P7 Construction Land Use

1. Background

   For Phase 6, most jurisdictions report permitted disturbed areas (from Erosion & Sediment Control Permits) per year per county (NY, PA, WV, DC) or per HUC12 (DE, VA). Only Maryland relies on the mapped land use to represent the construction land use class. Construction in Maryland is represented by the mapped annual change in development in each land-river segment multiplied by 1.29 (scaling factor). The derivation of this factor is not described in the Phase 6 documentation. No construction was reported or estimated on federal lands. State data representatives are:

   DE- Sydney Hall, Sydney.Hall@delaware.gov
   DC - Alicia Ritzenthaler, alicia.ritzenthaler@dc.gov
   NY - Cassandra Davis, Cassandra.Davis@dec.ny.gov
   PA- Tyler Trostle, tytrostle@pa.gov
   VA - William Keeling, william.keeling@deq.virginia.gov
   WV - Samuel Canfield, samuel.a.canfield@wv.gov
   MD- None. Construction estimated by CBPO.

2. Phase 7 Approach (proposed)

   For Phase 7, the high-res land use data includes 12 barren classes that may be indicative of construction activities. These include the following classes (codes):

   - Bare developed (28)
   - Extractive barren (30)
   - Solar field barren (33)
   - Suspended succession barren (36)
   - Natural succession barren (42)
   - Harvested forest barren (45)
   - Riverine wetlands barren (50)
   - Terrene Wetlands barren (60)
   - Tidal Wetlands barren (70)
   - Cropland barren (80)
   - Orchards and vineyards barren (82)
   - Pasture and Hay barren (85)

   The only barren class excluded from this list is “bare shore” which represents bare land surrounding water bodies and will be classed as “water” for Phase 7 (LUWG decision).

The above list of land uses may not always represent construction activities. Barren lands are more likely to represent construction activities near built-up areas which could be represented by Census Urban Areas or mapped residential and commercial parcels. However, these overlays, by themselves, are insufficient to prove barren lands represent construction because: 1) Census Urban Areas do not capture all development; and 2) mapped residential and commercial areas represent already developed lands, not lands undergoing the development process.

As an alternative approach for identifying barren lands associated with construction, the Annual National Land Cover Database (NLCD) can be used to determine if mapped high-resolution barren lands in 2021/22 became developed by 2024. For barren lands mapped in the 2017/18 high-res Land Use/Land Cover (LULC) data, the 2021/22 high-res data can be used to determine which barren lands became developed. Similarly, this approach can be used for barren lands in the 2013/14 high-res LULC dataset. For the LULC back-cast to 1985, the NLCD land cover change products can be used to estimate annual construction lands. However, additional investigation is needed to develop a scaling factor that relates construction mapped with high-resolution data with construction inferred by development change in the NLCD to ensure consistency between the periods of varying data availability (1985 – 2012; 2013-2022; 2022 – 2040).

<u>Backcast Period (1985-2012)</u>

a. Estimate annual construction per LRSEG as:
*Construction Acres (Year X) = NLCD development change (from Year X to X+1) * scaling factor*

<u>High-res Mapping Period (2013-2022)</u>

a. *Reclass all high-res patches of barren land uses (except "bare shore") that became at least 10% developed within 3-5 years as "regulated construction". For barren lands in 2013/14 use development in 2017/18; for barren lands in 2017/18 use development in 2021/22; for barren lands in 2021/22 use development in 2024 (NLCD).*
b. *Develop a scaling factor that relates mapped construction in 2013/14, 2017/18, and 2021/22 high-res LULC with annual change in developed land uses from NLCD for the periods: 2013/14, 2017/2018, and 2021/22.*
c. *For interim years 2014/15 - 2016/17 and 2018/19 – 2020/21,* estimate annual construction per LRSEG as:

*Construction acres (Year X) = annual proportion of NLCD development change over the interim period (e.g., 2013-2017) * acres of high-res LULC development change over interim period.*

Future Period (2022/23 – 2040)

a. *Estimate annual construction per LRSEG as:*
   Construction Acres = projected annual change in development (CBLCM)
   Note: a scaling factor may not be needed for this period because the CBLCM forecasts growth for both impervious and pervious portions of development.

Phase 7 Developed Sector =

- Impervious, Roads
- Impervious, Non-Roads
- Tree Canopy Over Impervious
- Turf Grass
- Tree Canopy over Turf Grass
- Solar Infrastructure
- Solar Pervious
- Compacted Pervious
- Construction