SUBMITTED BY:
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ANSWERS TO QUESTIONS FROM THE COMMITTEE REGARDING RFI #: RFI 8349-0-2014/KS

BRIDGING THE DIGITAL DIVIDE FOR UNDER-RESOURCED NEIGHBORHOODS

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RESPONSES TO QUESTIONS FROM THE COMMITTEE:

1. WOULD IT BE POSSIBLE TO IMPLEMENT SOME SORT OF SOFT CAP ON THE DATA USAGE?

Yes, it would be, though the particular strategy employed need not be purely 'limiting' in effect. A network operator has many mechanisms at the ready to implement or achieve soft and/or hard caps on transfers. Ideally, there is no technical need to limit user access in aggregate, and ideally, 5NINES does not need to bill users based on usage. Our approach is based on sound technical queuing philosophies known as fair service curves. As users, over an arbitrary time scale, consume a disproportionate amount of resources compared to other active users, their relative servicing priorities can be reduced. This means that a relatively infrequent, intermitted web browsing user (i.e. someone using Gmail, etc.) will not "see" a slow-down, while another user is sustaining high rate file or video transfers (e.g. watching Netflix). Both the Netflix user and the casual browsing user see good, low-latency access to the radio network resources, while the disproportionate user (e.g. Netflix viewer) does not completely overtake the system.

2. WOULD THE PROPOSED 7-8 BASE STATION SOLUTION PROVIDE CITYWIDE COVERAGE OR JUST COVERAGE FOR OUR PROPOSED AREAS?

The proposed 7-8 base station solution would provide citywide coverage. Reliable data transfer is achievable for outdoor radio clients within ~2 miles of our base station locations. To achieve citywide coverage, the locations we propose initially are:

Site Name	Latitude	Longitude	Maximum Height (ft)
Wisc. Trade	43.08947N	089.52909W	150
Weston Place	43.07384N	089.45597W	140
UW CS building	43.07187N	089.40719W	90
222 W. Wash	43.07336N	089.38692W	140
Madison Mark	43.07449N	089.37940W	140
Park Bank	43.13489N	089.29059W	60
H. Pt. Rd.	43.04538N	089.51834W	150

Perry St.	43.03096N	089.39692W	60
Arbor Gate	43.03442N	089.42072W	90

Additional sites can be potentially constructible within budget, if there are certain conveniences available at the site in question. Needed items include space to mount 4g radio equipment, fiber to feed site with backhaul bandwidth, power to support base station equipment, and sufficient height to support desired coverage area around the site.

3. SECTION B HAS A DIFFERENT NUMBER OF SITES MENTIONED.

5NINES intends to deploy a minimum of six sites. Budget and facilities permitting, up to eight sites would be constructed to provide the most ideal coverage.

4. WHAT IF WE SCALE DOWN TO FEWER RADIO SITES – DOES THAT BRING THE COSTS DOWN?

Somewhat - there are multiple components factored into the price of this network build. The core required costs comprise underlying software, licensing, and 'backend' supporting hardware required to support one or more base stations. The per-site cost is a fixed cost for the required hardware. No hardware can be 'shared' among different host sites so the cost scales essentially linearly with the number of desired coverage areas.

5. DO THEY HAVE THE NECESSARY FCC LICENSES AND IF NOT HOW LONG WOULD IT TAKE TO GET?

Yes – 5NINES already possesses FCC Testing licenses.

6. IF WE DECIDE TO REDUCE THE NUMBER OF SITES, OF THE SITES PROPSED, IS THERE AN OPTIMAL SITE BASED ON ARCHITECTURE, GEOGRAPHY, ETC.?

Yes - this can be factored and estimated very accurately with radio signal mapping and prediction tools. 5NINES has these tools at its disposal and has already utilized them to produce its existing coverage estimate graphs and maps.

7. PAGE 4, C, I – SECOND PARAGRAPH. DOES PRICING MODEL COVER ALL OF MADISON?

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Pricing model is not area-sensitive and would apply to any user, anywhere within the coverage area.

8. DO THEY HAVE FIBER ACCESS TO THEIR EXISTING 5NINES ROOFTOP ACCESS LOCATIONS? WHAT ARE THEIR FIBER REQUIREMENTS TO DEPLOY SOLUTION INDICATED?

5NINES has partial fiber coverage to its sites of interest, and where this isn't available, 5NINES has point to point microwave connectivity to support a 4g mobile network. 5NINES would request, however, that it be given at-cost access to fiber resources (if available) to support mobile site backhaul needs.

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