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The Problem:

Despite all the excellent companies, amazing people, world class hospitals (and hospitality): "Smart City" and Birmingham, Al are not always mouthed in the same breath. Other ideas like "poverty", "low mobility", "low growth", and "digital divide" are more readily on the lips of people speaking about our Magic City. The Mayor's own transition team, in their transition report of the Mayor's first hundred days, found the following statistics (Birmingham Alabama Government, 2018):

- Nearly 42% of women and families are living in poverty
- Birmingham ranked 178th (out of 182 of America's largest cities) in people's abilities to find a job
- The livable wage in Birmingham is around $62,380, but almost 60% of families in the city have an annual "household income" of less than $40,000.
- Since 2012, the GDP of Birmingham has gone up around 8% but the per capita GDP has only gone up around .6% during that same time.

The State itself, since we are looking to change the world, does not have that great of a standing either. According to US News and World Report this is what Alabama looks like compared to the other 50 states (U.S. News and World Report, 2018):

- Even with one of the world's top hospitals in our midst, UAB, Alabama is #41 in Health Care Access
- One thing the Mayor's transition team saw as well, is our Primary education needs major improvement, and in the rankings, Alabama is #39 in her Pre-K-12 Education
- We are #38 in the national rankings for our Economy, and #37 for our Business Environment.
- Even with great companies like Shipt and Fleetio being based in Birmingham, we are #40 in Entrepreneurship.

None of these challenges are insurmountable, and when we do overcome them, we will "light the way" for others to show how it can be done. So where do we start? I am glad you asked.

Outcome and Concepts:

To achieve all of this will take more than one project, obviously, but just like every good house, good ideas start with good foundations. The house we would build would be the "Smart City" of Birmingham, AL. Our foundation would be a secure, Open Access Network (fiber and wireless) with at least six private networks dedicated for specific uses throughout the city. Those private networks would be the following: City Government (for communication and data collection), First Responders, Utilities, Health (including "Aging in Place" capabilities), and Education. We believe the foundational networks should be set aside for Education and Health.

UAB GRAND CHALLENGE: Light the Way, Education and Health Networks

Designers and construction companies, in partnership with the City and UAB, would need to decide the path for the fiber network and the placement of the wireless systems but the desired outcome for the Private Education Network (PEN) would be the following:

- Every Pre-K- 12 grade student of a Birmingham City School would have free WIFI access throughout the city with a school login. Teachers and students who work at or attend schools outside of the Birmingham City School system would pay a nominal fee or apply for a waiver of the fee depending on the circumstances.
- Parents would also have free WIFI access to check on and monitor their kids academic progress and to make sure that they have checked into school at the appropriate times.
- The WIFI system could also act as an instant message platform for schools to communicate with students and parents immediately about school programs and safety and security issues.

Not everyone needs to visit a doctor in person to be examined, but no matter if a visit is in person or online, it needs to be secure. Following a similar concept as the Private Education Network, the Private Thrive Network would look something like this:

- All hospitals, pharmacies, doctors' offices in Birmingham, and would be able to join the Private "Thrive" Network. They would be assigned segments to insure privacy of all patients, but also info would be shareable (with the patient's consent) to any member doctor or hospital in the network.
- The appropriately powered Web cams, or devices with webcams, would be provided at no cost to patients, with priority going to elderly and families with small children.
- Non-emergency, or appropriate, Doctors, and or Nurses visits, could be carried out safely and securely in the comfort of the patient's homes. Pharmaceutical prescriptions could be securely ordered, explained, and verified on the secure network.
- Eventually, "ageing in place" applications would be established allowing for elderly patients to be monitored remotely so they could be more comfortable if they are able to live at home.

These are just foundational, but achievable ideas. How would all of this affect Alabama, our country, and eventually the world? The simple answer is, when Birmingham does these things, it will seem more achievable to others but that is just the beginning.

We continue to try and foster our beautiful legacy and learn from our dark past. We have the resources, are developing the people, have the drive, and now have a better vision of what Birmingham can be. We start our part of the Smart City revolution in Birmingham by making people smarter, safer, healthier, stronger, and way better connected to one another. It moves out into Alabama where we connect our best resources in science, engineering, agriculture, biology, and technology to the students we have and the businesses we want to encourage. That makes us an asset to our country, and helps make us a beacon to the world of what can be achieved in our small, home town of Birmingham, AL.

Potential Team Members:

- City of Birmingham
- Birmingham City Schools
- Jefferson County Schools
- University of Alabama
- Jefferson State Community College
- UAB Hospitals
- St. Vincents Hospital
- Brookwood Baptist Health
- Grandview Medical Center
- Alabama Power (pole access)
- TechBirmingham (STEM Outreach)
- Foresite Group , Birmingham, AL(network Design, wireless, civil engineering, landscape architecture)
- MasTec (construction)
- Nokia (network hardware)
- Corning (fiber)
- AtlasRFID (RFID tags)
- ThinkGard (data recovery)
- PhishMe (data security)
- Dell (laptops)
- Apple (tablets)

Works Cited

Birmingham Alabama Government. (2018, March 15). Retrieved from The Woodfin Way: https://www.birminghamal.gov/wp-content/uploads/2018/03/The-Woodfin-Way.pdf

U.S. News and World Report. (2018). Retrieved from U.S. News and World Report: U.S. News and World Report