

Project Report PDF

By: Michael Davidson mtdavids@owu.edu

What is the gak or gray areas on the OWU campus and around the city of Delaware?

Unlike the other map projects that are presenting the green side of campus and Delaware, which show environmental, social, and economic stability. The gak map will contrast the green side of campus and show things that are malevolent and can cause harm to the environment or people. This darker side of Delaware and OWU is important because it can be compared and contrasted to the green parts of OWU and Delaware. Showing the gray stuff can create awareness among the people as to what they are exposing their physical health to and to what is being put into the environment.

The data that will be collected for this Gak Map can be divided into two main categories. The first category will consist of the things that can be ingested and consumed that cause physical harm to oneself. The second category will focus on pollution and waste that is produced and harms the environment.

The category of things ingested that are physically harmful can be divided into: Food, Alcohol, Smoking, and Tap Water.

The subject of food will consist of all the fast food restaurants and Ohio Wesleyan food services that provide food that may be unhealthy, nutritionally poor, and high in carbohydrates, fat, and calories. The nutritional info on food from, for example, fast food restaurants, have to be provided by the business and can be obtained here: <http://www.dietfacts.com/fastfood.asp>. As for food that is provided on campus by Chartwells, all the nutritional info on every food item can be found here: <http://www.dineoncampus.com/owu/show.cfm> There is a plethora of information that is provided and reading through all the nutritional info is extremely time consuming. So, specific food items that are the most popular at campus eateries will be the ones listed. While, at fast food restaurants, a few items will be selected that are comparable to OWU food. As for mapping this information, the location of every fast food restaurant that serves unhealthy food can be marked by a symbol and then off the map a list of the unhealthy foods served can be shown along with the nutritional info. These can then be compared to the recommended daily intake.

Place	Serving Size	Calories	Fat(g)	Carbs(g)	Protein(g)
-------	--------------	----------	--------	----------	------------

- | | | | | | |
|-------------------|------|------|------|------|-----|
| ▪ Men | | 2500 | 85 | 390 | 65 |
| ▪ Women | | 2200 | 71 | 330 | 55 |
| ▪ Ham-Will, Fries | 169g | 410 | 28.8 | 63.4 | 6.4 |
| ▪ Sushi | 200g | 400 | 3.5 | 67 | 7 |

▪ Welch, C Pizza	1 slice	364	11.44	40.07	24.2
▪ Hamburger	1S-wich	562	33	38.4	28
▪ Smith, Pasta	1 serving	338	9.9	45.5	16.1
▪ Bishop Cafe, Soup	8oz	170	5	19	11
▪ flatbread	227g	410	13	47	27
▪ McD's, Fries	147g	450	22	57	6
▪ 1/4lb w/C	1S-wich	510	25	43	29
▪ Tim Ham+Swiss	1S-wich	440	12	56	28
▪ Horton's BLT	1S-wich	450	18	53	18
▪ Dominoes C pizza	1 Slice	290	15	26	13
▪ Buffalo Chicken	1S-wich	840	41	74	44
▪ Amato's C pizza	1 slice	291	7.8	36.3	11.8
▪ Greek pizza	1 slice	262	8.2	38.8	8.3
▪ Subway Chic Bac Sub	6 in	580	30	47	36
▪ Cold Cut Combo	6 in	410	17	47	21
▪ Papa John C pizza	1 slice	310	12	39	13
▪ Works Pizza	1 slice	330	11	40	14
▪ Donato's P pizza	1 slice	322	19	25	20
▪ KFC Double Down	1S-wich	540	32	11	53
▪ Original Breast	1 Piece	320	15	4	42
▪ BK Whopper cheese	1S-wich	760	47	52	33
▪ French Fries	1order	440	22	56	5
▪ Wendy's Fries	189g	530	23	75	6
▪ Spicy Chicken	1s-wich	440	16	46	28
▪ Marco's C pizza	1 slice	250	8	32	13
▪ Chicken Club Sub	1/2sub	450	21	34	31
▪ Pizza Hut C pizza	1 slice	220	8	27	11

Additionally, the percentage of obese people in Delaware County can be compare to the Ohio average and the National Bench Mark. This was found [here](#).

- Delaware County Obesity % - 27
- Ohio Obesity % - 30
- National Benchmark % - 25

The subject of smoking is simpler compared to the information on food. The topic of smoking will consist of businesses that focus on the selling of tobacco. The location of smoke shops around Delaware can be found on this Google map: [here](#) . OWU has a no smoking policy for all of its buildings. As for mapping this information, a specific symbol can be used to map all buildings associated with smoking and having a list that says they are for buying tobacco . The statistics of adult smokers in Delaware county can be compared to Ohio and the national benchmark. It is the same link as the one for obesity above.

- Delaware County smoking % - 11
- Ohio smoking % - 23
- National Benchmark - 15

Alcohol is another thing physically harmful to one's health and mapping this info can be helpful for providing info on how available alcohol is around town. This information will include the stores that have licenses to sell liquor and bars. The information on liquor licenses can be found here: <http://www.com.ohio.gov/liqr/rpts/phone.txt>. As for the locations of bars, a Google map provides the data needed [here](#). The locations of these liquor stores and bars can be mapped with their own unique symbols at their exact locations. The percentages of excessive drinking in Delaware County can be compared to Ohio and the National Benchmark as well, with the same link as obesity.

- Delaware County Excessive Drinking % - 18
- Ohio % - 17
- National Benchmark - 8

Delaware local tap water quality is another thing that data should be shown on. The origins of the local drinking water along with the quality and the number of contaminants allowed.

[http://www.delawareohio.net/Departments/Public Utilities/Water Management.aspx](http://www.delawareohio.net/Departments/Public%20Utilities/Water%20Management.aspx)

. This can be shown on the map by showing the origin of the water whether it is from a reservoir or ground water and the listing the facts about the water quality.

Contaminant(ppt)	Delaware	Columbus	Cleveland	EPA
▪ atrazine	310	320	0	3000
▪ Barium	15000	51000	100000	2000000
▪ Cadmium	3400	<1000	43000	5000
▪ Chlorine	2100000	1500000	1300000	4000000
▪ Fluorine	1030000	1070000	1200000	4000000
▪ Haloacetic acids	29110	38200	21300	60000
▪ nitrate	2490000	7100000	600000	10000000
▪ Trihalomethanes	58600	54700	27500	80000
▪ Total Organic Carbon	2710000	2350000	1010000	no data
▪ Turbidity(NTU*1000)	600	290	200	1000

Motor Vehicle Crash Death Rate was found along with the statistics for obesity, drinking, and smoking and it has the same link.

- Delaware County Motor Vehicle Crash Death Rate - 9
- Ohio - 13
- National Benchmark - 12

The second main category will consist of waste and pollution produced such as toxic waste.

There are multiple industries to the southwest of Delaware that produce waste that is toxic to human health, links to this info can be found [here](#) or [here](#). With these sites information can be found on all the businesses that produce harmful waste, this part of the Gak map appears to be less complicated in creating awareness among people. The waste that is produced has specific effects on human health as well. The following list shows the industries that produce toxic waste and how much, then there is a corresponding list of toxic substances and how they can harm humans.

- Delo Screw Products - **26**-17329lbs
- Liberty Casting Co - **1**-5593lbs, **2**-2151lbs, **3**-778lbs, **4**-42lbs
- PPG Industries Ohio Inc - **5**-539, **6**-449, **7**-389, **8**-309, **9**-209, **3**-0.1, **14**-5, **13**-114.1, **15**-5, **16**-35.5, **17**-3, **18**-190, **19**-147.4, **20**-23, **2**-0.3, **21**-101, **22**-17, **23**-trace
- Henkel Corp - **10**-174, **11**-52, **12**-39, **13**-23
- International Paper Delaware Ink Plant - **4**-trace, **24**-trace
- Luvata Ohio Inc - **4**-trace
- Sam Dong Ohio Inc - **4**-trace
- Liebert Corp - **25**-trace, **4**-trace

- **1**-Phenol-dermal, hematological
- **2**-Naphthalene-hematological, hepatic, neurological, ocular, respiratory
- **3**-trimethylbenzene-ocular, dermal, respiratory, neurological
- **4**-copper-gastrointestinal, hematological, hepatic
- **5**-isopropylidenediphenol-no data
- **6**-toluene-cardiovascular, neurological
- **7**-methyl methacrylate-ocular, dermal, respiratroy
- **8**-butyl acrylate-ocular, dermal, respiratory
- **9**-xylene-ocular, dermal, respiratory, hepatic, cardiovascular, neurological
- **10**-diethanolamine-ocular, dermal, respiratory
- **11**-methyl pyrrolidine-ocular, dermal, respiratory, gastrointestinal
- **12**-formic acid-ocular, dermal, respiratory
- **13**-glycol ethers-no data
- **14**-acrylonitrile-developmental, hematological, neurological, reproductive
- **15**-ethyl acrylate-ocular, dermal, respiratory
- **16**-ethyl benzene-developmental, neurological
- **17**-lead-cardiovascular, developmental, gastrointestinal, hematological, musculoskeletal, neurological, ocular renal, reproductive
- **18**-methanol-ocular, dermal, respiratory, neurological, gastrointestinal
- **19**-methyl isobutyl ketone-ocular, dermal, respiratory, neurological, gastrointestinal
- **20**-butylalcohol-ocular, dermal, respiratory, neurological

- **21**-styrene-hepatic, neurological, ocular
- **22**-zinc-gastrointestinal, hematological, respiratory
- **23**-chromium-immunological, renal, respiratory
- **24**-barium-cardiovascular, gastrointestinal, reproductive
- **25**-manganese-cardiovascular, hepatic, neurological, respiratory
- **26**-trichloroethylene-developmental, neurological

The ultimate goal of this project is to create awareness of the harmful things to one's health and to the environment around campus and around town. Knowing what things are gray is one step towards making the city more green and healthy. With a gray map to contrast the green map, there is no illusion created that might trick people into thinking that the city is a completely clean, healthy, and a sustainable place.