

Digital Divide Pilot Project Considerations:

Responses to questions posed at 13March2014 meeting of the City of
Madison's Digital Technology Committee, as of Tues.2Apr.2014

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1. How should success be evaluated?

- Model(s) determined by pilots for future expansion
- The degree to which city resources are leveraged
- Cost per residence connected
- Number of residences connected
- The degree to which we are able to coordinate with and complement MMSD efforts

2. What should guide us on selecting pilot locations?

- Should be close to MUFN backbone fiber.
- NRT and Community Center area(s) should be considered
- Wireless (802.11n) network
 - Multi-family dwellings would provide more return on investment.
 - Work to partner with property owner to install wiring.
- Public housing site should be considered.
- Use a commercial Internet service provider to provide service/support (not city staff).
- Use city funds to help install infrastructure.
- Use one or both of the City's commercial MUFN partners to provide wiring and/or ISP services.

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1) how success should be evaluated and

Success should be evaluated on before and after numbers related to the number of students with internet access, breakdown of internet availability age demographics, and participates with internet access who current face disabilities. We should also review internet literacy and the and the number of internet-ready devices available in a particular geographic area.

2) what should guide us on pilot locations.

We should evaluate the location with: existing private partnerships with a vested interest in a neighborhood (ie. a cooperate sponsor to provide devices), school district involvement, neighborhood is part of an NRT, existing low internet access, and cost effective given the physical build out compared to the geographic area served.

JJ Streicher-Bremer

- How success should be evaluated – I believe success could/should be evaluated on a couple levels
 - How well aligned is this pilot to other “ongoing digital divide initiatives” throughout our area of influence?
 - Total number of people covered by whatever service we create
 - Percentage of *_use_* of that service – do we want to shoot for 50% of the folks covered are actually using it, 75%, 95%?
- What should guide us on pilot locations?
 - Whatever locations will allow us to appropriately be successful (see above)
 - Alignment to the MMSD “one computer” pilot locations assuming there is a rational overlap to allow us to be successful (see above)

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A reasonable measure of success would be the difference between the number of households with internet access prior to the pilot and the number with access after. Success would be a substantial change in those numbers, though the definition of substantial would need attention. Household satisfaction with the available internet access would also be an important factor to consider.

Guiding factors for pilot locations:

- Minimal number of parties that need to cooperate, rather than many different stakeholders
- Expressed interest from target population

Concentrated enough populace to enable providing high-quality coverage while maximizing impact
I think it would be ideal if we were able to run two separate pilots in two different kinds of locations; maybe one in a high density apartment and another in a small stretch of neighborhood. The more information we can gather with the pilot the better informed the decision will be to expand or improve future efforts. However, I believe a pilot done well in one location would be vastly preferable to a two location pilot with insufficient resources.

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Success should be evaluated based on but not limited to the following measurements:

- Should we look at short term and/or long-term success criteria?
- Did the solution address the needs of the individuals impacted by the issue?
- Did the outcome resolve the problem?
- Is the proposed solution portable? If so, what is the ease/difficulty of doing so?
- Is the solution expected to be well supported?
- Ensure the solution design is well managed and evaluated
- Does the solution include non-traditional aspects/approaches? ie.. is it flexible or scalable?

Guides for Pilot locations:

- Previous historical references for affected areas
 - Involvement of various impacted and invested partners.. community, business
 - Previous and current data to support need, impact to location and expected reaction
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Mark Evans

1) how success should be evaluated

- A. which of the Committee's Duties (as listed in the City of Madison's Legislation Details: 33.53(4) are addressed by the Pilot project advocated by this Committee?
- B. before implementation, we have defined how we will assess the perception of project success from stakeholders; after implementation, we will assess those perceptions & then recommend specific changes to post-pilot initiatives

2) what should guide us on pilot locations

- A. which of the Committee's Duties (as listed in the City of Madison's Legislation Details: 33.53(4) are addressed by the Pilot project advocated by this Committee?
 - B. MMSD's spring 2014 Tech Plan
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Bradley Grzesiak, co-founder, bendyworks inc, <http://bendyworks.com/>

How to use the Digital Divide Funding

I propose using the Scientific Method, which has five steps, each requiring "invention, sagacity, and genius:" Formulation of a Question, Hypothesis, Prediction, Testing, and Analysis. Granted, we should keep in mind the realities of our citizens and recognize that implementing something good in the near-term may be better than something perfect in the long-term.

Formulation of a Question

Our Committee's charter states, in part, that we are tasked in "...making studies and recommendations relative to the facilitating the provision of internet access to all citizens with special attention to low income families...." Further, the budget item provides funding "for a pilot program to provide assistance to low income neighborhoods and families to obtain Internet access." To that end, I propose the question "***How can we enable Internet access to low-income citizens in a way that is meaningful for said citizens and scalable for citywide implementation?***"

Hypothesis

A hypothesis is a falsifiable, proposed explanation for a phenomenon. In our case, this phenomenon can be characterized as "***aiding meaningful access to the Internet for the City's low-income neighborhoods and families is scalable to the whole city.**"

Prediction

To address the near-term, I believe a focus on providing access and education for adults will be most effective in increasing wages, decreasing unemployment, and increasing the likelihood of the creation of small businesses over a time scale of 2 years.

To address the long-term, we should focus on augmenting the Madison Metropolitan School District's Strategic Framework, with special attention to their one-to-one plan. Providing Internet access at home for disadvantaged

schoolchildren should elevate grades across disciplines, strengthen graduation rates, and increase the economic outlook of our youth over a time scale of about 5 years.

The secondary effects of these predictions include an overall economic benefit for the tested region, including a higher quality of life, lower municipal costs, and better tax base which all aid in scalability.

Combining both approaches—focusing on both students and adults—should have symbiotic effects that result in better outcomes than either approach can achieve alone.

Test

Assuming sufficient funding is available, I propose three regions for the pilot: one with a student focus, one with an adult focus, and the last with both focuses. To ensure compatibility with the MMSD Strategic Framework, the regions including a student focus should be within areas where one-to-one is implemented. The technology partner used should be excited about the project and should have a track record of innovative solutions to constrained problems. I think more discussion needs to occur to determine what other aspects of the testing phase should be.

Analysis

As alluded to in the prediction, we should be able to use grades, graduation rates, wages, unemployment, small business growth, municipal costs, and tax base as metrics to evaluate success. From these numbers, we may be able to determine whether the hypothesis holds.

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We have so many options for what the Digital Technology Committee can recommend for the Residential Internet Access project that I worry sometimes we'll be paralyzed by choice. A further challenge is trying to navigate this space without a firm understanding of what the different costs may be. I feel like I have a rough, backoftheenvelope notion of what some of our options may cost, but certainly not for everything. Overall, I'm struggling with how serious I should entertain any of the ideas that pop into my head while I'm imagining possibilities.

Trying to step back and work from what we know: The budget language calls for a "pilot project" to expand Internet access to lowincome families and neighborhoods, with a particular focus on infrastructure. Reading between the lines, the Common Council wants project(s) that align with or are done in conjunction with the Madison School District, which just completed a Technology Plan.

The City's going to borrow \$150,000 to pay for this project. \$150K is a lot of money, but at the same time it's not much money at all. We face two questions:

1. What project should we recommend?
2. Where should whatever we recommend be put?

I'm going to work under the basic assumption that we don't have to answer those two questions perfectly. "Pretty Good" answers are acceptable, and what we really want to avoid are bad answers. If at the end we have a couple of really great ideas, we don't have to stress over being sure we've got the absolute best any will do.

How do we answer these questions? Let's start with the "what project" here are a few things that I'll be thinking about with this project:

- Should we be looking at a project that maximizes the number of people it serves, or should we focus on providing more comprehensive service to perhaps fewer people?
- What's the lifetime of the infrastructure we may fund? Additional Fiber Optic runs will still be useful 10 years from now; network electronics might last 5 years; laptops, tables, MiFi devices will be lucky if they last 3 years.
- How "pilot"ish should this project be? Should we consider how scaleup should work when we consider our ideas?
- Are we interested in doing any sort of "technology demonstration" or do we stick with what we know works?
- Do we worry about how to evaluate this project, or do we just trust that increased access leads to numerous beneficial outcomes? If we do try to evaluate it, how and over what timeframe? Citizen Surveys after 1 year? Academic success after 1 year? 5 years? Other changes in neighborhood indicators?
- How long are we willing to wait until citizens can start using our project? Pulling fiber can take a while, buying laptops can be quick.

The other question is the "Where":

- Is the school district staging their programs across different schools, and should we try to focus on schools where the district is moving first?
- What raw data might we want to use to decide where to put the project? Existing levels of service? (Maybe from Census data, or from the State Cartographer's Broadband map - <http://broadbandmap.sco.wisc.edu/>) School demographics for income levels? Other lagging indicators like crime or public health?
- What other institutions might be involved? Libraries? Neighborhood Centers?
- This is sort of a hybrid of the "What" and "Where" question, but do we focus on projects that have additional components or ways to increase its efficacy? For example, do we only engage people who are or will be working with Neighborhood Resource Teams or programs through area nonprofits like the Boys and Girls Club?

Let me try to look at a specific idea with my framework. I'm not going to use every question, but I like the idea:

<https://www.newschallenge.org/challenge/2014/submissions/check-out-the-internet-libraries-lending-internet-access>

The goal of this project is to expand the reach and benefits of free access to the Internet provided by The New York Public Library (NYPL) to underserved youth and communities by allowing them to borrow portable MiFi Hotspot devices from their local libraries for a sustained period of time. This service would substantially expand the Internet access that is currently available only when libraries are physically open; with this effort, patrons would bring the Internet into their homes, 24 hours a day."

We could adapt this to Madison by buying MiFi devices for the library, and perhaps by using some or most of our funds to subsidize cell tower leases or to buy additional wireless network hardware to work out a deal with a carrier to provide low-cost access for those MiFi devices.

This project doesn't serve a fixed population, with the tradeoff that it doesn't provide permanent access to the people it serves. It's not great access - WiFi in apartment buildings would have better bandwidth, but at the same time it's easy to start with and to move around. Any backend hardware we acquire would likely live a while. The MiFi devices might need replacement sooner, but they're cheaper. This is not a technology demonstration project, MiFi is known to work, and there's an obvious scale-up plan to go to a reasonable number of potential users. It's unclear if we can work out an operating funding plan to make it happen.

It somewhat sidesteps the question of "where" - access comes from the library, where in the city the devices are used is less important. We could target specific libraries to carry them, which would be a proxy for where, or we could go through the school district in place of the library. (It's not entirely clear how the library could limit this checkout to lower-income or otherwise disadvantaged families of students)