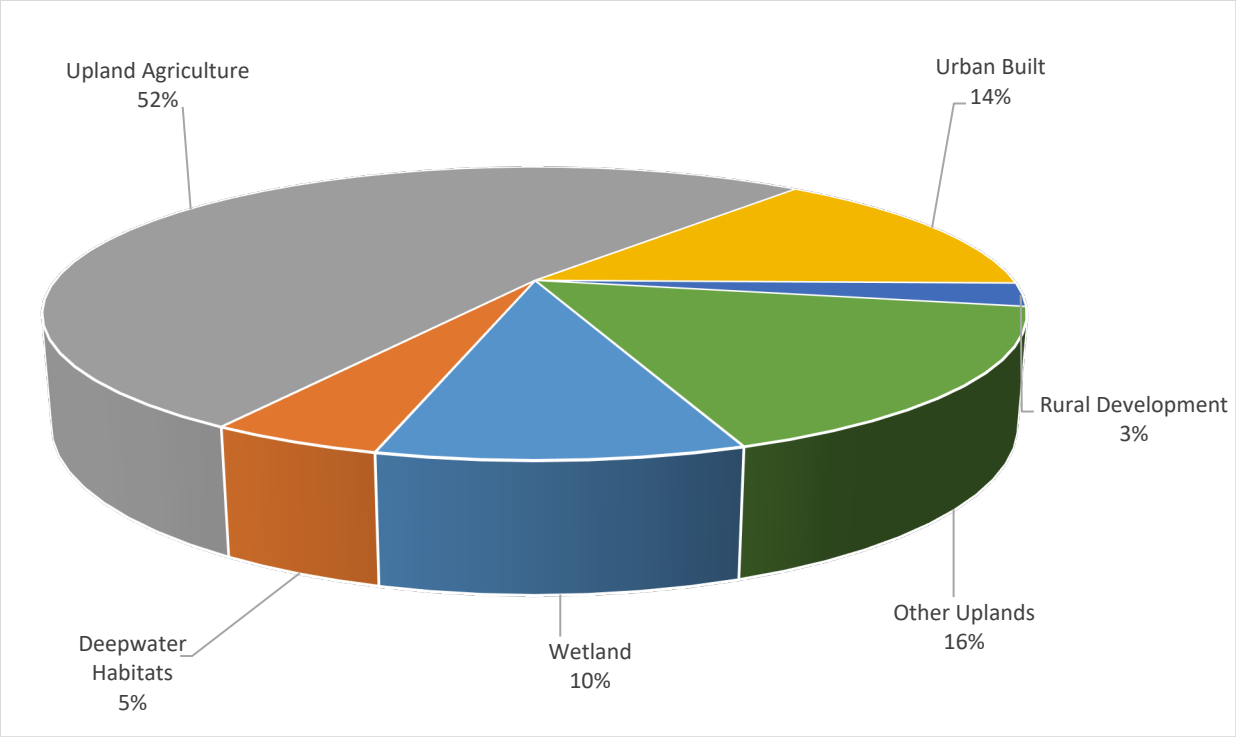

Figure 5. Willamette Valley Land Cover Types 2005

4.2 Land Cover Changes from 2005 to 2020

4.2.1 Summary of Willamette Valley Land Cover Changes

Six types of land cover change from 1994 to 2005 were examined:

1. Wetland loss (wetland to upland or deepwater habitat)
2. Wetland gain (upland or deepwater habitat to wetland)
3. Wetland type change (conversion from one wetland type to another wetland type)
4. Deepwater habitat loss (deepwater habitat to wetland or upland)
5. Deepwater habitat gain (wetland or upland to deepwater habitat)
6. Upland type change (conversion from one upland type to another upland type)

As shown in Table 5, 1.7% of the study area (55,759 acres) changed during the study period. Each of the six types of change are examined in detail in subsequent sections (Tables 6 to 9).

Table 5. Summary of Willamette Valley Land Cover Change, 2005–2020

		Acreage	Percentage
Areal Land Cover	**Areal Change**	43,395.13	1.33%
	Areal Corrections	12,363.53	0.38%
	Total change	55,758.66	1.71%
	No Change	3,210,203.90	98.29%
	Total	3,265,962.56	100.00%

Note: Does not equal sum of components shown in Table 6 (e.g., wetland losses were also counted as upland or deepwater gains in Table 6). Differences in totals listed here and in Table 4 are the result of small differences between the 2005 estimates of study area land cover and the estimates of 2005–2020 changes and rounding.

Table 6. Expanded Summary of Willamette Valley Land Cover Change, 2005–2020

	Type of Change	Area Change (acres)	Change as % of Study Area	Change as % of Total Change	Change as % of Total 2005 Land Cover Type
Wetland	**Wetland Loss**	4,181.78	0.13%	4.85%	1.31%
	Wetland Gain	12,746.02	0.39%	14.77%	4.00%
	Net Wetland Gain	8,564.24	**0.26%**	9.93%	2.69%
	Wetland Change	10,979.93	0.34%	12.73%	3.45%
Deepwater	**Deepwater Loss**	1,430.13	0.04%	1.66%	0.94%
	Deepwater Gain	3,091.14	0.09%	3.58%	2.04%
	Net Deepwater Gain	1,661.00	**0.05%**	1.93%	1.09%
	Deepwater Change	0.00	**0.00%**	0.00%	0.00%
Upland	**Upland Loss**	11,490.61	0.35%	13.32%	0.41%
	Upland Gain	1,265.37	0.04%	1.47%	0.05%
	Net Upland Loss	10,225.24	**0.31%**	11.85%	0.37%
	Upland Change	20,648.26	0.63%	23.93%	0.74%
Total		86,283.74	2.64%	100.00%	17.09%

Note: Total study area: 3,265,963 acres; total 2005 wetland: 318,358.1 acres; total 2005 deepwater: 151,859.2 acres; total 2005 upland: 2,795,745.2 acres.

Table 7. Details of Areal Land Cover Type Loss, Gain, Net Loss/Gain, and Type Change, 2005–2020

		2005–2020 Net Loss/Gain				Gross Loss/Gain				Type Change	
Category	**Land Cover Type**	**2005 (acres)**	**2020 (acres)**	**Net Loss/Gain (acres)**	**% Net Loss/Gain**	**Total Loss (acres)**	**% Total Loss**	**Total Gain (acres)**	**% Total Gain**	**Net Change (acres)**	**% Total Net Change**
Wetland	**PEM**	90,375.68	86,477.74	-3,897.94	-4.31%	-1,385.45	8.10%	2,351.46	13.75%	-4,863.94	-15.38%
	Sub-Total	**90,375.68**	**86,477.74**	**-3,897.94**	**-4.31%**	**-1,385.45**	8.10%	**2,351.46**	13.75%	**-4,863.94**	**-15.38%**
	PFO	106,575.02	106,749.63	174.60	0.16%	-11.61	0.07%	304.23	1.78%	-118.01	-0.37%
	WFP	0.00	0.00	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%
	PSS	21,887.49	22,526.95	639.46	2.92%	-69.82	0.41%	151.15	0.88%	558.13	1.76%
	Sub-Total	**128,462.52**	**129,276.58**	**814.06**	**3.09%**	**-81.43**	0.48%	**455.38**	2.66%	**440.11**	**1.39%**
	PAB	4,159.91	3,053.80	-1,106.11	-26.59%	0.00	0.00%	1,139.43	6.66%	-2,245.54	-7.10%
	Pf	83,514.12	95,885.99	12,371.87	14.81%	-340.63	1.99%	7,292.91	42.64%	5,419.60	17.14%
	PUB	11,675.87	12,025.48	349.61	2.99%	-2,374.27	13.88%	1,476.14	8.63%	1,247.74	3.95%
	PUS	169.99	202.73	32.74	19.26%	0.00	0.00%	30.71	0.18%	2.03	0.01%
	Sub-Total	**99,519.88**	**111,168.00**	**11,648.12**	**10.48%**	**-2,714.90**	15.87%	**9,939.19**	58.12%	**4,423.83**	**13.99%**
	Total	**318,358.08**	**326,922.32**	**8,564.24**	**2.69%**	**-4,181.78**	**24.45%**	**12,746.02**	**74.53%**	**0.00**	**0.00%**
Deepwater	**LAC**	66,355.09	67,699.62	1,344.53	2.03%	-1,430.13	8.36%	2,774.66	16.22%	0.00	0.00%
	RIV	85,504.14	85,820.62	316.48	0.37%	0.00	0.00%	316.48	1.85%	0.00	0.00%
	Total	**151,859.23**	**153,520.23**	**1,661.00**	**1.09%**	**-1,430.13**	**8.36%**	**3,091.14**	**18.07%**	**0.00**	**0.00%**
Upland	**UA**	1,702,816.87	1,681,803.28	-21,013.59	-1.23%	-8,698.76	50.86%	168.48	0.99%	-12,483.31	-39.47%
	UB	467,809.27	476,421.96	8,612.69	1.84%	-1,420.11	8.30%	687.10	4.02%	9,345.71	29.55%
	UFP	17,347.62	17,591.84	244.22	1.41%	0	0.00%	0.00	0.00%	244.22	0.77%
	UO	523,684.94	512,811.27	-10,873.67	-2.08%	-1,233.62	7.21%	0.00	0.00%	-9,640.05	-30.48%
	URD	84,086.57	96,891.66	12,805.10	15.23%	-138.12	0.81%	409.79	2.40%	12,533.43	39.63%
	Total	**2,795,745.25**	**2,785,520.01**	**-10,225.24**	**-0.37%**	**-11,490.61**	**67.19%**	**1,265.37**	**7.40%**	**0.00**	**0.00%**
Total		3,265,962.56	3,265,962.56	0.00	0.00%	-17,102.53	100.00%	17,102.53	100.00%	0.00	0.00%

Table 8. Details of Willamette Valley Areal Wetland Gross Losses, 2005–2020

		To 2020																	
		Upland											Deepwater					Total	
		UA		UB		UFP		UO		URD		Total Loss %	LAC		RIV		Total Loss %		
		acres	%	acres	%	acres	%	acres	%	acres	%		acres	%	acres	%		acres	%
From 2005	PEM	32.49	0.8%	608.67	14.6%	0	0.0%	0	0.0%	130.43	3.1%	18.5%	538.42	12.9%	75.43	1.8%	14.68%	**1,385.45**	**33.1%**
	PFO	0.00	0.0%	0	0.0%	0	0.0%	0	0.0%	11.61	0.3%	0.3%	0.00	0.0%	0.00	0.0%	0.00%	**11.61**	**0.3%**
	WFP	0.00	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.0%	0.00	0.0%	0.00	0.0%	0.00%	**0.00**	**0.0%**
	PSS	0.00	0.0%	58.29	1.4%	0	0.0%	0	0.0%	11.54	0.3%	1.7%	0.00	0.0%	0.00	0.0%	0.00%	**69.82**	**1.7%**
	Pf	135.99	3.3%	0	0.0%	0	0.0%	0	0.0%	138.32	3.3%	6.6%	0.00	0.0%	66.33	1.6%	1.59%	**340.63**	**8.1%**
	PAB	0.00	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.0%	0.00	0.0%	0.00	0.0%	0.00%	**0.00**	**0.0%**
	PUB	0.00	0.0%	20.14	0.5%	0	0.0%	0	0.0%	117.90	2.8%	3.3%	2,236.23	53.5%	0.00	0.0%	53.48%	**2,374.27**	**56.8%**
	PUS	0.00	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0.0%	0.00	0.0%	0.00	0.0%	0.00%	**0.00**	**0.0%**
Total		**168.48**	**4.0%**	**687.10**	**16.4%**	**0.00**	**0.0%**	**0.00**	**0.0%**	**409.80**	**9.8%**	**30.3%**	**2,774.66**	**66.4%**	**141.76**	**3.4%**	**69.74%**	**4,181.78**	**100.0%**

Note: The data show the gross wetland losses to upland or deep water.

Table 9. Details of Willamette Valley Areal Wetland Gross Gains, 2005–2020

			To 2020																			
					PFO+PSS						Other Palustrine										Total	
			PEM		PFO		PSS		Total		Pf		PAB		PUB		PUS		Total			
			acres	%	acres	%	acres	%	acres	%	acres	%	acres	%	acres	%	acres	%	acres	%	acres	%
From 2005	Upland	UA	1,892.28	14.8%	162.60	1.3%	0.00	0.0%	162.60	1.3%	6,155.90	48.3%	5.66	0.0%	451.62	3.5%	30.71	0.2%	6,643.88	52.1%	**8,698.76**	**68.2%**
		UB	48.97	0.4%	0.00	0.0%	151.15	1.2%	151.15	1.2%	1,137.01	8.9%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1,137.01	8.9%	**1,337.13**	**10.5%**
		UFP	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	**0.00**	**0.0%**
		UO	358.91	2.8%	141.63	1.1%	0.00	0.0%	141.63	1.1%	0.00	0.0%	610.18	4.8%	31.17	0.2%	0.00	0.0%	641.35	5.0%	**1,141.88**	**9.0%**
		URD	51.31	0.4%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	86.81	0.7%	0.00	0.0%	86.81	0.7%	**138.12**	**1.1%**
		Total	2,351.46	18.4%	304.23	2.4%	151.15	1.2%	455.38	3.6%	7,292.91	57.2%	615.84	4.8%	569.60	4.5%	30.71	0.2%	8,509.06	66.8%	**11,315.89**	**88.8%**
	Deepwater	LAC	523.59	4.1%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	906.54	7.1%	0.00	0.0%	906.54	7.1%	**1,430.13**	**11.2%**
		RIV	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	**0.00**	**0.0%**
		Total	**523.59**	**0.04**	**0.00**	**0.0%**	**0.00**	**0.0%**	**0.00**	**0.0%**	**0.00**	**0.0%**	**0.00**	**0.0%**	**906.54**	**7.1%**	**0.00**	**0.0%**	**906.54**	**7.1%**	1,430.13	**11.2%**
Total			**2,875.05**	**22.6%**	**304.23**	**2.4%**	**151.15**	**1.2%**	**455.38**	**3.6%**	**7,292.91**	**57.2%**	**615.84**	**4.8%**	**1,476.14**	**11.6%**	**30.71**	**0.2%**	**9,415.60**	**73.9%**	12,746.02	**100.0%**

Note: The data show the gross wetland losses to upland or deep water.

4.2.2 Wetland Loss

In 2005, wetlands comprised 9.8% (318,358 acres) of the study area (Table 4). By 2020, an estimated 4,182 acres (1.3% of the 2005 total) of these wetlands were converted to upland or deepwater habitat while 12,746 acres of upland and deepwater habitat were converted to wetland, representing a net wetland gain of 8,564 acres (2.7% of the 2005 total; see Tables 6 and 7). The details of the gross losses are shown in Table 8. The largest loss of wetland cover type occurred in *palustrine unconsolidated bottom* (2,374 acres or 56.8% of the total loss), followed by *palustrine emergent* (1,385 acres or 33.1% of the total loss). Together, these two wetland cover types composed 89.9% of the total gross wetland loss. Conversions to the *lacustrine* category accounted for the largest losses in *palustrine unconsolidated bottom* (53.5% of PUB loss) as well as the largest losses to all wetland cover types (66.4% of total wetland loss). Conversions to *upland built* were accountable for the largest losses in *palustrine emergent* (14.6% of PEM loss) as well as the second largest losses to all wetland cover types (16.4% of total wetland loss). Wetland conversion to other *urban residential development* accounted for 9.8% of the total wetland loss.

4.2.3 Wetland Gain

During the study period, 12,746 acres of wetland were gained (4% of the 2005 wetland area) from upland and deepwater habitats, as shown in Table 6 and Table 9. Table 9 details the gross gains. The largest wetland increase was a 7,293-acre gain in *palustrine farmed*, accounting for 57.2% of the total gain. This was followed by *palustrine emergent* with 2,875 acres of gross gain (22.6% of the total gain). Upland agriculture was the source for 68.2% of all wetland gains. In most cases the upland agriculture conversion to wetland was to the palustrine farmed classification (48.3%). This change occurred where the wetlands experience an increase in hydrology but remained compatible with the cultivation of crops for part of the year. The remaining 19.9% of upland agriculture to wetland conversion resulted from adjacent wetlands expanding into agricultural lands or agricultural lands being converted to wetlands for wetland mitigation efforts.

4.2.4 Wetland to Wetland Type Changes

From 2005 to 2020, 12,571 acres (or 4% of the total 2005 wetlands) changed from one type of wetland to another type of wetland (see Tables 7 and 10). The largest change was from *palustrine emergent* to *palustrine farmed* (5,407 acres or 43% of the total area converted). This shows a continued high pace of agricultural development, similar to what has occurred on a national level. This was followed by a change of 2,126 acres (16.9%) of *palustrine aquatic bed* to *palustrine emergent* and a change of 1,291 acres of *palustrine emergent* to *palustrine scrub-shrub* (10.3%) which together only represent a net change of 365 acres or 3% of the total area converted (see Table 10). Some of these changes may be due to the dates of the imagery used, reflecting seasonal changes and annual differences in precipitation.

Another substantial change was from *palustrine emergent* to *palustrine unconsolidated bottom* (1,194 acres or 9.5% of the total conversion) and *palustrine farmed* to *palustrine emergent* (480 acres or 3.8% of the total conversion), which indicates the abandonment or seasonal disuse of some agricultural fields (see Table 10). The change from *palustrine scrub-shrub* to *palustrine emergent* (241 acres) may also indicate anthropogenic clearing of shrub wetland; this is completely offset by change from *palustrine emergent* to *palustrine scrub-shrub* (1,291 acres) that is most likely due to natural succession.

Table 10. Willamette Valley Wetland to Wetland Conversions, 2005–2020

		To 2020																	
		PEM		PFO		WFP		PSS		Pf		PAB		PUB		PUS		Total	
		acres	%	acres	%	acres	%	acres	%	acres	%	acres	%	acres	%	acres	%	acres	%
From 2005	PEM	0.00	0.0%	43.51	0.3%	0.00	0.0%	1,290.65	10.3%	5,406.81	43.0%	0.00	0.0%	1,194.29	9.5%	0.00	0.0%	**7,935.26**	**63.1%**
	PFO	139.43	1.1%	0.00	0.0%	0.00	0.0%	192.81	1.5%	480.00	3.8%	0.00	0.0%	0.00	0.0%	0.00	0.0%	**812.25**	**6.5%**
	WFP	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	**0.00**	**0.0%**
	PSS	241.03	1.9%	604.38	4.8%	0.00	0.0%	0.00	0.0%	79.93	0.6%	0.00	0.0%	0.00	0.0%	0.00	0.0%	**925.34**	**7.4%**
	Pf	479.83	3.8%	46.34	0.4%	0.00	0.0%	0.00	0.0%	0.00	0.0%	20.96	0.2%	0.00	0.0%	0.00	0.0%	**547.14**	**4.4%**
	PAB	2,126.25	16.9%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	138.22	1.1%	2.03	0.0%	**2,266.50**	**18.0%**
	PUB	84.77	0.7%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	**84.77**	**0.7%**
	PUS	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	**0.00**	**0.0%**
Total		**3,071.31**	**24.4%**	**694.23**	**5.5%**	**0.00**	**0.0%**	**1,483.47**	**11.8%**	**5,966.74**	**47.5%**	**20.96**	**0.2%**	**1,332.51**	**10.6%**	**2.03**	**0.0%**	**12,571.25**	**100.0%**

4.2.5 Net Wetland Losses and Gains

Wetland Gains from Upland and Deepwater Habitat

Calculating the areal wetland losses and gains from 2005 to 2020 results in an estimated net gain of 8,564 acres of wetlands from upland and deepwater categories, or 2.7% of the 2005 wetland acreage (Table 7). Table 11 and Figure 5 show the sources of net wetland gain from upland and deepwater landcover types. The primary source of wetland gain was conversions from *upland agriculture* at 8,530 acres, or 99.6% of the total net wetland gain. While there was a net gain in wetland coverage between 2005 and 2020, the most significant loss of wetlands to uplands occurred in the form of conversions to *upland built*, with a loss of 687 acres (16.4% of wetland losses). Overall, the most significant source of wetland losses was conversion to *lacustrine* deepwater habitats, a change that represents 66.4% of wetland losses, or 2,775 acres. Tables 6 and 7 showed the corresponding losses, gains, and net changes. Table 11 groups the gains and losses by upland and deepwater cover types.

Table 11. Sources of Willamette Valley Net Areal Wetland Losses and Gains

		Net Loss or Gain		Wetland Loss		Wetland Gain	
		acres	%	acres	%	acres	%
Upland	UA	8,530.28	99.6%	-168.48	4.0%	8,698.76	68.2%
	UB	650.03	7.6%	-687.10	16.4%	1,337.13	10.5%
	UFP	0.00	0.0%	0.00	0.0%	0.00	0.0%
	UO	1,141.88	13.3%	0.00	0.0%	1,141.88	9.0%
	URD	-271.67	-3.2%	-409.79	9.8%	138.12	1.1%
	Total	10,050.52	117.4%	-1,265.37	30.3%	11,315.89	88.8%
Deepwater	LAC	-1,344.53	-15.7%	-2,774.66	66.4%	1,430.13	11.2%
	RIV	-141.76	-1.7%	-141.76	3.4%	0.00	0.0%
	Total	-1,486.28	-17.4%	-2,916.42	69.7%	1,430.13	11.2%
Total		**8,564.24**	100.0%	**-4,181.78**	100.0%	**12,746.02**	100.0%

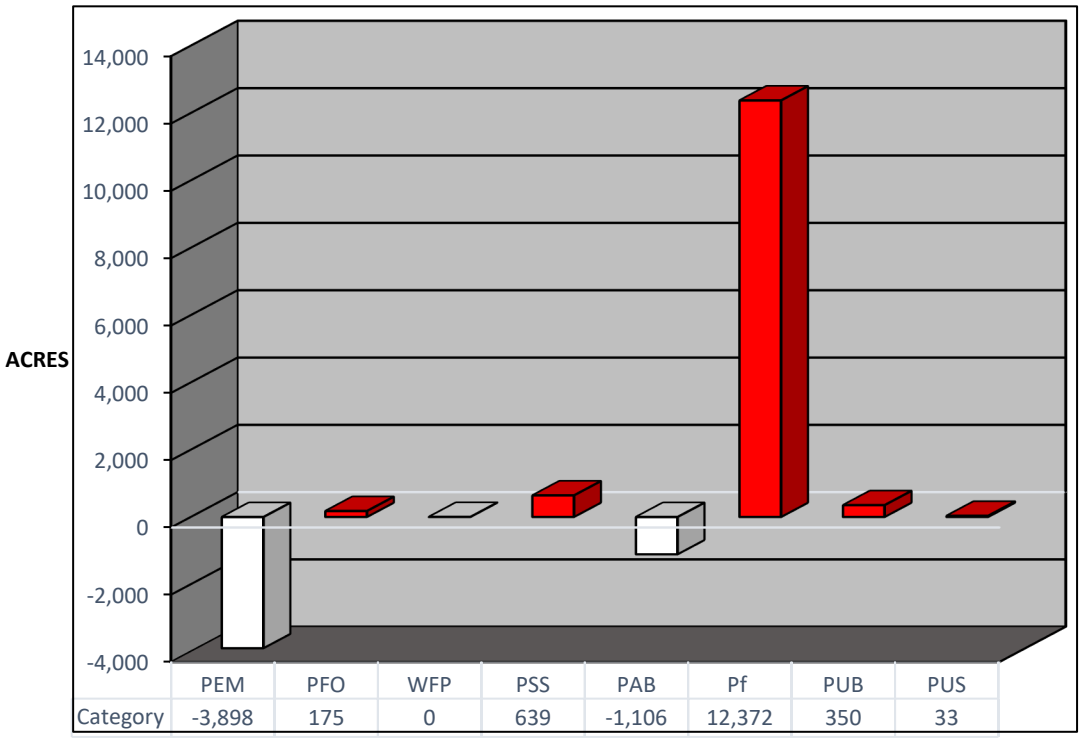

Figure 6. Wetland Loss or Gain by Wetland Types, 2005–2020

Net Loss and Gain of Wetland Cover Types

For specific wetland cover types, net losses occurred in *palustrine emergent* (4.3% net loss, 3,898 acres) and *palustrine aquatic bed* (26.6% net loss, 1,106 acres). All other categories experienced net gains, most notably *palustrine farmed*, which had a 14.8% net gain of 12,372 acres, and *palustrine unconsolidated shore*, which had a 19.3% net gain of 33 acres (see Table 7; see Figure 5).

The primary causes of the net losses and net gains can be determined by examining Tables 7 through 10. *Palustrine emergent* had a 3,898-acre net loss resulting from loss of 1,385 acres to upland and a gross "loss" of 7,935 acres from wetland-to-wetland changes. The loss to upland was attributable to *upland built* and *upland rural development* categories, which combined represented 739 acres or 53% of the total loss, along with conversion to *lacustrine* deepwater habitats, which represent 538 acres or 38% of the total loss. The wetland-to-wetland change net "loss" was primarily attributable to a 5,407-acre net "loss" from changes between *palustrine emergent* and *palustrine farmed* that was reduced by a net gain of 2,126 acres from changes from *palustrine aquatic bed* to *palustrine emergent*.

The most notable gains occurred in the *palustrine farmed* category, which experienced a 12,372-acre gain from 2005 to 2020. These gains came from two primary sources: gain from *upland agriculture*, which accounted for 6,156 acres or 48.3% of the new *palustrine farmed* acreage, and wetland-to-wetland conversion from *palustrine emergent* as wet meadows were brought into agricultural use, which represented 5,407 acres or 43% of the *palustrine farmed* gains.

4.2.6 Deepwater Habitat Losses and Gains

From 2005 to 2020, 1,430 acres of deepwater habitat were lost, while 3,091 acres were gained, resulting in a net gain of 1,661 acres (1% of the 2005 total).

The gains and losses are shown in Table 12. The net gain was primarily attributable to conversion of *palustrine unconsolidated bottom* to *lacustrine*, most likely caused by expansion of existing ponds and small standing waterbodies beyond the Cowardin classifications system's *palustrine* acreage threshold of greater than 20 acres.

The largest losses (907 acres) and gains (2,236 acres) occurred in changes of *palustrine unconsolidated bottom* to and from *lacustrine*, which results in a net gain of 1,330 acres. This gain is most likely attributable to a combination of anthropogenic and natural factors contributing to changes in the acreages of standing bodies of water. No conversions from one deepwater type to another deepwater type occurred.

Table 12. Willamette Valley Deepwater Habitat Losses and Gains

			To 2020								
			LAC	RIV	PEM	PUB	Pf	PAB	UA	UB	Total
From 2005	Deepwater Loss	LAC			0.00	-906.54	0.00	-523.59	0.00	0.00	-1,430.13
		RIV			0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Total			**0.00**	**-906.54**	**0.00**	**-523.59**	**0.00**	**0.00**	**-1,430.13**
	Deepwater Gain	PEM	538.42	75.43							
		PUB	2,236.23	0.00							
		Pf	0.00	66.33							
		UB	0.00	82.99							
		UO	0.00	91.74							
		Total	**2,774.66**	**316.48**							
	Net Change										**1,661.00**

4.2.7 Upland Habitat Losses, Gains and Type Changes

From 2005 to 2020, there was a net upland loss of 10,225 acres (0.4% of the 2005 upland area) resulting from a loss of 11,491 acres and a gain of 1,265 acres. Tables 6 and 7 summarized the gains, losses, and changes.

During the study period, 24,754 acres of upland (0.8% of the 2005 upland area) were converted from one type of upland to another type. Table 13 shows the changes. The largest decrease was from *upland agriculture* (14,479 acres or 58.5% of the change area) and the largest increase was to *upland rural development* (12,704 acres or 51.3% of the change area). The largest type of change (9,433 acres or 38.1% of the changes) was also from *upland agriculture* to *upland rural development*, followed by conversion to *upland built* and *upland forested plantation* (Table 13; Figure 6).

Examination of upland change (see Table 13), wetland loss (see Table 8), and wetland gain (see Table 9) data show that *upland agriculture* sustained a net loss of 21,014 acres (1.2% decrease from 2005). As Table 13 shows, 14,479 acres of *upland agriculture* were converted to different upland uses (primarily *upland rural development*) while 1,995 acres of upland cover types were converted to *upland agriculture*, for a net loss of 12,483 acres of upland agriculture due to upland-to-upland conversions.

As shown in Table 8 (wetland loss) and Table 9 (wetland gain), 168 acres of *upland agriculture* were gained from wetland while 8,699 acres of *upland agriculture* were lost to wetland. The result was a net loss of 8,530 acres (0.5% of the total area of *upland agriculture* in 2005). (Upland losses and gains are the reverse of the wetland gains and losses, respectively, with the addition of deepwater *riverine* habitat factored into both the gains and losses.)

Similarly, *upland rural development* had a net gain of 12,805 acres (see Table 7) (a 15.2% increase from 2005). The gains are primarily attributable to changes within upland types: a net gain of 9,433 acres from *upland agriculture* and a gain of 3,270 acres from *upland other*. There was also a gain of 410 acres from wetlands (primarily *palustrine farmed* and *palustrine emergent*) (see Tables 8 and 9).

Table 13. Willamette Valley Upland to Upland Changes, 2005–2020

		To 2020											
		UA		UB		URD		UFP		UO		Total	
		acres	%	acres	%	acres	%	acres	%	acres	%	acres	%
From 2005	UA			4,348.13	17.6%	9,433.27	38.1%	649.36	2.6%	47.76	0.2%	14,478.51	58.5%
	UB	0.00	0.0%			0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
	URD	0.00	0.0%	170.13	0.7%			0.00	0.0%	0.00	0.0%	170.13	0.7%
	UFP	392.92	1.6%	0.00	0.0%	0.00	0.0%			12.22	0.0%	405.14	1.6%
	UO	1,602.29	6.5%	4,827.45	19.5%	3,270.29	13.2%	0.00	0.0%			9,700.03	39.2%
	Total	**1,995.20**	**8.1%**	**9,345.71**	**37.8%**	**12,703.56**	**51.3%**	**649.36**	**2.6%**	**59.98**	**0.2%**	**24,753.81**	**100.0%**

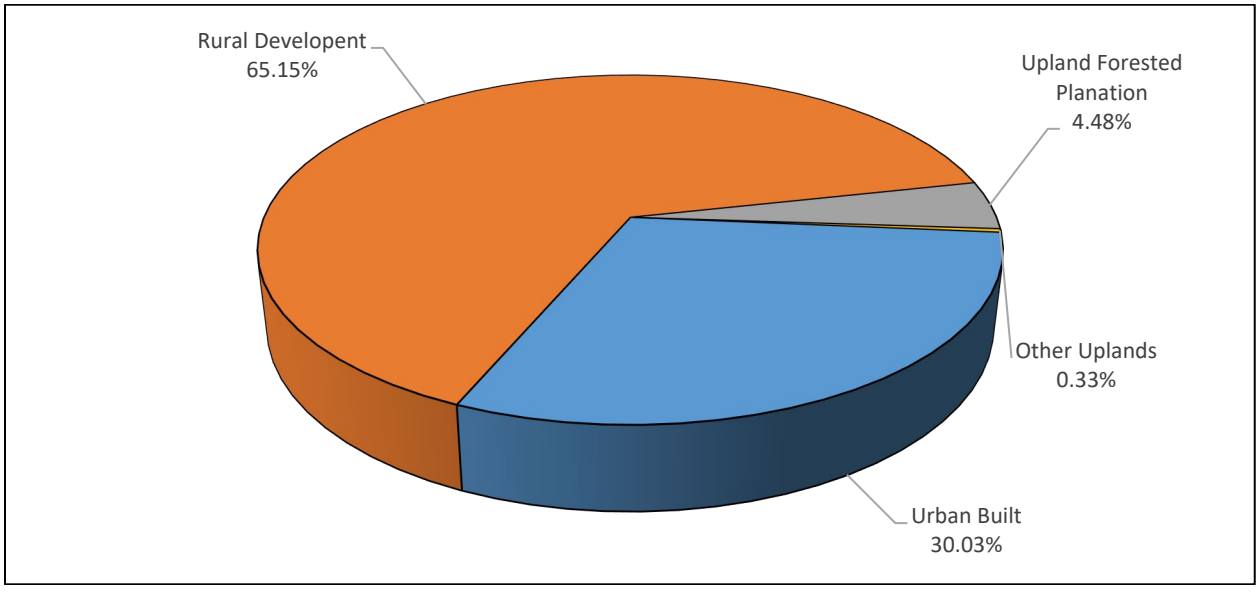

Figure 7. Causes of Conversion from Upland Agriculture to Other Upland Land Uses 2005-2020

4.3 Wetland Changes by Hydrogeomorphic Class from 2005 to 2020

The HGM classification is based upon a wetland's landscape position and hydrodynamics. Because these factors have been shown to exert a controlling influence on a wetland's ecological processes, wetlands of the same HGM classification in a particular ecoregion will likely support similar functions. Tracking wetland changes by HGM class may suggest general trends in relative functions but cannot substitute for assessing wetland functions using a rapid wetland assessment method or by measuring actual changes in wetland functions (Adamus et al., 2010).

Assigning HGM class and subclass codes to wetlands requires landscape and topographic information in addition to aerial photo interpretation. Topographic maps are used as ancillary information sources for status and trends mapping, as their level of detail and accuracy is very limited. Data derived from LiDAR technology, as well as other types of Digital Elevation Models (DEMs) were also used to supplement HGM code verification and change decisions in this iteration of this study.

4.3.1 Summary of Wetland Hydrogeomorphic Classes in 2005

Riverine wetlands, at 29.4% of the total wetland area, was the most extensive HGM class in 2005 (Table 14; Figure 7). *Slope, valley* (SV) was the next most extensive class (21.2%) followed by *flats* (F) at 18% and *lacustrine fringe, valley* (LFV) at 14.4%. The depressional wetland types (DCNP, DCP, DO) made up 15.9% of the wetlands. It is not surprising that *slope headwater* (SH) extent was relatively minor (0.7%) because the study area was confined to the valley bottomland.

Table 14. Estimate of Willamette Valley Wetlands by Hydrogeomorphic Class in 2005

HGM Category	HGM Type	Willamette Valley Estimate (acres)	% of Total	% of Category Sub-Total
Wetland	**DCNP**	16,978.33	0.52%	4.56%
	DCP	6,492.09	0.20%	1.74%
	DO	35,732.54	1.09%	9.60%
	F	67,103.14	2.05%	18.02%
	LFV	53,761.10	1.65%	14.44%
	RFT	96,841.61	2.97%	26.01%
	RI	14,035.83	0.43%	3.77%
	SH	2,563.32	0.08%	0.69%
	SV	78,822.73	2.41%	21.17%
	Total	372,330.69	11.40%	100.00%
Deepwater	**N/A**	97,886.62	3.00%	3.38%
Upland	**N/A**	2,795,745.25	85.60%	96.62%
	Total	**2,893,631.86**	88.60%	**100.00%**
Total		**3,265,962.56**	**100.00%**	

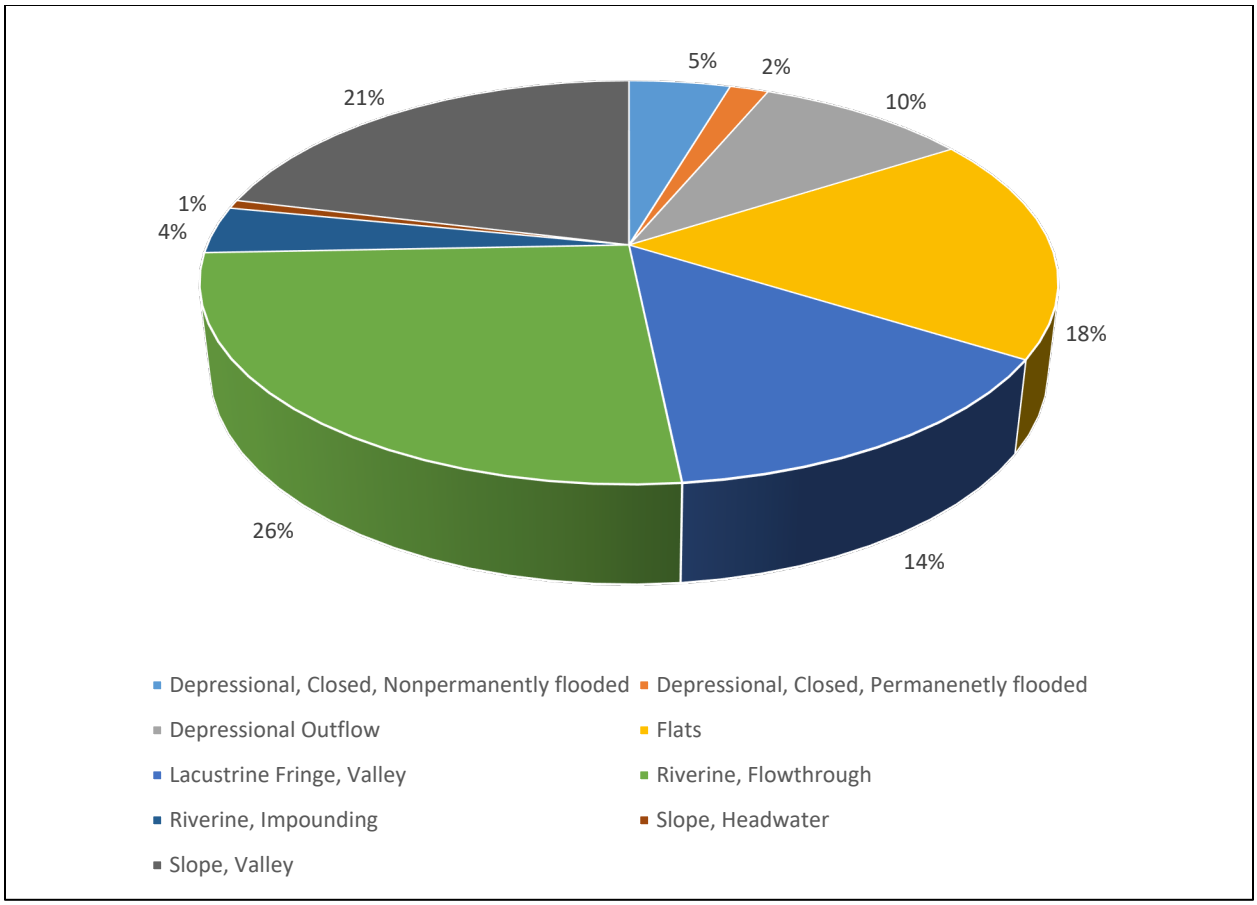

Figure 8. Willamette Valley Wetlands by Hydrogeomorphic Class in 2005

4.3.2 Wetland Losses and Gains by Hydrogeomorphic Class

Table 15 shows the details of the net loss or gain by HGM class. *Slope, valley* experienced the most net loss at 2,331 acres (3% loss), followed by *riverine impounding* at 152 acres (1.1% loss). The HGM classes with a net gain were each of the three depressional subclasses which combined for a net gain of 6,900 acres (51.8%). *Flats* also experienced a net gain of 5,659 acres (8.4%), as did *lacustrine fringe* at 561 acres (1.0%). The large net gains in the depressional HGM classes corresponded with results by Cowardin cover type where *lacustrine* deepwater habitats experienced significant gains (see Table 7).

4.3.3 Wetland to Wetland Changes by Hydrogeomorphic Class

Wetland-to-wetland class changes by HGM classification between 2005 and 2020 are shown in Table 16. *Slope, valley*, which accounted for 21.2% of the HGM class type in 2005, accounted for 57.2% of the wetland class loss by 2020. The net changes resulted in the loss of 2,433 acres of *slope, valley* to other HGM classes; notably, 2,397 acres of *slope, valley* were converted to *flats*. *Depressional, closed, permanently flooded* gained 37 acres. The next most significant change was a loss of 454 acres of *riverine flowthrough* to the *depressional, closed, permanently flooded* HGM class.

Table 15. Details of Aerial Wetland Loss and Gain by HGM Class

HGM Category	HGM Type	2005 (acres)	2020 (acres)	Net Loss/Gain (acres)	% Net Loss/Gain	Total Loss (acres)	% Total Loss	Total Gain (acres)	% Total Gain	Net Change (acres)
Wetland	DCNP	16,978.333	21,585.57	4,607.23	27.14%	-635.71	50.77%	5,284.99	43.93%	-42.05
	DCP	6,492.094	7,939.55	1,447.45	22.30%	-73.64	5.88%	951.67	7.91%	569.42
	DO	35,732.542	36,577.50	844.95	2.36%	-212.16	16.94%	1,469.74	12.22%	-412.63
	F	67,103.136	72,761.89	5,658.76	8.43%	-269.35	21.51%	2,996.20	24.91%	2,998.23
	LFV	53,761.096	54,322.45	561.35	1.04%	0.00	0.00%	561.35	4.67%	561.35
	RFT	96,841.614	96,982.72	141.11	0.15%	-22.62	1.81%	573.33	4.77%	-475.93
	RI	14,035.826	13,883.52	-152.30	-1.09%	0.00	0.00%	51.31	0.43%	-203.61
	SH	2,563.320	2,563.32	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00
	SV	78,822.731	76,492.18	-2,330.55	-2.96%	-38.75	3.09%	141.63	1.18%	-2,433.43
	Total	**372,330.692**	**383,108.70**	**10,778.01**	**57.38%**	**-1,252.23**	**100.00%**	**12,030.24**	**100.00%**	**561.35**

Table 16. Details of Wetland to Wetland Conversion by HGM class, 2005–2020

		To 2020																			
		DCNP		DCP		DO		F		LFV		RFT		RI		SH		SV		Total	
		acres	%	acres	%	acres	%	acres	%	acres	%	acres	%	acres	%	acres	%	acres	%	acres	%
From 2005	DCNP			28.02	0.66%	0.00	0.00%	332.19	7.81%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	**360.21**	**8.47%**
	DCP	0.00	0.00%			0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	**0.00**	**0.00%**
	DO	0.00	0.00%	0.00	0.00%			412.63	9.70%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	**412.63**	**9.70%**
	F	318.16	7.48%	51.32	1.21%	0.00	0.00%			0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	**369.48**	**8.68%**
	LFV	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%			0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	**0.00**	**0.00%**
	RFT	0.00	0.00%	453.53	10.66%	0.00	0.00%	22.41	0.53%	0.00	0.00%			0.00	0.00%	0.00	0.00%	0.00	0.00%	**475.93**	**11.18%**
	RI	0.00	0.00%	0.00	0.00%	0.00	0.00%	203.61	4.78%	0.00	0.00%	0.00	0.00%			0.00	0.00%	0.00	0.00%	**203.61**	**4.78%**
	SH	0.00	0.00%	0.00	0.00%	0.00	0.00%		0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%			0.00	0.00%	**0.00**	**0.00%**
	SV	0.00	0.00%	36.55	0.86%	0.00	0.00%	2,396.88	56.33%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%			**2,433.43**	**57.19%**
	Total	**318.16**	**7.48%**	**569.42**	**13.38%**	**0.00**	**0.00%**	**3,367.72**	**79.14%**	**0.00**	**0.00%**	**0.00**	**0.00%**	**0.00**	**0.00%**	**0.00**	**0.00%**	**0.00**	**0.00%**	**4,255.30**	**100.00%**

5.0 CONCLUSIONS AND DISCUSSION

From 2005 to 2020, the Willamette Valley experienced wetland gains. In 2020, there was an estimated 326,922 acres of wetlands in the Willamette Valley, which represents 12.4% of the total land area. Between 2005 and 2020, there was an estimated net gain of 8,564 acres of wetlands. This represents a change of 2.7% from the 2005 wetlands area in the valley (318,358 acres). The average net gain of wetlands between 2005 and 2020 was 571 acres per year.

Nearly all the net wetland gain was to the *palustrine farmed* cover type (12,372 acres). An additional 639 net acres were gained in *palustrine scrub-shrub*, followed by *palustrine unconsolidated bottom* at 350 acres. Most of these gains (68.2%) came from the *upland agriculture* category. This was followed by *lacustrine* deepwater (11.2%), *upland built* (10.5%) and *other uplands* (9%).

The wetland type that experienced the most net loss (including from wetland-to wetland type changes) was *palustrine emergent* (3,898 acres). This was followed by palustrine aquatic bed at 1,106 acres. All other wetland types except for *wet forested plantation* experienced net gains, though some were insignificant. *Wet forested plantation* acreage was stable with no gains or losses.

If we look at the gross loss of wetlands by wetland cover type (Cowardin class) as shown in Table 8, 89.9% of the losses were in two cover types. The largest loss at 56.8% was from *palustrine unconsolidated bottom*, mostly to *lacustrine* deepwater habitats. *Palustrine emergent* followed with a 33.1% loss, mostly to *upland built*.

5.1 Comparisons Between the Two Willamette Valley Studies

As discussed in the introduction, one of the primary objectives of this study was to compare the findings with those from the previous study that covered 1994 to 2005. Although there were a few changes in methodology, the same sample plots and similar procedures were used.

The main point of comparison between the current study and the 1994–2005 study is that there were net wetland losses in the previous study and net wetland gains over the current study time period (Figures 9 and 10). It is interesting to note that almost all the gains in wetlands between 2005 and 2020 occurred in the *palustrine farmed* cover type (12,372 acres, see Table 7), whereas this wetland habitat type had the highest net loss between 1994 and 2005 (2,791 acres). Gains between 2005 and 2020 were primarily from *urban agriculture* (48.3%, see Table 9) and *palustrine emergent* (43.0%, see Table 10) habitats. This may indicate an increased level of agricultural activity in wetland fringes and upland areas with seasonal wetland inclusions in the time span of the 2005–2020 study due to factors not at play between 1994 and 2005.

Wetland loss in the 1994–2005 study was dominated by *urban/rural development* (81%, Figure 9). Where wetland losses did occur for the time period covered by this study, they were mainly due the expansion of *deepwater* habitats as demonstrated in Figure 10. There were 2,236 gross acres of *palustrine unconsolidated bottom* and 538 gross acres of *palustrine emergent* converted to *lacustrine* deepwater habitat. This conversion accounted for 66% of all gross wetland losses between 2005 and 2020 (Figure 11). Relatively minor changes in weather and climate can result in a *deepwater* habitat transitioning to wetland or vice versa. However, the Willamette Valley study report (Morlan et al., 2010) noted an increase in non-vegetated ponds, both nationally in the USFWS Status and Trends report for 1998 to 2004 (Dahl, 2006) as a 12.6% increase in freshwater pond acreage, and in the Willamette Valley between 1994

and 2005 as net gains in *palustrine unconsolidated bottom*. A continuing trend to more permanent, non-vegetated water would be concerning because of tradeoffs in wetland functions, such as habitat for amphibians and capacity for seasonal flood-water storage.

Another interesting difference between the two studies was that in the 1994–2005 study there were no net wetland gains, whereas for this current study time period there are net wetland gains of 8,564 acres. The majority (68%) of the gross wetland gains came from the conversion of *upland agriculture* with an additional 10% coming from *upland built (urban)* (Figure 12), primarily to *palustrine farmed*. Perhaps the starkest difference between the last study and this 2005–2020 study is the significant difference in wetland loss to *urban/rural development.* As Figure 9 highlights, the vast majority of net wetland loss over the 1994–2005 time period was due to *urban/rural development*; however, during this study's time period there were net wetland gains of 3% from these same categories (5% gain from *upland built (urban)* and 2% loss to *upland rural development*). Figure 13 highlights one way this seemingly unlikely change can occur.

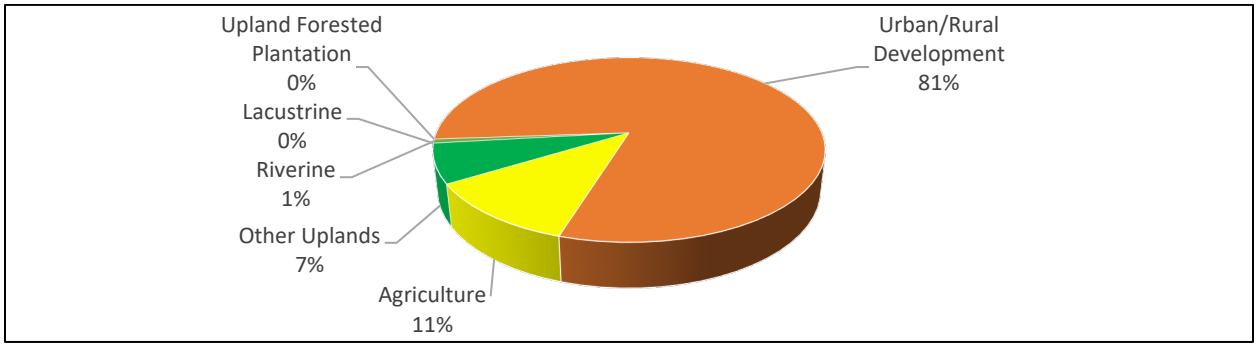

Figure 9. Causes of Net Willamette Valley Wetland Loss, 1994–2005

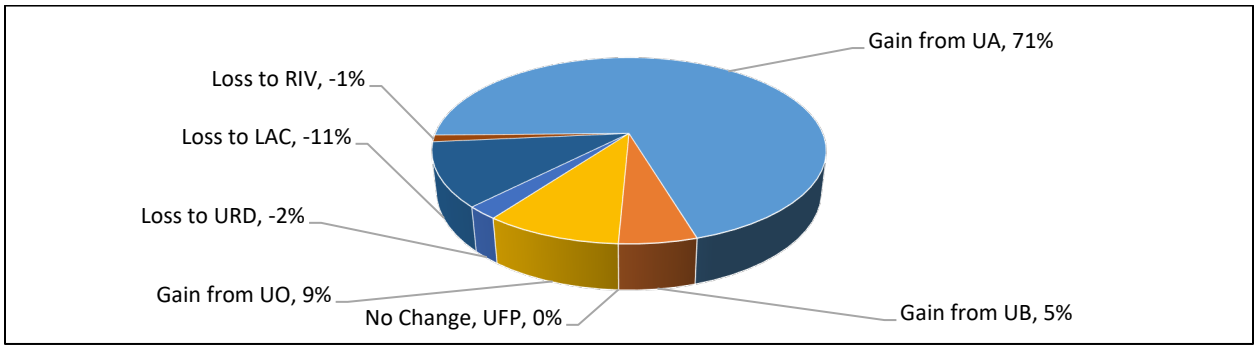

Figure 10. Causes of Net Willamette Valley Wetland Losses and Gains, 2005–2020

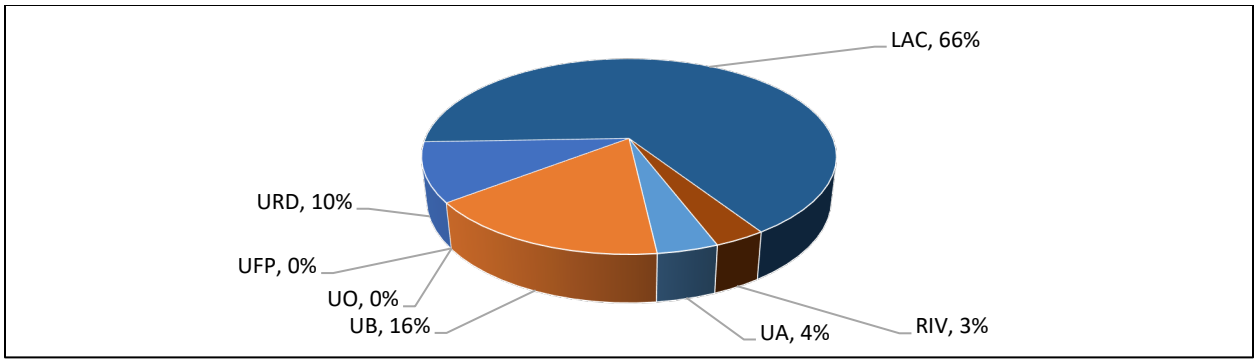

Figure 11. Gross Willamette Valley Wetland Losses to Other Categories, 2005–2020

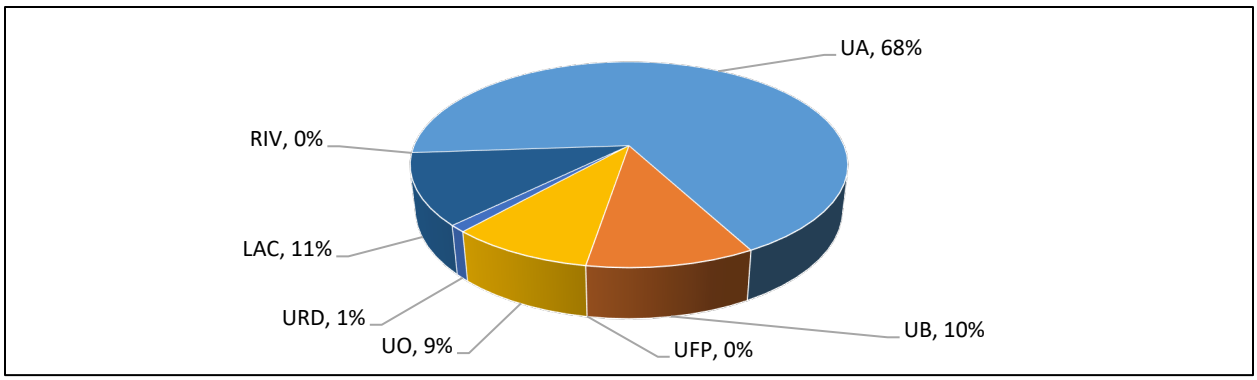

Figure 12. Gross Willamette Valley Wetland Gains from Other Categories, 2005–2020

Figure 13. 2005-era Imagery (background) and 2020-era Imagery (foreground) Showing the Conversion of Upland Build (Urban) to Wetland Features

5.2 Comparison With National Status and Trends Study

This section has been omitted from this report because the national status and trends study has not been released for this time period, at the time of this study's analysis.

5.3 Changes in Wetland Area and Assessing Wetland Condition

Most wetland status and trends studies, including this study, have primarily addressed wetland area losses and gains. Because of the large historical losses of wetlands in the United States, the primary concern has been to document changes in wetland area and the land cover/land use sources of wetland losses and gains (e.g., urban development or agriculture). This information is essential to reporting on federal and state no net loss or net gain of wetlands policies, for evaluating program effectiveness, and for gaining insight into ways to halt or reverse wetland losses.

This report is the third to examine wetland area losses and gains in the Willamette Valley. The starting date of the first study (1982) predated full development of most "modern" regulations and programs designed to curb wetland losses, including state and federal regulatory programs that require compensatory wetland mitigation for permitted wetland impacts, the U.S. Department of Agriculture Swampbuster program that discouraged conversion of wetlands to agricultural production, and various incentive programs for wetland restoration and protection. The first study found a net loss of wetlands of 6,877 acres from 1982 to 1994, an average of 573 per year. The second study found that net loss still occurred from 1994 to 2005, but the total loss had decreased to 3,932 acres for an average loss of 357 acres per year. Based upon the results of this study, we have achieved no net loss of wetland area in the Willamette Valley. The wetland category that is mostly responsible for the stability in wetland land coverage by a significant margin is a gain in *palustrine farmed* wetlands.

The Willamette Valley studies, like the USFWS wetland status and trends reports, do not provide detailed information on changes in wetland condition or functions. Wetland functions are the ecological processes within wetlands, such as nitrate removal. Wetland condition is the health or "integrity" of the wetland, commonly determined by its vegetation composition and disturbances such as ditches or compaction of soils. Classifying wetlands and wetland changes by Cowardin class and HGM class provides some insight into changes in wetland condition and functions. For example, a change from palustrine forested to palustrine farmed signals a probable degradation of wetland condition, but also suggests changes in wetland functions (some decreasing and others increasing). However, such interpretation must be made cautiously, as these classification systems are not designed to be indicators of wetland condition or functions.

In more recent decades, public policy has embraced the concept of assessing changes in the health, or condition, of wetlands in addition to tracking changes in area. In Oregon, the Oregon State of the Environment Report 2000 (Oregon Progress Board, 2000) addressed the health of the state's natural resources, including freshwater wetlands (Morlan, 2000). Washington State and California have also begun implementing wetland assessments in their state level data. At the national level, the National Wetland Condition Assessment (NWCA) is a collaborative survey of wetlands and their chemical, physical and biological integrity. The first and latest NWCA report was published for 2011 (U.S. Environmental Protection Agency [USEPA] 2016), with NWCA field season sampling to be conducted every five years (USEPA 2021). We continue to see an interest in the various approaches implemented at the state level but for the time being the states are leading with this type of quantified wetland quality assessment.

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From:	Philip Higgins
To:	HAMPTON Matthew L * DLCD; YOUNG Kevin * DLCD; PUNTON Amanda * DLCD; AHRENS Melissa * DLCD
Cc:	MILLER Jess K * DLCD; TAYLOR Casaria * DLCD; Philip Higgins
Subject:	RE: Goal 5 Wetlands and Urbanization RAC Meeting #1 Follow-Up
Date:	Thursday, December 18, 2025 9:07:41 AM
Attachments:	Study - Wetland And Land Use Change Willamette Valley 2005-2020.pdf 2025-2026 Goal 5 Wetlands and Urbanization RAC respose.docx

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Good Afternoon,

First, I'd like to thank you for your dedication to our great State. My comments may not directly acknowledge the passion you bring to your work, but for better or worse, that passion is recognized, and I appreciate that your position is informed by your best intentions.

I'm going to be selecting the option to *submit comments via email or a separate document; please include Amanda, Melissa, and Kevin in your response*. **Please see the attached and below**

I am uncomfortable commenting on the proffered language related to the rules — as if the rulemaking process were already foregone and the task of the day is merely wordsmithing.

I believe we are critically missing the fundamental conversation: **Do we need more regulation or a reassessment of existing regulatory burdens when the consequences are this significant?**

It would be helpful to provide context beyond regulatory language and definitions. We aren't just deciding how to "manage wetlands" here — we are implicitly weighing how additional regulatory layers affect Oregon's economic landscape and the everyday financial realities of our citizens.

According to multiple recent competitiveness analyses, Oregon's regulatory environment is markedly burdensome compared to other states. For example, Oregon ranks 44th in the Chief Executive Best & Worst States for Business ranking, driven in large part by regulatory complexity and business climate concerns, placing the state in the bottom tier nationally.

In addition, a 2025 study by the Oregon Business & Industry Research and Education Foundation found Oregon to be **among the most heavily regulated states**, with a regulatory burden that has increased significantly in recent years and continues to grow relative to other states. (**Analysis Shows Growing Burden of Oregon Regulations Link:** Oregon Business & Industry)

These rankings matter because they reflect real-world impacts: diminished investment, slower job creation, higher compliance costs, and higher consumer prices. The burdens of

regulation are not merely abstract; they translate into tangible economic stress — particularly for those already struggling to afford housing, healthcare, and basic necessities.

Against this backdrop — where the U.S. middle class is broadly grappling with affordability challenges nationwide — we must ask whether layering additional regulatory cost and complexity onto land use and development processes serves the greater good.

While many environmental and resource protection objectives are laudable and well-intended, **doubling down on regulatory expansion without clear evidence of net benefit to Oregonians risks worsening the very crises our communities are confronting**: outmigration of businesses and workers, higher cost of living, and fewer opportunities for economic mobility.

I urge the Committee to thoughtfully consider not only the ecological goals of this rulemaking, but also the **economy-wide implications** of significant regulatory additions — and whether alternative approaches could achieve environmental stewardship *without exacerbating economic burdens*.

I think the efforts of the Goal 5 Wetlands and Urbanization RAC need to take guidece from the Farmstand Rule Making RAC and be put on a permenant "pause" to similarly avert the downside to our citizens and the economy.

Thank you again for your service and for your consideration of these comments.

In every corner of the country, the middle class struggles with affordability | Brookings
The United States is home to some of the most expensive cities in the world, and middle-class residents are struggling to afford a decent life for themselves and their families. According to our latest analysis, one-third of the American middle class cannot afford the cost of basic necessities as of 2023. *https://www.brookings.edu/articles/in-every-corner-of-the-country-the-middle-class-struggles-with-affordability/*

_____

Re: 2025–2026 Goal 5 Wetlands and Urbanization Rulemaking (RAC)

Oregon is facing converging crises in homelessness, housing affordability, and economic competitiveness. These conditions are not abstract; they are measurable, persistent, and worsening. Any proposed expansion of Goal 5 processes inside Urban Growth Boundaries (UGBs) must be evaluated against these realities and against the statutory purpose of Oregon's land use system: protecting and advancing the quality of life of *all* Oregonians.

Oregon's Housing and Homelessness Crisis Is Acute and Well-Documented

Oregon continues to rank among the worst states nationally for homelessness on a per-capita basis. More than **22,000 Oregonians experience homelessness on a given night**, with a disproportionate share unsheltered, including children.[1]
Oregon also has the **highest rate of unsheltered homeless children in the nation**, a direct indicator of housing supply failure rather than service delivery shortcomings.[2]

At the same time, Oregon faces a severe and compounding housing shortage. The state must produce **approximately 29,500 new homes per year** simply to meet current demand; when historic underproduction is included, that figure exceeds **50,000 units annually for the next two decades**.[3]
Nearly **half of Oregon renters are cost-burdened**, and more than one-quarter are severely cost-burdened.[4]

Regulatory compliance costs imposed on residential development are not absorbed by builders but are capitalized into housing prices through financing carry, risk premiums, and reduced unit yield.

In Oregon's land use system—particularly where Goal 5 resource protections, wetland mitigation, and appeal exposure apply—empirical evidence and market underwriting demonstrate that each dollar of regulatory cost increases the final price of housing by approximately $1.50 to $2.25.

Policies that increase compliance costs or reduce buildable density therefore function as housing price escalators and materially undermine the state's housing supply and affordability objectives.
These conditions are most acute inside UGBs—precisely the areas intended to accommodate population growth, employment, and housing, including for Oregon's most housing-vulnerable residents.

The Empirical Record Does Not Support a "Wetland Crisis" Inside UGBs
DLCD and DSL have suggested that expanded Goal 5 processes are necessary to address wetland loss. However, **DSL's own data contradicts the premise of an active wetland acreage crisis**, at least in Oregon's most urbanized region.
In *Wetland and Land Use Change in the Willamette Valley, Oregon: 2005–2020*, DSL reports a **net gain of 8,564 acres of wetlands**, representing a **2.7% increase** over the period—an average gain of **approximately 571 acres per year**.[5] This occurred during a period of continued urbanization and economic activity.

Agencies may argue that acreage alone does not capture wetland "function" or "quality." That point is understood—but it cuts *against*, not in favor of, imposing broad new procedural burdens inside UGBs. Functional concerns are already addressed through existing state and federal permitting, mitigation, and mitigation-banking frameworks. Adding another multi-year

Goal 5 process does not improve functional outcomes; it increases delay, cost, and uncertainty.

Regulatory Accretion Has Real Economic and Housing Consequences
Oregon's regulatory environment is no longer competitive. Independent national rankings consistently place Oregon near the bottom in business climate, regulatory burden, and approval timelines.[6]
Land use permitting complexity is routinely cited as a contributing factor.

Empirical studies confirm the consequences: a University of Oregon analysis found that **24% of surveyed traded-sector businesses were actively recruited by other states**, and **more than two-thirds of those expanded or relocated outside Oregon**, frequently citing regulatory burden and permitting risk.[8]

This context matters. Governor Kotek's *Roadmap to Prosperity* explicitly directs state agencies to **prioritize economic development**, and legislative leaders have publicly called—again this week—for **streamlined land use and business permitting**. Rulemaking that adds new, discretionary, multi-year processes inside UGBs moves in the opposite direction of these stated statewide priorities.

With a heavy sigh… Anticipating the Central Counterarguments →

"Goal 5 processes are necessary because local governments cannot be trusted to balance development and resources."
Local governments already operate under multiple overlapping mandates: Goal 5, Goal 9, Goal 10, Goal 14, local comprehensive plans, DSL removal-fill permits, federal Clean Water Act requirements, and mitigation rules. **The problem is not absence of regulation; it is redundancy and sequencing.**

"More process ensures better outcomes."
The record shows the opposite. Additional layers increase cost, delay, and litigation risk without measurable improvement in outcomes—*particularly where the underlying resource is not demonstrably declining.*

"This rulemaking merely provides guidance."
Guidance that triggers inventories, studies, hearings, appeals, and re-acknowledgment is not neutral. It is functionally mandatory, regardless of disclaimers, and should be evaluated as such.

In Conclusion

SB 100 and the 19 Statewide Planning Goals were adopted to protect Oregon's quality of life. Today, quality of life is being undermined by housing insecurity, homelessness, and declining

economic opportunity.
Goal 5 implementation must evolve to reflect current data and current crises.

DLCD and DSL should be focused on **reducing friction in housing production and industrial land readiness inside UGBs**, not expanding procedural barriers where no demonstrated wetland acreage crisis exists. Protecting wetlands and addressing housing affordability are not mutually exclusive—but regulatory excess inside UGBs actively undermines both equity and economic resilience.

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Respectfully,

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Sent: Tuesday, December 9, 2025 6:25 PM
To: YOUNG Kevin * DLCD <Kevin.YOUNG@dlcd.oregon.gov>; PUNTON Amanda * DLCD <Amanda.PUNTON@dlcd.oregon.gov>; AHRENS Melissa * DLCD <Melissa.Ahrens@dlcd.oregon.gov>
Cc: MILLER Jess K * DLCD <Jess.K.MILLER@dlcd.oregon.gov>; TAYLOR Casaria * DLCD

<Casaria.TAYLOR@dlcd.oregon.gov>
Subject: Goal 5 Wetlands and Urbanization RAC Meeting #1 Follow-Up

This message has been bcc'd to all RAC members.

Hello Wetlands and Urbanization RAC Members,

Thanks for joining us for our first RAC meeting on Monday! We were very pleased that everyone could attend, and we appreciate your questions, comments, and insights. As promised, we have attached the following materials to this email:

- The draft rule amendments to OAR 660-023-0100 and -0250
- An outline of Rule 660-023-0100, and
- A copy of our power point presentation from yesterday

Please review the draft rule amendments and other materials. We would appreciate your comments, questions, and suggestions on the rule amendments by the end of the day on December 22nd. That will allow us time to review your comments and revise the draft in advance of our January meeting. The document provided is a Word document and it should have "Track Changes" on. **Please leave "Track Changes on, if you plan to add suggestions and comments into your copy of the draft.** That will allow us to clearly see your questions, comments, and revisions when you send it back to us. Alternatively, you may wish to just comment via email or a separate document, which is also fine. Please include Amanda, Melissa, and Kevin in your response. We are cc'ed in this message and will be included if you "Reply All."

We are working on a Doodle poll for our January meeting, which you should receive soon. A little later, we will also be sending a poll to determine our February and late April/early May meeting dates and times.

Thanks for your help with this important effort! - Amanda, Melissa, and Kevin.

Matthew Hampton
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I am usually in the office on Tuesdays.

From:	Shawn Irvine
To:	HAMPTON Matthew L * DLCD; YOUNG Kevin * DLCD; PUNTON Amanda * DLCD; AHRENS Melissa * DLCD
Cc:	MILLER Jess K * DLCD; TAYLOR Casaria * DLCD; Kenna West
Subject:	Re: Goal 5 Wetlands and Urbanization RAC Meeting #1 Follow-Up
Date:	Saturday, December 20, 2025 11:34:40 AM

Hi guys,

I'm having a hard time reviewing this draft language. I understand the desire to keep things focused and manageable, but it just doesn't feel like we're moving the needle on this wetlands issue. The LWI requirement is a great example of the kind of overlapping and duplicative regulatory requirement that grinds the land use process down to a crawl. The LWI process is supposed to determine significance and establish protections. We already have floodplain protections and riparian buffers along our creeks - which is where any significant wetlands will be since the rest is farmed. Once we do all that, the developer still has to do an actual delineation, and because mitigation credits cost so much (or there just aren't any) they simply avoid the low value wetlands. In effect we're exchanging high value farmland for low value wetlands instead of getting the urbanization that our land use system is designed to achieve. At the same time, because of the steadily increasing TMDL rules, we're now requiring development to use bioswales and vegetated detention basins for settling and natural infiltration - roles that wetlands typically play in storm situations, and this infrastructure is likely to end up becoming a wetland based on current definitions. OWEB has also been funding wetland restoration and development for years. Based on the Governor's recent comments, we need to be figuring out how to use some of the other requirements to address goal 5 instead of creating additional layers of regulations and requirements. If we can crack that nut, it opens up a lot of housing and employment land.

The avoidance strategy to get around the LWI just feels like small potatoes. It's addressing a limited problem in a limited number of places in a limited way. What do we do if the entire property is assumed to be wetlands? Even if there are potential upland areas, we're asking a developer to structure the entire project around a naturally-occurring feature instead of a phasing that maximizes the viability (ie: affordability) of the development. What if they have to cross a potential wetland to access the upland?

Since the avoidance strategy still requires someone to determine an upland area, and one of the two ways to do that is through a delineation, why don't we look at simply requiring a wetland delineation for the property (which is already a requirement for development) and then use that to either avoid wetlands or classify them as significant or non significant and avoid the significant ones? They already have to make a value determination as part of the delineation so they can determine the mitigation

requirements for anything proposed to be filled. How can we use existing processes and requirements to meet goal 5 instead of creating an additional pathway that just adds to the complexity and doesn't create much of a benefit? You brought together a really skilled and knowledgeable group. The proposed changes we're reviewing are so limited in nature that it doesn't take advantage of this group's abilities.

Thank you

Shawn

From: HAMPTON Matthew L * DLCD <matthew.l.hampton@dlcd.oregon.gov>
Sent: Friday, December 19, 2025 11:04 AM
To: YOUNG Kevin * DLCD <Kevin.YOUNG@dlcd.oregon.gov>; PUNTON Amanda * DLCD <Amanda.PUNTON@dlcd.oregon.gov>; AHRENS Melissa * DLCD <Melissa.Ahrens@dlcd.oregon.gov>
Cc: MILLER Jess K * DLCD <Jess.K.MILLER@dlcd.oregon.gov>; TAYLOR Casaria * DLCD <Casaria.TAYLOR@dlcd.oregon.gov>
Subject: FW: Goal 5 Wetlands and Urbanization RAC Meeting #1 Follow-Up

This message has been bcc'd to all RAC members.

Hello Wetlands and Urbanization RAC Members,

This is a gentle reminder that if you would like your comments to be considered for the next round of draft rule revisions, please respond with your comments, questions, and suggestions on the rule amendments by the end of the day on **December 22nd.**

The document provided is a Word document and it should have "Track Changes" on. **Please leave "Track Changes on, if you plan to add suggestions and comments into your copy of the draft.** That will allow us to clearly see your questions, comments, and revisions when you send it back to us. Alternatively, you may wish to just comment via email or a separate document, which is also fine. Please include Amanda, Melissa, and Kevin in your response. We are cc'ed in this message and will be included if you "Reply All."

The team appreciates all the responses received so far.

Thank you and enjoy your weekend.

Matthew Hampton
Rules, Records, and Policy Coordinator | Director's Office
Pronouns: any

LOBNIBE Silas * DLCD

From: YOUNG Kevin * DLCD
Sent: Tuesday, January 13, 2026 4:23 PM
To: HAMPTON Matthew L * DLCD; LOBNIBE Silas * DLCD
Subject: FW: Wetlands & Urbanization RAC

Follow Up Flag: Flag for follow up
Flag Status: Flagged

RAC Feedback, email message only

Kevin Young, AICP
Senior Urban Planner | Community Services Division
Pronouns: He/Him
Oregon Department of Land Conservation and Development
Cell: 503-602-0238 | Main: 503-373-0050 Mail to: kevin.young@dlcd.oregon.gov|
https://gcc02.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.oregon.gov%2FLCD&data=05%7C02%7Csilas.lobnibe%40dlcd.oregon.gov%7Cca558b65761d4763101008de53030967%7Caa3f6932fa7c47b4a0cea598cad161cf%7C0%7C0%7C639039469655062370%7CUnknown%7CTWFpbGZsb3d8eyJFbXB0eU1hcGkiOnRydWUsIlYiOiIwLjAuMDAwMCIsIlAiOiJXaW4zMiIsIkFOIjoiTWFpbCIsIldUIjoyfQ%3D%3D%7C0%7C%7C%7C&sdata=CRoQwwQ36aY4QCNoOvYTzqHOPAQBuz4nWv5qzqYcYoA%3D&reserved=0

-----Original Message-----
From: gerry murphy <earlyriser43us@yahoo.com>
Sent: Tuesday, December 23, 2025 1:17 PM
To: YOUNG Kevin * DLCD <Kevin.YOUNG@dlcd.oregon.gov>; PUNTON Amanda * DLCD <Amanda.PUNTON@dlcd.oregon.gov>; AHRENS Melissa * DLCD <Melissa.Ahrens@dlcd.oregon.gov>
Subject: Wetlands & Urbanization RAC

[You don't often get email from earlyriser43us@yahoo.com. Learn why this is important at https://aka.ms/LearnAboutSenderIdentification]

Good Afternoon All,

I apologize for not having more written comments completed by the deadline, I was somewhat distracted. And without power, cellular, and internet for days.

Last week was a great example why buffer zones are so important around wetlands and floodplains.

Where I'm located, in a neighborhood of roughly 470 homes, the Upper Sandy River flows through the middle of it.

First, a high wind on Tuesday night/ Wednesday morning that snapped two parts of a tree that hit our house 1:30am & 1:45am. We had damage to the home and an out building that I was able to repair due to my background experience.

Late Wednesday & early Thursday morning the Sandy River crested above 44,000 cfs measured at the Marmot Gauge. This volume is higher than the 2011 high water event.

The value of neighboring wetlands and side channels of the Upper Sandy River absorbed floodwater and erosive energy that could have been very destructive.

I was up that night knocking on doors to alert residents of an Evac 3 Go Now that I received from a Push alert. The river had over banked and river flow was going between homes and flowing down the street.

This is the third 1% high water event I have witnessed that has affected my neighborhood since I lived here. We must not put more people in the path of known natural hazards to meet a Governor's Order.

Best,

Gerald Murphy (Murph)

Very Active Community Volunteer

Sent from my iPad

To	Wetlands and Urbanization RAC Team, DLCD; Commissioner Thompson
From	Brock Nation, RAC Member Policy Director – Oregon REALTORS®
Date	December 22, 2025
Subject	Comments Regarding Initial [12/9/25] Draft Rules (RAC #1)

Thank you for the opportunity to provide feedback on the initial draft rules for the Goal 5 Wetlands and Urbanization RAC. By way of background, Oregon REALTORS® represents more than 17,000 real estate professionals across Oregon, who in turn represent hundreds of thousands of Oregonians including home buyers, sellers, landlords, and tenants.

Responses to "RAC Input" Questions

RAC input is requested on:

1. ***What the rule should require as a commitment to adopting and implementing a wetland avoidance program; and***
2. ***When the commitment needs to be made.***

As I and at least one other RAC member suggested during the first meeting, it may be beneficial to have multiple pathways – one for Metro, one for when UGB expansion and annexation occur concurrently (or annexation occurs immediately subsequent to expansion), and one for instances when only the UGB expansion occurs and annexation occurs separately (at a later time).

RAC input is requested on:

1. ***When allowing a city to maintain a wetland avoidance program indefinitely is consistent with Statewide Land Use Planning Goals 3, 5, and 14; and***
2. ***If transition to a full local wetland protection program is required for some cities, when should that the transition occur?***

Allowing a city to maintain a wetland avoidance program indefinitely is consistent with Goal 14 if the local government discounts the capacity of these avoided lands because OAR Chapter 660 Division 24 implements Goal 14 and allows local governments to discount the capacity of lands protected by Goal 5. (emphasis added)

> For evidence, see OAR 660-024-0067(5)(c) and the amended version of OAR 660-024-0067(5) (p. 133-134) as adopted by LCDC in December as part of the OHNA rulemaking.

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Allowing a city to maintain a wetland avoidance program indefinitely is consistent with Goal 5 because doing so would prevent the development of Goal 5 protected wetlands indefinitely. This is further supported by Goal 5, Guidelines, B. IMPLEMENTATION, Subsection 2, which states that, "[t]he conservation of both renewable and non-renewable natural resources and physical limitations of the land should be used as the basis for determining the quantity, quality, location, rate and type of growth in the planning area."

Allowing a city to maintain a wetland avoidance program indefinitely is consistent with Goal 3, regardless of whether doing so has secondary impacts on Goal 3 lands. Goal 3 speaks to the uses which are or should be allowable on agricultural lands, but not the implication of decisions indirectly related to agricultural lands.

For evidence, see the last headnote fully contained on page 1 of LUBA's Headnotes: 7.1 – Goal 3 Generally. Using the same logic as LUBA relied upon in *Friends of Deschutes County v. Deschutes County,* 49 Or LUBA 100 (2005), while discounting these lands may have an impact on Goal 3 lands based on future government actions, it does not directly implicate Goal 3. An excerpt of this headnote is pasted below:

> ***7.1 Goal 3 – Agricultural Lands/ Goal 3 Rule – Generally.*** *While population forecasts may eventually be used to provide a partial basis for a local government to take future actions that might have an effect upon farmland, the forecasts do not have an effect on farmland, and therefore do not implicate Goal 3. Friends of Deschutes County v. Deschutes County, 49 Or LUBA 100 (2005).*

RAC input is requested on whether this rulemaking should add clarification to OAR 660-023-0250(3) on timing when a city is required to "apply Goal 5" under (c).

For the reasons described above, allowing a city to maintain a wetland avoidance program indefinitely is consistent with Statewide Land Use Planning Goals 3, 5, and 14. Therefore, there is no compelling reason to establish a timing requirement for Goal 5 application.

Minor Amendments to Ensure Clarity

We recommend the following minor amendments for the purpose of ensuring clarity. We believe each of the following is aligned with the intent of the relevant provision.

Recommendation #1: Proposed OAR 660-023-0100(5)(b)(A)

While no changes to this provision were proposed by staff, we recommend adding the words "or vegetation management practices as" after the word "cutting." While a minor change, it would address the potentially unanswered legal question of whether OAR 660-

023-0100(5)(b)(A) allows other forms of vegetation management besides cutting for the purpose of hazard mitigation.

With our recommended amendment, OAR 660-023-0100(5)(b)(A) would read as follows:

> "(A) The protection ordinance shall place restrictions on grading, excavation, placement of fill, and vegetation removal other than perimeter mowing and other cutting **or vegetation management practices as** necessary for hazard prevention; and"

Recommendation #2: Proposed OAR 660-023-0100(6)(b)

We recommend expanding the list of allowable utility infrastructure development to also include sewer and wastewater lines. With our recommended addition, OAR 660-023-0100(6)(b) would read as follows:

> "(b) Allow development only in upland areas, provided a development proposal meets other local review criteria, except that the extension of water, electric, **sewer, wastewater,** and gas utilities lines may be allowed to serve upland portions of a property."

Recommendation #3: Proposed OAR 660-023-0100(7)

We will speak to the substantive questions regarding (a) the subset of UGB expansion areas to which the provision would apply, and (b) the timing requirement later in this letter. Here, we simply wish to recommend the following amendments for clarity and readability:

> (7) For [applicable lands], a city~~*'s wetland avoidance program*~~ must replace the **wetland avoidance** program with a full local Goal 5 wetland protection program consistent with sections 5 and 6, [within applicable timing].

Substantive Amendments

Recommendation #4: Proposed OAR 660-023-0250(3)(c)

The draft language in (3)(c) is likely workable in some portions of the state – such as Central Oregon – but in other portions of the state, hydric soils represent the vast majority of soils. This is particularly true between the coastal and cascade ranges, as well as in portions of the southwest, southeast, & south coast regions. Screenshots of the hydric soils map from GeoHub are provided for your reference on pages 4-7.

To reduce analytical burden on local governments in these regions, a slope threshold safe harbor should be included in this provision. Natural wetlands typically occur on lands with slopes of 2% or less. When wetlands do exist on lands with slopes of greater than 2%, there

is typically an associated groundwater emergence or adjacent source of water such as a river which frequently floods the lands.

There are several ways this could be accounted for in rule. Below, we provide several options which would incorporate such a safe harbor into rule.

Option A – Simplest solution; most similar to the current draft

(c) The PAPA amends an acknowledged UGB and factual information is submitted demonstrating that a resource site, or the impact areas of such a site, is included in the amended UGB area. For the purposes of this rule, Statewide Wetlands Inventory data indicating the presence of wetlands, predominantly hydric soil map units **with average slopes of less than or equal to 2%**, or Agate-Winlo soil are recognized as a demonstration of potential wetland presence.

Option B – Functionally equivalent to Option A but formatted differently

(c) The PAPA amends an acknowledged UGB and factual information is submitted demonstrating that a resource site, or the impact areas of such a site, is included in the amended UGB area. For the purposes of this rule, **the following are recognized as demonstrations of potential wetland presence:**

(A) Statewide Wetlands Inventory data indicating the presence of wetlands**;**

(B) Predominantly hydric soil map units **with average slopes of less than or equal to 2%;** or

(C) Agate-Winlo soil.

Option C – Two-tiered solution based on the percentage of soils in the amended UGB area which are hydric

(c) The PAPA amends an acknowledged UGB and factual information is submitted demonstrating that a resource site, or the impact areas of such a site, is included in the amended UGB area. For the purposes of this rule, Statewide Wetlands Inventory data indicating the presence of wetlands, ~~predominantly hydric soil map units,~~ or Agate-Winlo soil are recognized as a demonstration of potential wetland presence. **Additionally, the following is recognized as a demonstration of potential wetland presence:**

(A) Predominantly hydric soil map units**, if less than 10% of the amended UGB area is comprised of hydric soils; or**

(B) Predominantly hydric soil map units **with average slopes of less than or equal to 2%, if greater than 10% of the amended UGB area is comprised of hydric soils.**

Thank you for your time and consideration of our comments.

Brock Nation

Policy Director, Oregon REALTORS®

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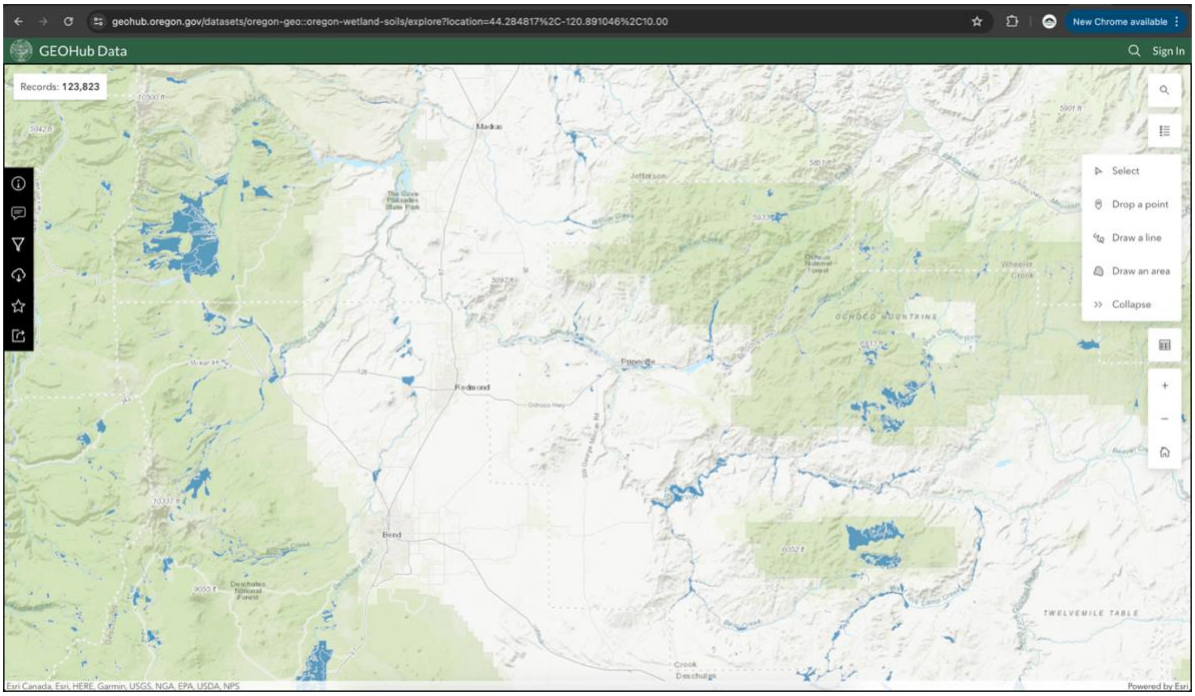
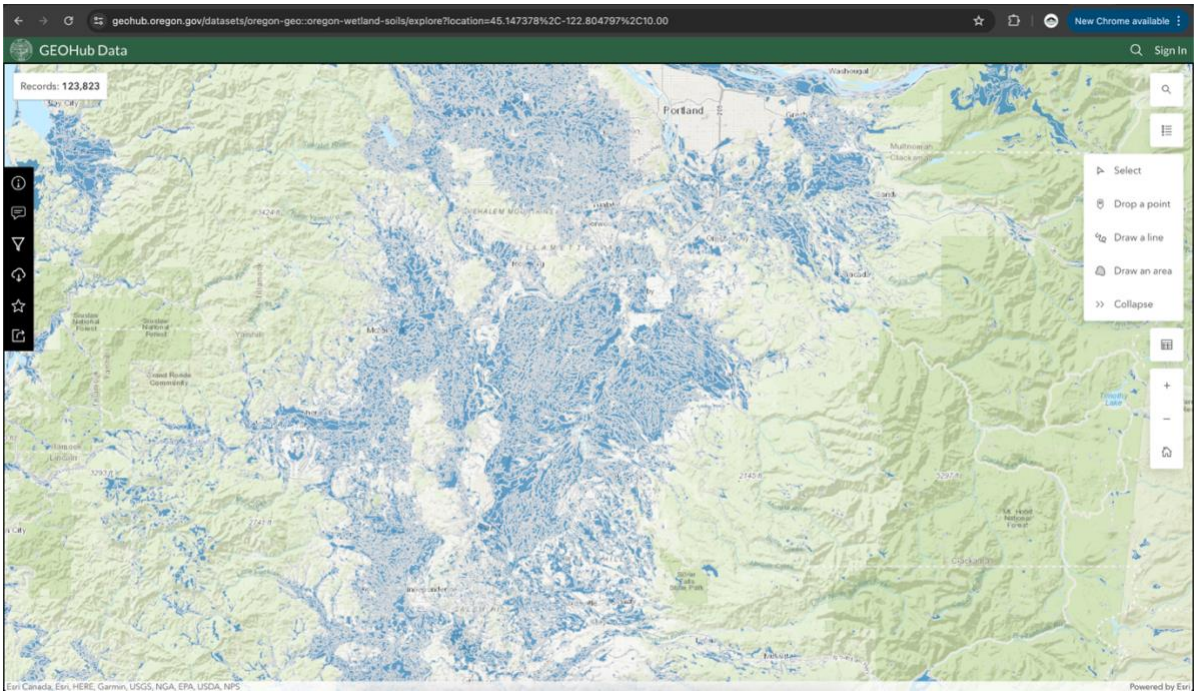
GeoHub Map of Hydric Soils - Screenshots

Central Oregon



Metro



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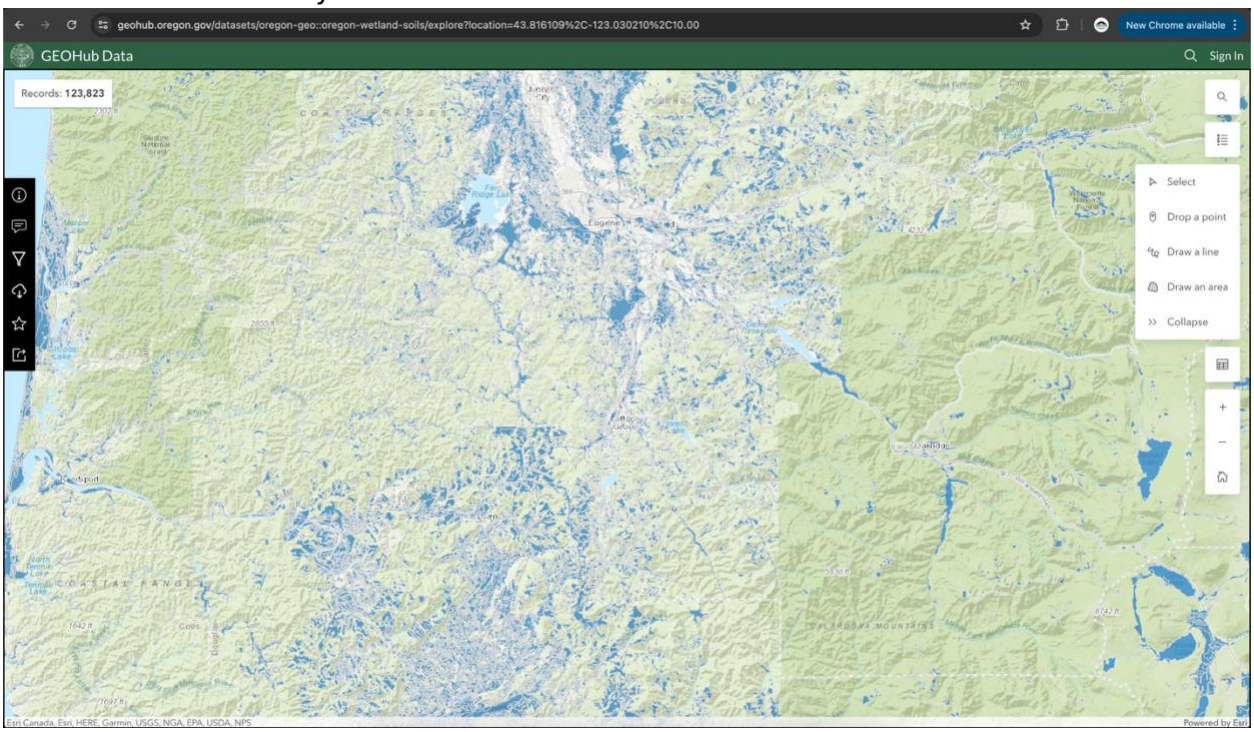
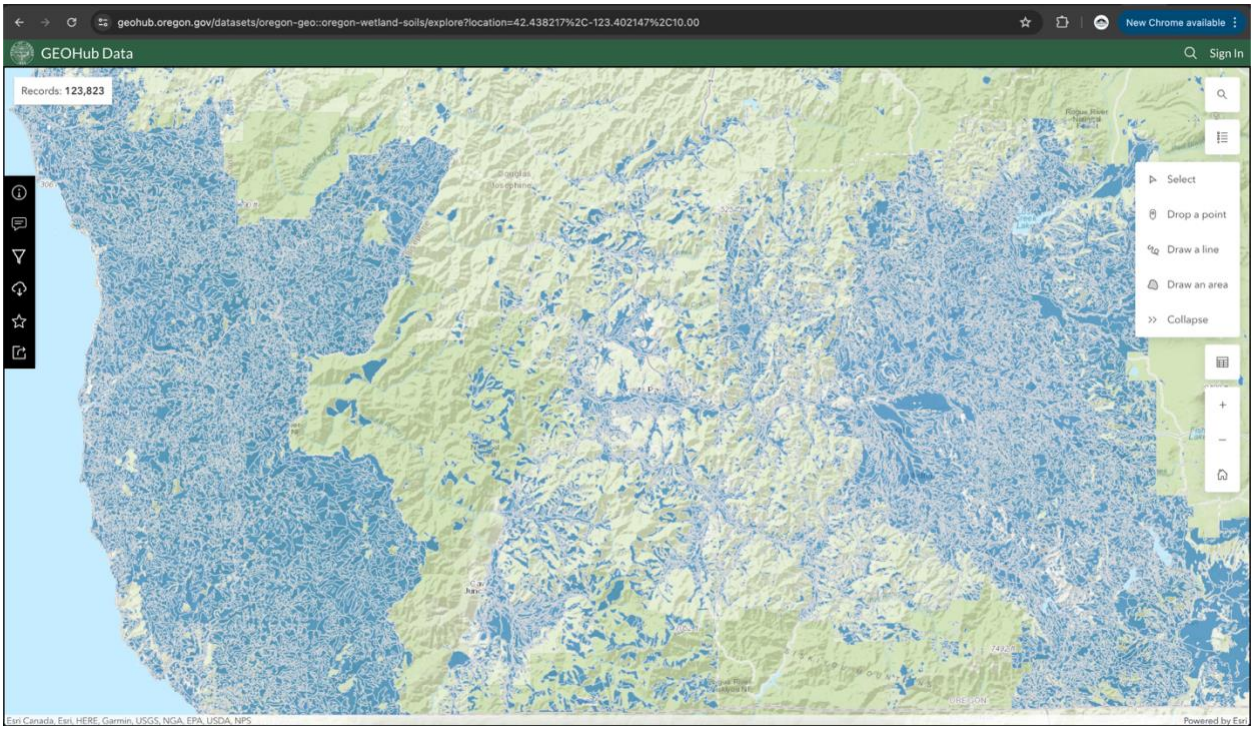
South Willamette Valley



Southwest & South Coast



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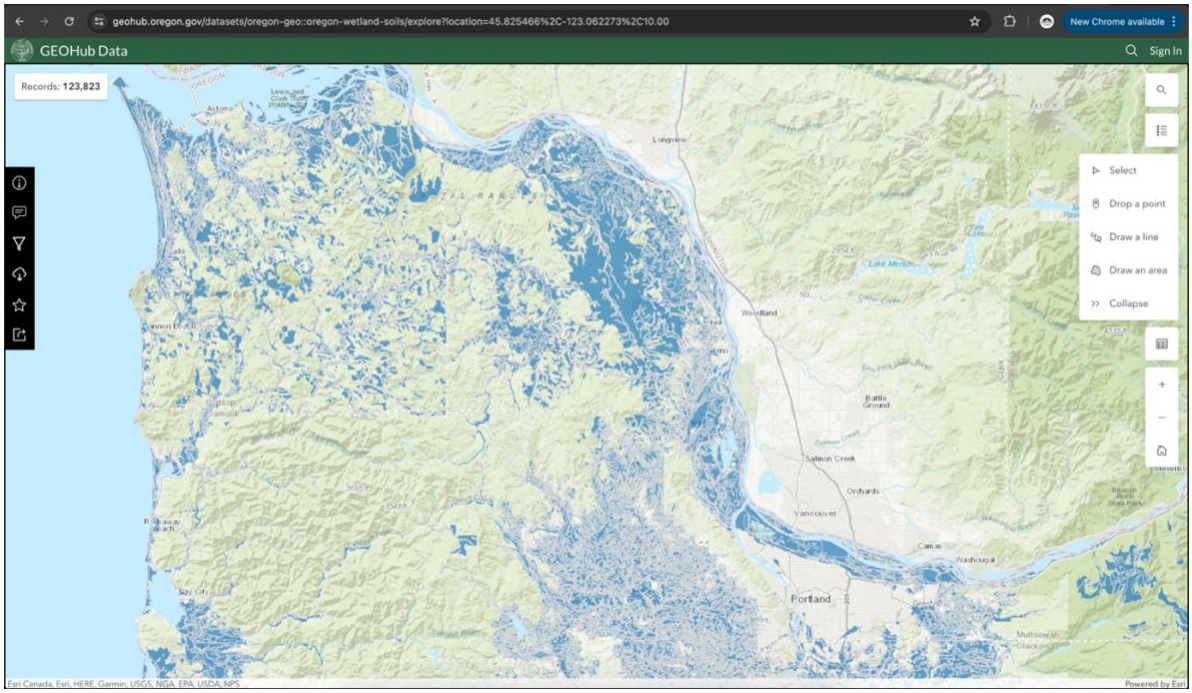
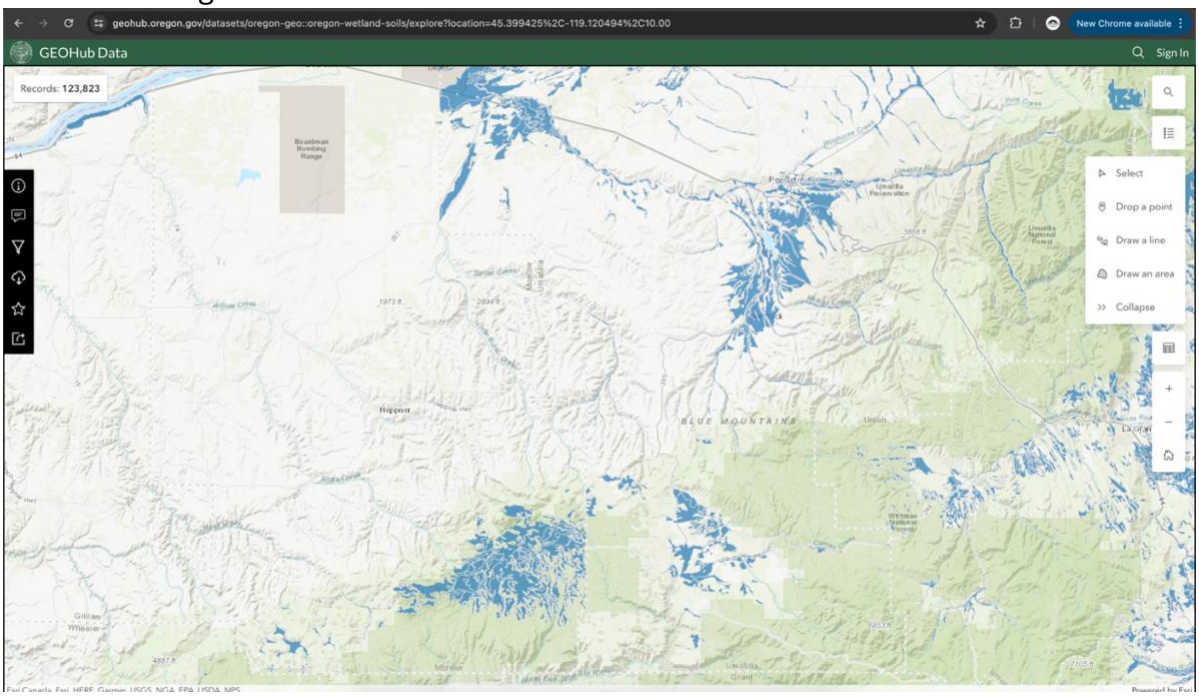
North Coast



Northeast Oregon



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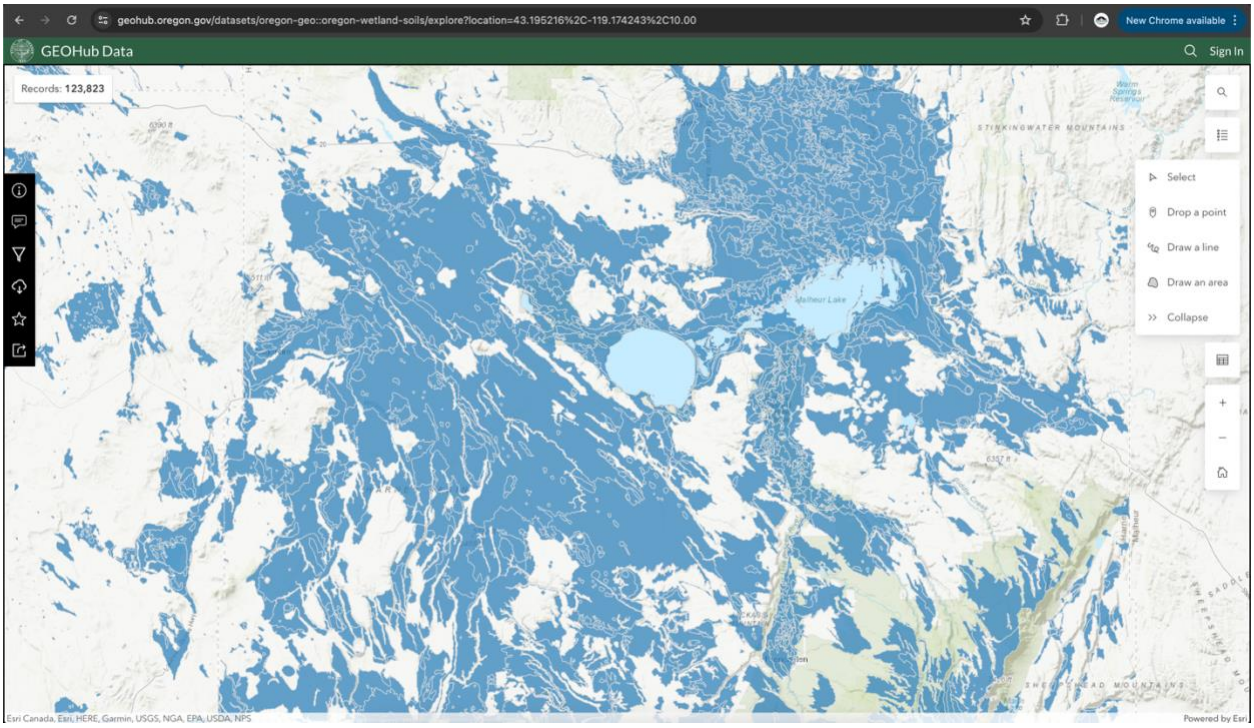
Southwest Oregon



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Re: 2025–2026 Goal 5 Wetlands and Urbanization Rulemaking (RAC)

Oregon is facing converging crises in homelessness, housing affordability, and economic competitiveness. These conditions are not abstract; they are measurable, persistent, and worsening. Any proposed expansion of Goal 5 processes inside Urban Growth Boundaries (UGBs) must be evaluated against these realities and against the statutory purpose of Oregon's land use system: protecting and advancing the quality of life of *all* Oregonians.

Oregon's Housing and Homelessness Crisis Is Acute and Well-Documented

Oregon continues to rank among the worst states nationally for homelessness on a per-capita basis. More than **22,000 Oregonians experience homelessness on a given night**, with a disproportionate share unsheltered, including children.[1]

Oregon also has the **highest rate of unsheltered homeless children in the nation**, a direct indicator of housing supply failure rather than service delivery shortcomings.[2]

At the same time, Oregon faces a severe and compounding housing shortage. The state must produce **approximately 29,500 new homes per year** simply to meet current demand; when historic underproduction is included, that figure exceeds **50,000 units annually for the next two decades**.[3]

Nearly **half of Oregon renters are cost-burdened**, and more than one-quarter are severely cost-burdened.[4]

Regulatory compliance costs imposed on residential development are not absorbed by builders but are capitalized into housing prices through financing carry, risk premiums, and reduced unit yield.

In Oregon's land use system—particularly where Goal 5 resource protections, wetland mitigation, and appeal exposure apply—empirical evidence and market underwriting demonstrate that each dollar of regulatory cost increases the final price of housing by approximately $1.50 to $2.25.

Policies that increase compliance costs or reduce buildable density therefore function as housing price escalators and materially undermine the state's housing supply and affordability objectives.

<u>These conditions are most acute inside UGBs—precisely the areas intended to accommodate population growth, employment, and housing, including for Oregon's most housing-vulnerable residents.</u>

The Empirical Record Does Not Support a "Wetland Crisis" Inside UGBs

DLCD and DSL have suggested that expanded Goal 5 processes are necessary to address wetland loss. However, **DSL's own data contradicts the premise of an active wetland acreage crisis**, at least in Oregon's most urbanized region.

In *Wetland and Land Use Change in the Willamette Valley, Oregon: 2005–2020*, DSL reports a **net gain of 8,564 acres of wetlands**, representing a **2.7% increase** over the period—an average gain of **approximately 571 acres per year**.[5]

This occurred during a period of continued urbanization and economic activity.

Agencies may argue that acreage alone does not capture wetland "function" or "quality." That point is understood—but it cuts *against*, not in favor of, imposing broad new procedural burdens inside UGBs. Functional concerns are already addressed through existing state and federal permitting, mitigation, and mitigation-banking frameworks. Adding another multi-year Goal 5 process does not improve functional outcomes; it increases delay, cost, and uncertainty.

Regulatory Accretion Has Real Economic and Housing Consequences

Oregon's regulatory environment is no longer competitive. Independent national rankings consistently place Oregon near the bottom in business climate, regulatory burden, and approval timelines.[6]

Land use permitting complexity is routinely cited as a contributing factor.

Empirical studies confirm the consequences: a University of Oregon analysis found that **24% of surveyed traded-sector businesses were actively recruited by other states**, and **more than two-thirds of those expanded or relocated outside Oregon**, frequently citing regulatory burden and permitting risk.[8]

This context matters. Governor Kotek's *Roadmap to Prosperity* explicitly directs state agencies to **prioritize economic development**, and legislative leaders have publicly called—again this week—for **streamlined land use and business permitting**. Rulemaking that adds new, discretionary, multi-year processes inside UGBs moves in the opposite direction of these stated statewide priorities.

With a heavy sigh… Anticipating the Central Counterarguments

"Goal 5 processes are necessary because local governments cannot be trusted to balance development and resources."
Local governments already operate under multiple overlapping mandates: Goal 5, Goal 9, Goal 10, Goal 14, local comprehensive plans, DSL removal-fill permits, federal Clean

Water Act requirements, and mitigation rules. **The problem is not absence of regulation; it is redundancy and sequencing.**

"More process ensures better outcomes."
The record shows the opposite. Additional layers increase cost, delay, and litigation risk without measurable improvement in outcomes—*particularly where the underlying resource is not demonstrably declining.*

"This rulemaking merely provides guidance."
Guidance that triggers inventories, studies, hearings, appeals, and re-acknowledgment is not neutral. It is functionally mandatory, regardless of disclaimers, and should be evaluated as such.

In Conclusion

SB 100 and the 19 Statewide Planning Goals were adopted to protect Oregon's quality of life. Today, quality of life is being undermined by housing insecurity, homelessness, and declining economic opportunity. Goal 5 implementation must evolve to reflect current data and current crises.

DLCD and DSL should be focused on **reducing friction in housing production and industrial land readiness inside UGBs**, not expanding procedural barriers where no demonstrated wetland acreage crisis exists. Protecting wetlands and addressing housing affordability are not mutually exclusive—but regulatory excess inside UGBs actively undermines both equity and economic resilience.

U.S. Department of Housing and Urban Development, *2024 Point-in-Time Count*. https://www.hudexchange.info/programs/hdx/pit-hic/ ↩

Oregon Housing and Community Services, *State of the State's Housing Report*. https://www.oregon.gov/ohcs/about-us/Pages/state-of-the-state-housing.aspx

Oregon Office of Economic Analysis / OHCS, Housing Needs Analysis (2024–2025). https://www.oregon.gov/ohcs/development/Pages/housing-needs.aspx

Oregon Housing and Community Services, *State of the State's Housing*. https://www.oregon.gov/ohcs/about-us/Documents/state-of-the-states-housing.pdf

Oregon Department of State Lands, *Wetland and Land Use Change in the Willamette Valley, Oregon: 2005–2020*. https://www.oregon.gov/dsl/wetlands/Documents/Wetland%20and%20Land%20Use%20Change%20Willamette%20Valley.pdf

Chief Executive Magazine, *Best & Worst States for Business*. https://chiefexecutive.net/best-worst-states-business/

CNBC, *America's Top States for Business*. https://www.cnbc.com/top-states-for-business/

University of Oregon, *Oregon Business Climate & Interstate Competition Study*. https://business.uoregon.edu/research

660-023-0100

Wetlands

(1) For purposes of this rule, a "wetland" is an area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

(2) Local governments shall address the requirements of this division to apply Goal 5 to wetlands, as required by OAR 660-023-0250.

(a) Cities shall amend acknowledged plans and land use regulations to meet Goal 5 for wetlands in areas added to a UGB, as set out in OAR 660-023-0250(3), and

(b) Local governments shall amend acknowledged plans and land use regulations to address the requirements of this division, as set out in OAR 660-023-0250(5) through (7) prior to or at periodic review.

(c) Prior to Cities completing items (a) and (b) above, the wetland avoidance process in section 6 may be used for UGB expansions and development. The SWI map shall be utilized as a general guide to identifying wetlands.

(3) The standard inventory process requirements in OAR 660-023-0030 do not apply to wetlands. Instead, local governments shall follow the requirements of section (4) of this rule in order to inventory and determine significant wetlands.

4) For areas inside urban growth boundaries (UGBs) and urban unincorporated communities (UUCs), local governments shall:

(a) Conduct a local wetlands inventory (LWI) using the standards and procedures of OAR 141-086- through 141-086-0240 and determine which wetlands are "significant wetlands" using the criteria adopted by the Department of State Lands (DSL) pursuant to ORS 197.279(3)(b) and OAR 141-086-0300 through 141-086-350; and

(b) Adopt the LWI and the list of significant wetlands as part of the comprehensive plan or as a land use regulation.

(5) For significant wetlands inside UGBs and UUCs, a local government shall:

(a) Complete the Goal 5 process and adopt a program to achieve the goal following the requirements of OAR 660-023-0040 and 660-023-0050; or

(b) Adopt a safe harbor ordinance to protect significant wetlands consistent with this subsection, as follows:

(A) The protection ordinance shall place restrictions on grading, excavation, placement of fill, and vegetation removal other than perimeter mowing and other cutting necessary for hazard prevention; and

Commented [JS1]: Add definitions for uplands, significant wetlands, non-significant wetlands and the three criteria that make for a wetland.

Commented [JS2]: I feel this needs to be stated at the top, for cities to understand that a separate process exists.

Commented [JS3]: There is a lot on the SWI. Need to know what layers are meaningful in this context.

(B) The ordinance shall include a variance procedure to consider hardship variances, claims of map error verified by DSL, and reduction or removal of the restrictions under paragraph (A) of this subsection for any lands demonstrated to have been rendered not buildable by application of the ordinance.

(6) ~~**Optional Ww**~~**etland avoidance process** ~~**program**~~ When applying Goal 5 in an area through UGB expansion or development ~~added to a UGB as set out in OAR 660-023-0250(3)~~, a city may utilize ~~adopt a~~ this wetland avoidance process ~~program~~ that prohibits grading, excavation, placement of fill, and vegetation removal in all wetlands until the avoidance process ~~program~~ is replaced with a local wetland protection program consistent with sections (4) and (5). A wetland avoidance process ~~program~~ shall:

(a) Require DSL identify and confer with the local jurisdiction about potential areas of wetlands during a UGB expansion process. These areas will be identified in the expansion map and SWI for further delineation or determinations with development.

(b) Require DSL approved delineations or a determination~~s~~ of developable uplands prior to development approval on all parcels for which development is proposed.

(c) Allow development only in upland areas, provided a development proposal meets other local review criteria, except that the extension of water, sewer, electric, ~~and~~ gas and other utilities ~~lines~~ may be allowed to serve upland portions of a property if other reasonable options are not available.

RAC input is requested on:

1. *What the rule should require as a commitment to adopting and implementing a wetland avoidance program; and*
   The State needs to use carrots not sticks. I think this should be a commitment between DLCD and the local jurisdiction. If the State provides and runs the grant, the jurisdiction will participate.
2. *When the commitment needs to be made.*
   DLCD will make those jurisdictions a priority in the next grant cycles until awarded. This would be similar to how the HNA are working. If for some reason the city never gets awarded the avoidance process can still be applied until they are and a goal 5 inventory is adopted.

(7) ~~For [*Some subset of UGB expansion areas*],~~Cities who use the avoidance process to expand their UGBs into areas of potential or clearly identifiable wetlands, ~~a city's wetland avoidance program~~ must agree by implementing Ordinance to participate in a State funded process to fully implement ~~replace the program with a full~~ a local Goal 5 wetland protection program consistent with sections 5 and 6. ~~[*Within/before . . .*]~~

RAC input is requested on: I think this is covered in the above section.

1. *When allowing a city to maintain a wetland avoidance program indefinitely is consistent with Statewide Land Use Planning Goals 3, 5, and 14; and*
2. *If transition to a full local wetland protection program is required for some cities, when should that the transition occur?*

Commented [JS4]: I don't think this is really optional. If a City is here, they don't have their own code.

Commented [JS5]: Saying this is a program indicated there is something the City needs to adopt locally to utilize it. I feel this is a process at the State level to fill a gap.

Commented [JS6]: Maybe list specific exceptions like canals or irrigated land.

(8) For areas outside UGBs and UUCs, local governments shall use the official Statewide Wetlands Inventory (SWI) map for the purpose of section (10) of this rule.

(9) For areas outside UGBs and UUCs, local governments are not required to amend acknowledged plans and land use regulations in order to determine significant wetlands and complete the Goal 5 process. Local governments that choose to amend acknowledged plans for areas outside UGBs and UUCs in order to inventory and protect significant wetlands shall follow the requirements of sections (4) and (5) of this rule.

(10) All local governments shall provide ~~adopt land use regulations that require~~ notification of DSL concerning applications for development permits or other land use decisions affecting wetlands on the inventory, as per ORS 227.350 and 215.418, or on the SWI as provided in section (8) of this rule.

(11) All jurisdictions may inventory and protect wetlands under the procedures and requirements for wetland conservation plans adopted pursuant to ORS 196.668 et seq. A wetlands conservation plan approved by the director of DSL shall be deemed to comply with Goal 5 (ORS 197.279(1)).

Statutory/Other Authority: ORS 183 & 197
Statutes/Other Implemented: ORS 197.040 & 197.225 - 197.245
History:
LCDC 2-1996, f. 8-30-96, cert. ef. 9-1-96

660-023-0250
Applicability

(1) This division replaces OAR 660, division 16, except with regard to cultural resources, and certain PAPAs and periodic review work tasks described in sections (2) and (4) of this rule. Local governments shall follow the procedures and requirements of this division or OAR 660, division 16, whichever is applicable, in the adoption or amendment of all plan or land use regulations pertaining to Goal 5 resources. The requirements of Goal 5 do not apply to land use decisions made pursuant to acknowledged comprehensive plans and land use regulations.

(2) The requirements of this division are applicable to PAPAs initiated on or after September 1, 1996. OAR 660, division 16 applies to PAPAs initiated prior to September 1, 1996. For purposes of this section "initiated" means that the local government has deemed the PAPA application to be complete.

(3) Local governments are not required to apply Goal 5 in consideration of a PAPA unless the PAPA affects a Goal 5 resource. For purposes of this section, a PAPA would affect a Goal 5 resource only if:

(a) The PAPA creates or amends a resource list or a portion of an acknowledged plan or land use regulation adopted in order to protect a **significant Goal 5 resource** or to address specific requirements of Goal 5;

(b) The PAPA allows new uses that could be conflicting uses with a particular **significant Goal 5** resource site on an acknowledged resource list; or

(c) The PAPA amends an acknowledged UGB and **factual information** is submitted demonstrating that a resource site, or the impact areas of such a site, is included in the amended UGB area. For the purposes of this rule, Statewide Wetlands Inventory data indicating the presence of wetlands, predominantly hydric soil map units, or Agate-Winlo soil are recognized as a demonstration of wetland presence.

Commented [JS7]: How accurate are these maps? Would it be more reasonable to say two of the three wetland characteristics are present? Maybe include specific exceptions like canals or irrigated lands that would not otherwise have a presence of water.

RAC input is requested on whether this rulemaking should add clarification to OAR 660-023-0250(3) on timing when a city is required to "apply Goal 5" under (c).

The process should identify potential wetland areas during a UGB expansion as noted in 6a of the previous section. That identification should be updated on the SWI and/or LWI. A delineation of that area and submittal to DSL would only occur if they choose to develop in the area identified by DSL.

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(4) Consideration of a PAPA regarding a specific resource site, or regarding a specific provision of a Goal 5 implementing measure, does not require a local government to revise acknowledged inventories or other implementing measures, for the resource site or for other Goal 5 sites, that are not affected by the PAPA, regardless of whether such inventories or provisions were acknowledged under this rule or under OAR 660, division 16.

(5) Local governments are required to amend acknowledged plan or land use regulations at periodic review to address Goal 5 and the requirements of this division only if one or more of the following conditions apply, unless exempted by the director under section (7) of this rule:

(a) The plan was acknowledged to comply with Goal 5 prior to the applicability of OAR 660, division 16, and has not subsequently been amended in order to comply with that division;

(b) The jurisdiction includes riparian corridors, wetlands, or wildlife habitat as provided under OAR 660-023-0090 through 660-023-0110, or aggregate resources as provided under OAR 660-023-0180; or

(c) New information is submitted at the time of periodic review concerning resource sites not addressed by the plan at the time of acknowledgement or in previous periodic reviews, except for historic, open space, or scenic resources.

(6) If a local government undertakes a Goal 5 periodic review task that concerns specific resource sites or specific Goal 5 plan or implementing measures, this action shall not by itself require a local government to conduct a new inventory of the affected Goal 5 resource category, or revise acknowledged plans or implementing measures for resource categories or sites that are not affected by the work task.

(7) The director may exempt a local government from a work task for a resource category required under section (5) of this rule. The director shall consider the following factors in this decision:

(a) Whether the plan and implementing ordinances for the resource category substantially comply with the requirements of this division; and

(b) The resources of the local government or state agencies available for periodic review, as set forth in ORS 197.633(3)(g).

(8) Local governments shall apply the requirements of this division to work tasks in periodic review work programs approved or amended under ORS 197.633(3)(g) after September 1, 1996. Local governments shall apply OAR 660, division 16, to work tasks in periodic review work programs approved before September 1, 1996, unless the local government chooses to apply this division to one or more resource categories, and provided:

(a) The same division is applied to all work tasks concerning any particular resource category;

(b) All the participating local governments agree to apply this division for work tasks under the jurisdiction of more than one local government; and

(c) The local government provides written notice to the department. If application of this division will extend the time necessary to complete a work task, the director or the commission may consider extending the time for completing the work task as provided in OAR 660-025-0170.

Statutory/Other Authority: ORS 183 & 197
Statutes/Other Implemented: ORS 197.040 & 197.225 - 197.245
History:
LCDC 2-1996, f. 8-30-96, cert. ef. 9-1-96

660-023-0100

Wetlands

(1) For purposes of this rule, a "wetland" is an area that is inundated or saturated by surface water or ground-water at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

(2) Local governments shall address the requirements of this division to apply Goal 5 to wetlands, as required by OAR 660-023-0250.

(a) Cities shall amend acknowledged plans and land use regulations to meet Goal 5 for wetlands in areas added to a UGB, as set out in OAR 660-023-0250(3), and

(b) Local governments shall amend acknowledged plans and land use regulations ~~prior to or at periodic review~~ to address the requirements of this division, as set out in OAR 660-023-0250(5) through (7) prior to or at periodic ~~.~~review.

(3) The standard inventory process requirements in OAR 660-023-0030 do not apply to wetlands. Instead, local governments shall follow the requirements of section (~~3~~4) of this rule in order to inventory and determine significant wetlands.

(~~3~~4) For areas inside urban growth boundaries (UGBs) and urban unincorporated communities (UUCs), local governments shall:

(a) Conduct a local wetlands inventory (LWI) using the standards and procedures of OAR 141-086-~~0110 0100-~~ 0180 through 141-086-0240 and determine which wetlands are "significant wetlands" using the criteria adopted by the Department of State Lands (DSL) pursuant to ORS 197.279(3)(b) ~~-~~and OAR 141-086-0300 through 141-086-350~~adopt the LWI as part of the comprehensive plan or as a land use regulation~~; and

(b) ~~Determine which wetlands on the LWI are "significant wetlands" using the criteria adopted by the Division of State Lands (DSL) pursuant to ORS 197.279(3)(b)~~ Adopt the LWI and ~~adopt~~ the list of significant wetlands as part of the comprehensive plan or as a land use regulation.

(~~4~~5) For significant wetlands inside UGBs and UUCs, a local government shall:

(a) Complete the Goal 5 process and adopt a program to achieve the goal following the requirements of OAR 660-023-0040 and 660-023-0050; or

(b) Adopt a safe harbor ordinance to protect significant wetlands consistent with this subsection, as follows:

(A) The protection ordinance shall place restrictions on grading, excavation, placement of fill, and vegetation removal other than perimeter mowing and other cutting necessary for hazard prevention; and

(B) The ordinance shall include a variance procedure to consider hardship variances, claims of map error verified by DSL, and reduction or removal of the restrictions under paragraph (A) of this subsection for any lands demonstrated to have been rendered not buildable by application of the ordinance.

Commented [AP1]: Possibly expend in to a definitions section. Add "uplands"

Commented [Jv2]: Wouldn't it be better to also cite ORS 196.800(17)?

Commented [Jv3]: Changed to 0180 -- 0110 was from an older version of 141-086

Commented [Jv4]: ...through 141-086-0350 (not 350)

(6) **Optional wetland avoidance program** - When applying Goal 5 in an area added to a UGB as set out in OAR 660-023-0250(3), a city may adopt a wetland avoidance program that prohibits grading, excavation, placement of fill, and vegetation removal in all wetlands until the avoidance program is replaced with a local wetland protection program consistent with sections (4) and (5). A wetland avoidance program shall:

(a) Require DSL approved delineations or ~~a~~ determinations of upland prior to development approval on all parcels for which development is proposed

(b) Allow development only in upland areas, provided a development proposal meets other local review criteria, except that the extension of water, electric, and gas utilities lines may be allowed to serve upland portions of a property.

RAC input is requested on:

1. *What the rule should require as a commitment to adopting and implementing a wetland avoidance program; and*
2. *When the commitment needs to be made.*

(7) For [*Some subset of UGB expansion areas*], a city's wetland avoidance program must replace the program with a full local Goal 5 wetland protection program consistent with sections 5 and 6, [*Within/before . . .*]

RAC input is requested on:

1. *When allowing a city to maintain a wetland avoidance program indefinitely is consistent with Statewide Land Use Planning Goals 3, 5, and 14; and*
2. *If transition to a full local wetland protection program is required for some cities, when should that the transition occur?*

(~~5~~8) For areas outside UGBs and UUCs, local governments shall ~~either adopt the statewide wetland inventory (SWI; see ORS 196.674) as part of the local comprehensive plan or as a land use regulation, or shall~~ use ~~a current version~~the Statewide Wetlands Inventory for the purpose of section (10~~7~~) of this rule.

(~~6~~9) For areas outside UGBs and UUCs, local governments are not required to amend acknowledged plans and land use regulations in order to determine significant wetlands and complete the Goal 5 process. Local governments that choose to amend acknowledged plans for areas outside UGBs and UUCs in order to inventory and protect significant wetlands shall follow the requirements of sections (4~~3~~) and (5~~4~~) of this rule.

(~~7~~10) All local governments shall adopt land use regulations that require notification of DSL concerning applications for development permits or other land use decisions affecting wetlands on the inventory, as per ORS 227.350 and 215.418, or on the SWI as provided in section (8~~5~~) of this rule.

Commented [Jv5]: How would a determination of upland work? There is no current process at DSL. "Determination Report - No wetlands or other waters" but that is limited to sites that are less than 2 acres. We rarely use this option because properties are usually larger than 2 acres

Commented [Jv6]: Should not limit to those listed because there could be fiber optic lines. How about:

...except that the extension of utility lines (e.g., water, electric, gas) may be allowed to serve upland portions of a property.

Commented [AP7]: This allowance is for when other reasonable options are not available, but the rule should avoid the use of subjective language.

Commented [Jv8]: A commitment to avoiding wetland must require a wetland delineation or an inventory of wetlands (a wetland determination will also suffice). Both of these studies will demonstrate that sufficient upland exists within an expansion area to allow development to happen without impacting wetland. This needs to happen in the UGB expansion consideration phase, so you can properly plan. With so much wetland in the Valley, knowing where wetlands are located (and conversely upland) is obviously crucial.

Commented [AP9]: The SWI is not a static inventory. Data from DSL approved delineations are added over time. For this reason a locally adopted snapshot of the SWI would not include best available data. In 1996 DSL provided LGs with paper maps. Now The SWI is an online mapping tool.

(~~8~~11) All jurisdictions may inventory and protect wetlands under the procedures and requirements for wetland conservation plans adopted pursuant to ORS 196.668 et seq. A wetlands conservation plan approved by the director of DSL shall be deemed to comply with Goal 5 (ORS 197.279(1)).

Statutory/Other Authority: ORS 183 & 197
Statutes/Other Implemented: ORS 197.040 & 197.225 - 197.245
History:
LCDC 2-1996, f. 8-30-96, cert. ef. 9-1-96

660-023-0250
Applicability

(1) This division replaces OAR 660, division 16, except with regard to cultural resources, and certain PAPAs and periodic review work tasks described in sections (2) and (4) of this rule. Local governments shall follow the procedures and requirements of this division or OAR 660, division 16, whichever is applicable, in the adoption or amendment of all plan or land use regulations pertaining to Goal 5 resources. The requirements of Goal 5 do not apply to land use decisions made pursuant to acknowledged comprehensive plans and land use regulations.

(2) The requirements of this division are applicable to PAPAs initiated on or after September 1, 1996. OAR 660, division 16 applies to PAPAs initiated prior to September 1, 1996. For purposes of this section "initiated" means that the local government has deemed the PAPA application to be complete.

(3) Local governments are not required to apply Goal 5 in consideration of a PAPA unless the PAPA affects a Goal 5 resource. For purposes of this section, a PAPA would affect a Goal 5 resource only if:

(a) The PAPA creates or amends a resource list or a portion of an acknowledged plan or land use regulation adopted in order to protect a **significant Goal 5 resource** or to address specific requirements of Goal 5;

(b) The PAPA allows new uses that could be conflicting uses with a particular **significant Goal 5** resource site on an acknowledged resource list; or

(c) The PAPA amends an acknowledged UGB and **factual information** is submitted demonstrating that a resource site, or the impact areas of such a site, is included in the amended UGB area. For the purposes of this rule, Statewide Wetlands Inventory data indicating the presence of wetlands, predominantly hydric soil map units, or Agate-Winlo soil are recognized as a demonstration of wetland presence.

Commented [AP10]: This amendment recognizes Statewide Wetlands Inventory improvements over the past years and its utility for flagging wetlands in an area where LWI or on-site data is not available. At RAC mtg #2 we will consider an option for achieving this objective with an amendment to OAR 60-023-0100 instead of 023-0250. .

RAC input is requested on whether this rulemaking should add clarification to OAR 660-023-0250(3) on timing when a city is required to "apply Goal 5" under (c).

(4) Consideration of a PAPA regarding a specific resource site, or regarding a specific provision of a Goal 5 implementing measure, does not require a local government to revise acknowledged inventories or

other implementing measures, for the resource site or for other Goal 5 sites, that are not affected by the PAPA, regardless of whether such inventories or provisions were acknowledged under this rule or under OAR 660, division 16.

(5) Local governments are required to amend acknowledged plan or land use regulations at periodic review to address Goal 5 and the requirements of this division only if one or more of the following conditions apply, unless exempted by the director under section (7) of this rule:

(a) The plan was acknowledged to comply with Goal 5 prior to the applicability of OAR 660, division 16, and has not subsequently been amended in order to comply with that division;

(b) The jurisdiction includes riparian corridors, wetlands, or wildlife habitat as provided under OAR 660-023-0090 through 660-023-0110, or aggregate resources as provided under OAR 660-023-0180; or

(c) New information is submitted at the time of periodic review concerning resource sites not addressed by the plan at the time of acknowledgement or in previous periodic reviews, except for historic, open space, or scenic resources.

(6) If a local government undertakes a Goal 5 periodic review task that concerns specific resource sites or specific Goal 5 plan or implementing measures, this action shall not by itself require a local government to conduct a new inventory of the affected Goal 5 resource category, or revise acknowledged plans or implementing measures for resource categories or sites that are not affected by the work task.

(7) The director may exempt a local government from a work task for a resource category required under section (5) of this rule. The director shall consider the following factors in this decision:

(a) Whether the plan and implementing ordinances for the resource category substantially comply with the requirements of this division; and

(b) The resources of the local government or state agencies available for periodic review, as set forth in ORS 197.633(3)(g).

(8) Local governments shall apply the requirements of this division to work tasks in periodic review work programs approved or amended under ORS 197.633(3)(g) after September 1, 1996. Local governments shall apply OAR 660, division 16, to work tasks in periodic review work programs approved before September 1, 1996, unless the local government chooses to apply this division to one or more resource categories, and provided:

(a) The same division is applied to all work tasks concerning any particular resource category;

(b) All the participating local governments agree to apply this division for work tasks under the jurisdiction of more than one local government; and

(c) The local government provides written notice to the department. If application of this division will extend the time necessary to complete a work task, the director or the commission may consider extending the time for completing the work task as provided in OAR 660-025-0170.

Statutory/Other Authority: ORS 183 & 197
Statutes/Other Implemented: ORS 197.040 & 197.225 - 197.245

History:
LCDC 2-1996, f. 8-30-96, cert. ef. 9-1-96

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