

Teen Mental Health Clinic Site Survey

Eugene and Springfield, Oregon

Theodore Lessman
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INTRODUCTION

Mental health care is an important part of a person's general wellbeing. With the American Care Act (ACA) and the Oregon Health Plan (OHP) bolstering coverage for mental or behavioral health treatment, the demand and need for services is more important to address than ever. Teenagers can benefit from regular appointments with a therapeutic professional, but it can be hard to guarantee that the teen can have the ability to utilize services despite insurance covering some portion of treatment. Lack of transportation, available time, or parental approval to seek services can act as barriers to a teenager improving their health. These conditions may be more likely among low income students. Those with economic need can receive assistance with bus passes, and can often qualify for Medicare/OHP. Schools frequently allow older students to go off campus during lunch or free periods, and having outpatient services nearby can mean they can use that time or before heading home at the end of the day. Teenagers age fourteen (14) and older can consent to their own treatment if without parental support in the case that a parent cannot or is unwilling to set up services (Minor Rights, 2016)

We will be analyzing low income high school students' access to outpatient mental health services within Eugene and Springfield, then we will perform a site selection for a lot to build a new outpatient facility. The area of interest (AOI) and resulting location will be within the city limits of either Eugene or Springfield, and the site will be located within a range of a quarter mile of a Lane Transit District (LTD) bus stop, and within one mile of a high school and within an area with significant need. The site will also be no closer than one mile to an existing facility that offers outpatient mental health services.

NOTE: some steps/features highlighted in the proposal were omitted, reordered, or changed. Additional steps or datasets were added or parsed into multiple smaller steps.

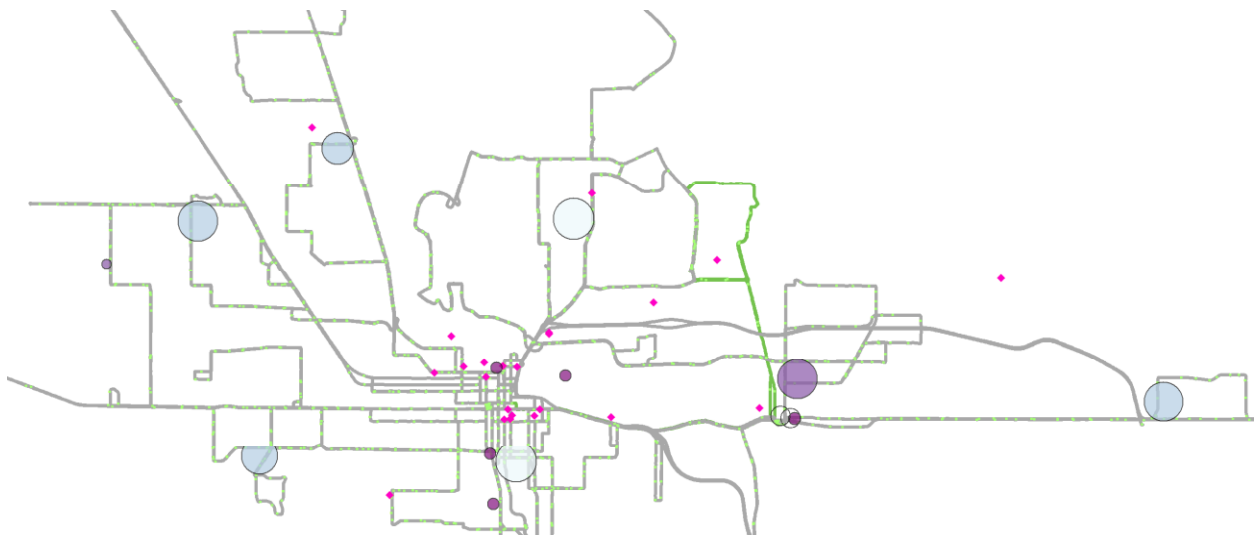
ANALYSIS OF STUDENT ACCESS TO SERVICES

To understand the need of mental health services for teenagers in Eugene and Springfield, first we would need to acquire datasets that we could use to see where there is a lack of nearby facilities and a significant population of low income high school students. I downloaded a dataset from ESRI which contained the locations which provided behavioral health services including drug treatment, residential, corrections and outpatient services. I used a definition query to filter the dataset to display only locations within the AOI, then used the 'Select' tool to extract only the locations which provided outpatient services.

Next, I retrieved a dataset from the Oregon Spatial Data Library (SDSL) that featured locations which provided educational instruction, and filtered it to only display schools within the districts Bethel SD 52, Eugene SD 4J, and Springfield SD 19, and which are all within the AOI. I then used 'Select' to extract only schools which had a maximum student grade of 12th year, to ensure it instructed high school students. Willamette Leadership Academy was outside of our extent so I then filtered it out with a definition query. To see low income students which would indicate possible eligibility for the Oregon Health Plan (OHP), I could use data showing the participation of students in the free and reduced lunch programs, which this data set did not have. I located a comma separated value dataset from Oregon Department of Education (ODE) which contained the needed information, but no geographic component. After removing schools outside of the AOI and verifying the school name text fields corresponded, I joined the two sets on their school name attribute.

To understand access to services I needed to include the local mass transit system which is operated by LTD. I obtained a complete General Transit Feed Specification (GTFS) dataset from LTD which contained .txt files for routing, scheduling, and fares, which is utilized by entities like Google Maps for transit schedule information. This file type was unusable in ArcMap as it does not describe points, lines, or polygons. I was however able to find a tool created by ESRI employee Melinda Morang which converted GTFS stops and routes to Shapefile using the optional shapes.txt file, which I added as a custom toolbox, then used it to convert a both datasets.

With each of these layers on the map, I could look at the distribution of students across the extent, as they relate to existing locations and bus routes. By setting the school location layer to display the percent of students that were eligible for free or reduced lunch assistance, and graduated sizes showing school enrollment, it would become clear which schools had what proportion of students that may be eligible for OHP coverage. For the graduated colors, the symbology I chose a color-blindness friendly scheme based on the 'FREEREDPCT' field, which held the percent of students eligible. I chose to distribute the gradient on natural jenks. The value for one of the schools had no data so I represented that with a transparent fill. For the graduated sizes, I used the formula $\sqrt{\text{ENRLMNT}}$ to display sizes based on the total enrollment for the school. With both the distribution of existing locations and the enrollment and eligibility for each school made clear, it became easier to see where there was a need for services.



Looking at the concentration of eligibility, which schools had largest enrollment, and where outpatient locations were (and were not), we could narrow down to what neighborhood the site selection would be implemented. Where there was the largest concentration of existing sites, in downtown Eugene, there was a major high school which had low eligibility, and a charter school that had multiple locations. Both were in Eugene SD 4J. Despite appearing like a cluster of eligible schools, it was only one entity whose students have plenty of nearby clinics. Three

potential locations seemed worth looking at: near Springfield High School, Willamette High School, and Thurston High School.

Springfield High School has two nearby schools: Gateways High School and the Academy of Arts (A3) and Academics, which has two campuses in the vicinity. Springfield High School has high enrollment and higher eligibility, while Gateways has very few students, high free and reduced lunch recipients and A3 had no data. There is also access to LTD's EmX Bus Rapid Transit (BRT) line, which can help students more quickly reach the cluster of services two miles west in downtown Eugene. This appears to be a high need area, however there is a service provider nearby, making this area lower priority than areas without.

Another one with high enrollment is Willamette High School, one of Bethel SD 58's two high schools, the other of which, Kalapuya High School, was nearby. Willamette had about 50% eligibility while Kalapuya was among the higher range. Bus access was prevalent, but it does not yet have a BRT route nearby (EmX West is currently under construction). With the lack of access and a neighboring school with high potential OHP eligibility, the Bethel district is a promising area to survey.

Thurston High school is another larger institution which had no neighboring schools and no nearby facilities. Bus access is minimal in this area and it does not currently have access to the EmX. Given its proximity to the edge of city limits on three sides, it likely has a sizable body of rural attendants who would typically not use the mass transit system and may not have the means to seek services. For these reasons, East Springfield is not a strong candidate for selection.

OUTPATIENT SERVICES SITE SUITABILITY ANALYSIS

I settled upon the Bethel District as the neighborhood of focus, and it was time to determine where suitable lots may reside. I defined what would make for suitable properties as a process which adhered to the following steps:

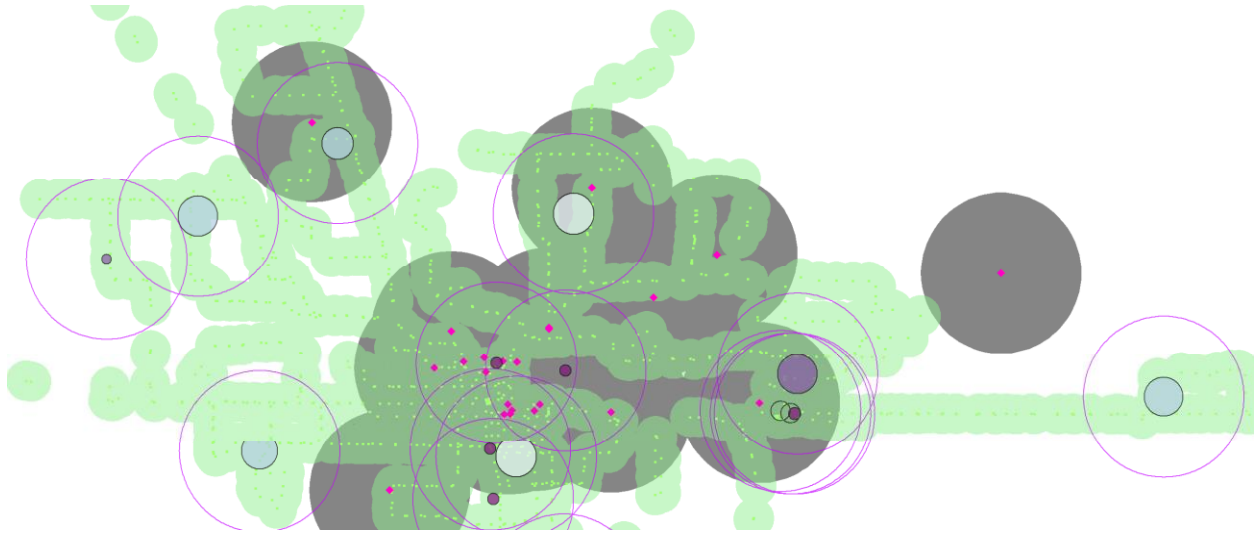
- Lot is within Eugene or Springfield city limits
- Lot is within one (1) mile of a school
- Lot is within one-quarter (0.25) mile of any bus stop
- Lot is no closer than one (1) mile from an existing outpatient mental health clinic

- Lot type is commercial.
- Lot is vacant.
- Lot value is no more than \$250,000.00 USD.

I chose these values based on research and approximating walk times while considering students' school schedules.

Again, to be able to answer these questions, we would need to acquire new data and/or transform data we already possess. I downloaded an Oregon city limits dataset from OSDL and defined it to display only Eugene and Springfield. I then downloaded Lane County Taxlots 2012 from the University of Oregon (UO) GIS Collection and filtered it with a query to only within Eugene or Springfield and to not include right of way or water lots by using "TAXCODE" IS NOT NULL. Now we had purchasable lots across the cities.

To handle the proximity questions, I ran the tool 'Buffer' three times with different parameters. First, I set a planar buffer on the schools with distance of one mile as this would be a reasonable range for a student to have to walk given a ninety (90) minute period, where students could walk twenty minutes on an off-period, have an hour session, and walk the mile back. I did the same (one mile) for existing locations to account for only looking where access to services is currently reduced. For the bus stops, I set the radius to 0.25 miles, which according to Jared Walker on his professional blog Human Transit, is the standard distance to expect patrons to travel (2011). As the extent I surveyed did not have a BRT nearby, I chose not to implement his suggested increase in distance to account riders likelihood to walk farther for rides due to rapid transit's increased speed – had I been looking along the Emx path, or had I data for the EmX West expansion, I would have included it.



With buffers in place I could now narrow down my tax lots to locations which met my criteria.

I had already reduced the lots to city limits with the definition query which will have the additional benefit of reducing the number of features the sequential 'Select by Location' operations will need to search through before exporting our final layers. I used the following selection parameters:

Layer to be Selected	Source Layer	Parameters
Tax Lots	Schools	new selection, intersect source layer
Tax Lots	Bus Stops	add selection, intersect source layer
Tax Lots	Existing Loc.	remove selection, completely within source layer

After exporting the selection to a new layer, I used 'Select by Attribute' to choose lots which had a property code description of 'COMMERCIAL, VACANT' and where "LANDVAL" < 250000. From there, I had to use my judgement to choose properties were a reasonable size and shape to consider building on. I found four properties that were large enough to build on and were not much more than a 2:3 ratio in rectangular shape. Three properties had land values of less than \$150,000, and the farthest from the school was valued at. I determined that a property furthest from the railroads, closest to Willamette High School, closest to the bus route, would be ideal. The

property owned by 'LIVING TRUST' located at 44.083791, -123.155586 appeared to be the closest to the ideal location and is the primary potential site – the remaining being categorized as secondary potential sites, worth considering if unable to obtain the ideal site.

CONCLUSION

With a site chosen based on coverage gaps, concentration of likely clientele, and geographic requirements, the next step would be to determine if the proposed site(s) physically will meet or needs. It is worth noting that it may be worth considering doing this analysis again, focusing on a site located near Springfield High School, or a third near Thurston High School. By placing an outpatient services location in the Bethel area, which has a significant population of students who may not have access to therapy, we will be improving the mental health needs of the community, and meeting the emotional needs of local teens.

Sources:

OHA Public Health Division. (Date of publication). *Minor Rights: Access and Consent to Health Care*. Retrieved from:

<http://www.oregon.gov/oha/ph/HealthyPeopleFamilies/Youth/Documents/minor-rights.pdf>

Walker, J. (2011. Apr. 24). Basics: walking distance to transit [Web log comment]. Retrieved from:

<http://humantransit.org/2011/04/basics-walking-distance-to-transit.html>

Data Source: Oregon Spatial Data Library. Retrieved from:

<http://spatialdata.oregonexplorer.info/geoportal/details?id=607b9a8e31874380a7a371c5048cd600>

(not included in proposal)