

## Appendix H Methodology

### METHODOLOGY FOR GENERATING IMPERVIOUS COVER PER WATERSHED

Task 1: Calculate the Size of an Equivalent Residential Unit (ERU)

1. Select all parcels that are zoned to allow single-family residential use.
2. Remove from selection all parcels that contain more than one dwelling unit.
3. Merge all impervious features to create one single, citywide impervious layer.
4. Use the selected parcels above to clip impervious area to each parcel.
5. Calculate the area of the impervious features for each parcel
6. Calculate the average of these areas. (2901 sq. ft.)

Task 2: Calculate the size of private impervious areas in the public Right of Way

1. Intersect the driveway and sidewalks with the parcels they touch.
2. Erase areas located inside the parcel, leaving only areas within the ROW.
3. Calculate the area of each feature within the ROW and total them.
4. Divide the total area by the number of single-family parcels (210 sf.)
5. Add this total to the ERU Total above for a resulting ERU of 3111SF.

TASK 3: Calculate impervious area for individual landowners

*Because many parcels have multiple owners, and are represented as “stacked” features, we need to take extra steps beyond simple calculation of impervious area to ensure no areas are counted twice or mistakenly attributed to only one owner.*

1. Open the parcel attributes and add “Owner Count” and “Impervious Share” fields.
2. Convert parcel polygons into centroids.
2. Spatially join centroids to parcels, using a count on the ID fields
3. Use the results of this count to populate the “OwnerCount” field.
4. Merge all impervious features to create one single, citywide impervious layer.
5. Clip this layer using parcels to create a single impervious feature for each parcel.
6. Calculate the area for each impervious feature.
7. Convert the impervious polygons to centroids.
8. Spatially join the points to parcels, so that parcels now include impervious total.
9. Divide impervious total by “Owner Count” to get the impervious area for a parcel.
10. Divide that value by “Owner Count” to create “Impervious Share”.

Step 4: Calculate Impervious Total for Roads

*The public ROW is a parcel, identified by jurisdiction (local, state, federal)*

2. City Total = Streets in Local jurisdiction + all sidewalks.
3. State Total = Streets in State Jurisdiction.
4. Federal Total = Streets in Federal Jurisdiction + Interstate .

RESULTS:

Single-family parcels:	5855
Average Impervious area in these parcels	2901 S.F.
Average Impervious in Public ROW	210 S.F.
ERU Impervious Total	3111 S.F.
City Parcels (not roads)	8,393,024 S.F.
State Parcels (not Roads)	1,187,474 S.F.
Federal Parcels (not roads)	514,964 S.F.
Airport / ANG Base	25,245,848 S.F.
City Roads	28,087,544 S.F.
State Roads	2,608,779 S.F.
Federal Roads	7,600,677 S.F.
Total Public Impervious Area	71,316,932 S.F.