Science Culminating Project Rubric for Geospatial Skills

Criteria	Exemplary	Proficient	Adequate	Needs Improvement
Use GIS to manage, display, query, and analyze geospatial data. Use geospatial analysis to process geospatial data for the purpose of making calculations, and inferences about space, geospatial patterns, and geospatial relationships. Use geospatial data analysis in which geospatial relationships such as distance, direction, and topologic relationships (e.g. adjacency, connectivity, and overlap) are particularly relevant.	The proposal describes **specific and precise geographic locations** using geographic language for **new development, features, facilities, parks, or open spaces** for the inter-related plan element change. No images are needed to identify the location. Verbal explanation alone is sufficient.	The proposal describes the geographic locations **using geographic language** for new development, facilities, parks, or open spaces for the inter-related plan element change. Images are needed to identify the location. Verbal explanation alone is not sufficient.	The proposal describes the geographic locations for new development, facilities, parks, or open spaces for the inter-related plan element change. (for example: left of the park). Images are needed to identify the location. Verbal explanation alone is not sufficient.	**The geographic location description is not accurate** (for example: on top of the park).
	At least four graphics (screen shots) from the Web GIS are included. Added detail is present through **detailed imagery added, labels, legends, and so forth.** (For example, pictures of vacant areas, specific street blocks).	Three screenshots from the Web GIS are included. Added detail is present through detailed imagery, labels, legends, and so forth in all screenshots. (For example, pictures of vacant areas, specific street blocks).	One or two screenshot from the Web GIS is included. **At least one screenshot from the Web GIS is included that includes some detail such as a polygon to identify a new development area**.	No screenshots from the Web GIS are included.
	The discussed improvement locations **take into account three or more geospatial relationships** related to a theme – land use, environment and natural resources, transportation, economic development, neighborhood conservation, community facilities, or housing (for example, city green spaces, trails, city trees, park locations, community gardens, bus	The discussed improvement locations take into account **two geospatial relationships** related to a theme – land use, environment and natural resources, transportation, economic development, neighborhood conservation, community facilities, or housing (for example, city green spaces, trails, city trees, park locations, community gardens, bus	The discussed improvement locations take into account **one geospatial relationship** related to a theme – land use, environment and natural resources, transportation, economic development, neighborhood conservation, community facilities, or housing (for example, city green spaces, trails, city trees, park locations, community gardens, bus	The discussed improvement locations do not take into account **geospatial relationships** related to a theme – land use, environment and natural resources, transportation, economic development, neighborhood conservation, community facilities, or housing (for example, city green spaces, trails, city trees, park locations, community gardens, bus

	routes, existing services, businesses, population distribution patterns, housing patterns or interactions among any two factors)	routes, existing services, businesses, population distribution patterns, housing patterns or interactions among any two factors)	routes, existing services, businesses, population distribution patterns, housing patterns or interactions among any two factors)	routes, existing services, businesses, population distribution patterns, housing patterns or interactions among any two factors)
Use inductive and deductive reasoning to analyze, synthesize, compare, and interpret information. Use logic and reasoning to identify strengths and weaknesses of conclusions, or approaches to problems.	Realistic justifications for all proposed changes are **clearly supported by data from the Web GIS**. The data is related to **at least four themes**.	Realistic justifications for all proposed changes are **supported by data from the Web GIS**. The data is related to **three themes**.	Realistic justifications for all proposed changes are **supported by data from the Web GIS**. The data is related to **one or two themes**.	**No Web GIS data** is used to support proposed changes.
	The presentation **clearly articulates** how the changes **promote Smart Growth principles** for Allentown. **Explanations are very detailed.**	The presentation **articulates** how the changes **promote Smart Growth principles** for Allentown. **Explanations are detailed.**	The presentation states a Smart Growth principle for Allentown without an explanation. (This plan will enhances public transportation; This plan will repurpose an abandoned building)	The presentation does not mention Smart Growth principles for Allentown.
	The presentation **clearly articulates** how the changes **are environmentally sustainable** for Allentown. **Explanations are very detailed with regards to how the city is made more livable for its citizens.**	The presentation **articulates** how the changes **are environmentally sustainable** for Allentown. **Explanations are detailed with regards to how the city is made more livable for its citizens.**	The presentation states how the changes **are environmentally sustainable** for Allentown **without an explanation**. (This plan will preserve open space; This plan will reduce carbon emissions). It does not clearly explain how the city is made more livable for its citizens.	The presentation does not mention how the changes are environmentally sustainable for Allentown.