

To: Portland City Council

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Subject: Comments on the draft Broadband Strategic Plan (July 2011 draft)
<http://www.portlandonline.com/shared/cfm/image.cfm?id=354243>

The Personal Telco Project is a volunteer-based non-profit located in Portland. We were formed over 10 years ago with the idea that the incumbent telecommunication providers were doing a bad job and that telecommunications policy in the United States was badly broken, failing to protect its users from exploitation and neglect. We set out to build our own alternative infrastructure using the then emerging wifi technology. While that effort largely failed, we *have* succeeded in helping about 50,000 people per year get access to the Internet, on networks we have built, at no cost to them. We remain committed to doing our part to try to rectify the egregious shortcomings for the public. These comments are offered in that spirit.

The following comments are relative to the July 2011 draft of the City of Portland's Broadband Strategic Plan. We value the investment of time and effort that the City has put into the plan, however we feel that its proposed action plan does not hold sufficient prospect of success. The following comments relative to the draft are meant to help correct those shortcomings. Where relevant, we have inserted the page numbers associated with our comments in parentheses.

1. We wholeheartedly agree that we are at a critical juncture and that effective Broadband policy is essential for the future health of the Portland economy. (page 1)
2. While nothing is infinite, a single strand of fiber optic infrastructure can sustain 40 gigabits per second using available off the shelf technology today. In the lab, extremely high speeds of over 10 terabits per second over 640 kilometers has been achieved (<http://techcrunch.com/2011/03/23/zte-breaks-fiber-optic-speed-record-10tbps-over-640km/>). Bundles of fiber often contain a hundred or more strands of fiber in the thickness of a first grade pencil. (page 3)
3. It is important to understand that wireless technologies, while important, are constrained by limited spectrum and by the shared nature of the medium. Multiple transmitters interfere with each other, and in a network, there are many transmitters using the same medium and frequencies. This leads to problems scaling up to very high speeds, problems that fiber does not have. (page 3)
4. "It doesn't have to be, and probably shouldn't be either publicly owned or privately controlled" We believe that some form of public ownership is the most likely, indeed the only likely way to achieve the desired outcomes of competition, capacity and choice. Federal regulation of

communications have ensured that private owners can pretty much do as they please with the infrastructure they own. We've been living with the lousy choices that this attitude has wrought for 10 years or more, indeed it was the motivation for the founding of the Personal Telco Project in the first place 10 years ago, to create alternative infrastructure that answered directly to the needs of its users. That we failed using wireless technologies does not alter our predicament, but only underscores it. Under the regulatory regime that shows no prospect of abating, users are at the mercy of the last-mile carriers. Federal regulation has told us that ownership is everything. In such an environment, we must become the owners of the infrastructure in order to dictate the terms by which we can ensure competition among service providers. The sentence quoted above from the draft plan lacks a logical or factual foundation and represents merely wishful thinking where the goal seems to rock the boat least. Unfortunately, it seems unlikely to achieve the lofty ambitions set out in the introduction of the Plan. (page 6)

5. It is possible to get fiber today from a range of competitive carriers in the business market. Unfortunately, these are available only at costs well above (by an order of magnitude or more) what a residential or small business can afford. Given the inadequate options available to customers without such deep pockets, the division between haves and have nots will continue to increase, not decrease. Universities and large businesses already have access to high speed internet connections. But institutions depending on high speed infrastructure are not going to relocate to Portland if they are embedded in a broadband desert. It would be like trying to get Ferrari to relocate to a village without paved streets. Such institutions have options in the world today, and given the residential and small business options for broadband here, Portland will not be a compelling choice. There is demand here now. The money is here now. We spend at least \$100 million on telecommunication services here every year. What is missing is a provider willing to provide adequate bandwidth at or near cost. (page 6)
6. "Some supported the idea of a publicly funded open access infrastructure platform over which private entities could compete." This was essentially the Personal Telco Project idea. We think the right model for last-mile communications infrastructure is the public streets. The public owns the streets and you can use them to visit your neighbors, or friends, or stores of your choice. We should also clarify that by publicly funded we mean the initial capital investment will probably need to come from public sector, where bonding authority resides. However, we feel that the users of the network should ultimately pay for the infrastructure, not taxpayers, similar to the way that rate payers cover the operation of the water utility, providing an excellent quality product at the cost of delivery. (page 11)
7. Personal Telco Project thinks the most prudent approach for creating a viable broadband future in Portland is to begin with a neighborhood-scale demonstration project of publicly-owned fiber-to-the-premises infrastructure to perhaps 2,000 homes and businesses. We believe this could be achieved with a modest investment of a few million dollars, recouped with user fees. This could be used to demonstrate both the hunger and willingness to pay for quality, high-capacity and freely usable infrastructure, and also to make the inevitable mistakes on a smaller scale. We think that only serving "institutions" is a mistake. It leaves residential and small business customers high and dry. Institutions with any kind of budget can already get decent bandwidth. They should not be the focus of public investment. If high capacity service can be provided to anyone, then institutional users will benefit along with the rest of us. (page 14)
8. We think that communications freedom (the freedom of consenting parties to communicate with one another however they choose) is a value of the highest order. As such, we believe that

network operations must remain answerable to the network's users. No one should and no one should have to build another high-capacity fiber infrastructure because those in control of the infrastructure have limited users freedom. Public ownership seems the most likely mechanism for maintaining this essential accountability. (page 14)

9. We think fiber communications infrastructure provides its owners with a long life. We think that in the medium to long run, paying for and reaping the full benefits of ownership best serves the public and network using interests. The City of Portland has made this realization for itself, by building its own infrastructure for internal use, saving millions of taxpayer dollars. It is high time the citizens of Portland enjoy the same kind of benefits. (page 14)
10. We believe the network infrastructure should be open to any service provider on a non-discriminatory basis. The government should not select a limited number of “local partners” to provide service. Network users should have as wide a choice of service providers as the open market can supply. There is ample precedent in the history of dialup and DSL Internet service providers in Oregon to believe that openness and low barriers to entry will mean healthy choice and competitive pressure to keep service pricing honest. (page 14)
11. “Prioritize 'Big Pipe' Capacity” Unless this is an immediate stepping stone to city wide deployment (as suggested in our comment 7 above) and unless it serves residential and small business customers, we think this only exacerbates the existing divide between those institutions with pockets deep enough to pay the going “big business” rates and the rest of us. (page 17 and page 19)
12. “Attract R&D” As suggested in our comment 5 above, we don't think “Ferrari” will relocate to Portland until we “pave our streets”. Without much better infrastructure here, there is no compelling reason such an institution would locate here. They need only look a few miles outside Portland to find FiOS in the suburban ring. Or they'll choose one of the other forward thinking municipalities building decent communications infrastructure. (page 17 and page 19)
13. “Establish Neighborhood Broadband Hubs” While this is a necessary component to address the inevitable issue of residents who by choice or financial necessity are without service or devices in their homes, this otherwise seems like a bad joke. Really? Is the network of the 21st Century really going to be walking 20 minutes with a thumb drive to the nearest library? We need to do much better than that! (page 17 and page 21)
14. “Energize a Dynamic City Technology Culture” We would note that, despite struggling under the burden of inadequate communications infrastructure, Portland does have a dynamic technology culture. Let us hope that by our choices today, we strengthen it rather than strangle it. (page 17 and page 25)
15. “Increased competition” If only. There are severe economic disincentives to building a second instance of an infrastructure. There is only one fiber-to-the-home provider in the suburbs. There is only one cable internet provider. As long as the owner of that infrastructure is allowed to control it exclusively, as the FCC and the US Congress now does, we will not have competition, and there isn't the slightest whiff that those rules are moving in the right direction. In fact, rather the reverse. (page 22)

16. “The greatest deterrent to competitive broadband is the cost of deploying infrastructure” An additional and not insignificant deterrent is that increasing capacity will undercut the quite expensive (and profitable!) prices that their inadequate service offerings currently command. Incumbent providers seem terrified of losing control of their carefully maintained scarcity. Users deserve better! (page 22)
17. Wireless options, such as LTE do not meet the bandwidth goals that are stated in the introduction to the Plan. While they do represent an option, they are unlikely to affect downward motion on prices tomorrow any more than they have today. Comcast has not dropped its prices one cent with the introduction of WiMax service from Clear. They are different classes of service and they don't compete directly with one another. (page 23)
18. “Work with non-profits and NGOs to increase access to broadband tools for underserved communities” As one of the non-profits that might fit this description, the Personal Telco Project wants to point out that we are at the mercy of the same lousy infrastructure and high service prices as everyone else. We do not have the capacity to rain magic pixie dust to make peoples broadband better. That is why we think this problem is so vital to *really* solve. (page 23)
19. “Convene a planning committee with the provider industry to identify and leverage incentives [...]” The incumbent carriers cannot be convinced to act against their best interests, not with any kind of incentives. They will eat the public treats and then go along their way without any lasting public benefit. This seems like a weak and wasteful strategy. (page 23)
20. “Study ways to lower the cost of infrastructure deployment including [...] share core infrastructure builds [...]” This touches on the solution but fails to grasp its real potential. The lowest cost way to provide service is to build the necessary infrastructure *once* and share it. With fiber, and its immense capacity, sharing is easy. There is lots of capacity to go around. Taken to its logical conclusion, this is what we advocate. Build one fiber infrastructure that is owned and controlled by its users, and use it to allow users to reach any of the services they want. (page 23)
21. “Provide free WIFI at all public buildings in each neighborhood” Why is this scheduled for 2017? It isn't clear to us why that isn't happening today. If the City needs help, Personal Telco can help! (page 23)
22. “If mobile wireless LTE networks can really reliably deliver 50Mbps wirelessly at these rates [...]” We would simply observe that 3G service today cannot reliably deliver 3G speeds. It seems a stretch to put too much stock into marketing literature from wireless providers. We reiterate our concerns about the fundamental physical problems in wireless of a shared medium and limited spectrum as constraints on the realizable performance of mobile wireless technologies. (page 40)
23. We believe that the NSF/UW project referred to uses fiber, not wireless technology as stated. (<http://www.oceanleadership.org/2011/ocean-observatories-initiative-cable-connects-to-bring-ocean-data-to-shore/>). (page 41)
24. It is important to note that as CenturyLink (slowly) upgrades to fiber-to-the-node for DSL

infrastructure, FCC rules dictate that they may (and they do) prevent competitive service providers access to customers so-connected. That is, customers lose the ability to shop for an ISP on the infrastructure, as they once could with “old-style” DSL. The customer gains some capacity, but loses the benefit of competition. (page 42)

25. NWAX is a model for how all users should be connected, not just big carriers. Local traffic should stay local without ever having to hit the wider Internet and its associated longhaul costs. The Multnomah ESD interconnects its school networks with Google in the Pittock building, representing 30% of its total traffic. (page 43)
26. “Status of Competition” This paragraph could easily be misconstrued. The competition they refer to is in high cost “business” metro-ethernet service. There is little to no competition in the residential market, as they acknowledged at the meeting. (page 43)
27. The NTIA broadband mapping project referred to remains riddled with errors. For example, it shows all of Wasco County served by fiber. Pushing slightly deeper, one finds that the provider company actually claims a fixed wireless offering, and from its skeletal web site, it appears it is more aspirational than actual. At this stage, we would caution against putting much credence in the veracity of that map. (page 43)
28. “One practice wouldn't work because in truth four different providers – competitors – could be on four different sides of the street [...]” Why are there four sets of infrastructure? This represents four times the capital cost of an optimal build. One fiber network has the capacity to serve everyone. It is stupid, wasteful and expensive to build the same thing four times. It makes the cost four times as expensive for everyone! (page 46)
29. “We have already established that every citizen of Portland can get high speed internet today, but do they want to use their resources personally, financially to go ahead and do so? And the answer has been proven with their wallets – the answer is no” We think a significant reason is that they provide too little service, too badly, at too high a price. Our experience is that the incumbent internet services are widely reviled by consumers. We think those are often the reasons for the “no”. (page 47)
30. Generally, Personal Telco Project believes that telecommunications users need much more competition than is provided today, and that the most reliable way to achieve that competition is for the users to take control of the last mile communications infrastructure that is currently used by incumbents to manipulate them. Fiber infrastructure has the capacity to squash scarcity, and the longevity to make a longterm investment that returns itself over and over. We look to the models of the Bonneville Power Administration providing cheap hydroelectric power at cost to the Pacific Northwest and the immense benefits that has provided the region, and at the model of the Portland Water Bureau, which provides a cheap, clean, high-quality product, vastly superior to that of the private water utilities it eclipsed over a century ago. To us, the course of action is obvious. The future of Portland depends on our leaders seeing it as well.