

1. Introduction

1.1 Background

The Victoria Local Emergency Planning Committee's (LEPC) role is to form a partnership with local government and industries. One of the key tasks of the LEPC is to enhance hazardous materials preparedness. The LEPC fulfills this role with several key responsibilities. A few of these responsibilities are as follows:

1. Managing information and providing it to the public.
2. Providing public awareness of chemical hazards in the community.
3. Conducting hazard analysis.
4. Collecting Tier II reports from all facilities that are in possession of hazardous chemicals.
5. Managing communications with facilities and providing awareness for the local government.

Tier II reports are a way for the facilities in Victoria County to provide awareness to the LEPC and the public as to what chemicals are at their specific locations. The Texas Tier II reports' mission is to protect the public health and environment by providing current and accurate information about hazardous chemicals and their health effects and by ensuring that the regulated community complies with the requirements of the applicable laws and regulations.

The goal of this project will mainly be to aid in providing emergency management planning in the case of a chemical disaster for the LEPC through hazard analysis. If a chemical incidence were to occur in Victoria County, the LEPC must be fully prepared and knowledgeable as to where the public can be evacuated and be put out of harm's way. Because of this spatial relationship the LEPC needed to implement a GIS in order to enable them to carry out this important task.

1.2 Problem Statement

Emergency planning reduces the magnitude of severity and consequences of a chemical incident on the community and its surroundings. Planning for such an event requires multi-level planning, for example on-site planning and off-site planning. On-site planning is the extensive knowledge of chemical sites and its attributes and effects. Information regarding this should be organized, easily accessible and open to the public. Off-site planning is the coordination of efforts between local authorities, the public, and the person storing chemicals to provide a plan of evacuation and mitigation to reduce as many risks as possible. The objective of this project is to aid Victoria County in the off-site planning for an efficient evacuation following a hazardous chemical accident. The project identifies the population densities and environments that are susceptible to such an event. South Texas Emergency Planning (STEP) then utilizes these factors to identify navigable transportation networks to evacuate the population at risk to the most suitable reception areas. The application of GIS allows STEP to calculate the optimal routes for evacuation based on the assumption that the population would want to evacuate as quickly as possible, thereby moving to the closest shelter. GIS also allows STEP to recognize spatial relations between chemical hazard sites and its surrounding environments that could potentially be at risk. For example, identifying what school and stream falls within the chemical buffer, the school and stream then would be vulnerable to that specific chemical site thereby creating a unique spatial relationship between the two.

The scope of the project is Victoria County, located in south-east Texas, near the Gulf Coast. Victoria City, the major urban center in Victoria County, is the focus of this project due to the population concentration and the concentration of chemical hazard sites.

2. Data

The data that was utilized for this project is divided into four separate parts: population concentrations, critical infrastructure, chemical plant locations, and transportation networks. Because the LEPC wanted an in-depth analysis of potential vulnerable population concentrations we began to collect this data first. Working very closely with the Victoria County GIS department, STEP was able to obtain this critical information. The population concentrations that were given to us were special needs facilities, schools, and malls. Because we were working with a GIS department and not collecting our data off of a website, STEP came to the conclusion that the datasets were of good quality and had high accuracy. Also, these datasets had been previously used for analysis in Victoria County, providing even more credibility for STEP. It was necessary that the data be highly accurate due the nature of our project. Emergency management planning is different than other types of GIS analysis. Lives are at stake and if one decision is carried out poorly, or if the tools used by professionals have been created inaccurately, lives can be lost that could have been saved. If our data had not been from such a credible source, STEP would have taken on the responsibility of researching and verifying that indeed the data was accurate, not only temporally, but spatially as well. Once these datasets were received by STEP, we were able to begin creating our geodatabase. At this point we needed to begin to place real world addresses on our model of Victoria County. We used the geocoding tool to do this using the street centerline data that was given to us from Victoria County as well. Once this was completed, STEP was able to see exactly where the population concentrations of Victoria County were located.

After the population concentrations were geocoded, the next step was to begin processing the critical infrastructure data that had been handed over to us by the LEPC. These datasets included water facilities, first responders, fire and police precincts, and hydrology. The LEPC had requested that critical infrastructure be a part of a secondary analysis that would display which facilities would be affected looking at the distance they were located from a chemical facility. These datasets were given to us as .KMZ files, which are Google Earth files. In order for us to be able to incorporate these datasets into our GIS, STEP geocoded the addresses that were included with the .KMZ files. STEP was able to verify the locations were correct by doing a digital ground-truthing within Google Earth to ensure accuracy was correct within our GIS.

Our third dataset was created and handed over to us by our peers CHEMgroup. CHEMgroup was assigned tasks by the LEPC to identify locations of chemical plants in Victoria County utilizing the previously mentioned TIER II reports. CHEMgroup was able to create a map model displaying where these facilities were located in Victoria County. STEP needed this information in order to carry out our critical infrastructure analysis and show which critical infrastructure facilities would be vulnerable in the case of a chemical incidence.

Our last dataset obtained was the transportation networks. This dataset included railways and street centerlines. STEP needed this dataset to be able to enable our network analysis for the evacuation routes for population concentrations as well as which critical infrastructure facilities would be affected in the case of a chemical incidence on a railway. We obtained the data from the Victoria County GIS department, so STEP knew that the datasets were of good quality.

With all of our data collected, STEP began to see how our analysis would be able to be implemented. All of the datasets that had been collected were relevant to each other and provided information that would assist STEP's GIS analysis.

Metadata was created for all of the layers that were created by STEP. Each layer has metadata attached to it, which specifically explains how the data was used and created. The processes and citation categories cover these details. If any data was merged or intersected, metadata details this as well. The FGDC classic formatting was used for all metadata creation. This formatting was used due to its easy readability and clean look. I

3. Methodology

STEP geocoded all GoogleEarth's KMZ files from locational addresses into ArcGIS. All locational data layers have a point geometry except for 'parks' which was polygons. Parks' polygon geometry was then converted into points at the entrance of the parks. The conversion of geometry was necessary for the next step when the data was merged. Relevant data layers were edited before merging to keep all data consistent. This entails the addition of columns into the table for specificity of information such as TYPE, EVAC_TYPE (fig 1). The reason for this is to be able to create a consistent and clean merge. The merging allows for the consolidation of the data layers into the four established categories:

Population Concentrations:

- Schools
- Special Needs Facilities
- Daycares
- Hospitals

First Responders:

- Police stations
- Hospitals
- Fire Stations

Critical Infrastructure:

Police Stations
Hospitals
Fire Stations
Water wells
Water lifts
Waste Water

Shelters:

Schools
Malls
Parks

The data is now categorized and consolidated for the simplicity of analysis.

Once all the data has been edited and prepared, STEP created a network dataset from the street centerline data for network analysis. To prepare it for accurate network analysis, STEP added one-way restrictions using Google Map as a reference. We digitized all the roads and segmented it at each intersection so we could apply the one-way attribute to a specific block. The streets that were digitized against the real-world driving scenario were given the code “TF”. ArcGIS recognizes this code as one-ways against the digitized arrow, as for against it is given the code “FT”, and for two ways it was left blank. The “TF” codes were applied to only a portion of Bridge St. since the street becomes a two-way. The rest of the streets were left blank. We ran a few pilot runs to ensure the accuracy of the network dataset since it will be the basis for future network analysis in this project. STEP used the *closest facility* function to determine the 2 closest evacuation shelters from the population concentration and also step-by-step directions on how to get to the sheltered destination. The destinations or facilities, as named in the closest facility function, are the shelters, and the start locations are called incidents which are uploaded with the population concentration data.

Fig. 1) Table for Critical Infrastructure. The TYPE_2 column displays what kind of structure it is, Evac_Type shows what category it falls into.

ADDRESS	Type_2	NAME	Evac_Type
9508 NE ZAC LENTZ PKWY	Fire station	5	First responder/Critical infrastructure
606 E GOODWIN AVE	Fire station	1	First responder/Critical infrastructure
1701 E AIRLINE RD	Fire station	2	First responder/Critical infrastructure
4406 LONE TREE RD	Fire station	3	First responder/Critical infrastructure
2007 SALEM RD	Fire station	4	First responder/Critical infrastructure
25 N Hangar Dr	Fire station	Airport	First responder/Critical infrastructure
306 S BRIDGE ST	Police station	CITY OF VICTORIA POLICE DEPARTMENT	First responder/Critical infrastructure
7800 N NAVARRO ST SUITE 157 (VICTORIA MALL)	Police station	COMMUNITY SERVICES SECTION (CITY)	First responder/Critical infrastructure
101 N GLASS ST	Police station	VICTORIA COUNTY SHERIFF DEPARTMENT	First responder/Critical infrastructure
101 MEDICAL DR	Hospital	DETAR HOSPITAL NORTH	First responder/Critical infrastructure/Population
2701 HOSPITAL DR	Hospital	CITIZENS MEDICAL CENTER	First responder/Critical infrastructure/Population
506 E SAN ANTONIO ST	Hospital	DETAR HOSPITAL NAVARRO	First responder/Critical infrastructure/Population
9406 NE ZAC LENTZ PKWY	Hospital	CITIZENS HEALTHPLEX	First responder/Critical infrastructure/Population
1902 North Deleon	Well	Water Well # 26	Critical infrastructure
2300 Blk North Louis St	Well	Water Well # 25	Critical infrastructure
4008 N Nimitz	Well	Water Well # 23	Critical infrastructure
3209 N Ben Jordan	Well	Water Well # 14	Critical infrastructure
1701 E Airline Water	Well	Water Well # 15	Critical infrastructure
2506 E Airline	Well	Water Well # 16	Critical infrastructure
902 Sam Houston	Well	Water Well # 17	Critical infrastructure
409 Young St	Well	Water Well # 19	Critical infrastructure
2505 E Red River	Well	Water Well # 20	Critical infrastructure
602 W Red River	Well	Water Well # 21	Critical infrastructure
11011 Hwy 59	Waste water	Mercado	Critical infrastructure
4501 Lone Tree Rd	Waste water	Anthony	Critical infrastructure
3608 E Juan Linn	Waste water	Juan Linn	Critical infrastructure
202 West Lingo Ln	Waste water	Magruder Ln	Critical infrastructure
2205 E Airline	Waste water	Airline	Critical infrastructure
3303 E. North St	Waste water	Ben Wilson	Critical infrastructure
5500 Country Club Dr	Waste water	Country Club	Critical infrastructure
4104 Houston Hwy	Waste water	59 Hwy	Critical infrastructure
1008 South West Moody St	Waste water	Greens	Critical infrastructure
700 Loop 463	Waste water	Loop 463	Critical infrastructure
6600 Block HWY 59	Waste water	Loop 175	Critical infrastructure
1604 W Red River	Waste water	City Park	Critical infrastructure
6500 Block N Navarro	Waste water	77 Lift	Critical infrastructure
Old Nursery Dr at Spring Creek Drive	Waste water	Mesa Verde	Critical infrastructure
Conti Lane at Hwy 87	Waste water	Conti Lane	Critical infrastructure
440 Aviation Dr.	Waste water	Airport	Critical infrastructure
1161 River Rd	Water plants	River Pump Station	Critical infrastructure
97 Tibiletti Rd	Water plants	Raw Water Pump Station	Critical infrastructure
3209 North Ben Jordan	Water plants	Water Plant Number 3	Critical infrastructure
2902 Bluff St	Water plants	Surface Water Treatment Plant	Critical infrastructure
6301 Dairy Rd	Water plants	Water Plant Number 4	Critical infrastructure
406 N West St	Water plants	TOMER 4	Critical infrastructure

The same table layout applies for First Responder and the other 2 categories for cohesion.

ADDRESS	Type_2	NAME	Evac_Type
306 S BRIDGE ST	Police station	CITY OF VICTORIA POLICE DEPARTMENT	First responder/Critical infrastructure
7800 N NAVARRO ST SUITE 157 (VICTORIA MALL)	Police station	COMMUNITY SERVICES SECTION (CITY)	First responder/Critical infrastructure
101 N GLASS ST	Police station	VICTORIA COUNTY SHERIFF DEPARTMENT	First responder/Critical infrastructure
101 MEDICAL DR	Hospital	DETAR HOSPITAL NORTH	First responder/Critical infrastructure/Population
2701 HOSPITAL DR	Hospital	CITIZENS MEDICAL CENTER	First responder/Critical infrastructure/Population
506 E SAN ANTONIO ST	Hospital	DETAR HOSPITAL NAVARRO	First responder/Critical infrastructure/Population
9406 NE ZAC LENTZ PKWY	Hospital	CITIZENS HEALTHPLEX	First responder/Critical infrastructure/Population
9508 NE ZAC LENTZ PKWY	Fire station	5	First responder/Critical infrastructure
606 E GOODWIN AVE	Fire station	1	First responder/Critical infrastructure
1701 E AIRLINE RD	Fire station	2	First responder/Critical infrastructure
4406 LONE TREE RD	Fire station	3	First responder/Critical infrastructure
2007 SALEM RD	Fire station	4	First responder/Critical infrastructure
25 N Hangar Dr	Fire station	Airport	First responder/Critical infrastructure

Once the closest facility network analysis has been tested and ensured that the one-way streets are routing in the correct direction, the next step is to create the first supplemental table.

The first table, named “Evacuation Shelters and Routes”, will be used by the population concentrations to identify the two closest shelters to their location and the shortest routes to those shelters. This table will be created using the results from the closest facility network analysis.

The table is divided into the four sub-classes forming the population concentration group: schools, day cares, nursing homes, and special needs facilities. Each establishment listed in the table includes the two closest shelters to that establishment, as well as an index number assigned to the route to each shelter. The index number serves as a reference number to the page and section on that page where the routing directions from the concentration to the shelter can be found.

The second supplemental table is to be used by the first responders in the instance of a hazardous incident. This table, named “Features At Risk By Hazard Sites”, is intended to list all the hazard sites within Victoria County, along with all potential population concentrations, critical infrastructure, and hydrological features that are at risk by this particular hazard site. The first step in creating this table comes from data provided by CHEMGroup that identifies all hazard sites in Victoria County, including a corresponding buffer area surrounding each site that is relevant to the types of chemicals housed at each hazard site. These shapefiles of hazard sites and buffers are integrated into STEP’s database to be used in conjunction with STEP’s data layers that illustrate the locations of all the population concentrations, critical infrastructure, and hydrological features. After all the necessary layers are together, each buffer can be visualized along with all the features that are possibly at risk.

The next step is to zoom to each individual hazard buffer and select all the features that fall within that hazard site’s buffer. This process must be done for each individual buffer zone

because each buffer is unique in size that corresponds to each site and the chemicals stored at that location. It is this reason of each site having a unique buffer that using a spatial join to join all the buffers and features together would be impractical as it would have to be done for each individual site as well as would create another separate shapefile from each join. By zooming to each site buffer and visually selecting all the relevant features within it we can assure that all features are accounted for. This will save time in gathering results and reduce the size of the database by not creating more shapefiles. By viewing the attribute table of the population concentrations, critical infrastructure, and hydrology shapefiles, the features that are selected within the buffer are highlighted and from there can be copied to the second supplemental table for each hazard site.

The same methodology was used to establish the features possibly affected by an incident on the railways. In order to create a buffer around the railroads, the first step was to merge together all of the sections of the railroad within the shapefile. By merging the railroad, the sections of the railroad are all connected to make one continuous line that can be used in a buffer analysis. We chose to use a one-mile buffer around the railways because a one-mile radius was determined by CHEMGroup to be the maximum range of affliction from a hazardous incident. With the buffer added to the railroad, the attributes that fall within the buffer can then be selected.

4. Results

After merging the data layers into the four categories, it produced 13 facilities for First responders, 49 for Critical Infrastructures, 67 for Population Concentrations, and 51 for Shelters.

The street centerline data did not include the restrictions of one-ways. STEP created a one-way attribute to take in account of real-world characteristics however, when the dataset was created and was used for the *closest facility* function, the routes became “non traversable” meaning that the function could not run due to the restrictions. We recoded the one-way restrictions and it ran perfectly. We also ran a network dataset without the one-way restriction to see what impact it would have; as it turned out it did not have much of impact as seen in the image below (*fig. 2*). STEP used the one-way restricted network dataset for the actual analysis. The analysis produced 201 routes, from the 67 population concentrations to the two closest shelters.

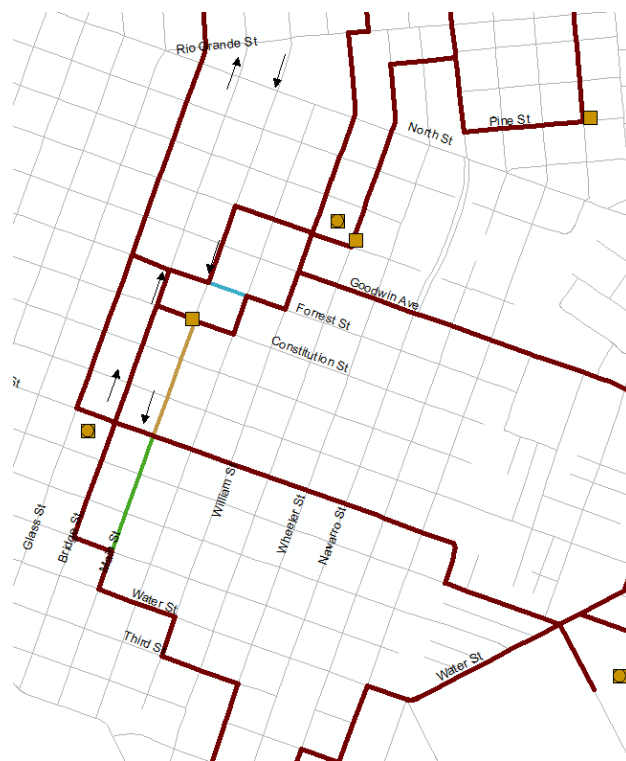
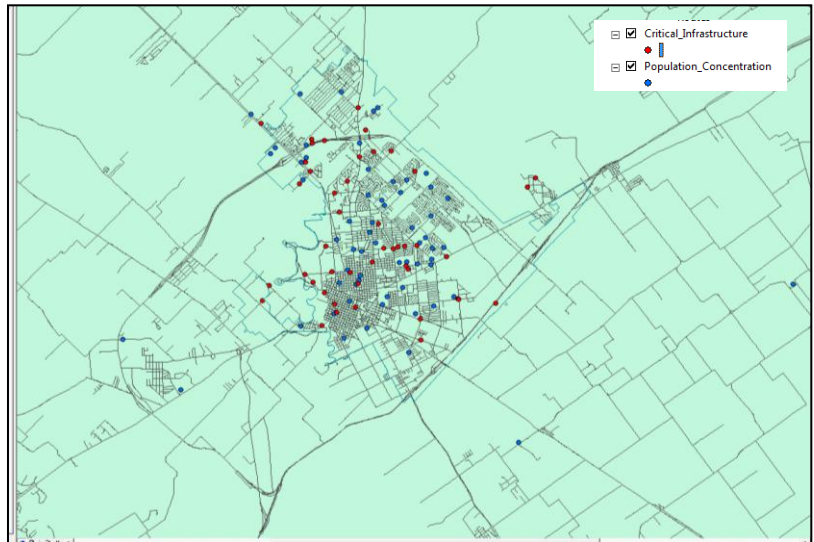
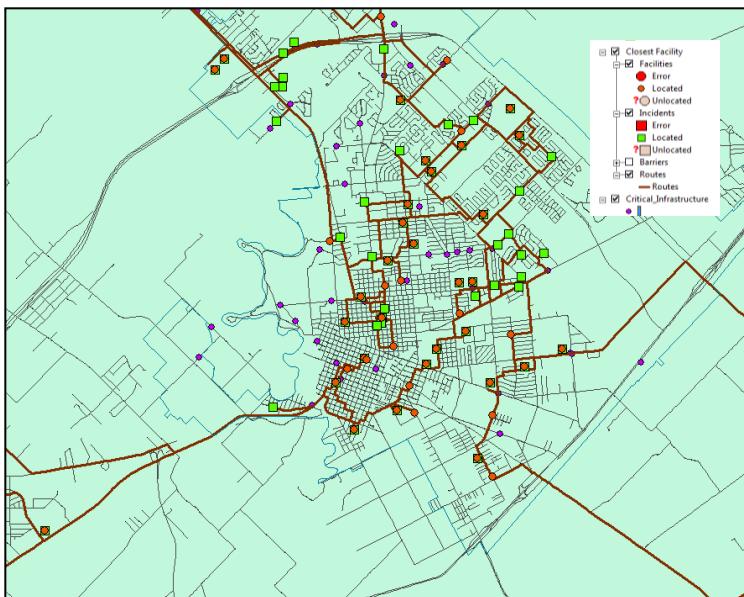


Fig. 2) The dark red shows the before, the varied colored streets shows the one-way applied restrictions.

The initial results from this analysis started with the consolidation of data into the two main classes to be used in this analysis. *Figure 3* shows these two classes: population concentrations as blue dots and critical infrastructure as red dots. The most noticeable result of this consolidation of attributes is the clustering of features in the downtown area of Victoria.

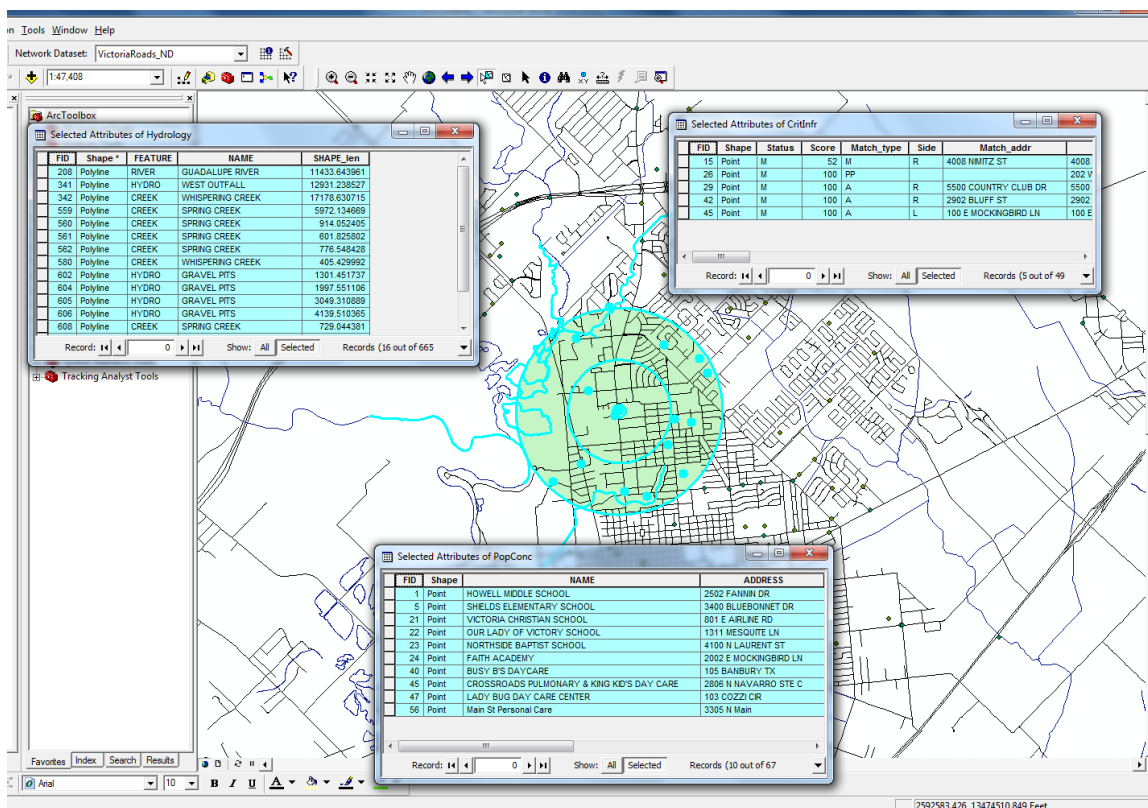


The results of the closest facility network analysis, shown in *figure 4*, show most of the population concentrations and their route to the nearest shelter. Although the objective of the closest facility network analysis was intended to locate the closest shelter to the population concentration, the results of the analysis produced some patterns seen from the creation of the table for the population concentrations. The first table enables the distance between the concentrations and the shelters to be seen, as well as shows which concentrations shared similar



shelters. Since there was no requirement as to the minimum distance a shelter must be from the population concentration, there were instances of the resulting shelter being very close to the population concentration. This result could also be due to a clustering of the features within the downtown region.

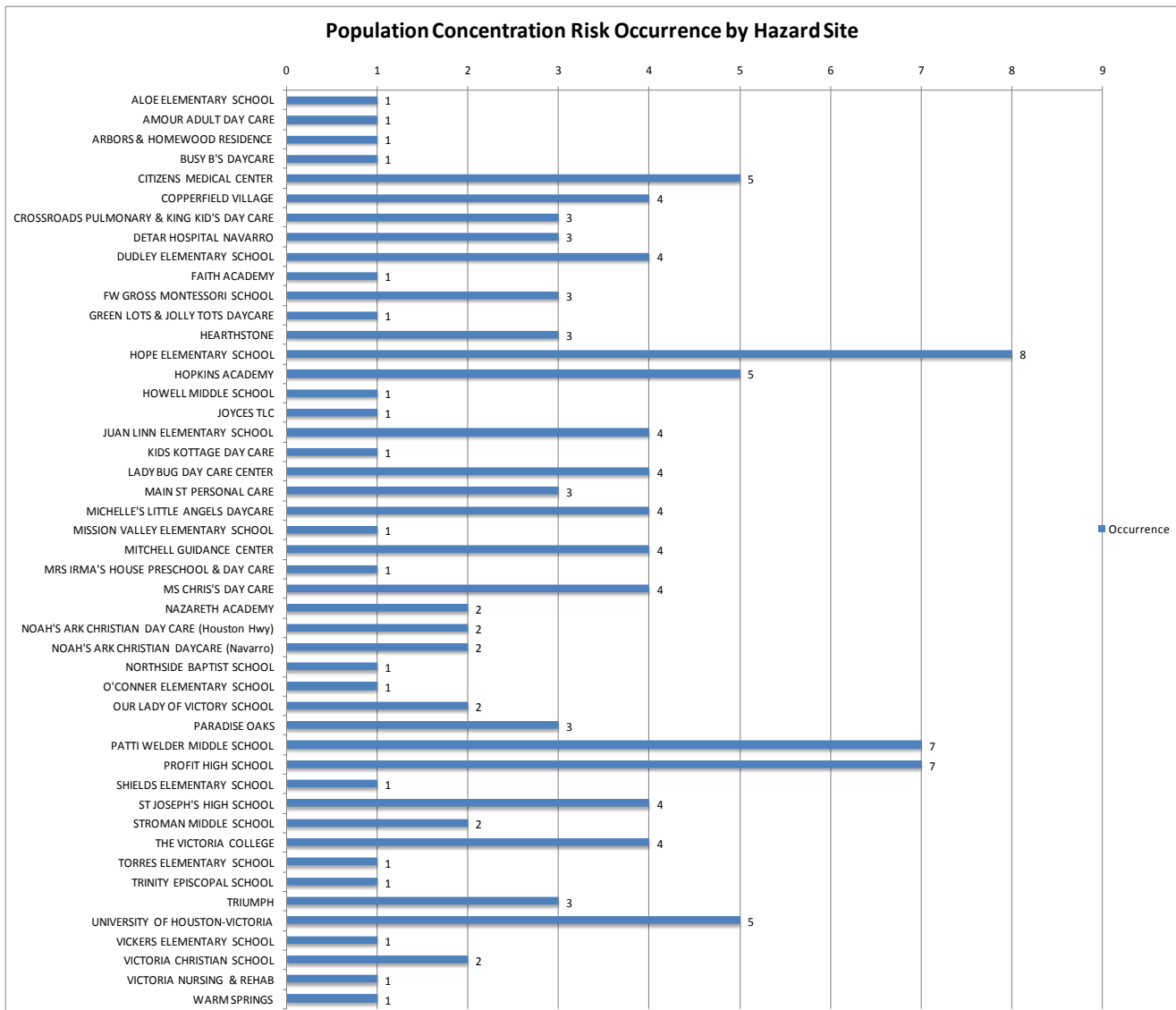
The results of our second analysis objective, finding features possibly affected by hazard sites, were not clear at first until the table was created, much like our first analysis. The first obvious results could be seen while completing the second table for the first responders. Although there are many hazard sites throughout Victoria County, a majority of them are in locations far from range of affecting any nearby population concentrations. Many hazard sites are located in rural areas on the outskirts of the city of Victoria where most of the population is concentrated. The hazard sites that are located in the downtown area, or close to it, are found to pose a risk to numerous features. *Figure 5* shows a hazard site near the downtown region and the features within its buffer.

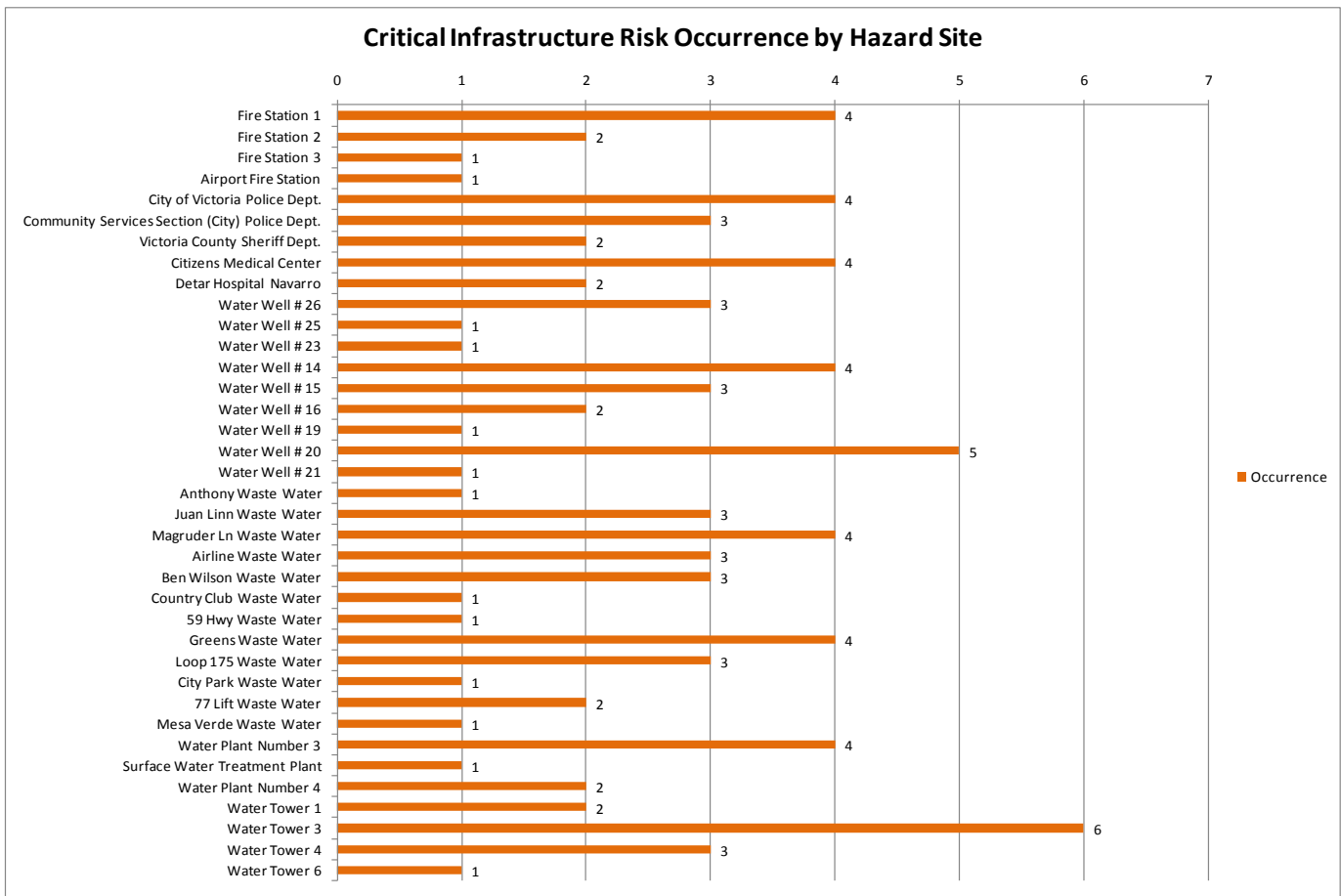


With the second table for the first responders complete, the final step is to create graphs that show all the features that fall within hazard buffers. Two graphs (*figure 6 & 7*) will be created to show which population concentrations, critical infrastructure, and hydrology features

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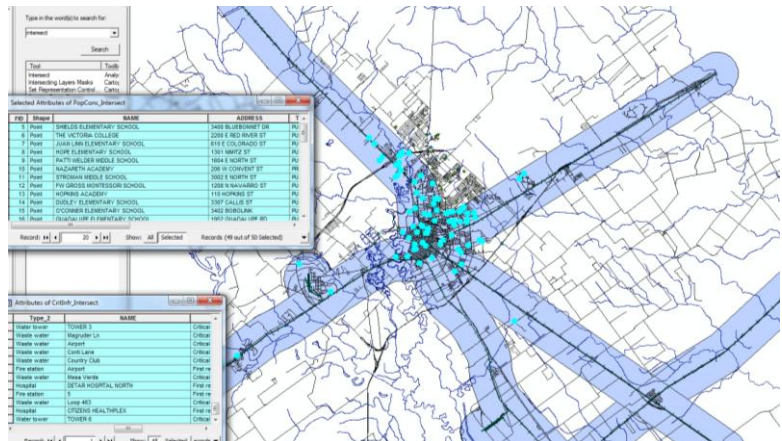
are more at risk than others. These graphs show all the population concentrations and critical infrastructure that had at least one or more occurrence within a hazard's buffer. The facilities that were not found to be at risk by any hazard buffer were not included. The population concentration graph showed Hope Elementary School with eight occurrences within a hazard buffer making it the highest risk facility in the county. The critical infrastructure graph shows Water Tower #3, with six instances within a hazard buffer, as the highest risk critical infrastructure feature.





The final analysis, intended to identify features that could possibly be affected by the railroads throughout the county, resulted in inconclusive results. Since there could be a range of different chemicals being transferred via the railroads, the analysis must cover the fullest possible area that could be affected. Since the railroads run all throughout the county, a one mile buffer produces results that are not specific enough to be very meaningful.

Figure 8 shows that the one-mile buffer around the railroads nearly encompasses all the population



concentration and critical infrastructure features. While this does seem to mean something, the railroad must be divided into location-specific sections and then conduct the same analysis for each section of the railroad. With the railroad divided into location-specific sections, the analysis could then be more specific to the areas surrounding those sections and therefore the results more useful.

5. Discussion

STEP used network analysis to perform the *closest facility* function based on the assumption of the evacuation process. It is that people want to quickly get away from the chemical incident and towards safety thereby finding the closest shelter. The shorter the distance the quicker it is to get there. However the problem the closest shelter may not necessarily be out of harms way since there is a possibility that it does fall into the parameters of the chemical incident. STEP has already provided two shelters but those may still be in too close of a proximity thereby the population at risk could then search for the next best shelter by identifying the other 2 options designated for the original two options. This accumulates distance as one searches for other options based on the original 2 shelters STEP has advised (*figure 9*).

Evacuation Shelters & Routes



ID #	Population Concentrations	Primary Shelter	Route to Primary	Secondary Shelter	Route to Secondary
SCHOOLS					
1	ALOE ELEMENTARY SCHOOL	Nazareth Academy	1-A	De Leon Plaza	1-B
2	CADE MIDDLE SCHOOL	Victoria West High School	2-A	Victoria Mall	2-B
3	CHANDLER ELEMENTARY SCHOOL	Ted B. Reed Park	3-A	Greenbelt Park	3-B
4	DE LEON ELEMENTARY SCHOOL	Victoria East High School	4-A	Rowland Elementary School	4-B
5	DUDLEY ELEMENTARY SCHOOL	Martin Luther King, Jr. Park	5-A	Victoria Community Center Park	5-B
6	FAITH ACADEMY	Howell Middle School	6-A	Greenbelt Park	6-B
7	FW GROSS MONTESSORI SCHOOL	Hopkins Academy	7-A	Nazareth Academy	7-B
8	GUADALUPE ELEMENTARY SCHOOL	Martin Luther King, Jr. Park	8-A	Dudely Elementary School	8-B
9	HOPE ELEMENTARY SCHOOL	Patti Welder Middle School	9-A	Profit High School	9-B
10	HOPKINS ACADEMY	Hopkins Park	10-A	Brownson Park	10-B
11	HOWELL MIDDLE SCHOOL	Faith Academy	11-A	Rowland Elementary School	11-B
12	JUAN LINN ELEMENTARY SCHOOL	Queen City Park	12-A	St. Joseph's High School	12-B
13	MISSION VALLEY ELEMENTARY SCHOOL	Victoria West High School	13-A	Cade Middle School	13-B

Fig. 9) If Nazareth Academy and De Leon Elementary are not suitable to serve as shelters for Aloe Elementary School based on distance than find De Leon Elementary (#4) and use those designated shelters.

There were original 16 locational data layers that were consolidated into 4 data layers based on its attributes of being a shelter, population concentration, critical infrastructure, and first responder. Most of the 16 data layers has more than one attributes such as schools and hospitals. Schools serve as population concentration as well as shelter and hospitals serve as first responder, population concentration, and shelter. In the *closest facility* function, each school and hospital, which are both shelters and population concentrations, become their own shelters as the first option since they are closest because they are at the exact location meaning 0.0 miles. STEP acknowledges this problem by finding 3 closest facility instead of 2. For those who serve as both population concentration and shelter, the first one was discarded since they were serving as their own shelter and for those who did not, the 3rd one was discarded because it was the farthest distance.

The objective of this particular analysis is one that can be used for areas of heavy population all over the world. GIS provides an optimal platform for solving spatial problems such as evacuation routes. Creating evacuation routes involves points, such as facility locations, and lines, such as roads, used in finding the shortest path between these points. Points, lines, and polygons, also called vector data, are the best form of data to be used in conjunction with GIS. Points, lines, and polygons are absolute features that are easy to visualize. Most importantly, vector data within a GIS database can be easily updated and maintained, giving the database the ability to be used continually over a long period of time.

Maintaining a GIS database brings up an important limitation to the findings and results of this analysis, that above all must first be mentioned. A database must be updated and maintained to be consistent with the real-world features that it represents. As city features change, businesses open and close and new roads are created, the validity of these results will, at some point, become outdated without database maintenance. As new city and county features are created, or old features removed, the database used in this analysis must be updated with this information to ensure up-to-date and accurate results.

STEP chose to use all the schools, parks, and the mall as suitable candidates to be declared shelters to be used in the case of an evacuation. Many of these shelter facilities are undoubtedly relatively close to the population concentrations that will need to be evacuated. As part of our analysis, STEP's objective was to find the two closest shelters to each population concentration at risk. With this in mind, there were instances where the first or sometimes both of the resulting closest shelters to these concentrations were at a minimal distance from the population concentrations. The intention of listing the second closest shelter was to avoid using a

shelter too close and to provide more evacuation options. There may be a case of an incident that requires a concentration to evacuate further away than the listed shelters in the table provided. By providing the table that lists all the concentrations and their respective two shelters, STEP hopes that in such a case the concentration that needs to evacuate further can use the table as reference for other possible shelters to use. This issue could possibly be resolved by establishing a default distance requirement of the shelter used in the analysis of establishing primary and secondary shelters for the population concentrations.

Another point to mention concerning the shelters listed for the population concentrations is the issue of primary and secondary shelter repeats. Many concentrations are located very close together and therefore share the same evacuation shelter, or both shelters. For example, many of the special needs facilities are located quite close together and are therefore resulting in the same two shelters through this analysis. Again, the intention of including two shelters in the analysis was to attempt to avoid this issue. As before, STEP hopes that the table may help in providing more shelter options. Also, the table could be used to show where the other concentrations may be evacuating and therefore cause more communication among those evacuating and ensure that everyone is not evacuating to the same location.

The hydrology shapefile provided by the City of Victoria GIS department to be used in this analysis is a fragmented shapefile. The hydrology shapefile was used in the analysis of identifying which of its features fell within a hazard site's buffer area at risk. There are many instances when selecting the hydrology within the hazard site's buffer when the name of the hydrology feature should be listed but instead is not provided. Although there are many features that are named, it is too difficult to connect the named features with the unnamed. It would also

be inconsistent to assume their connectivity. For this reason the results for hydrology at risk listed the supplemental table “Features At Risk By Hazard Site” cannot be relied on to be complete or fully accurate. The hydrology features that were indeed named and fell within a site’s individual buffer were included in the table as a feature at risk. If indeed there is an instance of a hazard risk, the hydrological features that are possibly at risk should be researched further beyond what is listed in our table.

STEP did include the railroads throughout the county in the buffer analysis of identifying the features that it may affect in an incident. The results were inconclusive due to the lack of a unique identifier for each segment of the railroad. For example, the Union Pacific Railroad is the only railroad found within Victoria County with the exception of the Texmex Railroad. Since the Union Pacific Railroad runs all through the county, it would need some sort of unique location identifier for a specific section of railroad within the county in order for an analysis to produce any meaningful results. Without the railroad in sections it becomes too difficult to establish which features are affected at the exact point of an incident. Therefore, to say there is a hazardous incident on the Union Pacific Railroad without some specific location section could mean that the incident could be anywhere on the railroad within the county. To be able to establish what population concentrations, critical infrastructure, and hydrological features that could be affected by an incident on the railroad by a buffer analysis, the railroad must be sectioned off and given specific identification. If the railroad was indeed sectioned off by unique locations, then a buffer analysis could be done for each section to determine features at risk by an incident at that section.

Although there are some issues with the limitations of the results from our analysis, there are still meaningful uses and knowledge to be gained from the results. The products created in this analysis may be used as an aid in the emergency procedures in the occurrence of a hazardous incident. By supplying the supplemental tables to the population concentrations and first responders, the use of these tables can save time and facilitate organized communication and planning. The population concentrations will know where to go, how to get there, and if any other facilities needing to evacuate may be planning to go to the same shelter, in which case they could consider evacuating to their secondary shelter. The first responders can use the information provided in both supplemental tables. The first table can be used to facilitate communication between them and the population concentrations to make a predictable and smooth evacuation. The first responders can use the results in the second table, and graphs created from that table, in the planning and protection of the facilities that are more at risk than others. With this information, special attention can be given to those areas that are more at risk with respect to preparation. A graph for the critical infrastructure could be beneficial in providing information on the features that are at risk and could use more protection from hazard incidents.

If there were more time allocated to this project analysis, STEP would have liked to identify all the features that may be affected in the case of a hazardous incident on the railways and main hazmat routes. Transportation of hazardous material may be an instance of increased probability of an incident. Knowledge of what could possibly be affected by these areas could be just important as the risk posed by just the stationary hazard sites.

6. Conclusion

Beyond just the technical aspect of GIS, there is more involved in a GIS project that we would have never considered. The majority of time spent in completing a GIS project involves a great deal of communication between the client and the analyst about what exactly is needed out of the final product. Additionally, once the final product is agreed upon, the data that is needed to complete the project has to be located. From all of our previous experiences with GIS being from labs associated with class work, the work involved in understanding what is needed out of the project, as well as gathering the data needed to complete it, was the most challenging aspect of the project. Although it was a very challenging project, we have learned a great deal about all the various tasks required in completing a real-world GIS project.

Working with a real-world scenario has been a very educating and rewarding experience. Each of us has gained the necessary tools to carry out accurate GIS analysis and the project has heightened our critical-thinking skills. Knowing that our work could possibly save lives, it was crucial that our analysis be as accurate as possible. Once the tables were completed, STEP began to really see how our hard work had paid off. Victoria County we feel will be impressed with our diligent work. We have high hopes that the project will continue to be updated and that some of our limitations will be assessed and possibly taken on by another group in the future. The railroad analysis has been started and there is a definitely a basic structure of methodology for further analysis. If there are identifiers for railroad locations within a rail network these would be a highly beneficial dataset to obtain to further the emergency management planning efforts for the LEPC. It is these sorts of ideas and concepts that have opened our eyes to how powerful a GIS can be, especially in the case of emergency management planning.

7. References

- Bourdeau, P., and Green, G. 1989. Disaster Emergency Planning. In: *Methods for Assessing and Reducing Injury from Chemical Accidents*, H. Falk, P. Kulling, A. Levine and J. McQuaid. John Wiley & Sons, New York, pp 75-81.
- Cova, T.J. 1999. GIS in Emergency Management. In: *Geographical Information Systems: Principles, Techniques, Applications, and Management*, P.A. Longley, M.F. Goodchild, D.J. Maguire, D.W. Rhind (eds.), John Wiley & Sons, New York, pp. 845-858.
- Cova, T.J., and Church, R.L. 1997. Modeling Community Evacuation Vulnerability Using GIS. *International Journal of Geographical Information Science*, 11(8): 763-784.

Appendix I. Metadata

CritInfr

Identification_Information:

Citation:

Citation_Information:

Originator: STEP

Publication_Date: 12/13/2010

Title:

CritInfr

Geospatial_Data_Presentation_Form: vector digital data

Online_Linkage: <\\GEO-311360\E\ROOT\FOLDER\JustinGISmaps\VictoriaCountyGISDATA\CritInfr.shp>

Description:

Abstract:

This layer is critical infrastructure data merged together. The layer includes fire stations, police stations, hospitals, water wells, waste water and water plants.

Purpose:

To enable analysis of vulnerable areas within a certain distance from chemical sites.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 09/08/2010

Ending_Date: 12/13/2010

Currentness_Reference:

publication date

Status:

Progress: Complete

Maintenance_and_Update_Frequency: Unknown

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -97.146628

East_Bounding_Coordinate: -96.922915

North_Bounding_Coordinate: 28.876941

South_Bounding_Coordinate: 28.723228

Keywords:

Theme:

Access_Constraints: This data layer is intended for the use of STEP. STEP will not be held liable for any other use of this data layer. The information is now in the hands of the LEPC and they are to use the data as they please.

Use_Constraints:

This data layer is intended for the use of STEP. STEP will not be held liable for any other use of this data layer. The information is now in the hands of the LEPC and they are to use the data as they please.

Point_of_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: Alberto Giordano
Contact_Organization: Texas State University
Contact_Position: Professor
Contact_Electronic_Mail_Address: a.giordano@txstate.edu
Data_Set_Credit:
STEP
Native_Data_Set_Environment:
Microsoft Windows Vista Version 6.1 (Build 7600) ; ESRI ArcCatalog 9.3.1.3500

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Data_Quality_Information:
Completeness_Report:
The data is as complete as it was when handed over by the Victoria GIS department and the Victoria County LEPC.
Lineage:
Process_Step:
Process_Description:
Critical infrastructure was merged together using ArcGIS

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Spatial_Data_Organization_Information:
Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Entity point
Point_and_Vector_Object_Count: 49

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Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Map_Projection:
Map_Projection_Name: Lambert Conformal Conic
Lambert_Conformal_Conic:
Standard_Parallel: 28.383333
Standard_Parallel: 30.283333
Longitude_of_Central_Meridian: -99.000000
Latitude_of_Projection_Origin: 27.833333
False_Easting: 1968500.000000
False_Northing: 13123333.333333
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: coordinate pair
Coordinate_Representation:

Chemical Hazard Procedures and Planning for Victoria County LEPC

Abscissa_Resolution: 0.000000
Ordinate_Resolution: 0.000000
Planar_Distance_Units: survey feet
Geodetic_Model:
Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodetic Reference System 80
Semi-major_Axis: 6378137.000000
Denominator_of_Flattening_Ratio: 298.257222

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Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: CritInfr

Attribute:

Attribute_Label: FID

Attribute_Definition:

Internal feature number.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute_Label: Shape

Attribute_Definition:

Feature geometry.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Coordinates defining the features.

Attribute:

Attribute_Label: Status

Attribute:

Attribute_Label: Score

Attribute:

Attribute_Label: Match_type

Attribute:

Attribute_Label: Side

Attribute:

Attribute_Label: Match_addr

Attribute:

Attribute_Label: ARC_Street

Attribute:

Attribute_Label: ADDRESS

Attribute:
Attribute_Label: Type_2
Attribute:
Attribute_Label: NAME
Attribute:
Attribute_Label: Evac_Type
Attribute:
Attribute_Label: Id

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Distribution_Information:
Resource_Description: Downloadable Data
Standard_Order_Process:
Digital_Form:
Digital_Transfer_Information:
Transfer_Size: 0.001

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Metadata_Reference_Information:
Metadata_Date: 20101208
Metadata_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Texas State University
Contact_Person: STEP c/o Alberto Giordano
Contact_Position: Geography Department
Contact_Address:
Address_Type: physical address
Address:
601 N. University Dr.
City: San Marcos
State_or_Province: TX
Postal_Code: 78666
Contact_Voice_Telephone: 512-245-2170
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998
Metadata_Time_Convention: local time
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile

Daycare_Mall

Identification_Information:

Citation:

Citation_Information:

Originator: STEP

Publication_Date: 12/13/2010

Title:

Daycare_Mall

Geospatial_Data_Presentation_Form: vector digital data

Online_Linkage: [\\GEO-311360\E\ROOT](#)

[FOLDER\JustinGISmaps\VictoriaCountyGISDATA\Daycare_Mall.shp](#)

Description:

Abstract:

This layer was created and converted from a KMZ file that was given to STEP by the Victoria County LEPC. It represents the daycares in Victoria County.

Purpose:

To enable analysis of vulnerable areas within a certain distance from chemical sites.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 09/08/2010

Ending_Date: 12/13/2010

Currentness_Reference:

publication date

Status:

Progress: Complete

Maintenance_and_Update_Frequency: Unknown

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -97.022966

East_Bounding_Coordinate: -96.959895

North_Bounding_Coordinate: 28.861793

South_Bounding_Coordinate: 28.791128

Keywords:

Theme:

Theme_Keyword_Thesaurus: REQUIRED: Reference to a formally registered thesaurus or a

Access_Constraints: This data layer is intended for the use of STEP. STEP will not be held liable for any other use of this data layer. The information is now in the hands of the LEPC and they are to use the data as they please.

Use_Constraints:

This data layer is intended for the use of STEP. STEP will not be held liable for any other use of this data layer. The information is now in the hands of the LEPC and they are to use the data as they please.

Point_of_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: Alberto Giordano
Contact_Organization: Texas State University
Contact_Position: Professor
Contact_Electronic_Mail_Address: a.giordano@txstate.edu
Native_Data_Set_Environment:
Microsoft Windows Vista Version 6.1 (Build 7600) ; ESRI ArcCatalog 9.3.1.3500

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Data_Quality_Information:
Completeness_Report:
The data is as complete as it was when handed over by the Victoria GIS department and the Victoria County LEPC.
Lineage:
Process_Step:
Process_Description:
Converted from KMZ file to GIS shapefile
Process_Step:
Process_Description:
Dataset moved.
Source_Used_Citation_Abbreviation:
F:\ROOT FOLDER\JustinGISmaps\VictoriaCountyGISDATA\Daycare_Mall
Process_Date: 20101206
Process_Time: 11144300
Process_Step:
Process_Description:
Dataset moved.
Source_Used_Citation_Abbreviation:
F:\ROOT FOLDER\Employment\Daycare_Mall
Process_Date: 20101206
Process_Time: 11171300

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Spatial_Data_Organization_Information:
Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Entity point
Point_and_Vector_Object_Count: 14

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Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:

Chemical Hazard Procedures and Planning for Victoria County LEPC

Map_Projection:
Map_Projection_Name: Lambert Conformal Conic
Lambert_Conformal_Conic:
Standard_Parallel: 28.383333
Standard_Parallel: 30.283333
Longitude_of_Central_Meridian: -99.000000
Latitude_of_Projection_Origin: 27.833333
False_Easting: 1968500.000000
False_Northing: 13123333.333333
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: coordinate pair
Coordinate_Representation:
Abscissa_Resolution: 0.000000
Ordinate_Resolution: 0.000000
Planar_Distance_Units: survey feet
Geodetic_Model:
Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodetic Reference System 80
Semi-major_Axis: 6378137.000000
Denominator_of_Flattening_Ratio: 298.257222

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Entity_and_Attribute_Information:
Detailed_Description:
Entity_Type:
Entity_Type_Label: Daycare_Mall
Attribute:
Attribute_Label: FID
Attribute_Definition:
Internal feature number.
Attribute_Definition_Source:
ESRI
Attribute_Domain_Values:
Unrepresentable_Domain:
Sequential unique whole numbers that are automatically generated.
Attribute:
Attribute_Label: Shape
Attribute_Definition:
Feature geometry.
Attribute_Definition_Source:
ESRI
Attribute_Domain_Values:
Unrepresentable_Domain:
Coordinates defining the features.
Attribute:
Attribute_Label: Status

Attribute:
Attribute_Label: Score
Attribute:
Attribute_Label: Match_type
Attribute:
Attribute_Label: Side
Attribute:
Attribute_Label: Match_addr
Attribute:
Attribute_Label: ARC_Street
Attribute:
Attribute_Label: Name
Attribute:
Attribute_Label: Address
Attribute:
Attribute_Label: Evac_Type

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Distribution_Information:
Resource_Description: Downloadable Data
Standard_Order_Process:
Digital_Form:
Digital_Transfer_Information:
Transfer_Size: 0.000

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Metadata_Reference_Information:
Metadata_Date: 20101208
Metadata_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Texas State University
Contact_Person: STEP c/o Alberto Giordano
Contact_Address:
Address_Type: physical address
Address:
610 N. University Dr.
City: San Marcos
State_or_Province: TX
Postal_Code: 78666
Contact_Voice_Telephone: 512-245-2170
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998
Metadata_Time_Convention: local time
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>

Chemical Hazard Procedures and Planning for Victoria County LEPC

Firstresp

Identification_Information:

Citation:

Citation_Information:

Originator: STEP

Publication_Date: 12/13/2010

Title:

Firstresp

Geospatial_Data_Presentation_Form: vector digital data

Online_Linkage: [\\GEO-311360\E\ROOT](#)

[FOLDER\JustinGISmaps\VictoriaCountyGISDATA\Firstresp.shp](#)

Description:

Abstract:

This layer is first responder data merged together. The layer includes fire stations, police stations and hospitals.

Purpose:

To enable analysis of vulnerable areas within a certain distance from chemical sites.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 09/08/2010

Ending_Date: 12/13/2010

Currentness_Reference:

publication date

Status:

Progress: Complete

Maintenance_and_Update_Frequency: Unknown

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -97.020796

East_Bounding_Coordinate: -96.923089

North_Bounding_Coordinate: 28.866515

South_Bounding_Coordinate: 28.795944

Keywords:

Theme:

Access_Constraints: This data layer is intended for the use of STEP. STEP will not be held liable for any other use of this data layer. The information is now in the hands of the LEPC and they are to use the data as they please.

Use_Constraints:

This data layer is intended for the use of STEP. STEP will not be held liable for any other use of this data layer. The information is now in the hands of the LEPC and they are to use the data as they please.

Point_of_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Alberto Giordano

Contact_Organization: Texas State University

Contact_Position: Professor

Contact_Electronic_Mail_Address: a.giordano@txstate.edu

Native_Data_Set_Environment:

Microsoft Windows Vista Version 6.1 (Build 7600) ; ESRI ArcCatalog 9.3.1.3500

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Data_Quality_Information:

Completeness_Report:

The data is as complete as it was when handed over by the Victoria GIS department and the Victoria County LEPC.

Lineage:

Process_Step:

Process_Description:

Fire station, police station and hospital data was merged together using ArcGIS

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Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector

Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Entity point

Point_and_Vector_Object_Count: 13

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Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Planar:

Map_Projection:

Map_Projection_Name: Lambert Conformal Conic

Lambert_Conformal_Conic:

Standard_Parallel: 28.383333

Standard_Parallel: 30.283333

Longitude_of_Central_Meridian: -99.000000

Latitude_of_Projection_Origin: 27.833333

False_Easting: 1968500.000000

False_Northing: 13123333.333333

Planar_Coordinate_Information:

Planar_Coordinate_Encoding_Method: coordinate pair

Coordinate_Representation:

Abscissa_Resolution: 0.000000

Ordinate_Resolution: 0.000000

Planar_Distance_Units: survey feet

Geodetic_Model:

Chemical Hazard Procedures and Planning for Victoria County LEPC

Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodetic Reference System 80
Semi-major_Axis: 6378137.000000
Denominator_of_Flattening_Ratio: 298.257222

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Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: Firstresp

Attribute:

Attribute_Label: FID

Attribute_Definition:

Internal feature number.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute_Label: Shape

Attribute_Definition:

Feature geometry.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Coordinates defining the features.

Attribute:

Attribute_Label: Id

Attribute:

Attribute_Label: ADDRESS

Attribute:

Attribute_Label: Type_2

Attribute:

Attribute_Label: NAME

Attribute:

Attribute_Label: Evac_Type

Attribute:

Attribute_Label: Status

Attribute:

Attribute_Label: Score

Attribute:

Attribute_Label: Match_type

Attribute:

Attribute_Label: Side

Attribute:
Attribute_Label: Match_addr
Attribute:
Attribute_Label: ARC_Street

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Distribution_Information:
Resource_Description: Downloadable Data
Standard_Order_Process:
Digital_Form:
Digital_Transfer_Information:
Transfer_Size: 0.000

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Metadata_Reference_Information:
Metadata_Date: 20101208
Metadata_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Texas State University
Contact_Person: STEP c/o Alberto Giordano
Contact_Address:
Address_Type: physical address
Address:
601 N. University Dr.
City: San Marcos
State_or_Province: TX
Postal_Code: 78666
Contact_Voice_Telephone: 512-245-2170
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998
Metadata_Time_Convention: local time
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile

Mall

Identification_Information:

Citation:

Citation_Information:

Originator: STEP

Publication_Date: 12/13/2010

Title:

Mall

Geospatial_Data_Presentation_Form: vector digital data

Online_Linkage: [\\GEO-311360\E\ROOT](#)

[FOLDER\JustinGISmaps\VictoriaCountyGISDATA\Mall.shp](#)

Description:

Abstract:

This layer was created and converted from a KMZ file that was given to STEP by the Victoria County LEPC. It represents the malls in Victoria County.

Purpose:

To enable analysis of vulnerable areas within a certain distance from chemical sites.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 09/08/2010

Ending_Date: 12/13/2010

Currentness_Reference:

publication date

Status:

Progress: Complete

Maintenance_and_Update_Frequency: Unknown

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -96.997405

East_Bounding_Coordinate: -96.997405

North_Bounding_Coordinate: 28.867691

South_Bounding_Coordinate: 28.867691

Keywords:

Theme:

Access_Constraints: This data layer is intended for the use of STEP. STEP will not be held liable for any other use of this data layer. The information is now in the hands of the LEPC and they are to use the data as they please.

Use_Constraints:

This data layer is intended for the use of STEP. STEP will not be held liable for any other use of this data layer. The information is now in the hands of the LEPC and they are to use the data as they please.

Point_of_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Alberto Giordano

Contact_Organization: Texas State University

Contact_Position: Professor

Contact_Electronic_Mail_Address: a.giordano@txstate.edu

Native_Data_Set_Environment:

Microsoft Windows Vista Version 6.1 (Build 7600) ; ESRI ArcCatalog 9.3.1.3500

[Back to Top](#)

Data_Quality_Information:

Completeness_Report:

The data is as complete as it was when handed over by the Victoria GIS department and the Victoria County LEPC.

Lineage:

Process_Step:

Process_Description:

Converted from KMZ file to GIS shapefile

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Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector

Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Entity point

Point_and_Vector_Object_Count: 1

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Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Planar:

Map_Projection:

Map_Projection_Name: Lambert Conformal Conic

Lambert_Conformal_Conic:

Standard_Parallel: 28.383333

Standard_Parallel: 30.283333

Longitude_of_Central_Meridian: -99.000000

Latitude_of_Projection_Origin: 27.833333

False_Easting: 1968500.000000

False_Northing: 13123333.333333

Planar_Coordinate_Information:

Planar_Coordinate_Encoding_Method: coordinate pair

Coordinate_Representation:

Abscissa_Resolution: 0.000000

Ordinate_Resolution: 0.000000

Planar_Distance_Units: survey feet

Geodetic_Model:

Chemical Hazard Procedures and Planning for Victoria County LEPC

Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodetic Reference System 80
Semi-major_Axis: 6378137.000000
Denominator_of_Flattening_Ratio: 298.257222

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Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: Mall

Attribute:

Attribute_Label: FID

Attribute_Definition:

Internal feature number.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute_Label: Shape

Attribute_Definition:

Feature geometry.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Coordinates defining the features.

Attribute:

Attribute_Label: Status

Attribute:

Attribute_Label: Score

Attribute:

Attribute_Label: Match_type

Attribute:

Attribute_Label: Side

Attribute:

Attribute_Label: Match_addr

Attribute:

Attribute_Label: ARC_Street

Attribute:

Attribute_Label: Name

Attribute:

Attribute_Label: Address

Attribute:

Attribute_Label: Evac_Type

[Back to Top](#)

Distribution_Information:

Resource_Description: Downloadable Data

Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:

Transfer_Size: 0.000

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Metadata_Reference_Information:

Metadata_Date: 20101208

Metadata_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: Texas State University

Contact_Person: STEP c/o Alberto Giordano

Contact_Address:

Address_Type: physical address

Address:

610 N. University Dr.

City: San Marcos

State_or_Province: TX

Postal_Code: 78666

Contact_Voice_Telephone: 512-245-2170

Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata

Metadata_Standard_Version: FGDC-STD-001-1998

Metadata_Time_Convention: local time

Metadata_Extensions:

Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>

Profile_Name: ESRI Metadata Profile

PopConc

Identification_Information:

Citation:

Citation_Information:

Originator: STEP

Publication_Date: 12/13/2010

Title:

PopConc

Geospatial_Data_Presentation_Form: vector digital data

Online_Linkage: [\\GEO-311360\E\ROOT](#)

[FOLDER\JustinGISmaps\VictoriaCountyGISDATA\PopConc.shp](#)

Description:

Abstract:

This layer shows the population concentrations of Victoria County. This data rereferences to hospitals, schools, special needs facilities and daycare.

Purpose:

To enable network analysis of population concentrations and shelters.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 09/08/2010

Ending_Date: 12/13/2010

Currentness_Reference:

publication date

Status:

Progress: Complete

Maintenance_and_Update_Frequency: Unknown

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -97.193512

East_Bounding_Coordinate: -96.814351

North_Bounding_Coordinate: 28.898806

South_Bounding_Coordinate: 28.717159

Keywords:

Theme:

Access_Constraints: This data layer is intended for the use of STEP. STEP will not be held liable for any other use of this data layer. The information is now in the hands of the LEPC and they are to use the data as they please.

Use_Constraints:

This data layer is intended for the use of STEP. STEP will not be held liable for any other use of this data layer. The information is now in the hands of the LEPC and they are to use the data as they please.

Point_of_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Alberto Giordano

Contact_Organization: Texas State University

Contact_Position: Professor

Contact_Electronic_Mail_Address: a.giordano@txstate.edu

Native_Data_Set_Environment:

Microsoft Windows Vista Version 6.1 (Build 7600) ; ESRI ArcCatalog 9.3.1.3500

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Data_Quality_Information:

Completeness_Report:

The data is as complete as it was when handed over by the Victoria GIS department and the Victoria County LEPC.

Lineage:

Process_Step:

Process_Description:

Data was merged together using ArcGIS

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Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector

Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Entity point

Point_and_Vector_Object_Count: 67

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Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Planar:

Map_Projection:

Map_Projection_Name: Lambert Conformal Conic

Lambert_Conformal_Conic:

Standard_Parallel: 28.383333

Standard_Parallel: 30.283333

Longitude_of_Central_Meridian: -99.000000

Latitude_of_Projection_Origin: 27.833333

False_Easting: 1968500.000000

False_Northing: 13123333.333333

Planar_Coordinate_Information:

Planar_Coordinate_Encoding_Method: coordinate pair

Coordinate_Representation:

Abscissa_Resolution: 0.000000

Ordinate_Resolution: 0.000000

Planar_Distance_Units: survey feet

Geodetic_Model:

Chemical Hazard Procedures and Planning for Victoria County LEPC

Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodetic Reference System 80
Semi-major_Axis: 6378137.000000
Denominator_of_Flattening_Ratio: 298.257222

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Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: PopConc

Attribute:

Attribute_Label: FID

Attribute_Definition:

Internal feature number.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute_Label: Shape

Attribute_Definition:

Feature geometry.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Coordinates defining the features.

Attribute:

Attribute_Label: NAME

Attribute:

Attribute_Label: ADDRESS

Attribute:

Attribute_Label: TYPE

Attribute:

Attribute_Label: LEVEL_

Attribute:

Attribute_Label: Evac_Type

Attribute:

Attribute_Label: TYPE_2

Attribute:

Attribute_Label: Status

Attribute:

Attribute_Label: Score

Attribute:

Attribute_Label: Match_type

Attribute:
Attribute_Label: Side
Attribute:
Attribute_Label: Match_addr
Attribute:
Attribute_Label: ARC_Street

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Distribution_Information:
Resource_Description: Downloadable Data
Standard_Order_Process:
Digital_Form:
Digital_Transfer_Information:
Transfer_Size: 0.002

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Metadata_Reference_Information:
Metadata_Date: 20101208
Metadata_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Texas State University
Contact_Person: STEP c/o Alberto Giordano
Contact_Address:
Address_Type: physical address
Address:
601 N. University Dr.
City: San Marcos
State_or_Province: TX
Postal_Code: 78666
Contact_Voice_Telephone: 512-245-2170
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998
Metadata_Time_Convention: local time
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile

Railroads_Merge

Identification_Information:

Citation:

Citation_Information:

Originator: STEP

Publication_Date: 12/13/2010

Title:

Railroads_Merge

Geospatial_Data_Presentation_Form: vector digital data

Online_Linkage: [\\GEO-311360\E\ROOT](#)

[FOLDER\JustinGISmaps\VictoriaCountyGISDATA\Railroads_Merge.shp](#)

Description:

Abstract:

This layer is a merge of all the railroad shapefiles that was given to us by the Victoria GIS department.

Purpose:

To be able to employ a buffer around the railroads.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 09/08/2010

Ending_Date: 12/13/2010

Currentness_Reference:

publication date

Status:

Progress: Complete

Maintenance_and_Update_Frequency: Unknown

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -97.173022

East_Bounding_Coordinate: -96.694999

North_Bounding_Coordinate: 28.979527

South_Bounding_Coordinate: 28.526107

Keywords:

Theme:

Access_Constraints: This data layer is intended for the use of STEP. STEP will not be held liable for any other use of this data layer. The information is now in the hands of the LEPC and they are to use the data as they please.

Use_Constraints:

This data layer is intended for the use of STEP. STEP will not be held liable for any other use of this data layer. The information is now in the hands of the LEPC and they are to use the data as they please.

Native_Data_Set_Environment:

Microsoft Windows Vista Version 6.1 (Build 7600) ; ESRI ArcCatalog 9.3.1.3500

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Data_Quality_Information:

Lineage:

Process_Step:

Process_Description:

Railroad table merged together in ArcGIS

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Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector

Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: String

Point_and_Vector_Object_Count: 47

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Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Planar:

Map_Projection:

Map_Projection_Name: Lambert Conformal Conic

Lambert_Conformal_Conic:

Standard_Parallel: 28.383333

Standard_Parallel: 30.283333

Longitude_of_Central_Meridian: -99.000000

Latitude_of_Projection_Origin: 27.833333

False_Easting: 1968500.000000

False_Northing: 13123333.333333

Planar_Coordinate_Information:

Planar_Coordinate_Encoding_Method: coordinate pair

Coordinate_Representation:

Abscissa_Resolution: 0.000000

Ordinate_Resolution: 0.000000

Planar_Distance_Units: survey feet

Geodetic_Model:

Horizontal_Datum_Name: North American Datum of 1983

Ellipsoid_Name: Geodetic Reference System 80

Semi-major_Axis: 6378137.000000

Denominator_of_Flattening_Ratio: 298.257222

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Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: Railroads_Merge

Chemical Hazard Procedures and Planning for Victoria County LEPC

Attribute:

Attribute_Label: FID

Attribute_Definition:

Internal feature number.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute_Label: Shape

Attribute_Definition:

Feature geometry.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Coordinates defining the features.

Attribute:

Attribute_Label: FEATURE

Attribute:

Attribute_Label: RR_NAME

Attribute:

Attribute_Label: SHAPE_len

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Distribution_Information:

Resource_Description: Downloadable Data

Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:

Transfer_Size: 0.199

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Metadata_Reference_Information:

Metadata_Date: 20101208

Metadata_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: Texas State University

Contact_Person: STEP c/o Alberto Giordano

Contact_Address:

Address_Type: physical address

Address:

601 N. University Dr.

City: San Marcos

Chemical Hazard Procedures and Planning for Victoria County LEPC

State_or_Province: TX

Postal_Code: 78666

Contact_Voice_Telephone: 512-245-2170

Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata

Metadata_Standard_Version: FGDC-STD-001-1998

Metadata_Time_Convention: local time

Metadata_Extensions:

Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>

Profile_Name: ESRI Metadata Profile

Railroads_Buffer

Identification_Information:

Citation:

Citation_Information:

Originator: STEP

Publication_Date: 12/13/2010

Title:

Railroads_Merge_Buffer

Geospatial_Data_Presentation_Form: vector digital data

Online_Linkage: [\\GEO-311360\E\ROOT](#)

[FOLDER\JustinGISmaps\VictoriaCountyGISDATA\Railroads_Merge_Buffer.shp](#)

Description:

Abstract:

This layer represents a one mile buffer around the railroad merge layer

Purpose:

To enable analysis of what critical infrastructure lies within one mile of the railroad merge layer

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 09/08/2010

Ending_Date: 12/13/2010

Currentness_Reference:

publication date

Status:

Progress: Complete

Maintenance_and_Update_Frequency: Unknown

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -97.189718

East_Bounding_Coordinate: -96.678160

North_Bounding_Coordinate: 28.994274

South_Bounding_Coordinate: 28.511302

Keywords:

Theme:

Access_Constraints: This data layer is intended for the use of STEP. STEP will not be held liable for any other use of this data layer. The information is now in the hands of the LEPC and they are to use the data as they please.

Use_Constraints:

This data layer is intended for the use of STEP. STEP will not be held liable for any other use of this data layer. The information is now in the hands of the LEPC and they are to use the data as they please.

Native_Data_Set_Environment:

Microsoft Windows Vista Version 6.1 (Build 7600) ; ESRI ArcCatalog 9.3.1.3500

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Data_Quality_Information:

Lineage:

Process_Step:

Process_Description:

Buffer was applied in ArcGIS to railroad merge layer

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Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector

Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: G-polygon

Point_and_Vector_Object_Count: 47

[Back to Top](#)

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Planar:

Map_Projection:

Map_Projection_Name: Lambert Conformal Conic

Lambert_Conformal_Conic:

Standard_Parallel: 28.383333

Standard_Parallel: 30.283333

Longitude_of_Central_Meridian: -99.000000

Latitude_of_Projection_Origin: 27.833333

False_Easting: 1968500.000000

False_Northing: 13123333.333333

Planar_Coordinate_Information:

Planar_Coordinate_Encoding_Method: coordinate pair

Coordinate_Representation:

Abscissa_Resolution: 0.000000

Ordinate_Resolution: 0.000000

Planar_Distance_Units: survey feet

Geodetic_Model:

Horizontal_Datum_Name: North American Datum of 1983

Ellipsoid_Name: Geodetic Reference System 80

Semi-major_Axis: 6378137.000000

Denominator_of_Flattening_Ratio: 298.257222

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Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: Railroads_Merge_Buffer

Chemical Hazard Procedures and Planning for Victoria County LEPC

Attribute:

Attribute_Label: FID

Attribute_Definition:

Internal feature number.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute_Label: Shape

Attribute_Definition:

Feature geometry.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Coordinates defining the features.

Attribute:

Attribute_Label: FEATURE

Attribute:

Attribute_Label: RR_NAME

Attribute:

Attribute_Label: SHAPE_len

Attribute:

Attribute_Label: BUFF_DIST

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Distribution_Information:

Resource_Description: Downloadable Data

Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:

Transfer_Size: 0.144

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Metadata_Reference_Information:

Metadata_Date: 20101208

Metadata_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: Texas State University

Contact_Person: STEP c/o Alberto Giordano

Contact_Address:

Address_Type: REQUIRED: The mailing and/or physical address for the organization or individual.

Chemical Hazard Procedures and Planning for Victoria County LEPC

City: REQUIRED: The city of the address.
State_or_Province: REQUIRED: The state or province of the address.
Postal_Code: REQUIRED: The ZIP or other postal code of the address.
Contact_Voice_Telephone: 512-245-2170
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998
Metadata_Time_Convention: local time
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile

Railroads_Intersect

Identification_Information:

Citation:

Citation_Information:

Originator: STEP

Publication_Date: 12/13/2010

Title:

Railroads_Merge_Intersect

Geospatial_Data_Presentation_Form: vector digital data

Online_Linkage: [\\GEO-311360\E\ROOT](#)

[FOLDER\JustinGISmaps\VictoriaCountyGISDATA\Railroads_Merge_Intersect.shp](#)

Description:

Abstract:

This layer intersects the critical infrastructure layer with the railroad buffer layer

Purpose:

To display what critical infrastructure lies within one mile of the railroad merge layer

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 09/08/2010

Ending_Date: 12/13/2010

Currentness_Reference:

publication date

Status:

Progress: Complete

Maintenance_and_Update_Frequency: Unknown

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate:

East_Bounding_Coordinate:

North_Bounding_Coordinate:

South_Bounding_Coordinate:

Keywords:

Theme:

Access_Constraints: This data layer is intended for the use of STEP. STEP will not be held liable for any other use of this data layer. The information is now in the hands of the LEPC and they are to use the data as they please.

Use_Constraints:

This data layer is intended for the use of STEP. STEP will not be held liable for any other use of this data layer. The information is now in the hands of the LEPC and they are to use the data as they please.

Native_Data_Set_Environment:

Microsoft Windows Vista Version 6.1 (Build 7600) ; ESRI ArcCatalog 9.3.1.3500

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Data_Quality_Information:

Lineage:

Process_Step:

Process_Description:

Railroad merge and critical infrastructure layer were intereseected in ArcGIS

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Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector

Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Entity point

Point_and_Vector_Object_Count: 0

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Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Planar:

Map_Projection:

Map_Projection_Name: Lambert Conformal Conic

Lambert_Conformal_Conic:

Standard_Parallel: 28.383333

Standard_Parallel: 30.283333

Longitude_of_Central_Meridian: -99.000000

Latitude_of_Projection_Origin: 27.833333

False_Easting: 1968500.000000

False_Northing: 13123333.333333

Planar_Coordinate_Information:

Planar_Coordinate_Encoding_Method: coordinate pair

Coordinate_Representation:

Abscissa_Resolution: 0.000000

Ordinate_Resolution: 0.000000

Planar_Distance_Units: survey feet

Geodetic_Model:

Horizontal_Datum_Name: North American Datum of 1983

Ellipsoid_Name: Geodetic Reference System 80

Semi-major_Axis: 6378137.000000

Denominator_of_Flattening_Ratio: 298.257222

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Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: Railroads_Merge_Intersect

Attribute:

Chemical Hazard Procedures and Planning for Victoria County LEPC

Attribute_Label: FID
Attribute_Definition:
Internal feature number.
Attribute_Definition_Source:
ESRI
Attribute_Domain_Values:
Unrepresentable_Domain:
Sequential unique whole numbers that are automatically generated.
Attribute:
Attribute_Label: Shape
Attribute_Definition:
Feature geometry.
Attribute_Definition_Source:
ESRI
Attribute_Domain_Values:
Unrepresentable_Domain:
Coordinates defining the features.
Attribute:
Attribute_Label: FID_Railro
Attribute:
Attribute_Label: FEATURE
Attribute:
Attribute_Label: RR_NAME
Attribute:
Attribute_Label: SHAPE_len
Attribute:
Attribute_Label: FID_PopCon
Attribute:
Attribute_Label: NAME
Attribute:
Attribute_Label: ADDRESS
Attribute:
Attribute_Label: TYPE
Attribute:
Attribute_Label: LEVEL_
Attribute:
Attribute_Label: Evac_Type
Attribute:
Attribute_Label: TYPE_2
Attribute:
Attribute_Label: Status
Attribute:
Attribute_Label: Score
Attribute:
Attribute_Label: Match_type
Attribute:

Attribute_Label: Side
Attribute:
Attribute_Label: Match_addr
Attribute:
Attribute_Label: ARC_Street

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Distribution_Information:

Resource_Description: Downloadable Data
Standard_Order_Process:
Digital_Form:
Digital_Transfer_Information:
Transfer_Size: 0.000

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Metadata_Reference_Information:

Metadata_Date: 20101208
Metadata_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Texas State University
Contact_Person: STEP c/o Alberto Giordano
Contact_Address:
Address_Type: physical address
Address:
601 N. University Dr.
City: San Marcos
State_or_Province: TX
Postal_Code: 78666
Contact_Voice_Telephone: 512-245-2170
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998
Metadata_Time_Convention: local time
Metadata_Extensions:
Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>
Profile_Name: ESRI Metadata Profile

Routes

Identification_Information:

Citation:

Citation_Information:

Originator: STEP

Publication_Date: 12/13/2010

Title:

Routes

Geospatial_Data_Presentation_Form: vector digital data

Online_Linkage: [\\GEO-311360\E\ROOT](#)

[FOLDER\JustinGISmaps\VictoriaCountyGISDATA\Routes.shp](#)

Description:

Abstract:

This data represents the closest shelter to population concentrations in Victoria County.

Purpose:

To enable network analysis for the County of Victoria and the Victorian County LEPC.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 09/08/2010

Ending_Date: 12/13/2010

Currentness_Reference:

publication date

Status:

Progress: Complete

Maintenance_and_Update_Frequency: Unknown

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -97.194353

East_Bounding_Coordinate: -96.813404

North_Bounding_Coordinate: 28.924310

South_Bounding_Coordinate: 28.714265

Keywords:

Theme:

Access_Constraints: This data layer is intended for the use of STEP. STEP will not be held liable for any other use of this data layer. The information is now in the hands of the LEPC and they are to use the data as they please.

Use_Constraints:

This data layer is intended for the use of STEP. STEP will not be held liable for any other use of this data layer. The information is now in the hands of the LEPC and they are to use the data as they please.

Native_Data_Set_Environment:

Microsoft Windows Vista Version 6.1 (Build 7600) ; ESRI ArcCatalog 9.3.1.3500

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Data_Quality_Information:

Completeness_Report:

The data is as complete as it was when handed over by the Victoria GIS department and the Victoria County LEPC.

Lineage:

Process_Step:

Process_Description:

This data was created using the network analysis tool. The closest facility function was employed to show the closest shelter for population concentrations.

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Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector

Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: String

Point_and_Vector_Object_Count: 201

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Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Planar:

Map_Projection:

Map_Projection_Name: Lambert Conformal Conic

Lambert_Conformal_Conic:

Standard_Parallel: 28.383333

Standard_Parallel: 30.283333

Longitude_of_Central_Meridian: -99.000000

Latitude_of_Projection_Origin: 27.833333

False_Easting: 1968500.000000

False_Northing: 13123333.333333

Planar_Coordinate_Information:

Planar_Coordinate_Encoding_Method: coordinate pair

Coordinate_Representation:

Abscissa_Resolution: 0.000000

Ordinate_Resolution: 0.000000

Planar_Distance_Units: survey feet

Geodetic_Model:

Horizontal_Datum_Name: North American Datum of 1983

Ellipsoid_Name: Geodetic Reference System 80

Semi-major_Axis: 6378137.000000

Denominator_of_Flattening_Ratio: 298.257222

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Entity_and_Attribute_Information:

Chemical Hazard Procedures and Planning for Victoria County LEPC

Detailed_Description:

Entity_Type:

Entity_Type_Label: Routes

Attribute:

Attribute_Label: FID

Attribute_Definition:

Internal feature number.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute_Label: Shape

Attribute_Definition:

Feature geometry.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Coordinates defining the features.

Attribute:

Attribute_Label: ObjectID

Attribute:

Attribute_Label: FacilityID

Attribute:

Attribute_Label: FacilityRa

Attribute:

Attribute_Label: Name

Attribute:

Attribute_Label: IncidentCu

Attribute:

Attribute_Label: FacilityCu

Attribute:

Attribute_Label: IncidentID

Attribute:

Attribute_Label: Total_Leng

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Distribution_Information:

Resource_Description: Downloadable Data

Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:

Transfer_Size: 0.776

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Chemical Hazard Procedures and Planning for Victoria County LEPC

Metadata_Reference_Information:

Metadata_Date: 20101208

Metadata_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: Texas State University

Contact_Person: STEP c/o Alberto Giordano

Contact_Position: Geography Department

Contact_Address:

Address_Type: physical address

Address:

601 University Dr.

City: San Marcos

State_or_Province: TX

Postal_Code: 78666

Contact_Voice_Telephone: 512-245-2170

Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata

Metadata_Standard_Version: FGDC-STD-001-1998

Metadata_Time_Convention: local time

Metadata_Extensions:

Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>

Profile_Name: ESRI Metadata Profile

Shelter

Identification_Information:

Citation:

Citation_Information:

Originator: STEP

Publication_Date: 12/13/2010

Title:

Shelter

Geospatial_Data_Presentation_Form: vector digital data

Online_Linkage: [\\GEO-311360\E\ROOT](#)

[FOLDER\JustinGISmaps\VictoriaCountyGISDATA\Shelter.shp](#)

Description:

Abstract:

This data layer represents the shelters for Victoria County. These include schools, malls and parks.

Purpose:

To enable network analysis of population concentrations and shelters.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 09/08/2010

Ending_Date: 12/13/2010

Currentness_Reference:

publication date

Status:

Progress: Complete

Maintenance_and_Update_Frequency: Unknown

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -97.193026

East_Bounding_Coordinate: -96.814351

North_Bounding_Coordinate: 28.898806

South_Bounding_Coordinate: 28.744898

Keywords:

Theme:

Access_Constraints: This data layer is intended for the use of STEP. STEP will not be held liable for any other use of this data layer. The information is now in the hands of the LEPC and they are to use the data as they please.

Use_Constraints:

This data layer is intended for the use of STEP. STEP will not be held liable for any other use of this data layer. The information is now in the hands of the LEPC and they are to use the data as they please.

Point_of_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Alberto Giordano

Contact_Organization: Texas State University

Contact_Position: Professor

Contact_Electronic_Mail_Address: a.giordano@txstate.edu

Native_Data_Set_Environment:

Microsoft Windows Vista Version 6.1 (Build 7600) ; ESRI ArcCatalog 9.3.1.3500

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Data_Quality_Information:

Completeness_Report:

The data is as complete as it was when handed over by the Victoria GIS department and the Victoria County LEPC.

Lineage:

Process_Step:

Process_Description:

Data was merged together using ArcGIS

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Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector

Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Entity point

Point_and_Vector_Object_Count: 51

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Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Planar:

Map_Projection:

Map_Projection_Name: Lambert Conformal Conic

Lambert_Conformal_Conic:

Standard_Parallel: 28.383333

Standard_Parallel: 30.283333

Longitude_of_Central_Meridian: -99.000000

Latitude_of_Projection_Origin: 27.833333

False_Easting: 1968500.000000

False_Northing: 13123333.333333

Planar_Coordinate_Information:

Planar_Coordinate_Encoding_Method: coordinate pair

Coordinate_Representation:

Abscissa_Resolution: 0.000000

Ordinate_Resolution: 0.000000

Planar_Distance_Units: survey feet

Geodetic_Model:

Chemical Hazard Procedures and Planning for Victoria County LEPC

Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodetic Reference System 80
Semi-major_Axis: 6378137.000000
Denominator_of_Flattening_Ratio: 298.257222

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Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: Shelter 8➔

Attribute:

Attribute_Label: FID

Attribute_Definition:

Internal feature number.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute_Label: Shape

Attribute_Definition:

Feature geometry.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Coordinates defining the features.

Attribute:

Attribute_Label: NAME

Attribute:

Attribute_Label: ADDRESS

Attribute:

Attribute_Label: TYPE

Attribute:

Attribute_Label: LEVEL_

Attribute:

Attribute_Label: Evac_Type

Attribute:

Attribute_Label: TYPE_2

Attribute:

Attribute_Label: Status

Attribute:

Attribute_Label: Score

Attribute:

Attribute_Label: Match_type

Attribute:
Attribute_Label: Side
Attribute:
Attribute_Label: Match_addr
Attribute:
Attribute_Label: ARC_Street
Attribute:
Attribute_Label: Website
Attribute:
Attribute_Label: SHAPE_area
Attribute_Definition:
Area of feature in internal units squared.
Attribute_Definition_Source:
ESRI
Attribute_Domain_Values:
Unrepresentable_Domain:
Positive real numbers that are automatically generated.
Attribute:
Attribute_Label: SHAPE_len

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Distribution_Information:
Resource_Description: Downloadable Data
Standard_Order_Process:
Digital_Form:
Digital_Transfer_Information:
Transfer_Size: 0.001

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Metadata_Reference_Information:
Metadata_Date: 20101213
Metadata_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: Texas State University
Contact_Person: STEP c/o Alberto Giordano
Contact_Address:
Address_Type: physical address
Address:
601 N. University Dr.
City: San Marcos
State_or_Province: TX
Postal_Code: 78666
Contact_Voice_Telephone: 512-245-2170
Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998

Chemical Hazard Procedures and Planning for Victoria County LEPC

Metadata_Time_Convention: local time

Metadata_Extensions:

Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>

Profile_Name: ESRI Metadata Profile

SherriffOffice

Identification_Information:

Citation:

Citation_Information:

Originator: STEP

Publication_Date: 12/13/2011

Title:

SheriffOffice

Geospatial_Data_Presentation_Form: vector digital data

Online_Linkage: [\\GEO-311360\E\ROOT](#)

[FOLDER\JustinGISmaps\VictoriaCountyGISDATA\SheriffOffice.shp](#)

Description:

Abstract:

This layer was created and converted from a KMZ file that was given to STEP by the Victoria County LEPC. It represents the sherriff offices in Victoria County.

Purpose:

To enable analysis of vulnerable areas within a certain distance from chemical sites.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 09/08/2010

Ending_Date: 12/13/2010

Currentness_Reference:

publication date

Status:

Progress: Complete

Maintenance_and_Update_Frequency: Unknown

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -97.008152

East_Bounding_Coordinate: -97.007877

North_Bounding_Coordinate: 28.799835

South_Bounding_Coordinate: 28.797362

Keywords:

Theme:

Access_Constraints: This data layer is intended for the use of STEP. STEP will not be held liable for any other use of this data layer. The information is now in the hands of the LEPC and they are to use the data as they please.

Use_Constraints:

This data layer is intended for the use of STEP. STEP will not be held liable for any other use of this data layer. The information is now in the hands of the LEPC and they are to use the data as they please.

Native_Data_Set_Environment:

Microsoft Windows Vista Version 6.1 (Build 7600) ; ESRI ArcCatalog 9.3.1.3500

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Data_Quality_Information:

Completeness_Report:

The data is as complete as it was when handed over by the Victoria GIS department and the Victoria County LEPC.

Lineage:

Process_Step:

Process_Description:

Converted from KMZ file to GIS shapefile

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Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector

Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Entity point

Point_and_Vector_Object_Count: 2

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Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Planar:

Map_Projection:

Map_Projection_Name: Lambert Conformal Conic

Lambert_Conformal_Conic:

Standard_Parallel: 28.383333

Standard_Parallel: 30.283333

Longitude_of_Central_Meridian: -99.000000

Latitude_of_Projection_Origin: 27.833333

False_Easting: 1968500.000000

False_Northing: 13123333.333333

Planar_Coordinate_Information:

Planar_Coordinate_Encoding_Method: coordinate pair

Coordinate_Representation:

Abscissa_Resolution: 0.000000

Ordinate_Resolution: 0.000000

Planar_Distance_Units: survey feet

Geodetic_Model:

Horizontal_Datum_Name: North American Datum of 1983

Ellipsoid_Name: Geodetic Reference System 80

Semi-major_Axis: 6378137.000000

Denominator_of_Flattening_Ratio: 298.257222

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Entity_and_Attribute_Information:

Chemical Hazard Procedures and Planning for Victoria County LEPC

Detailed_Description:

Entity_Type:

Entity_Type_Label: SheriffOffice

Attribute:

Attribute_Label: FID

Attribute_Definition:

Internal feature number.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute_Label: Shape

Attribute_Definition:

Feature geometry.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Coordinates defining the features.

Attribute:

Attribute_Label: Status

Attribute:

Attribute_Label: Score

Attribute:

Attribute_Label: Match_type

Attribute:

Attribute_Label: Side

Attribute:

Attribute_Label: Match_addr

Attribute:

Attribute_Label: ARC_Street

Attribute:

Attribute_Label: Name

Attribute:

Attribute_Label: Address

Attribute:

Attribute_Label: Evac_Type

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Distribution_Information:

Resource_Description: Downloadable Data

Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:

Chemical Hazard Procedures and Planning for Victoria County LEPC

Transfer_Size: 0.000

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Metadata_Reference_Information:

Metadata_Date: 20101208

Metadata_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: Texas State University

Contact_Person: STEP c/o Alberto Giordano

Contact_Address:

Address_Type: physical address

Address:

610 N. University Dr.

City: San Marcos

State_or_Province: TX

Postal_Code: 78666

Contact_Voice_Telephone: 512-245-2170

Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata

Metadata_Standard_Version: FGDC-STD-001-1998

Metadata_Time_Convention: local time

Metadata_Extensions:

Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>

Profile_Name: ESRI Metadata Profile

SpecialNeedFacilities

Identification_Information:

Citation:

Citation_Information:

Originator: STEP

Publication_Date: 12/13/2010

Title:

SpecialNeedFacilities

Geospatial_Data_Presentation_Form: vector digital data

Online_Linkage: [\\GEO-311360\E\ROOT](#)

[FOLDER\JustinGISmaps\VictoriaCountyGISDATA\SpecialNeedFacilities.shp](#)

Description:

Abstract:

This layer was created and converted from a KMZ file that was given to STEP by the Victoria County LEPC. It represents the special needs facilities in Victoria County.

Purpose:

To enable analysis of vulnerable areas within a certain distance from chemical sites.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 09/08/2010

Ending_Date: 12/13/2010

Currentness_Reference:

publication date

Status:

Progress: Complete

Maintenance_and_Update_Frequency: Unknown

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -97.158227

East_Bounding_Coordinate: -96.966298

North_Bounding_Coordinate: 28.876953

South_Bounding_Coordinate: 28.719561

Keywords:

Theme:

Access_Constraints: This data layer is intended for the use of STEP. STEP will not be held liable for any other use of this data layer. The information is now in the hands of the LEPC and they are to use the data as they please.

Use_Constraints:

This data layer is intended for the use of STEP. STEP will not be held liable for any other use of this data layer. The information is now in the hands of the LEPC and they are to use the data as they please.

Native_Data_Set_Environment:

Microsoft Windows Vista Version 6.1 (Build 7600) ; ESRI ArcCatalog 9.3.1.3500

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Data_Quality_Information:

Completeness_Report:

The data is as complete as it was when handed over by the Victoria GIS department and the Victoria County LEPC.

Lineage:

Process_Step:

Process_Description:

Converted from KMZ file to GIS shapefile

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Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector

Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Entity point

Point_and_Vector_Object_Count: 14

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Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Planar:

Map_Projection:

Map_Projection_Name: Lambert Conformal Conic

Lambert_Conformal_Conic:

Standard_Parallel: 28.383333

Standard_Parallel: 30.283333

Longitude_of_Central_Meridian: -99.000000

Latitude_of_Projection_Origin: 27.833333

False_Easting: 1968500.000000

False_Northing: 13123333.333333

Planar_Coordinate_Information:

Planar_Coordinate_Encoding_Method: coordinate pair

Coordinate_Representation:

Abscissa_Resolution: 0.000000

Ordinate_Resolution: 0.000000

Planar_Distance_Units: survey feet

Geodetic_Model:

Horizontal_Datum_Name: North American Datum of 1983

Ellipsoid_Name: Geodetic Reference System 80

Semi-major_Axis: 6378137.000000

Denominator_of_Flattening_Ratio: 298.257222

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Entity_and_Attribute_Information:

Chemical Hazard Procedures and Planning for Victoria County LEPC

Detailed_Description:

Entity_Type:

Entity_Type_Label: SpecialNeedFacilities

Attribute:

Attribute_Label: FID

Attribute_Definition:

Internal feature number.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute_Label: Shape

Attribute_Definition:

Feature geometry.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Coordinates defining the features.

Attribute:

Attribute_Label: Status

Attribute:

Attribute_Label: Score

Attribute:

Attribute_Label: Match_type

Attribute:

Attribute_Label: Side

Attribute:

Attribute_Label: Match_addr

Attribute:

Attribute_Label: ARC_Street

Attribute:

Attribute_Label: NAME

Attribute:

Attribute_Label: ADDRESS

Attribute:

Attribute_Label: Evac_Type

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Distribution_Information:

Resource_Description: Downloadable Data

Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:

Chemical Hazard Procedures and Planning for Victoria County LEPC

Transfer_Size: 0.000

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Metadata_Reference_Information:

Metadata_Date: 20101208

Metadata_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: Texas State University

Contact_Person: STEP c/o Alberto Giordano

Contact_Address:

Address_Type: physical address

Address:

601 N. University Dr.

City: TX

State_or_Province: San Marcos

Postal_Code: 78666

Contact_Voice_Telephone: 512-245-2170

Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata

Metadata_Standard_Version: FGDC-STD-001-1998

Metadata_Time_Convention: local time

Metadata_Extensions:

Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>

Profile_Name: ESRI Metadata Profile

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WasteWater

Identification_Information:

Citation:

Citation_Information:

Originator: STEP

Publication_Date: 12/13/2010

Title:

WasteWater

Geospatial_Data_Presentation_Form: vector digital data

Online_Linkage: [\\GEO-311360\E\ROOT](#)

[FOLDER\JustinGISmaps\VictoriaCountyGISDATA\WasteWater.shp](#)

Description:

Abstract:

This layer was created and converted from a KMZ file that was given to STEP by the Victoria County LEPC. It represents the waste water plants in Victoria County.

Purpose:

To enable analysis of vulnerable areas within a certain distance from chemical sites.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 09/08/2010

Ending_Date: 12/13/2010

Currentness_Reference:

publication date

Status:

Progress: Complete

Maintenance_and_Update_Frequency: Unknown

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -97.146628

East_Bounding_Coordinate: -96.926473

North_Bounding_Coordinate: 28.864378

South_Bounding_Coordinate: 28.723280

Keywords:

Theme:

Access_Constraints: This data layer is intended for the use of STEP. STEP will not be held liable for any other use of this data layer. The information is now in the hands of the LEPC and they are to use the data as they please.

Use_Constraints:

This data layer is intended for the use of STEP. STEP will not be held liable for any other use of this data layer. The information is now in the hands of the LEPC and they are to use the data as they please.

Native_Data_Set_Environment:

Microsoft Windows Vista Version 6.1 (Build 7600) ; ESRI ArcCatalog 9.3.1.3500

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Data_Quality_Information:

Completeness_Report:

The data is as complete as it was when handed over by the Victoria GIS department and the Victoria County LEPC.

Lineage:

Process_Step:

Process_Description:

Converted from KMZ file to GIS shapefile

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Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector

Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Entity point

Point_and_Vector_Object_Count: 16

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Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Planar:

Map_Projection:

Map_Projection_Name: Lambert Conformal Conic

Lambert_Conformal_Conic:

Standard_Parallel: 28.383333

Standard_Parallel: 30.283333

Longitude_of_Central_Meridian: -99.000000

Latitude_of_Projection_Origin: 27.833333

False_Easting: 1968500.000000

False_Northing: 13123333.333333

Planar_Coordinate_Information:

Planar_Coordinate_Encoding_Method: coordinate pair

Coordinate_Representation:

Abscissa_Resolution: 0.000000

Ordinate_Resolution: 0.000000

Planar_Distance_Units: survey feet

Geodetic_Model:

Horizontal_Datum_Name: North American Datum of 1983

Ellipsoid_Name: Geodetic Reference System 80

Semi-major_Axis: 6378137.000000

Denominator_of_Flattening_Ratio: 298.257222

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Entity_and_Attribute_Information:

Chemical Hazard Procedures and Planning for Victoria County LEPC

Detailed_Description:

Entity_Type:

Entity_Type_Label: WasteWater

Attribute:

Attribute_Label: FID

Attribute_Definition:

Internal feature number.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute_Label: Shape

Attribute_Definition:

Feature geometry.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Coordinates defining the features.

Attribute:

Attribute_Label: Status

Attribute:

Attribute_Label: Score

Attribute:

Attribute_Label: Match_type

Attribute:

Attribute_Label: Side

Attribute:

Attribute_Label: Match_addr

Attribute:

Attribute_Label: ARC_Street

Attribute:

Attribute_Label: Lift_Stati

Attribute:

Attribute_Label: Address

Attribute:

Attribute_Label: Evac_Type

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Distribution_Information:

Resource_Description: Downloadable Data

Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:

Chemical Hazard Procedures and Planning for Victoria County LEPC

Transfer_Size: 0.001

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Metadata_Reference_Information:

Metadata_Date: 20101208

Metadata_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: Texas State University

Contact_Person: STEP c/o Alberto Giordano

Contact_Address:

Address_Type: physical address

Address:

601 N. University Dr.

City: Austin

State_or_Province: TX

Postal_Code: 78666

Contact_Voice_Telephone: 512-245-2170

Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata

Metadata_Standard_Version: FGDC-STD-001-1998

Metadata_Time_Convention: local time

Metadata_Extensions:

Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>

Profile_Name: ESRI Metadata Profile

WaterPlants

Identification_Information:

Citation:

Citation_Information:

Originator: STEP

Publication_Date: 12/13/2010

Title:

WaterPlants

Geospatial_Data_Presentation_Form: vector digital data

Online_Linkage: <\\GEO-311360\E\ROOT>

<FOLDER\JustinGISmaps\VictoriaCountyGISDATA\WaterPlants.shp>

Description:

Abstract:

This layer was created and converted from a KMZ file that was given to STEP by the Victoria County LEPC. It represents the water plants in Victoria County.

Purpose:

To enable analysis of vulnerable areas within a certain distance from chemical sites.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 09/08/2010

Ending_Date: 12/13/2010

Currentness_Reference:

publication date

Status:

Progress: Complete

Maintenance_and_Update_Frequency: Unknown

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -97.038967

East_Bounding_Coordinate: -96.983012

North_Bounding_Coordinate: 28.858747

South_Bounding_Coordinate: 28.801234

Keywords:

Theme:

Access_Constraints: This data layer is intended for the use of STEP. STEP will not be held liable for any other use of this data layer. The information is now in the hands of the LEPC and they are to use the data as they please.

Use_Constraints:

This data layer is intended for the use of STEP. STEP will not be held liable for any other use of this data layer. The information is now in the hands of the LEPC and they are to use the data as they please.

Native_Data_Set_Environment:

Microsoft Windows Vista Version 6.1 (Build 7600) ; ESRI ArcCatalog 9.3.1.3500

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Data_Quality_Information:

Completeness_Report:

The data is as complete as it was when handed over by the Victoria GIS department and the Victoria County LEPC.

Lineage:

Process_Step:

Process_Description:

Converted from KMZ file to GIS shapefile

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Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector

Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Entity point

Point_and_Vector_Object_Count: 5

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Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Planar:

Map_Projection:

Map_Projection_Name: Lambert Conformal Conic

Lambert_Conformal_Conic:

Standard_Parallel: 28.383333

Standard_Parallel: 30.283333

Longitude_of_Central_Meridian: -99.000000

Latitude_of_Projection_Origin: 27.833333

False_Easting: 1968500.000000

False_Northing: 13123333.333333

Planar_Coordinate_Information:

Planar_Coordinate_Encoding_Method: coordinate pair

Coordinate_Representation:

Abscissa_Resolution: 0.000000

Ordinate_Resolution: 0.000000

Planar_Distance_Units: survey feet

Geodetic_Model:

Horizontal_Datum_Name: North American Datum of 1983

Ellipsoid_Name: Geodetic Reference System 80

Semi-major_Axis: 6378137.000000

Denominator_of_Flattening_Ratio: 298.257222

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Entity_and_Attribute_Information:

Chemical Hazard Procedures and Planning for Victoria County LEPC

Detailed_Description:

Entity_Type:

Entity_Type_Label: WaterPlants

Attribute:

Attribute_Label: FID

Attribute_Definition:

Internal feature number.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute_Label: Shape

Attribute_Definition:

Feature geometry.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Coordinates defining the features.

Attribute:

Attribute_Label: Status

Attribute:

Attribute_Label: Score

Attribute:

Attribute_Label: Match_type

Attribute:

Attribute_Label: Side

Attribute:

Attribute_Label: Match_addr

Attribute:

Attribute_Label: ARC_Street

Attribute:

Attribute_Label: NAME

Attribute:

Attribute_Label: ADDRESS

Attribute:

Attribute_Label: Evac_Type

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Distribution_Information:

Resource_Description: Downloadable Data

Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:

Chemical Hazard Procedures and Planning for Victoria County LEPC

Transfer_Size: 0.000

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Metadata_Reference_Information:

Metadata_Date: 20101208

Metadata_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: Texas State University

Contact_Person: STEP c/o Alberto Giordano

Contact_Address:

Address_Type: physical address

Address:

610 N. University Dr.

City: San Marcos

State_or_Province: TX

Postal_Code: 78666

Contact_Voice_Telephone: 512-245-2170

Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata

Metadata_Standard_Version: FGDC-STD-001-1998

Metadata_Time_Convention: local time

Metadata_Extensions:

Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>

Profile_Name: ESRI Metadata Profile

WaterTowers

Identification_Information:

Citation:

Citation_Information:

Originator: STEP

Publication_Date: 12/13/2010

Title:

WaterTowers

Geospatial_Data_Presentation_Form: vector digital data

Online_Linkage: [\\GEO-311360\E\ROOT](#)

[FOLDER\JustinGISmaps\VictoriaCountyGISDATA\WaterTowers.shp](#)

Description:

Abstract:

This layer was created and converted from a KMZ file that was given to STEP by the Victoria County LEPC. It represents the water towers in Victoria County.

Purpose:

To enable analysis of vulnerable areas within a certain distance from chemical sites.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 09/08/2010

Ending_Date: 12/13/2010

Currentness_Reference:

publication date

Status:

Progress: Complete

Maintenance_and_Update_Frequency: Unknown

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -97.039282

East_Bounding_Coordinate: -96.973502

North_Bounding_Coordinate: 28.875418

South_Bounding_Coordinate: 28.804064

Keywords:

Theme:

Access_Constraints: This data layer is intended for the use of STEP. STEP will not be held liable for any other use of this data layer. The information is now in the hands of the LEPC and they are to use the data as they please.

Use_Constraints:

This data layer is intended for the use of STEP. STEP will not be held liable for any other use of this data layer. The information is now in the hands of the LEPC and they are to use the data as they please.

Native_Data_Set_Environment:

Microsoft Windows Vista Version 6.1 (Build 7600) ; ESRI ArcCatalog 9.3.1.3500

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Data_Quality_Information:

Completeness_Report:

The data is as complete as it was when handed over by the Victoria GIS department and the Victoria County LEPC.

Lineage:

Process_Step:

Process_Description:

Converted from KMZ file to GIS shapefile

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Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector

Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Entity point

Point_and_Vector_Object_Count: 5

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Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Planar:

Map_Projection:

Map_Projection_Name: Lambert Conformal Conic

Lambert_Conformal_Conic:

Standard_Parallel: 28.383333

Standard_Parallel: 30.283333

Longitude_of_Central_Meridian: -99.000000

Latitude_of_Projection_Origin: 27.833333

False_Easting: 1968500.000000

False_Northing: 13123333.333333

Planar_Coordinate_Information:

Planar_Coordinate_Encoding_Method: coordinate pair

Coordinate_Representation:

Abscissa_Resolution: 0.000000

Ordinate_Resolution: 0.000000

Planar_Distance_Units: survey feet

Geodetic_Model:

Horizontal_Datum_Name: North American Datum of 1983

Ellipsoid_Name: Geodetic Reference System 80

Semi-major_Axis: 6378137.000000

Denominator_of_Flattening_Ratio: 298.257222

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Entity_and_Attribute_Information:

Chemical Hazard Procedures and Planning for Victoria County LEPC

Detailed_Description:

Entity_Type:

Entity_Type_Label: WaterTowers

Attribute:

Attribute_Label: FID

Attribute_Definition:

Internal feature number.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute_Label: Shape

Attribute_Definition:

Feature geometry.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Coordinates defining the features.

Attribute:

Attribute_Label: Status

Attribute:

Attribute_Label: Score

Attribute:

Attribute_Label: Match_type

Attribute:

Attribute_Label: Side

Attribute:

Attribute_Label: Match_addr

Attribute:

Attribute_Label: ARC_Street

Attribute:

Attribute_Label: NAME

Attribute:

Attribute_Label: ADDRESS

Attribute:

Attribute_Label: Evac_Type

[Back to Top](#)

Distribution_Information:

Resource_Description: Downloadable Data

Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:

Chemical Hazard Procedures and Planning for Victoria County LEPC

Transfer_Size: 0.000

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Metadata_Reference_Information:

Metadata_Date: 20101208

Metadata_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: Texas State University

Contact_Person: STEP c/o Alberto Giordano

Contact_Address:

Address_Type: physical address

Address:

610 N. University Dr.

City: San Marcos

State_or_Province: TX

Postal_Code: 78666

Contact_Voice_Telephone: 512-245-2170

Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata

Metadata_Standard_Version: FGDC-STD-001-1998

Metadata_Time_Convention: local time

Metadata_Extensions:

Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>

Profile_Name: ESRI Metadata Profile

WaterWells

Identification_Information:

Citation:

Citation_Information:

Originator: STEP

Publication_Date: 12/13/2010

Title:

WaterWells

Geospatial_Data_Presentation_Form: vector digital data

Online_Linkage: [\\GEO-311360\E\ROOT](#)

[FOLDER\JustinGISmaps\VictoriaCountyGISDATA\WaterWells.shp](#)

Description:

Abstract:

This layer was created and converted from a KMZ file that was given to STEP by the Victoria County LEPC. It represents the water wells in Victoria County.

Purpose:

To enable analysis of vulnerable areas within a certain distance from chemical sites.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 09/08/2010

Ending_Date: 12/13/2010

Currentness_Reference:

publication date

Status:

Progress: Complete

Maintenance_and_Update_Frequency: Unknown

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -97.017607

East_Bounding_Coordinate: -96.973403

North_Bounding_Coordinate: 28.830992

South_Bounding_Coordinate: 28.808019

Keywords:

Theme:

Access_Constraints: This data layer is intended for the use of STEP. STEP will not be held liable for any other use of this data layer. The information is now in the hands of the LEPC and they are to use the data as they please.

Use_Constraints:

This data layer is intended for the use of STEP. STEP will not be held liable for any other use of this data layer. The information is now in the hands of the LEPC and they are to use the data as they please.

Point_of_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Alberto Giordano

Contact_Organization: Texas State University

Contact_Position: Professor

Contact_Electronic_Mail_Address: a.giordano@txstate.edu

Native_Data_Set_Environment:

Microsoft Windows Vista Version 6.1 (Build 7600) ; ESRI ArcCatalog 9.3.1.3500

Cross_Reference:

Citation_Information:

Publication_Information:

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Data_Quality_Information:

Attribute_Accuracy:

Attribute_Accuracy_Report:

The data is as accurate as it was when handed over by the Victoria GIS department and the Victoria County LEPC.

Completeness_Report:

The data is as complete as it was when handed over by the Victoria GIS department and the Victoria County LEPC.

Lineage:

Process_Step:

Process_Description:

Converted from KMZ file to GIS shapefile

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Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector

Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Entity point

Point_and_Vector_Object_Count: 10

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Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Planar:

Map_Projection:

Map_Projection_Name: Lambert Conformal Conic

Lambert_Conformal_Conic:

Standard_Parallel: 28.383333

Standard_Parallel: 30.283333

Longitude_of_Central_Meridian: -99.000000

Latitude_of_Projection_Origin: 27.833333

False_Easting: 1968500.000000

False_Northing: 13123333.333333

Chemical Hazard Procedures and Planning for Victoria County LEPC

Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: coordinate pair
Coordinate_Representation:
Abscissa_Resolution: 0.000000
Ordinate_Resolution: 0.000000
Planar_Distance_Units: survey feet
Geodetic_Model:
Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodetic Reference System 80
Semi-major_Axis: 6378137.000000
Denominator_of_Flattening_Ratio: 298.257222

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Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: WaterWells

Attribute:

Attribute_Label: FID

Attribute_Definition:

Internal feature number.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute_Label: Shape

Attribute_Definition:

Feature geometry.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Coordinates defining the features.

Attribute:

Attribute_Label: Status

Attribute:

Attribute_Label: Score

Attribute:

Attribute_Label: Match_type

Attribute:

Attribute_Label: Side

Attribute:

Attribute_Label: Match_addr

Attribute:

Attribute_Label: ARC_Street

Attribute:

Attribute_Label: Name

Attribute:

Attribute_Label: Address

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Distribution_Information:

Resource_Description: Downloadable Data

Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:

Transfer_Size: 0.000

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Metadata_Reference_Information:

Metadata_Date: 20101208

Metadata_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: Texas State University

Contact_Person: STEP c/o Dr. Alberto Giordano

Contact_Position: Geography Department

Contact_Address:

Address_Type: 601 University Dr.

City: San Marcos

State_or_Province: TX

Postal_Code: 78666

Contact_Voice_Telephone: 512-245-2170

Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata

Metadata_Standard_Version: FGDC-STD-001-1998

Metadata_Time_Convention: local time

Metadata_Extensions:

Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>

Profile_Name: ESRI Metadata Profile

VictoriaRoads

Identification_Information:

Citation:

Citation_Information:

Originator: STEP

Publication_Date: 12/13/2010

Title:

VictoriaRoads

Geospatial_Data_Presentation_Form: vector digital data

Online_Linkage: [\\GEO-311360\E\ROOT](#)

[FOLDER\JustinGISmaps\VictoriaCountyGISDATA\Victoria.gdb](#)

Description:

Abstract:

Represent roads and addresses in Victoria County.

Purpose:

To enable analysis of vulnerable areas within a certain distance from chemical sites.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 09/08/2010

Ending_Date: 12/13/2010

Currentness_Reference:

publication date

Status:

Progress: Complete

Maintenance_and_Update_Frequency: Unknown

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -97.294298

East_Bounding_Coordinate: -96.666705

North_Bounding_Coordinate: 29.100549

South_Bounding_Coordinate: 28.519763

Keywords:

Theme:

Access_Constraints: This data layer is intended for the use of STEP. STEP will not be held liable for any other use of this data layer. The information is now in the hands of the LEPC and they are to use the data as they please.

Use_Constraints:

This data layer is intended for the use of STEP. STEP will not be held liable for any other use of this data layer. The information is now in the hands of the LEPC and they are to use the data as they please.

Native_Data_Set_Environment:

Microsoft Windows Vista Version 6.1 (Build 7600) ; ESRI ArcCatalog 9.3.1.3500

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Data_Quality_Information:

Completeness_Report:

The data is as complete as it was when handed over by the Victoria GIS department and the Victoria County LEPC.

Lineage:

Process_Step:

Process_Description:

Dataset copied and geocoded using ArcGIS

Source_Used_Citation_Abbreviation:

Service=sde:sqlserver:covdb; Database=covgis; Version=JREYES.jreyes

Process_Date: 20100917

Process_Time: 09272500

Process_Step:

Process_Description:

Dataset copied.

Source_Used_Citation_Abbreviation:

P:\JREYES\StreetCenterline

Process_Date: 20100917

Process_Time: 15171200

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Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector

Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: String

Point_and_Vector_Object_Count: 6375

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Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Planar:

Map_Projection:

Map_Projection_Name: Lambert Conformal Conic

Lambert_Conformal_Conic:

Standard_Parallel: 28.383333

Standard_Parallel: 30.283333

Longitude_of_Central_Meridian: -99.000000

Latitude_of_Projection_Origin: 27.833333

False_Easting: 1968500.000000

False_Northing: 13123333.333333

Planar_Coordinate_Information:

Planar_Coordinate_Encoding_Method: coordinate pair

Coordinate_Representation:

Abscissa_Resolution: 0.000328

Chemical Hazard Procedures and Planning for Victoria County LEPC

Ordinate_Resolution: 0.000328
Planar_Distance_Units: survey feet
Geodetic_Model:
Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodetic Reference System 80
Semi-major_Axis: 6378137.000000
Denominator_of_Flattening_Ratio: 298.257222
Vertical_Coordinate_System_Definition:
Altitude_System_Definition:
Altitude_Resolution: 0.000100
Altitude_Encoding_Method: Explicit elevation coordinate included with horizontal coordinates

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Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: VictoriaRoads

Attribute:

Attribute_Label: ID

Attribute_Definition:

Internal feature number.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute_Label: ENABLED

Attribute_Definition:

Feature geometry.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Coordinates defining the features.

Attribute:

Attribute_Label: SHAPE

Attribute_Definition:

Feature geometry.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Coordinates defining the features.

Attribute:

Attribute_Label: SUFFIX2

Attribute_Definition:

Internal feature number.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute_Label: Drive_Dir

Attribute_Definition:

Internal feature number.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute_Label: Oneway

Attribute_Definition:

Length of feature in internal units.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Positive real numbers that are automatically generated.

Attribute:

Attribute_Label: Shape_Length

Attribute_Definition:

Length of feature in internal units.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Positive real numbers that are automatically generated.

Attribute:

Attribute_Label: DRIVE_DIR

Attribute_Definition:

Internal feature number.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute_Label: OBJECTID

Attribute_Definition:

Internal feature number.

Attribute_Definition_Source:

ESRI

Attribute_Domain_Values:

Unrepresentable_Domain:

Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute_Label: ID_LINK

Attribute:

Attribute_Label: Z_

Attribute:

Attribute_Label: BLOCK

Attribute:

Attribute_Label: RD_NAME

Attribute:

Attribute_Label: FEATURE

Attribute:

Attribute_Label: SOURCE

Attribute:

Attribute_Label: RIGHTFROM

Attribute:

Attribute_Label: LEFTFROM

Attribute:

Attribute_Label: RIGHTTO

Attribute:

Attribute_Label: LEFTTO

Attribute:

Attribute_Label: FLAG

Attribute:

Attribute_Label: ZIPR

Attribute:

Attribute_Label: ZIPL

Attribute:

Attribute_Label: PREFIX

Attribute:

Attribute_Label: SUFFIX

Attribute:

Attribute_Label: STREET_NAM

Attribute:

Attribute_Label: STREET_TYP

Attribute:

Attribute_Label: CROSS_ST_1

Attribute:

Attribute_Label: CROSS_ST_2

Attribute:

Attribute_Label: ALIAS_NAM
Attribute:
Attribute_Label: ADD_SOURCE
Attribute:
Attribute_Label: MAP
Attribute:
Attribute_Label: R_ESN
Attribute:
Attribute_Label: L_ESN
Attribute:
Attribute_Label: EDIT_DATE
Attribute:
Attribute_Label: EDITOR_INI
Attribute:
Attribute_Label: COMMENTS
Attribute:
Attribute_Label: L_CLR
Attribute:
Attribute_Label: R_CLR
Attribute:
Attribute_Label: CL_RANGE
Attribute:
Attribute_Label: TMP

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Distribution_Information:

Resource_Description: Downloadable Data

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Metadata_Reference_Information:

Metadata_Date: 20101208

Metadata_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: Texas State University

Contact_Person: STEP c/o Alberto Giordano

Contact_Address:

Address_Type: physical address

Address:

601 N. University Dr.

City: Austin

State_or_Province: TX

Postal_Code: 78666

Contact_Voice_Telephone: 512-245-2170

Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata

Metadata_Standard_Version: FGDC-STD-001-1998

Chemical Hazard Procedures and Planning for Victoria County LEPC

Metadata_Time_Convention: local time

Metadata_Extensions:

Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>

Profile_Name: ESRI Metadata Profile

Appendix II. Contributions

Christian Barsi, Project Manager/Editor

- Managed scheduling, deadlines, and communication with client
- Communicated with outside source for logo design
- Researched network analysis and how the project would be carried out
- Gathered necessary data for network analysis
- Created metadata for all data layers that were created
- Assisted in geo-coding data
- Assisted in creation of metadata dictionary
- Created and edited power-point presentation for Proposal
- Assisted in creation of power-point for Progress Report and Final Report
- Wrote “Introduction”, and “Timetable” for Proposal
- Wrote “Introduction”, “Work completed”, “Current Work in Progress”, “Conclusion” and created flow chart and updated “Timetable” for progress report
- Wrote “abstract”, “introduction”, and “data” sections of the final report

Kristy Nguyen, Assistant Project Manager/GIS Analyst

- Built the address locator for address geocoding, and did an even amount of the geocoding
- Organized all the tables for merging and merging of data
- Built the network dataset along with the geodatabase with the One-Way restrictions
- Ran the Network Analysis of the Closest Facility function to determine evacuation routes, Justin was also a big help in this.
- Made the poster
- Prepared the CD files by organizing the final files and cleaned up the final map to turn in, as well as the creation of the read-me file.
- For final report: Problem statement, Methodology + Results + discussion of all network analysis, editing and organizing for final printing

Justin McCreight, GIS Analyst/Technical Writer

- Proofread and edited proposal, progress report, final report, and website Completed “Data requisites and Sources” and “Methodology” section of Proposal/ PowerPoint slides
- Converted Special Needs Facilities KMZ file to excel file and geocoded address’
- Researched Network Analysis – Closest Facility tutorials/ How to change one-way streets
- Completed “Work to be completed” section of Progress Report/ PowerPoint slides
- Worked with Kristy to fix one-way streets and create a working network for closest facility network analysis

- Created format for supplemental tables - filled out the first supplemental table from results of closest facility network analysis
- Completed shelter route annex pages to go along with the table
- Completed second supplemental table and created graphs from the results
- Completed “Methodology”, “Results”, “Discussion”, and part of “Conclusion” sections of the Final Report

Jordon Hutto, Web Analyst

- Created website
- Assisted in creation of metadata dictionary and metadata
- Manifold