

Bike Accessibility to Services in Portland



Portland Bike Plan

- 600 miles of streets with bikeways
- A transportation policy that calls for the city to "make the bicycle an integral part of daily life in Portland."

METRO bike plan

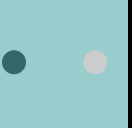


There are four key goals pertaining to bicycle use in the plan:

1. provide a regional network of safe and convenient bikeways, including bike lanes, multi-use paths and bicycle boulevards
2. increase the number of bicycle trips throughout the region
3. ensure that transportation projects use appropriate design guidelines to accommodate bicyclists
4. encourage bicyclists and motorists to share the road safely.

Question

- What areas on the East side of Portland are not within a five minute bike ride of service areas?
- What conclusions can we draw about these areas – e.g. income distribution?



Service Area Criteria

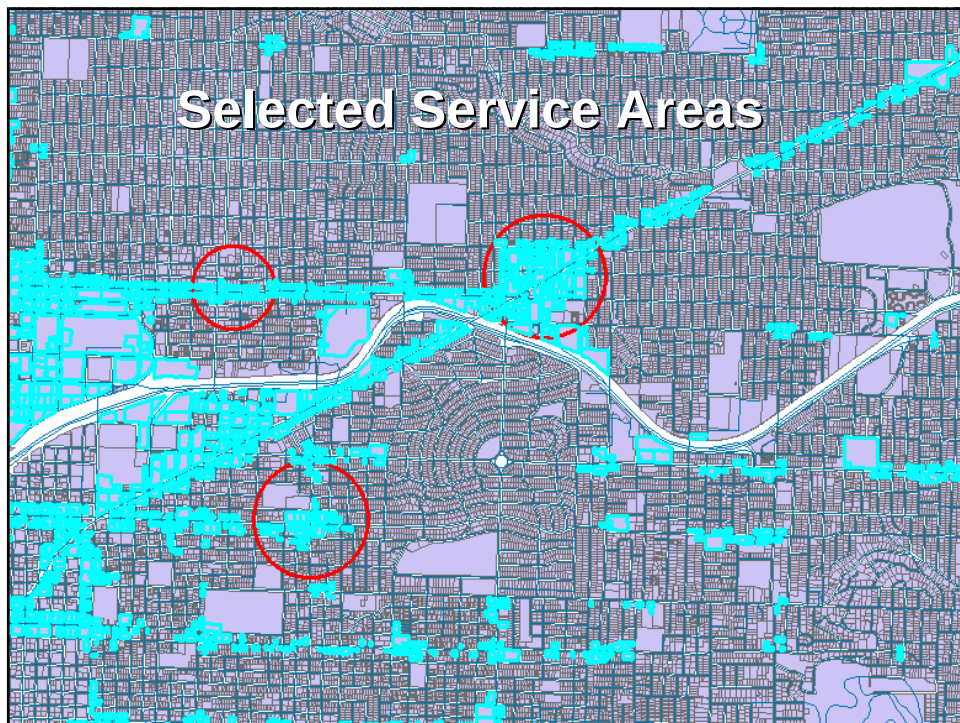
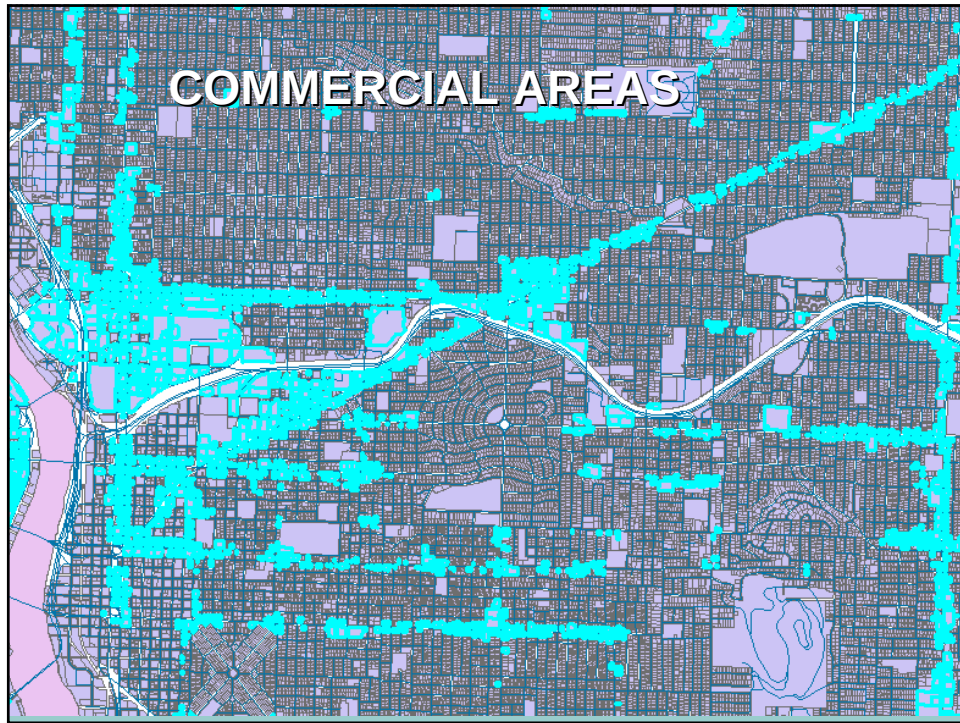
Service areas contain:

- Grocery Store
- Multiple restaurants
- Multiple bars
- Bank
- Shops



Methods

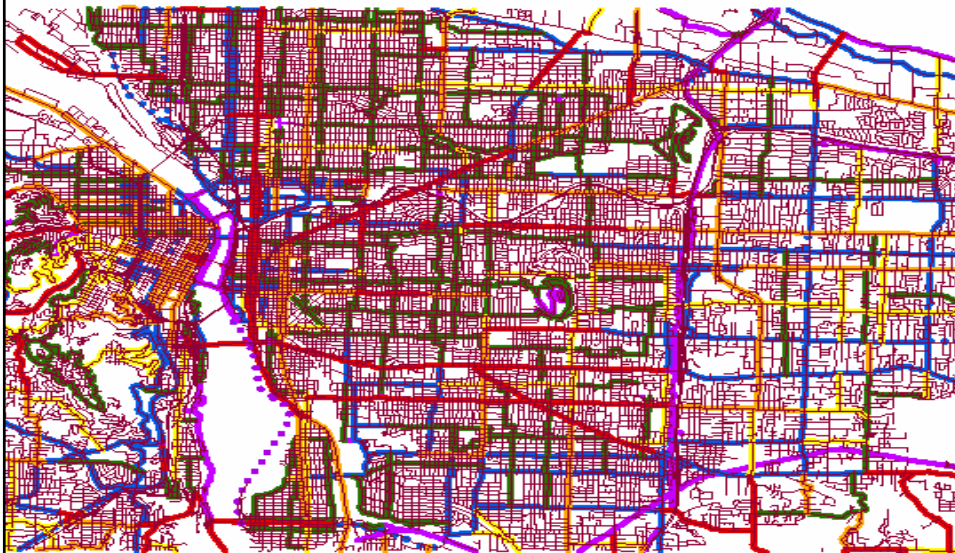
- Select three areas with few other similar areas between
- Display commercial layer of land use to verify selected areas
- Assign average speed values to bike routes and street routes
- Exclude highways from calculation



● ● Route Average Speeds

○ Bike Lane -	14 mph
○ Low Traffic Thru Street –	13 mph
○ Moderate Traffic Thru Street –	12 mph
○ High Traffic Thru Street –	11mph
○ Caution Area –	9 mph
○ Regional Multi-Use Path –	15 mph
○ Local Multi-Use Path -	15 mph
○ All other Streets –	10 mph

Bike route and Street Layers

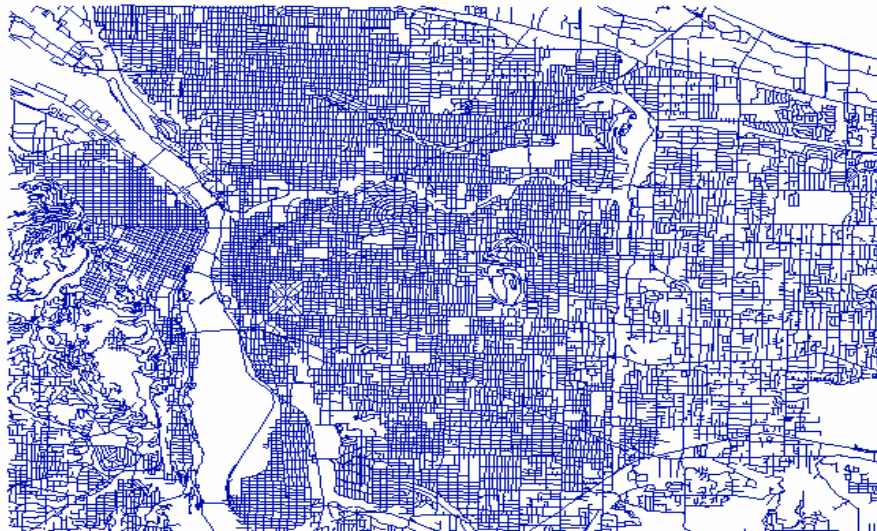


Methods:

Combining Street and Bike Layers

- Change into coverage files
- Make attribute tables identical
- Add into geodatabase
- Use “Load data” – combines street and bike coverages into one
- Use topology to find all overlapping segments and remove
- Calculate weight

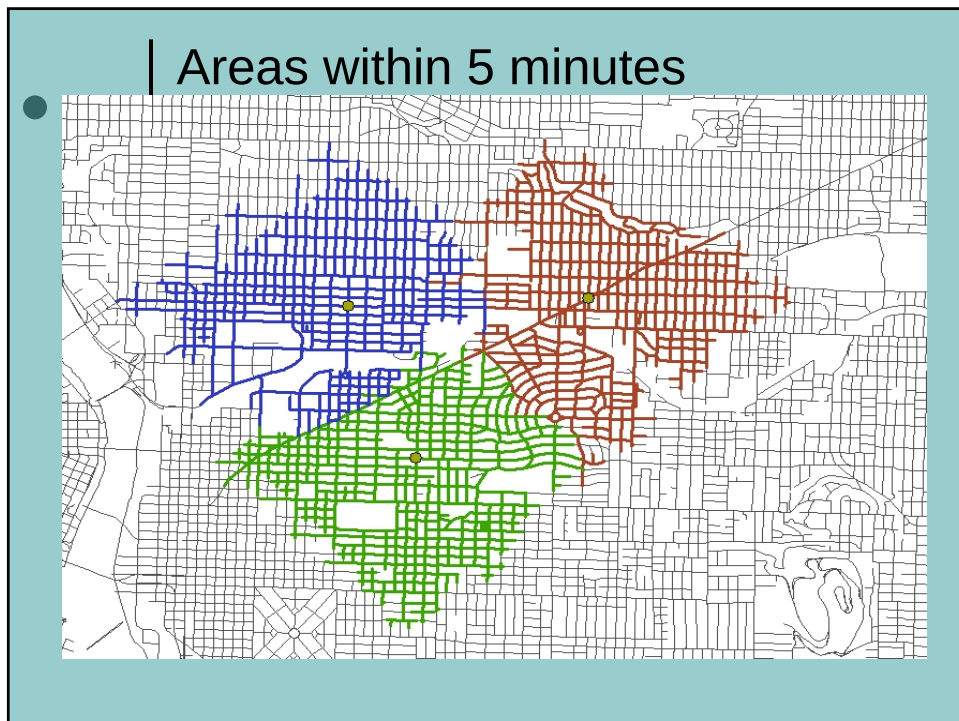
Combined Street and Bike

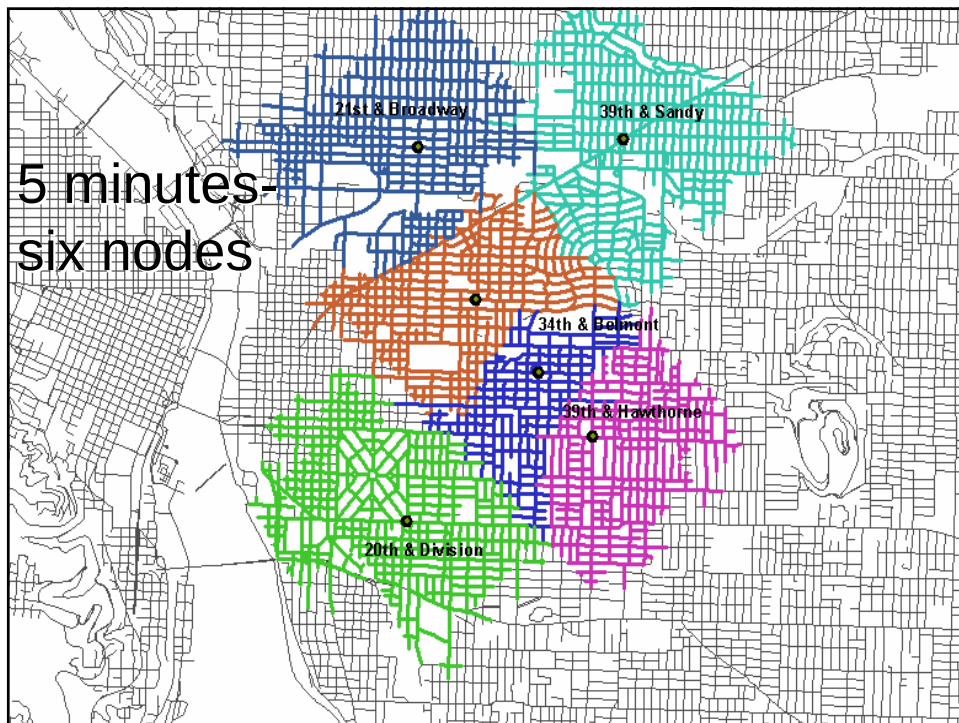
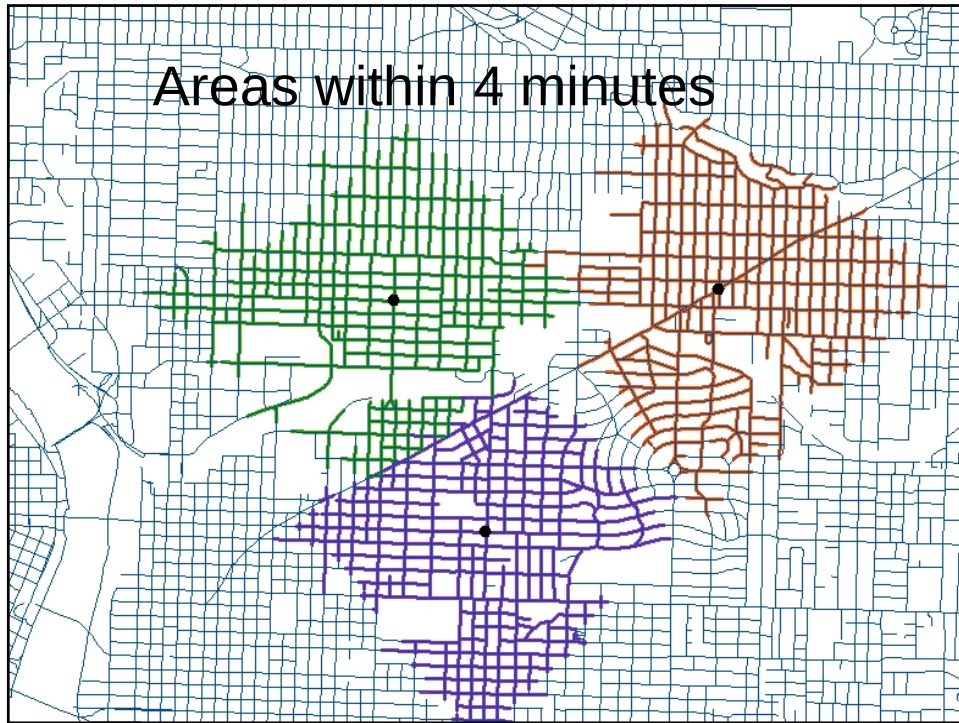


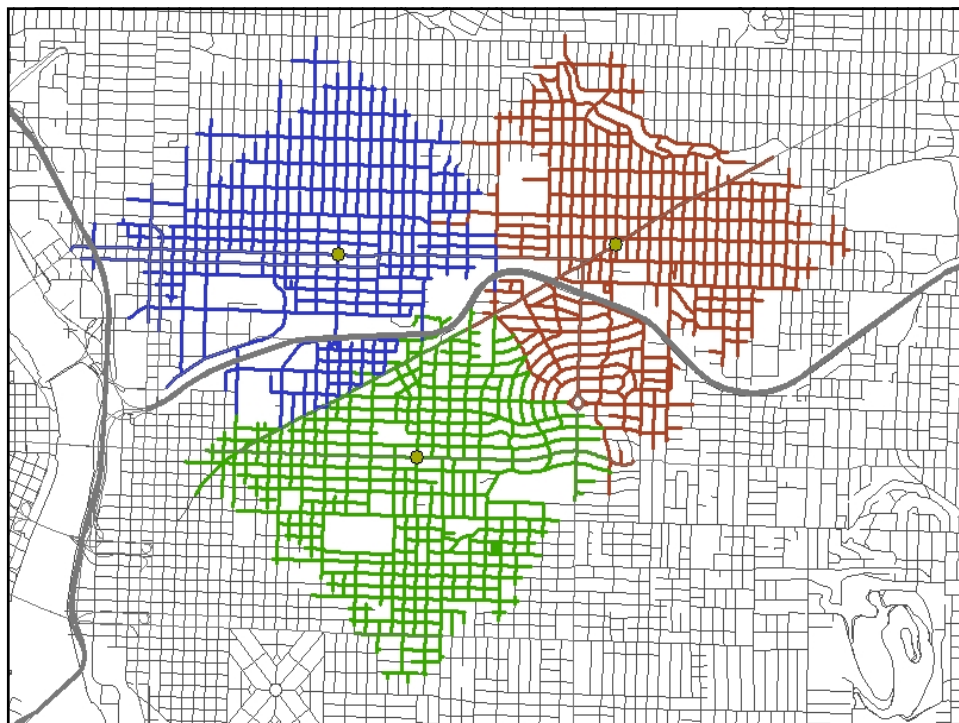
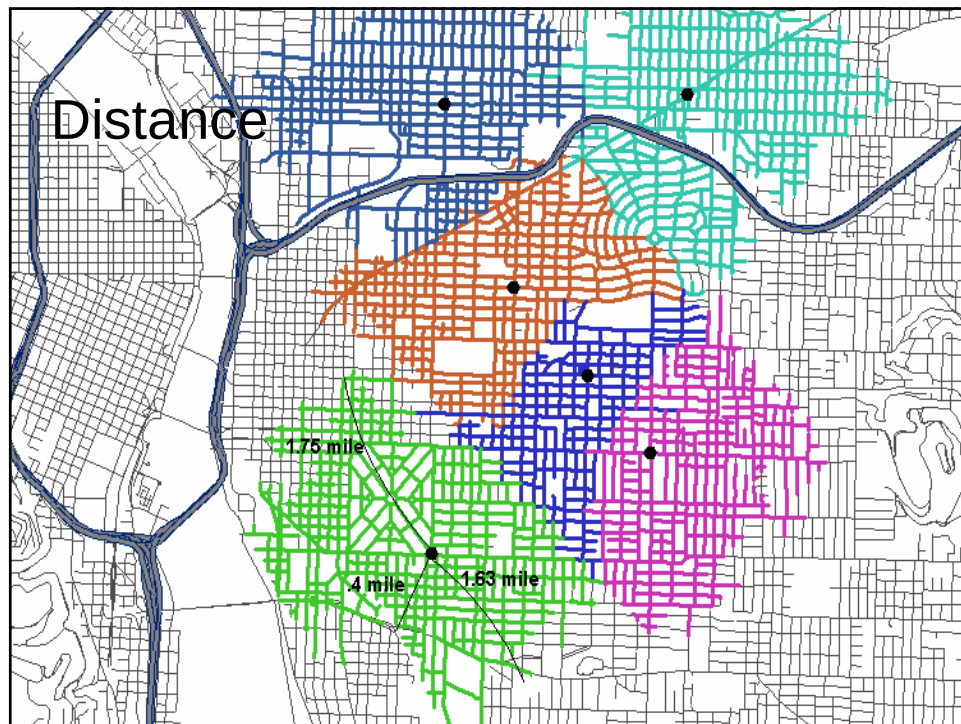
Attributes of bikepath arc

FID	Shape	LENGTH	BIKEPATH#	BIKEPATH-ID	WEIGHT	AVGSPEED	RT*
49	Polyline	1362.75	49	20326	1.29048	12	Moderate traffic through street
50	Polyline	269.318	50	20327	0.235418	13	Low traffic through street
51	Polyline	259.998	51	20328	0.24621	12	Moderate traffic through street
52	Polyline	1399.03	52	20329	1.22293	13	Low traffic through street
53	Polyline	259.969	53	20330	0.227246	13	Low traffic through street
54	Polyline	1018.88	54	20331	0.890634	13	Low traffic through street
55	Polyline	259.983	55	20332	0.227258	13	Low traffic through street
56	Polyline	2049.81	56	20333	1.79179	13	Low traffic through street
57	Polyline	263.799	57	20334	0.230594	13	Low traffic through street
58	Polyline	524.237	58	20335	0.458249	13	Low traffic through street
59	Polyline	447.701	59	20336	0.339168	15	Regional multi-use path
60	Polyline	228.83	60	20337	0.288927	9	Caution area
61	Polyline	1360.83	61	20338	1.18954	13	Low traffic through street
62	Polyline	15.4456	62	1	0.017552	10	AVE
63	Polyline	153.344	63	2	0.174255	10	LOOP
64	Polyline	221.615	64	3	0.251835	10	LOOP
65	Polyline	334.851	65	4	0.380513	10	ST
66	Polyline	48.229	66	5	0.054806	10	AVE
67	Polyline	42.264	67	6	0.048027	10	PL
68	Polyline	43.9812	68	7	0.049979	10	CT
69	Polyline	26.0817	69	8	0.029638	10	CT
70	Polyline	13.887	70	9	0.015781	10	AVE
71	Polyline	13.3734	71	10	0.015197	10	AVE

Record: 1 Show: All Selected Records (0 out of 22461 Selected) Options







● ● | Limitations

- The number of areas selected-scope of study
- Lack of geographical diversity chosen
- Uncertainty about how the Arcplot tool I used works
- Average speeds assigned were subjective
- Didn't account for barriers or factors besides speed

● ● | Conclusions



- No neighborhoods in my area of study were further than a five minute bike ride from services
- Portland is very bike-able
- Difficult to represent the actual biking experience on the map

Future Research

- Analysis of barriers to biking
- Remove barriers and then use network analysis to more accurately represent possible routes
- Extend study area
- Bikability to schools – only 3% of students bike

