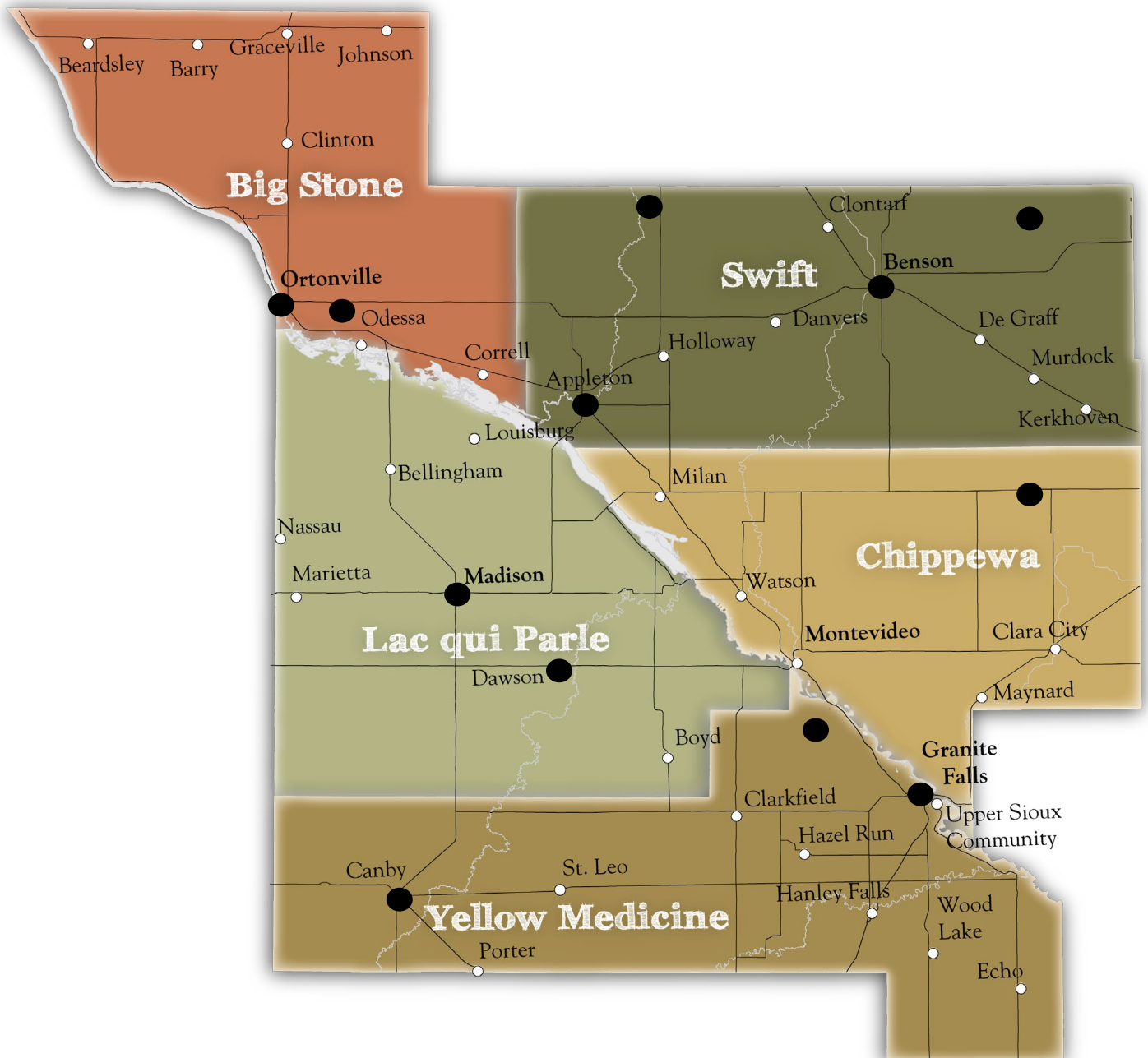


# Results of Internet Speed Tests Throughout Region 6W

The following results are a product of fifteen tests conducted throughout the 6W Region, which is roughly approximated below (some points represent multiple tests by different people). In this report on the results of these tests, the different kinds of speed measurements will be explained, the results from around the region will be compared with national averages, and there will be a brief discussion of average costs, providers, and the impact of location. The raw data, with names of people removed, will be attached at the very end.



## Internet Speed Measurement 1: Ping

Ping, which is measured in thousandths of a second, or milliseconds (ms), is how fast your phone, computer, or tablet can get a response. For instance, if you type "UMVRDC" into Google and hit enter, the ping is the time it takes for Google to show the results. This means, that the smaller the ping, the better, because it means the connection is quick to respond.

Most of the time, if one is patient, a *slightly* slow ping isn't a big deal. Times when a good ping speed matters the most are when watching videos or playing video games, but, if ping slows down enough, then it tends to get annoying. My research shows that a ping of 20ms or less is considered adequate.

### Region 6W Results:

Mean Ping	Median Ping	Highest Ping	Lowest Ping
37 ms	26 ms	100 ms	4 ms

From the 15 results (excluding one test, which was terminated after 45 minutes of waiting, since at that point, it was clear that the internet was *extremely* slow), these are the general results. As shown by the highest and lowest pings, there was a huge range of results. For this reason, both the mean and the median<sup>1</sup> is included.

This indicates two things. First, that, on average, the ping speed in our region is slow. Second, it shows, based on the highest and lowest value recorded, that ping speeds vary greatly in our region.

## Internet Speed Measurement 2: Download

Download speed is measured in megabits per second (Mbps). Just to try and make the size of a megabit more tangible, one megabit is about the same size as 63 typed pages, single spaced, and the speed would be how many times it could download those 63 pages each second.

Download speed tends to be set up to be faster than upload speeds (which will be addressed in the next section) since most activity on the internet involves downloading information; whether that's looking at the photos on someone's Facebook page, or getting directions from the Milan Village Arts School to the Machinery Museum in Hanely Falls. Having a slow download speed can be particularly frustrating, since it makes doing most activities on the internet difficult.

### Region 6W Results:

Mean Download	Median Download	Highest Download	Lowest Download
24.85 Mbps	18.20 Mbps	90.61 Mbps	0.63 Mbps

Again excluding the test which was terminated after 45 minutes of waiting, these are the general results of the download speed test. Again, there is a huge range: from less than 1Mbps to more than 90 Mbps. If we put that into pages of text, this ranges from just over 39 pages to just over 5708 pages. Compared to the national average download speed of 70.75 Mbps, our region's average is very slow.

This indicates that there is very slow download speeds in our region when compared to the national average. Plus, like with ping, there is a huge range of speeds across the region.

<sup>1</sup> The mean is calculated by adding up all the results and then dividing by the number of results received. This method of finding an average is not as helpful when looking at a wide range of numbers, so the median was also included. It is found by putting all the results in order from biggest to smallest and then finding the number in the center.

## Internet Speed Measurement 3: Upload

Upload speeds, like download, is measured in megabits per second (Mbps) but instead of measuring the speed that information can be downloaded, it's the speed it can be uploaded from your device to the internet. This could be photos posted to Facebook, or an email sent from a phone. Since uploading happens less than downloading, it tends to be slightly slower than downloading.

### Region 6W Results:

Mean Upload	Median Upload	Highest Upload	Lowest Upload
22.31 Mbps	13.185 Mbps	94.3 Mbps	0.35 Mbps

Again excluding the terminated test, these are the results of the upload speed test. There was an even larger range of speeds in upload than in download. In terms of the regional averages, they are closer to the national average than the download speeds. The U.S. average upload speed is 27.64 Mbps. Though some users in our region experience higher upload speeds than the national average, some experience much slower, showing yet again the wide range of internet speeds in Region 6W.

## Costs, Internet Providers, and Location

Those who reported the amount they pay for internet, which was sometimes bundled with phone and/or television ranged from \$44 to \$160. It should be noted that the \$44 is paying only for internet, and the \$160 is bundled with phone and TV, but higher costs were not always associated with a bundled plan. Due to the range of costs, the variety of bundles, and lack of reporting, there was not enough data to make any reliable conclusions about the prices people in our region pay for internet.

Similarly, a lack of data made drawing conclusions about location and internet providers impossible as well. In order to draw any conclusions about these aspects of internet speed in our region, a larger study would need to be conducted.

### Sources:

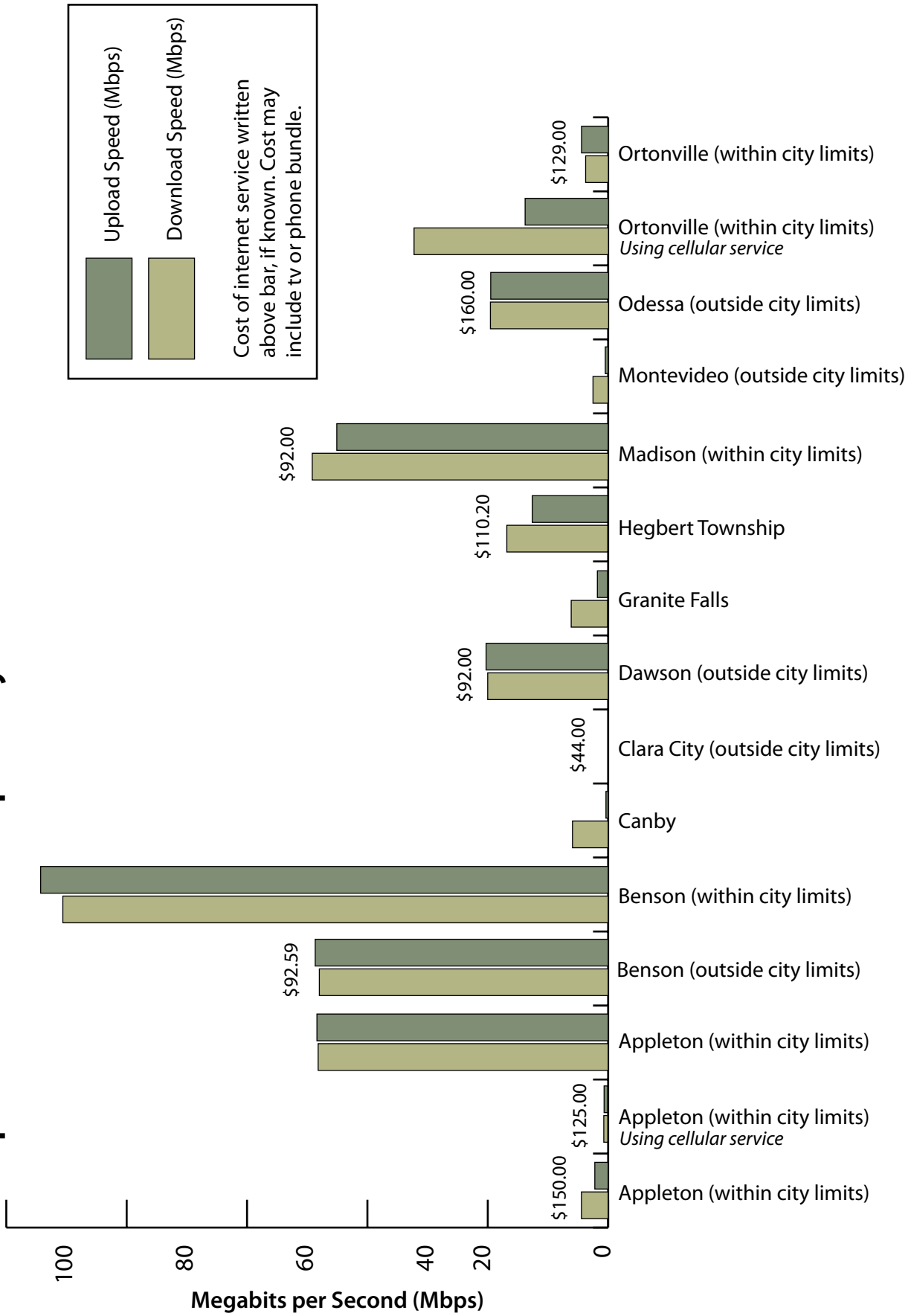
[OOKLA What is ping, download speed, and upload speed?](#)

[Powhow What is ping?](#)

[Forbes Speed Test Rank](#)

If you have any questions, comments, or suggestions, contact Marcy Prince by email at [marcy@umvrdc.org](mailto:marcy@umvrdc.org) or by phone at 320-289-1981 extension 104.

# Upload and Download Speeds by Location with Price of Services Included



Location of Internet Test