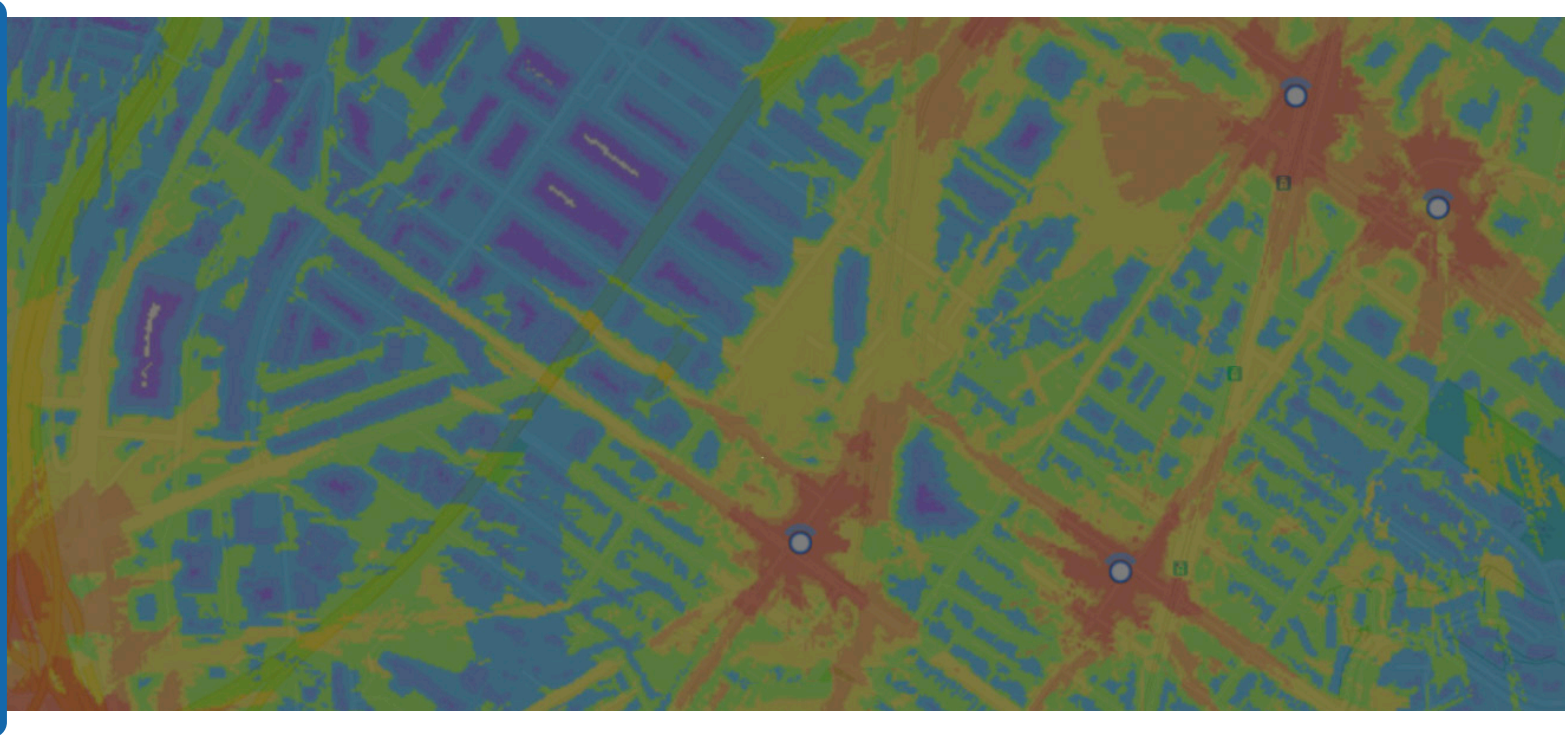
OVERVIEW

NETWORK PLANNING



Network planning is a critical part of network design. Tarana has partnered with radio propagation planning tools to help operators accurately model their G1 networks. This document discusses Tarana-recommended tools, different use cases, data sources, and other supported tools.

Recommended Tools

The following tools are recommended for G1 planning:

United States: Siradel Bloonet Planner

Siradel Bloonet is suitable for RFP predictions, network planning, and service availability. Prediction quality can vary based on the data available for a specific location. A path profile through the area of interest and a visual comparison to the satellite view should give a good idea of the data's accuracy for a specific location.

International: HTZ

HTZ is useful for RFPs and network planning; however, available data may not always be sufficient for service availability. A data source with a resolution of 1–2 m should be used to ensure accurate service availability results.

Use Cases

A good network plan can be used for RFP prediction, network deployment, and service availability. Each of these three use cases have their own requirements:

RFP

Prediction Quality	Low
Data Accuracy	Low (30 m or better in rural, 10 m in urban)
Data Sources	2D - USGS, SRTM (satellite), ASTER (satellite), ESA
Data Cost	Low or zero
RF Planning Methodology	Based on line-of-sight

Network Planning

Prediction Quality	Medium (low error bias, medium/high std. deviation)
Data Accuracy	Medium (10 m or better); 2D for rural, 2.5D for urban
Data Sources	2D - ESA (free), 2.5D available for purchase from Planet, Atoll, etc.
Data Cost	Low to zero for 2D data; Medium for 2.5D data ($25–$50 per km^2)
RF Planning Methodology	Based on line-of-sight

Service Availability

Prediction Quality	High (low error bias, low std. deviation)
Data Accuracy	High (1–2 m)
Data Sources	3D data for purchase, LIDAR
Data Cost	High when not available ($150 per km^2 , $60–$80 at scale)
RF Planning Methodology	Distance combined with diffraction / refraction and penetration loss for vegetation (rural), 3D ray tracing (urban)

Data Sources

A significant factor in selecting a planning tool is the quality and availability of data. Generally, applications such as RFP responses do not have the same requirement for high-precision data as network planning or service availability. The following table offers guidelines on what is available from several commercial vendors.

Data Type Quality and Availability

Data Type (Quality)	LIDAR (Highest)	3D Data (Medium)	2.5D Data (Lower)	2D Data (Lowest)
Resolution	10s of cm	2–5 m	2–5 m	10–30 m
Availability	Select areas within US, some cities internationally	Generated on demand for any location	Available for download from USGS or other sources	Available for download from USGS or other sources
Data Source	Expera or WISDM (compiled free data from many sources)	Planet, Atoll, etc.	Planet, Atoll, etc.	ESA, USGS, etc. Incorporated into HTZ
Data Cost	Comes with licensed tool	High ($60–$150/km^2)	Medium	Free
Comments	LIDAR data quality can be highly variable			

All Supported Tools

Tool	Recommended Use Case	Data
Siradel Bloonet Planner	RFP, planning, service	US
HTZ	RFP, planning, service	Worldwide
Atoll	RFP, planning, service	Purchase per region
TowerCoverage	RFP, planning	US, Canada
PathLoss	RFP, planning	Worldwide (low resolution)
EDX	RFP, planning, service	Purchase per region
Planet	RFP, planning, service	US, International purchase per region
MLink Planner	RFP, planning, service	US
WISDM	RFP, planning, service	Purchase per region
TEOCO	RFP, planning	Purchase per region
Federated	RFP, planning	US
Eino	RFP, planning	US

Tarana offers guides and resources for a select number of commercial tools. For more information, please refer to the Tarana support site: support.taranawireless.com.

Tarana's mission is to accelerate the deployment of fast, affordable internet access around the world. It delivers a game-changing advance in broadband economics in both mainstream and underserved markets, using either licensed or unlicensed spectrum. G1 started production in mid-2021 and has been embraced by more than 250 operators in 24 countries and 47 states. Tarana is headquartered in Milpitas, California.

