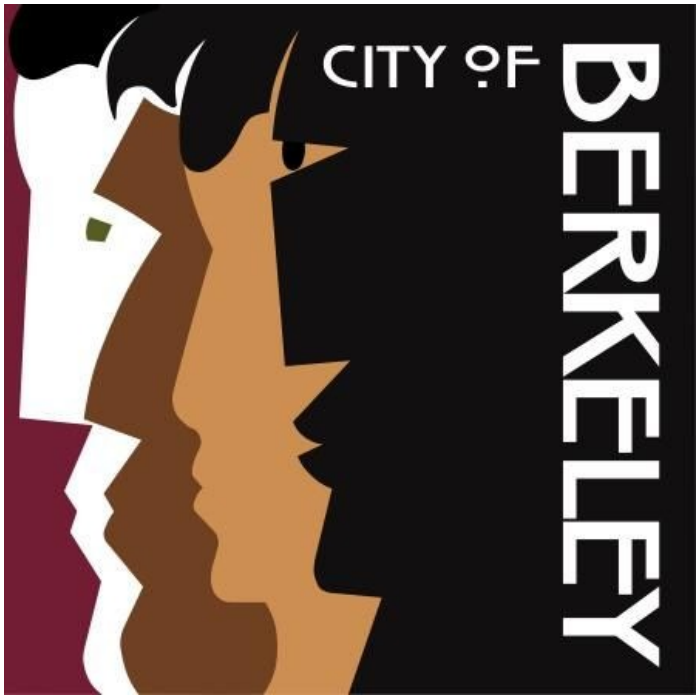
City of Berkeley Broadband Development Assessment

29 May 2015



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1. Executive Summary

Broadband infrastructure in Berkeley

Wireline broadband infrastructure within the city limits of Berkeley is substandard, receiving a "C-" grade (1.7 on a 4-point scale), using criteria developed for the East Bay Broadband Consortium. This grade is below average for both California ("C", 2.0) and Alameda County ("C", 2.0), and significantly – about 20% – worse than the adjacent cities of Albany ("C", 2.2), Oakland ("C", 2.1) and Emeryville ("C", 2.1)[1].

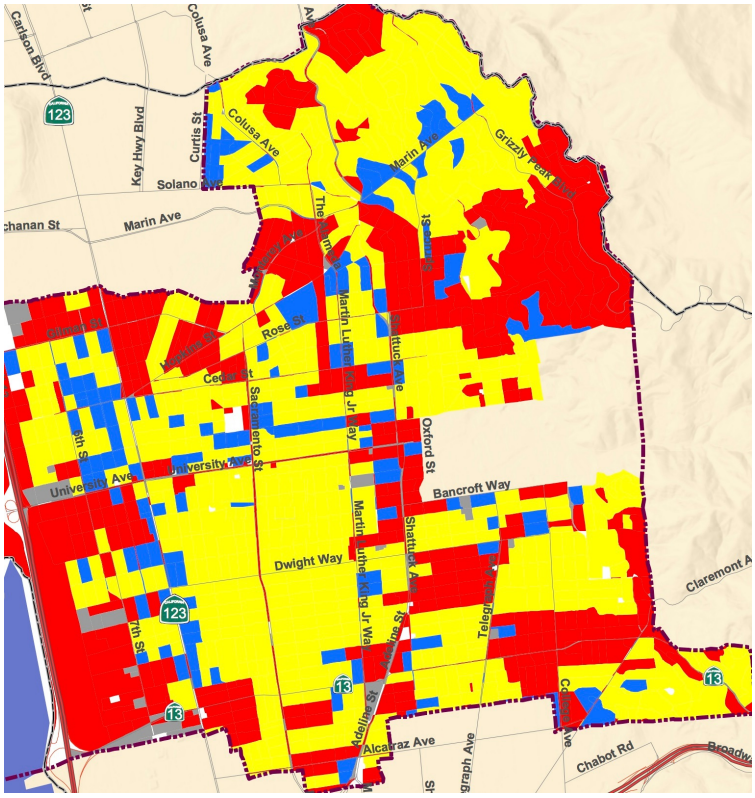

Figure 1.1 – Blue is good, yellow is average, red is bad, grey is worst.

The quality of the infrastructure that supports broadband service to businesses and homes generally follows a pattern commonly seen in the East Bay: more infrastructure investment tends to go into residential neighborhoods, where service providers can also sell video services, commercial districts receive less attention and industrial areas least of all. Terrain is also a factor, with hilly areas generally presenting more, and more costly, challenges.

The City of Berkeley owns broadband-related infrastructure that could be used to improve service in poorly served commercial and industrial districts. A comparison of the City's conduit and fiber optic cable infrastructure map with a map showing census block-specific grades shows that city-owned broadband assets are located in areas that have sub-standard broadband infrastructure, particularly on the western side of Berkeley.

The City also has plans for upgrading its traffic signal control network and for repaving or otherwise improving City streets. These kinds of projects often present opportunities to install extra conduit or

[1] A "C" grade means a census block has the most common wireline service choices found in California, typical of the standard packages offered by AT&T and Comcast: a minimum of two providers, one just meeting the minimum standard of broadband service set by the California Public Utilities Commission (6 Mbps download and 1.5 Mbps upload) and the other exceeding it. A "D" grade – below the Californian average – is given when wireline service meets but does not exceed this standard or where consumers only have one qualifying service provider available. If no qualifying service is available, a failing grade – "F" – is given. "A" and "B" grades are given where superior service is offered. Details regarding the grading method are in Appendix A.

fiber optic capacity and can be used to improve the broadband infrastructure and service available in Berkeley.

Broadband policy

Although the City of Berkeley has virtually no authority to regulate or otherwise directly control the actions of privately owned Internet service providers, it still has many options for both direct and indirect action which can influence the level, cost and availability of service. These options include:

- Identify existing city assets, such as conduit, which can support Internet service.
- Proactively install new broadband infrastructure, such as conduit and fiber optic lines.
- Make City-owned assets available for a fee to private Internet service providers on either on a neutral basis or awarded to specific companie(s) following an open, competitive process.
- Identify potential sources of funding, such as grants, bonds, service subsidies or enterprise funds.
- Develop policies which encourage the development of broadband infrastructure by public agencies and/or private companies.

In many regards, City of Berkeley policy regarding telecommunications infrastructure meets or exceeds most best practice policy recommendations. BMC Chapter 16.10 provides for notification and coordination of construction – sometimes referred to as “open trench” and “dig once” policies – and collection of information. Routine implementation of these policies would provide a means of ensuring that utility work in general and broadband infrastructure projects in particular are done in such a way as to maximize the public benefit within the constraints of state and federal law.

Municipal broadband initiatives

Several cities in California and elsewhere have taken direct action to upgrade fundamental broadband infrastructure and the service that is offered to businesses and consumers. For example, municipal electric utilities owned by the cities of Palo Alto and Santa Clara have built fiber optic networks that provide inexpensive connectivity to local businesses. The City of San Leandro worked with a private company to achieve the same goal.

The cities of Brentwood and Loma Linda use developer-financed conduit to support fiber-to-the-home service. Austin and Kansas City adopted broadband-friendly policies to attract Google Fiber. San Francisco, Watsonville and Santa Monica provide networking services to businesses using broadband infrastructure originally built to serve city information technology needs. However, every city is unique.

Recommendations and policy options

There are specific steps the City can consider to build on its existing policy and provide further incentives for private companies to expand broadband infrastructure and expand its base of city-owned assets:

- Formalize a policy requiring entities that do certain kinds of excavation work in the public right of way provide the City with the opportunity to install conduit.
- Investigate the feasibility of strengthening the existing requirements for conduit sharing, joint use of trenches and use of City-owned facilities.
- Formalize procedures for implementing both new and existing policy regarding street cuts and other types of excavations.
- Establish detailed standards for submitting mapping data in GIS format, for both third party projects and City-owned facilities.
- Formalize inspection procedures for project work, and collection procedures and requirements for associated documentation.
- Develop broadband facilities requirements for new or major remodeled construction, either residential or commercial or both.
- Review permit processes and determine if any streamlining can be done.
- Establish the feasibility of creating a master encroachment permit and inspection process for large scale broadband infrastructure projects.

Possible initiatives to consider, roughly in increasing order of risk, include:

1. Reduce barriers to private sector investment in broadband infrastructure by extending existing policies and considering new ones.
2. Attract new private sector, commercially focused carriers to Berkeley by likewise offering access to City facilities on a partnership basis.
3. Use City resources to try to entice a new or existing private sector carrier into upgrading residential service, particularly by building a fiber to the home system.
4. Build and operate a municipal dark fiber network or a “lit” network offering industrial grade ethernet connectivity.
5. Build and operate a municipal Internet service utility, for residential and/or commercial purposes.
6. Build a municipal network, to any desired extent, and lease it out to a private operator.