Geospatial Support for Phase 7 Model Development

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Land Use Workgroup Meeting
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U.S. Department of the Interior
U.S. Geological Survey

High-Priority Phase 7 Geospatial Support Activities

Legend:
- 🟧 (orange/yellow) = Work in progress
- 🟩 (green) = WG review/update on methods and progress
- 🟥 (red) = Approval points

Grouping	Task	Tech Review	Approval	2024 OCT	2024 NOV	2024 DEC	2025 JAN	2025 FEB	2025 MAR	2025 APR	2025 MAY	2025 JUN	2025 JUL	2025 AUG	2025 SEP
Evaluating LULC	Attribution of 100K streams with LiDAR-derived channel geomorphic characteristics: sinuosity, width, and depth	Modeling Team	Modeling WG	🟩	🟧	🟧	🟥								
Evaluating LULC	Develop non-stormwater pond density metric for evaluation in CalCAST	Modeling Team	Modeling WG	🟧	🟩	🟧	🟥								
Evaluating LULC	Develop set of impervious connectivity metrics for evaluation in CalCAST	Modeling Team, USWG	Modeling WG	🟧	🟩	🟧	🟥								
Evaluating LULC	Develop road density, septic density, and channel density metrics for evaluation in CalCAST	Modeling Team, USWG	Modeling WG	🟧	🟧	🟧	🟥								
Mapping LULC	Rollup 56 LULC classes to the P7 classification	LUWG	WQGIT	🟩	🟧	🟧	🟥								
Mapping LULC	Finalize high-resolution LULC: 2013/14, 2017/18, 2021/22	LUWG	LUWG	🟧	🟧	🟥									
MBM	Attribute P7 Main-Bay-Model with height and slope of upland/marsh interface (USGS)	Modeling Team	Modeling WG	🟩	🟧	🟥									
Modeling LULC	Forecast P7 land uses from 2021 to 2100	LUWG	WQGIT	🟧	🟩	🟧	🟧	🟧	🟩	🟥					
Modeling LULC	Backcast high-res LULC to 1985	LUWG	WQGIT	🟧	🟧	🟩	🟧	🟧	🟧	🟧	🟧	🟩	🟧	🟧	🟥
Segmentation	Align and develop crosswalk between NHD catchments and HUC12's	Modeling Team	Modeling WG	🟩	🟧										
Segmentation	Finalize P7 segmentation: 2020 County Boundaries + orographic regions + NHD catchments (or HUC12's) + Shoreli	Modeling Team	Modeling WG	🟩	🟧										
Septic Modeling	Implement the SmartSewer expansion for all jurisdictions	Land Data Team	LUWG	🟧	🟧	🟥									
Septic Modeling	Remap septic systems using parcel data	USWG	WQGIT	🟧	🟧	🟥									
Septic Modeling	Update sewer service areas and sewer model	USWG	WQGIT	🟧	🟧	🟥									
Translating LULC	Redefine mixed open load rates and/or composition	LUWG, FWG	WQGIT	🟧	🟧	🟧	🟥								
Translating LULC	Reconcile mapped and backcast construction with reported construction	USWG	WQGIT	🟧	🟧	🟩	🟧	🟧	🟩	🟥				🟧	🟥
Translating LULC	Update P7 summary units: CSS's and MS4's	USWG	WQGIT	🟧	🟧	🟧	🟩	🟧	🟧	🟧	🟧	🟩	🟧	🟥	
Translating LULC	Update P7 summary units: federal lands	FFWG	WQGIT	🟧	🟧	🟧	🟩	🟧	🟧	🟧	🟧			🟥	
Translating LULC	Report agriculture on federal lands	FFWG, Modeling Team	WQGIT	🟩	🟧	🟥									
Translating LULC	Reconcile mapped and backcast timber harvest with reported timber harvests	FWG	WQGIT	🟧	🟥									🟧	🟥
Translating LULC	Reconcile cropland area and change over time from Census of Agriculture and mapped cropland	AMT, AGWG	WQGIT	🟧	🟩	🟧	🟧	🟩	🟧	🟥					

High-Priority Phase 7 Geospatial Support Activities

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Translating LULC	Reconcile cropland area and change over time from Census of Agriculture and mapped cropland	AMT, AGWG	WQGIT												

(yellow)	Work in progress
(green)	WG review/update on methods and progress
(red)	Approval points

USGS

Rollup of High-Res Land Use Classes for Phase 6

1. **Impervious, Roads (1)**
   20 Roads

2. **Impervious, Non-Roads (4)**
   21 Structures
   22 Other Impervious (Parking lots, driveways)
   31 Extractive Impervious
   32 Solar Field Panel Arrays

3. **Tree Canopy Over Impervious (3)**
   23 TC over Roads
   24 TC over Structures
   25 TC over Other Impervious

4. **Turf Grass (1)**
   27 Turf Grass

5. **Tree Canopy over Turf Grass (1)**
   26 Tree Canopy over Turf Grass

6. **Forest (6)**
   40 Forest
   41 Tree Canopy, Other
   53 Riverine Wetlands Tree Canopy
   54 Riverine Wetlands Forest
   63 Terrene Wetlands Tree Canopy
   64 Terrene Wetlands Forest

7. **Mixed Open (14)**
   15 Bare Shore
   28 Bare Developed
   30 Extractive Barren
   33 Solar Field Barren
   34 Solar Field Herbaceous
   35 Solar Field Shrubland
   36 Suspended Succession Barren
   37 Suspended Succession Herbaceous
   38 Suspended Succession Shrubland
   42 Natural Succession Barren
   43 Natural Succession Herbaceous
   44 Natural Succession Shrubland
   45 Harvested Forest Barren
   46 Harvested Forest Herbaceous

8. **Wetlands, Riverine Non-forested (4)**
   50 Riverine Wetlands Barren
   51 Riverine Wetlands Herbaceous
   52 Riverine Wetlands Shrubland
   55 Riverine Wetlands Harvested Forest

9. **Wetlands, Terrene Non-forested (4)**
   60 Terrene Wetlands Barren
   61 Terrene Wetlands Herbaceous
   62 Terrene Wetlands Shrubland
   65 Terrene Wetlands Harvested Forest

10. **Cropland (5)**
    80 Cropland Barren
    81 Cropland Herbaceous
    82 Orchards and Vineyards Barren
    83 Orchards and Vineyards Herbaceous
    84 Orchards and Vineyards Shrubland

11. **Pasture / Hay (2)**
    85 Pasture/Hay Barren
    86 Pasture/Hay Herbaceous

12. **Water (4)**
    11 Lakes & Reservoirs
    12 Riverine Ponds
    13 Terrene Ponds
    14 Streams and Rivers (visible water)

Rollup of High-Res Land Use Classes for Phase 6

1. Impervious, Roads (1)
  20 Roads

2. Impervious, Non-Roads (4)
  21 Structures
  22 Other Impervious (Parking lots, driveways)
  31 Extractive Impervious
  32 Solar Field Panel Arrays

3. Tree Canopy Over Impervious (3)
  23 TC over Roads
  24 TC over Structures
  25 TC over Other Impervious

4. Turf Grass (1)
  27 Turf Grass

5. Tree Canopy over Turf Grass (1)
  26 Tree Canopy over Turf Grass

6. Forest (6)
  40 Forest
  41 Tree Canopy, Other
  53 Riverine Wetlands Tree Canopy
  54 Riverine Wetlands Forest
  63 Terrene Wetlands Tree Canopy
  64 Terrene Wetlands Forest

7. Mixed Open (14)
  15 Bare Shore
  28 Bare Developed
  30 Extractive Barren
  33 Solar Field Barren
  34 Solar Field Herbaceous
  35 Solar Field Shrubland
  36 Suspended Succession Barren
  37 Suspended Succession Herbaceous
  38 Suspended Succession Shrubland
  42 Natural Succession Barren
  43 Natural Succession Herbaceous
  44 Natural Succession Shrubland
  45 Harvested Forest Barren
  46 Harvested Forest Herbaceous

8. Wetlands, Riverine Non-forested (4)
  50 Riverine Wetlands Barren
  51 Riverine Wetlands Herbaceous
  52 Riverine Wetlands Shrubland
  55 Riverine Wetlands Harvested Forest

9. Wetlands, Terrene Non-forested (4)
  60 Terrene Wetlands Barren
  61 Terrene Wetlands Herbaceous
  62 Terrene Wetlands Shrubland
  65 Terrene Wetlands Harvested Forest

10. Cropland (5)
  80 Cropland Barren
  81 Cropland Herbaceous
  82 Orchards and Vineyards Barren
  83 Orchards and Vineyards Herbaceous
  84 Orchards and Vineyards Shrubland

11. Pasture / Hay (2)
  85 Pasture/Hay Barren
  86 Pasture/Hay Herbaceous

12. Water (4)
  11 Lakes & Reservoirs
  12 Riverine Ponds
  13 Terrene Ponds
  14 Streams and Rivers (visible water)

Proposed Rollup of High-Res Land Use Classes for Phase 7

1. **Impervious, Roads (1)**
   20 Roads

2. **Impervious, Non-Roads (3)**
   21 Structures
   22 Other Impervious (Parking lots, driveways)
   31 Extractive Impervious

3. **Tree Canopy Over Impervious (3)**
   23 TC over Roads
   24 TC over Structures
   25 TC over Other Impervious

4. **Turf Grass (1)**
   27 Turf Grass

5. **Tree Canopy over Turf Grass (1)**
   26 Tree Canopy over Turf Grass

6. **Solar Infrastructure (1)**
   32 Solar Field Panel Arrays

7. **Solar Pervious (2)**
   34 Solar Field Herbaceous
   35 Solar Field Shrubland

8. **Compacted Pervious (4)**
   30 Extractive Barren
   36 Suspended Succession Barren
   37 Suspended Succession Herbaceous
   38 Suspended Succession Shrubland

9. **Forest (9)**
   40 Forest
   41 Tree Canopy, Other
   42 Natural Succession Barren
   43 Natural Succession Herbaceous
   44 Natural Succession Shrubland
   53 Riverine Wetlands Tree Canopy
   54 Riverine Wetlands Forest
   63 Terrene Wetlands Tree Canopy
   64 Terrene Wetlands Forest

10. **Wetlands, Riverine Non-forested (4)**
    50 Riverine Wetlands Barren
    51 Riverine Wetlands Herbaceous
    52 Riverine Wetlands Shrubland
    55 Riverine Wetlands Harvested Forest

11. **Wetlands, Terrene Non-forested (4)**
    60 Terrene Wetlands Barren
    61 Terrene Wetlands Herbaceous
    62 Terrene Wetlands Shrubland
    65 Terrene Wetlands Harvested Forest

12. **Cropland (5)**
    80 Cropland Barren
    81 Cropland Herbaceous
    82 Orchards and Vineyards Barren
    83 Orchards and Vineyards Herbaceous
    84 Orchards and Vineyards Shrubland

13. **Pasture / Hay (2)**
    85 Pasture/Hay Barren
    86 Pasture/Hay Herbaceous

14. **Water (5)**
    11 Lakes & Reservoirs
    12 Riverine Ponds
    13 Terrene Ponds
    14 Streams and Rivers (visible water)
    15 Bare Shore- adjacent to lakes

15. **Harvested Forest (2)**
    45 Harvested Forest Barren
    46 Harvested Forest Herbaceous
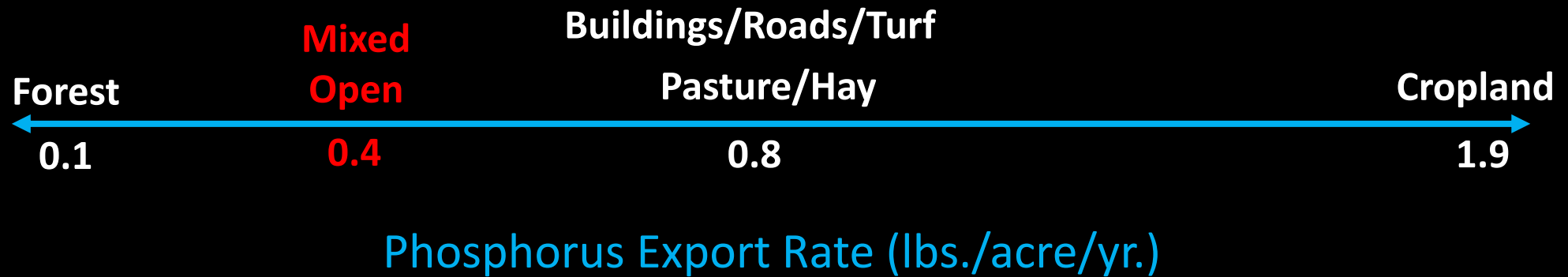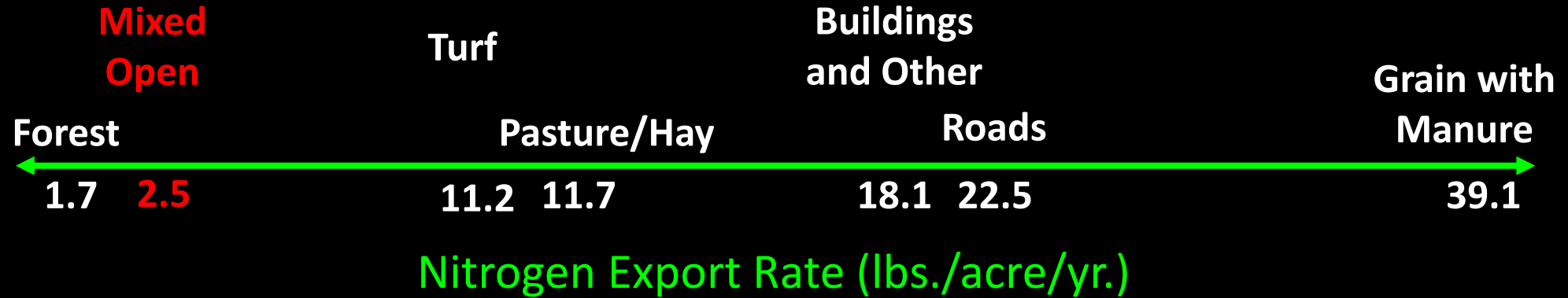   Reported Data from States

16. **Construction (2)**
    28 Bare Developed
    33 Solar Field Barren
    Reported Data from States

Average P6 Land Use Nutrient Export Rates

Summary of Recommended Roll-up Changes

1. Move Harvested Forest classes to be reconciled with reported harvested forest (FWG, timber harvest task force)

2. Move Bare Developed and Solar Barren (i.e. construction) to be reconciled with reported construction (USWG).

3. Move Bare Shore to water classes.

4. Move Natural Succession to forest (FWG).

5. Add Solar Infrastructure and Solar Pervious classes with unique loading rates (USWG).

6. Rename "Mixed Open" to "Compacted Pervious" with remaining classes of Extractive Barren and Suspended Succession (LUWG).

December Decision Items:
1. Approval of Roll-Up.
2. Approval of "Compacted Pervious" loading rates or recommended changes from Phase 6 Mixed Open loading rates.

USGS

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