

## Technical Memorandum

To: CCA Workshop Attendees

From: Kearey Smith, MTC Staff

Subject: Calculating Impervious Roadway Surface Area

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### Definition

Impervious surfaces are mainly constructed surfaces - rooftops, sidewalks, roads, and parking lots - covered by impenetrable materials such as asphalt, concrete, brick, and stone. These materials seal surfaces, repel water and prevent precipitation and meltwater from infiltrating soils. Soils compacted by urban development are also highly impervious.

### Methodology

Examining the roadway dataset as a standalone layer will not reveal the amount of impervious surface that is directly produced by roads. In order to find the impervious surface area of the road network, a separate analysis was conducted using the TeleAtlas road layer to provide the total miles of roadway for each road type. An analysis was then performed using the TeleAtlas dataset, overlaid with an aerial photograph of the project area to determine the “average road widths” by road type. The estimates that were used for the project study area analyses are as follows:

Arterials- 65 feet wide (Hwy 101)

Collectors- 40 – 45 feet wide

Local Roads- 25 – 35 feet wide

Using the above figures, each roadway functional class was assigned an “average road width” value for each road segment. The length and width of each segment was then multiplied to produce a total square mileage for each segment.

There are approximately 232 acres of roadway features (0.36 square miles)

Road Class	Linear Miles	Acres	Square Miles
Arterials	6.3371	50.1266	0.08
Collectors	2.9072	10.1785	0.02
Local Roads	49.4979	172.2462	0.27
	58.74	232.55	0.36