



## **New Geospatial Insights for Making a World of Difference Case Study**

### **Introduction**

The pandemic shows the need to know more about local people who move their communities and economies forward. The following case study introduces and discusses more detailed local human capital measurements. These new and different population demographics are for targeted local economic stabilization, planning and mitigation because they reveal more about the cornerstone of every community: its wage earning residents. For pandemic and post-pandemic times, these geo-measurements are baseline for moving communities forward.

Delivered by GIS, this deeper insight forefronts the key population segments of the local civilian employed for targeting and prioritizing *by place* to accelerate economic stabilization. These population measurements provide more discerning information about local job, occupation and livelihood characteristics and workplace impacts on those who live in a specific place. For all levels of government, corporate HR, commercial and non-commercial real estate specialists, they are for putting whole communities back to work because they tell more about key segments of a community and the local human capital infrastructure. The GIS interface shows [Platte County's measurements](#), data source information and more.

These new measurements specifically are intended to show more about the civilian employed. This is because this particular population accounts for about fifty percent of the United States' total and those within it support the local housing market, tax base, businesses and economy. The civilian employed are wage earning residents who may or may not work in the census geography where they live. The following case study highlights key demographic characteristics in two municipalities in the United States

### **Summary of Findings**

- Important human capital spatial variation exists between the civilian employed in two municipalities, Telluride, Colorado and Wheatland, Wyoming, in terms of workforce preparedness, occupation impacts and workplace characteristics that influence livelihoods and local industry. The different findings give understanding as to what these population measurements show when extracted for other places. They help dispel local presumptions.
- The web-enabled interface more quickly relays geospatial information about workplace characteristics that impact local livelihoods. When plotted together, the multivariate map displays new spatial information and patterns about inability to work at home due to job functions, those most impacted by workplace contagion and overall workforce preparation.
- The resulting demographic measurements, besides showing estimated rates and number impacted, signal the need to prioritize certain segments of wage earning residents to ensure a more focused, accelerated and stable reopening, including by certain types of industry, business and job sites.
- The measurements are for use by those in the public and private sector: all levels and types of government agencies, corporate HR, commercial and non-commercial real estate specialists, and much more.
- This key geo-insight is available by county, county subdivisions and census tract. This includes "Qualified Census Tracts" which are critical target areas for serving by population needs as specified in the American Rescue Plan's funding requirements. For example, the money administered by Treasury Dept or HUD regarding mortgages, housing and more.



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### About

Based on the most recent five year American Community Survey estimates (2015-2019), the geo-analysis provides new population measurements by further parsing the civilian employed population, meaning the local residents who earn wages. Specifically, the analysis looks at the civilian employed population because this is the group of people in a community who support the local tax base, housing market and government, and faith and non-faith based initiatives. This population is the underpin of local economies and, therefore, it is important to capture the most critical segments within it *by specific geographic place*.

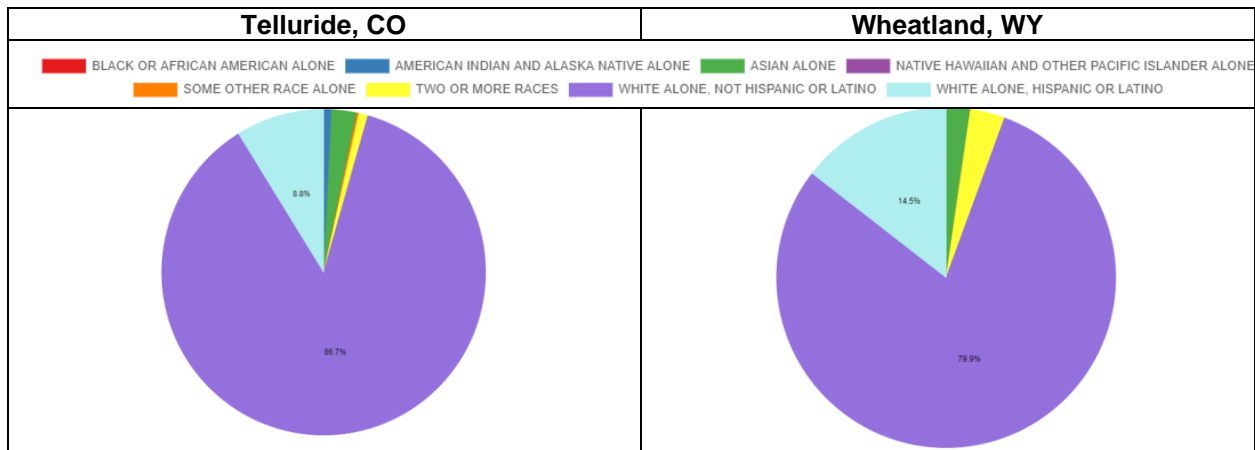
By further differentiating various occupation groups against other relevant human capital characteristics – impact patterns emerge based on what local people do at work which enables them to bring home their paychecks. The analysis brings to the forefront relevant variables that have local effect on a stable economy. The resulting more poignant demographic measurements, besides showing an estimated rate and number of impacted, also call for the prioritization of particular population segments based on this deeper look at the civilian employed. Use of the resulting data can lead a more focused, accelerated and stable reopening of related business establishments based on local impact figures.

These geo-measurements are relevant or of particular interest for policy-making and at the frontline, ground level use in planning and action. They are for re-building and stabilizing per geographic place: local livelihoods, workplaces and economies.

**The GIS interface is web enabled** and allows the user to see and interact with new population measurements. It delivers them in tables, pie charts and maps, plus downloadable datasets for importing into other technology. Besides delivering by county and state, the interface specifically enables the user to select a particular census tract, or clusters such as neighboring small towns. It enables seeing this different and new geo-insight by small or large areas. Try the interface and see Platte County, WY and Wheatland, CO discussed below at [WorldForceStrategies.com](http://WorldForceStrategies.com)

### CASE STUDY

The following case study observes differences and similarities between two county subdivisions – Telluride, Colorado and Wheatland, Wyoming in San Miguel County and Platte County, respectively.

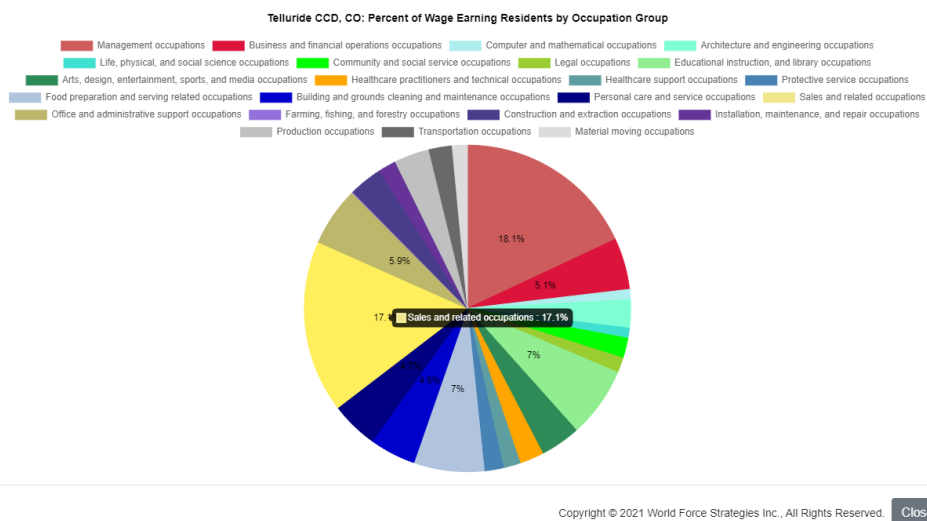




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The total civilian employed population in Telluride CCD, CO is 4,093. This group makes up 65.8% of the municipality's total population. 8.8% of its civilian employed is Hispanic. When looking at the civilian employed by occupation groups, at first glance GIS interface shows see certain ones dominate the local economy including management occupations (18.1%), sales and related occupations (17%), food preparation and serving related occupations plus educational instruction and library occupations coming in at (7%).

**Data Notes:** The civilian employed are wage earning residents who may or may not work in the census geography where they live. At times in this case study and in our GIS interface we refer and label civilian employed as wage earning residents. See Key Terms below and register and learn more in GIS interface.)



On the other hand, the total civilian employed in Wheatland CCD, WY is a bit smaller at 3,503, and accounts for 75.3% of its total population. 14.5% is Hispanic. At first look, we can see that the occupation groups that dominate this economy include office and administrative support occupations (12.4%), management occupations (10.8%), and farming, fishing, and forestry occupations (10%).

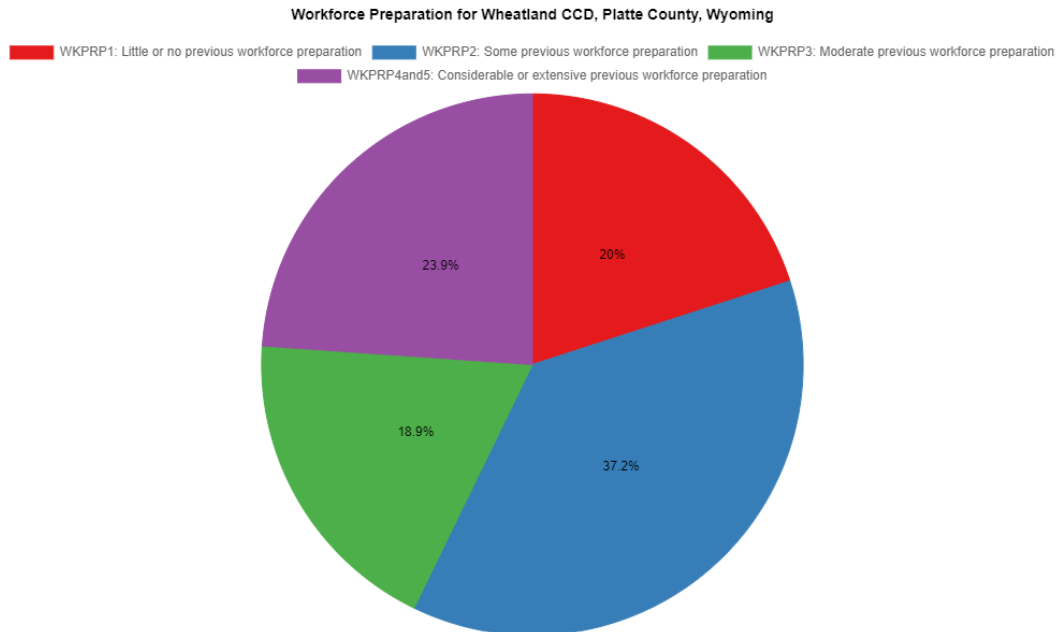
Further analysis, meaning a more in-depth second look, brings to light other relevant work-related, or human capital, variables that have local impact on residents and call for consideration and population targeting for business re-opening, reclaiming livelihoods, building new skills and local workplace safety.

One variable, **overall workforce preparation**, is defined by O\*NET as the level of combined work experience in conjunction with education, skills, knowledge and job training. This may range from little to no work-related skills or training all the way to requiring extensive skills along with higher education degrees.

While observing workforce preparation for each municipality, the GIS interface show that in Wheatland CCD, WY 37% of the civilian employed\* fall in category 2. Just about the same portion, meaning 38%, in Telluride CCD, CO are in category 4 and 5. This tells us that the civilian working population in Wheatland is largely comprised of individuals working in jobs that require a high school diploma and some relevant prior work experience. While wage earners residing in Telluride, CO are comprised largely of individuals possessing several years of work-related experience with higher skill levels and with education typically ranging from a bachelor degree to higher.



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The GIS interface purposefully delivers the workforce preparation indicator because it quickly reveals more about the make-up of local human capital infrastructure: skills, knowledge education, training and job experience, all of which are correlated to jobs and occupation type. Being a *very useful starting point for moving a community forward and stabilizing and building livelihoods*, it is also a good reference for local homeowner security, economic development and workforce development initiatives and more.

The data reveals more about residents' work requirements, workplaces, occupations and job characteristics and functions. One indicator shows the portion of the population that "wear safety and protective equipment" ('safe') and the other shows percentage in jobs where "walking or running" at work ('run') are requirements. Both relay information about the way local people make their livelihoods. These are included in this geospatial analysis because research shows they are indications as to whether one can work at home. When plotted together on the multivariate map patterns emerge that show pockets of people and communities who cannot work remotely due to job functions and requirements.

In this case study, besides observing a notable difference in overall workforce preparation, a contrast in the other local work related characteristics come to light. We see that Wheatland, WY at 44.2% has a higher rate of local residents who have to wear safety and protective equipment on the job as compared to Telluride CO's 31%. See

When looking further at Wheatland we see that about one third of those who can't work at home due to workplace functions as indicated by the need to wear safety and protective equipment are in two types of jobs: construction and extraction occupations and production occupations, meaning manufacturing. You will notice that although, as stated earlier, neither group is cited as dominating the economy, this new population measurement helps to ensure they are not overlooked because they account for the largest portion who can't work at home because of job functions.

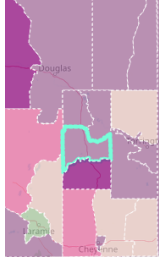
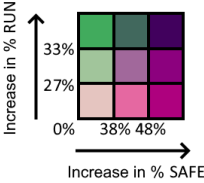



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**In summary**, these key indicators show between the two municipalities, Telluride, CO residents have higher levels of workforce preparedness and education with more specialized skills and they do not need to rely as heavily on common safety and protective clothing and equipment to do their work, and, therefore, earn their paychecks. And, fewer of its residents are in jobs that require running or walking when compared to Wheatland, WY. The converse is true for Wheatland, with a large portion of the working residents in occupations in workforce preparation category 2 and below, meaning a much lower skill and education level such as generally having a high school diploma or less and some to little work experience.

These above findings are for use in various kinds of mitigation and stabilizing efforts and for targeting the different population segments. This is because the indicators give a deeper look at the impacts on how local people make and can make a living, including at the onset of the pandemic. The measurements have real application to local skill building and other types of employment initiatives.

**When we plot these two variables of ‘safe’ and ‘run’ together on the multivariate map, the observable difference provides a better understanding of the degree in which residents by geography can conduct their job task remotely or if they are required to be on the job site to perform their work.** The multivariate maps quickly highlight places where portions of the population can and cannot work from home. These findings have significant application to issues like short and longer term wage earning capability, home ownership, the need for upgrading skills, prioritization of specific types of business and related workplace reopening by geographic place and more.

<b>Can or Can't Work From Home</b> Multivariate Map SAFE and RUN rates mapped together  <b>Wheatland</b> and Neighboring Municipalities	<b>Map Legend</b>	<b>About Legend</b>	<b>Can or Can't Work From Home</b> Multivariate Map SAFE and RUN rates mapped together  <b>Telluride</b> and Neighboring Municipalities
		<p><b>When SAFE and RUN civilian population rates are mapped together</b>, as the legend shows, darkest purple indicates there are higher rates of civilian employed who can't work at home due to job requirements.</p>	

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**These next two variables provide critical geospatial insight because both correlate to getting and spreading contagion in the workplace.** For prioritizing action plans they are guides for accelerated reopening by specifically targeting and enhancing safety measures in segment populations' worksites. With focus on the most impacted residents, they are for building directed mitigation to stabilize workplaces in the residents' geographic area based on site and industry type. Such initiatives coupled with public awareness can help build local comfort about returning to the workplace. The measurements are for focusing resources to help advance more longer term and on-going endeavors to keep safety in the forefront for the same types of workplaces. They are to accelerate key business and industry re-openings and to avoid future closures.



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The first is physical proximity 'prx' and the second is exposed to disease or infection 'dis' when at the workplace. The multivariate map quickly highlights geographic places most impacted by both.

Getting and Spreading due to Exposed to Disease or Infections (DIS) %	Getting and Spreading due to Physical Proximity (PRX) %	Getting and Spreading due to Exposed to Disease or Infections (DIS) %	Getting and Spreading due to Physical Proximity (PRX) %
<p><b>Wheatland, WY</b></p> <p><b>Legend</b> Percent of Civilian Employed</p> <ul style="list-style-type: none"> <li>0-6%</li> <li>6-11%</li> <li>11-16%</li> <li>16-21%</li> <li>21-26%</li> <li>26-31%</li> <li>31%+</li> </ul>	<p><b>Wheatland, WY</b></p> <p><b>Legend</b> Percent of Civilian Employed</p> <ul style="list-style-type: none"> <li>0-40%</li> <li>40-46%</li> <li>46-52%</li> <li>52-58%</li> <li>58-64%</li> <li>64-70%</li> <li>70%+</li> </ul>	<p><b>Telluride, CO</b></p> <p><b>Legend</b> Percent of Civilian Employed</p> <ul style="list-style-type: none"> <li>0-6%</li> <li>6-11%</li> <li>11-16%</li> <li>16-21%</li> <li>21-26%</li> <li>26-31%</li> <li>31%+</li> </ul>	<p><b>Telluride, CO</b></p> <p><b>Legend</b> Percent of Civilian Employed</p> <ul style="list-style-type: none"> <li>0-40%</li> <li>40-46%</li> <li>46-52%</li> <li>52-58%</li> <li>58-64%</li> <li>64-70%</li> <li>70%+</li> </ul>
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When these two indicators are mapped together one quickly sees the communities most at risk due to higher rates of their civilian employed impacted by each.

Physical Proximity and Exposed to Disease or Infection at Workplace Mapped Together (Multivariate Map)			
Getting and Spreading			
<p><b>Getting and Spreading PRX and DIS mapped together</b></p> <p><b>Wheatland, WY</b> and Neighboring Municipalities</p>	<p><b>Map Legend</b></p> <p>Increase in % PRX ↑</p> <p>↑ 58% 52%</p> <p>0%</p> <p>→ 16% 21%</p> <p>Increase in % DIS →</p> <p>For example, notice Wheatland's neighbor to the east, Torrington, has a high rate of both PRX and DIS.</p>	<p><b>About Legend</b></p> <p><b>When rates of proximity and exposure to disease or infection are mapped together</b>, as the legend shows, darkest blue indicates higher percentages of the civilian employed (residents) are impacted by each due to job functions and work requirements when in the workplace, so are at risk of getting and spreading.</p>	<p><b>Getting and Spreading PRX and DIS mapped together</b></p> <p><b>Telluride, CO</b> and Neighboring Municipalities</p>
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These resulting geo-measurements can be used per geography as guides to accelerate specific types of business reopening and specific types of workplaces, including through fortified assistance in building safety. For practical application, they help pinpoint the population segments because the data help show more prevalent local contagion tracks between homes and the workplace. The multivariate map highlights places that have higher percentages of civilian employed (residents) impacted.

The analysis shows us the difference between geographic places like Telluride and Wheatland. The resulting data are intended to help focus attention and accelerated action on the priority groups that are most impacted. The multivariate maps are tools to focus local remediation because they quickly highlight geographic differences.

These findings have real application to issues like short and longer term ability to retain home ownership, pay rent, the need for re-skilling and upgrading skills, prioritization of specific types of business reopening by place and more. For some communities, it may mean understanding more about the population segments who cannot earn from home while for other geographies the paramount issue is those most impacted by workplace getting and spreading. This interface helps to quickly identify these spatial patterns.

The data show that some geographies can have stark percentage differences between indicators. Others, instead, show differences in portions of the civilian employed affected.

When we first look at the rates impacted in Wheatland and Telluride by exposure to disease or infection, unlike the difference seen in the estimated rate of those who must leave home to earn their livelihoods, there appears to be no pronounced difference between the percentage impacted, unlike some of neighboring towns.

For physical proximity it first appears that there is also no difference. That data show in both Wheatland and Telluride one half of their civilian employed, meaning residents who are in the workforce and, therefore earner, are impacted by proximity. Looking further, the difference lies in who, meaning what population segments are most impacted. In Telluride, the largest portion affected by physical proximity make livelihoods in sales and related with numbers impacted within this group accounting for about 11% of its civilian employed. Data show that Wheatland has a similar rate of 12% and their highest impact numbers are within construction and extraction jobs, in addition to the number in sales and related.

By looking at these more in-depth human capital measures at a more local level and in this case study, we come to understand that in Wheatland the latter two occupation groups are actually the key population segments for targeting. Had we not used this geo-analysis, it would have been easy to overlook the estimated number of people in this municipality who work in construction and extraction jobs and most impacted by getting and spreading when they go to their job sites.

This in-depth analysis yields more detailed information about the where and who for focused mitigation and stabilization strategies that can make the largest difference by community for putting people back to work and keeping them safely there. Such has strong implications to commercial property re-opening and local economic development.

In both Wheatland and Telluride about 15% of their civilian employed are impacted by exposure to disease or infections. In Telluride, the highest percent are in sales and related. The second highest in healthcare practitioners and technical occupations. In Wheatland, the healthcare practitioners and technical occupations' population segment have the highest rate impacted with the second highest in building and grounds cleaning and maintenance. ([Learn more](#) about the population segments most impacted in Wheatland and Platte County, WY by logging into GIS interface.)



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For practical use in the stabilization of local livelihoods, economy building initiatives and population prioritization, these geo-demographics are available down to the census tract as aids in making a local difference.

Standardized to national classification systems, they easily can be viewed with other data. For example, one can look at the estimates of the most impacted groups of the wage earning residents as correlated to community job security since the onset of the pandemic as related to the stability of local homeownership, when compared to the numbers who could not earn while at home. This correlation helps to provide a more focused look at the short and longer term implications on who may or may not be able to continue to meet mortgage payments over time.

These new geo-measurements can also be related to things like creating public awareness about new and ongoing stronger local initiatives to address workplace safety concerns to help stem population groups' reservations about returning to the workplace.

### KEY TERMS

#### About Workforce Preparation

O\*NET's workforce preparation is on scale of one to five ranging from little to no preparation to extensive.

- World Force Strategies, Inc.'s labels it as 'WKPRP' in its geographic analysis. It sums and labels workforce preparation categories 4 and 5 as 'WKPRP4&5'. (Register to learn [more.](#))

#### About: Can or Can't Work at Home Due to Job Functions and Requirements: (SAFE and RUN)

- Research has correlated these O\*NET descriptors to work not done remotely because of occupation requirements. The two workforce characteristics are (a.) time spent walking and running on the job, labeled "RUN" in this geo-spatial analysis and (b.) wearing common protective or safety equipment such as safety shoes, glasses, gloves, hearing protection, hard hats, or life jackets "SAFE".
- The analysis delivers three estimates of each.
  - For "SAFE" it shows the portion of the civilian employed who wear it: (1) "every day", (2) "at least once a week" and (3) the sum of both, which is also seen on the multivariate map.
  - For "RUN" estimates show percentage that (1) "continually" walk or run, or (2) walk or run at least "one-half of the time" on the job, and (3) the sum of both which is also seen on the multivariate map.

#### About: Getting and Spreading (PRX and DIS) due to job functions and requirements

This analysis delivers estimated portion in jobs, showing:

- three physical proximity measurements (PRX)
  - (1) "near touch", (2) minimum arm's length and (3) the sum of both, which is also seen on the multivariate map.
- Three measurements of exposure to disease or infections (DIS) are:
  - (1) every day of the week, (2) at least once a week and (3) the sum of the both also shown on multivariate map.





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### KEY TERMS (cont'd)

**O\*NET:** The Occupational Information Network's (O\*NET) developed under sponsorship of the U.S. Department of Labor, Employment and Training Administration (USDOL/ETA) is for understanding today's world of work.

**U.S. Census Bureau's** most recent American Community Survey five year (2015-2019) estimates of the civilian employed are for ages 16 years and over. The bureau uses a 90% confidence level as its standard and publishes each geography's margin of error.

**The U.S. Census Bureau defines the civilian employed** as individuals in the non-institutional population who worked as paid employees, worked in their own business or profession, worked on their own farm or worked 15 hours or more as unpaid workers on a family farm or in a family business. Or were with a job but not at work during the reference week due to a temporary absence due to vacation, illness, industrial dispute, or other personal reasons. The reference week is the calendar week preceding the date on which the respondents completed their questionnaire.

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**To quickly see Platte County, WY measurements:** Inside the interface click on little yellow box #3.

[NewGeoInsightWheatlandWYTellurideCO.pdf](#)