

A Vulnerable Population Case Study: City of St. James

A Disaster Supplemental Statewide Planning Initiative

Prepared By

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Responsible Entity

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Introduction

During natural or man-made hazardous events, it is critical for local emergency responders to be able to locate and reach vulnerable populations before, during, and after a disaster occurs; as well as knowing limitations those individuals may face.

This information is crucial for evacuation and wellness checks to ensure personal safety, as well as emergency planning for preparedness, response, and recovery.

The Meramec Regional Planning Commission (MRPC), in accordance with Major Disaster Declaration 1749¹, Hazard Mitigation Plan actions items², and goals stated in the MRPC Comprehensive Economic Development Strategy (CEDS)³, conducted a case study of vulnerable populations within the City of St. James, MO. The study consisted of a voluntary registry with the Phelps County Emergency Alert System (Everbridge).

¹ <https://www.fema.gov/pdf/news/pda/1749.pdf>

² Encourage the use of publicity campaigns that make residents aware of proper measures to take during natural disasters; Facilities that house vulnerable populations should review alternative locations for sheltering residents and MOUs with “sister” facility.

³ Assist the disabled by increasing awareness of problems and needs of persons with mental and physical disabilities.

Residents without access to the internet were able to register over the phone or by registration form submission. The number of new users, as well as marketing strategies, and cost analysis was examined.

Vulnerable Populations

One major goal of preparedness and response officials is the ability to reach every person in a community. To properly inform citizens during emergencies, officials must know what subgroups make up its population and how to reach individuals within each subgroup. One subgroup that is crucial to reach during an emergency include those who feel they cannot comfortably or safely use standard resources offered during preparedness, response, and recovery efforts⁴. Those individuals are considered vulnerable or at-risk. According to the CDC, vulnerable populations can be grouped into five broad descriptive categories, which include:

- Economic Disadvantaged
- Limited English and Literacy Skills
- Medical Issues and Disability (physical, mental, cognitive, or sensory)
- Isolation (cultural, geographic, or social)
- Age (elderly and children)

These broad categories can be an effective and manageable starting point for planners and communities. Each

⁴ CDC, Public Health Workbook, To Define, Locate, and Reach Special, Vulnerable, and At-risk Populations in an Emergency.

category consists of numerous specific vulnerabilities. It should be noted that individuals can fall within one or more categories. Also, vulnerabilities are not necessarily permanent. It has been estimated that there is an 80 percent chance a person will experience a temporary or permanent disability in his/her lifetime⁵.

Lessons

“71 percent of the people who died during Hurricane Katrina were older than 60.”

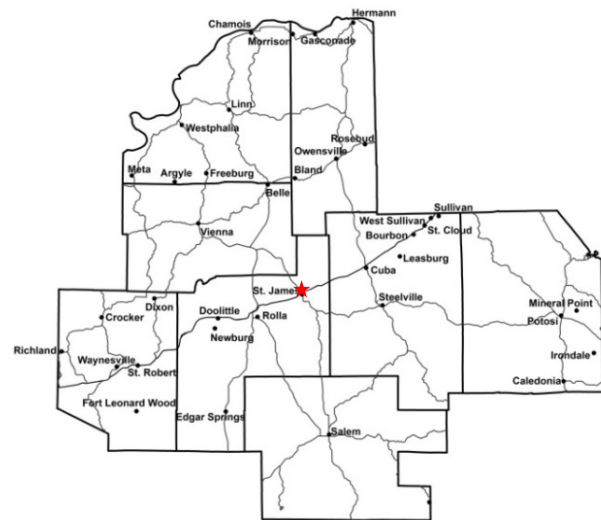
After Hurricane Katrina in 2005, officials have learned that communicating health and emergency information often falls short of reaching the entire community. It was estimated that 71 percent of the people who died during Katrina were older than 60⁶. Multiple emergency notification platforms and promotion methods are being utilized to address communication deficiencies. Nonetheless, there is limited information regarding vulnerable populations within the Meramec Region, and best methods to reach those individuals.

Meramec Region

St. James is located within Phelps County, one of MRPC’s eight rural counties (Crawford, Dent, Gasconade, Maries, Osage, Phelps, Pulaski, and Washington). The Meramec Region

^{5,6} U.S. Dept. of Health and Human Services, CDC, Public Health Preparedness and Response, Ready for Emergencies, June, 2017.

consists of 37 municipalities, 30 school districts, and 89 local emergency response agencies (ambulance, fire, and law enforcement). Located in the southeast-central portion of Missouri, the region covers 5,131 square miles. Furthermore, the region is currently home to some 201,555 people, according to 2011-2015 ACS 5-Year Estimates. Residing within the Ozark Mountains, the region is subdivided between the Salem Plateau and St. Francois Mountains. The region contains 13,000 miles of road including Interstate 44, U.S. 63, and the historic Route 66. The region is home to 10 publicly owned airports, and three operating rail services (Burlington Northern Santa Fe, Union Pacific, and Missouri Pacific).



Social Vulnerability Index

The City of St. James was selected for the vulnerable population case study due to its relatively high SVI, small population of 4,172⁶, and active emergency response

^{6,7} U.S. Census Bureau, 2011-2015 American Community Survey 5-Year Estimates

personnel. The city provides police protection services while the St. James Fire Protection District has a paid fire chief and volunteer firefighters. Emergency medical services are provided by the St. James Ambulance District.

The CDC developed a Social Vulnerability Index (SVI) to help emergency managers identify and map communities that will most likely need support before, during, and after a disaster occurs. The index is comprised of four themes: Socioeconomic Status, Household Composition and Disability, Minority Status and Language, and Housing and Transportation. Under the four themes are fifteen census variables. The following SVI variables



include census data for the entire population within the census tract surrounding St. James.

Socioeconomic status

- Below poverty – 597 (13.1%)
- Unemployed – 169 (7.6%)
- Per Capita Income – \$20,963
- No high school diploma – 579 (17.6%)

Household Composition & Disability

- Aged 65 or older - 910 (18.6%)

- Aged 17 or younger - 1,302 (26.6%)
- Older than age 5 with a disability - 817 (17.9%)
- Single-parent households - 163 (9%)

Minority Status & Language

- Minority- 306 (6.3%)
- Speak English “Less than well”- 0

Housing & Transportation

- Multi-Unit Structures - 6 (0.3%)
- Mobile Homes- 75 (3.8%)
- Overcrowded Household - 32 (1.8%)
- No Vehicle - 122 (6.7%)
- Institutionalized Group Quarters (i.e. nursing homes) - 340 (6.9%)

According to the 2014 SVI, the census tract surrounding St. James falls within the 2nd highest vulnerability index, meaning the community has a low capacity to prepare for and respond to hazardous events (Appendix A).

Planning

MRPC held two meetings with local stakeholders on June 16, 2017 and July 13, 2017. Agencies represented during the meetings include the City of St. James, St. James Police Department, St. James Ambulance District, St. James Fire Protection District, Phelps County Emergency Management, Phelps County Sheriff’s Office, and Phelps County Health Department. During the meetings, stakeholders discussed methods to identify vulnerable populations within St. James for emergency response.

Stakeholders decided to utilize the already existing Phelps County Emergency Alert System as the platform for voluntary registry and data collection.

Everbridge

Everbridge is one of the leading mass notification systems (MNS) on the market today. The Phelps County Emergency Management Office is in charge of the system. To the general public, the system is known as the Phelps County Emergency Alert System. Citizens are encouraged to register with the system to receive emergency alert notifications and civil notices. Multiple jurisdictions and emergency management personnel have access to the system and share the subscription fee for its use. One important aspect of Everbridge is that it allows users to disclose special needs when they register online. This data is critical for



emergency responders to have access to during hazardous events. To learn more about MNS within the Meramec Region, please read the report [Meramec Region Emergency Notification Platform Survey](#).

Publicity Material

Two types of publicity materials were developed for the case study: post cards and flyers (Appendix B, C). Both included a description of vulnerable populations, voluntary registry purpose, and instructions. Users were also asked to

provide their name, address, phone number, cell number, and email address. A list of types of special needs that originated from the Phelps County Emergency Alert System registry was incorporated into the materials. Users could disclose special needs by choosing from the following options:

- Dialysis
- Hearing Impairment
- Homecare Assistance
- Language Interpreter Needed
- Life-sustaining Equipment
- Mental/Cognitive Condition
- Mobility Impairment
- Refrigerated Medicines
- Service Animal Required
- Speech Impairment
- Supplemental Oxygen Required
- Vision Impairment

Users had the ability to register online, by filling out the form and dropping it off at the St. James Municipal Utilities (STJMU) Office, by mailing in a filled out form with a utility payment, or by phone. Registrations completed by hand were entered into the system by staff.

Case Study Timeline

Three months of promotion and data collection began on Friday, July 28, 2017 and ended on Tuesday, October 31, 2017.

Marketing Strategies

MRPC personnel along with stakeholders came up with a marketing strategy (Appendix D) to reach vulnerable populations within and around the City of

St. James. The voluntary registry was promoted through the following avenues:

- Post cards and flyers distributed around town.
- Press Release
- MRPC Website
- Social Media (Facebook)
- St. James Press Newspaper
- Utility Statement Flyers

Post cards and flyers were distributed around St. James on July 28, 2017 to the following locations:

- St. James Caring Center
- St. James Mercy Pharmacy
- Forest City Health Mart
- Forest City Medical Center Pharmacy
- Forest City Doctors Office
- St. James Public Library
- St. James Municipal Utilities Office
- First Church of God, St. James, and
- St. James Visitor Center.

In addition, flyers were faxed or emailed to the following local home care service providers on August 2, 2017.

- Tri-County Center for Independent Living
- Pyramid Home Health Services
- Visiting Angels Rolla, MO
- MISerenity, LLC
- TLC Home Health Care, LLC
- Kindred at Home

A press release explaining and promoting the project was distributed to local media once a month during August, September and October. Local radio stations and newspapers shared the press release at

their discretion. MRPC also posted information regarding the case study on its website. In addition, Facebook posts were shared once a month during the targeted three months.

Stakeholders were encouraged to share social media posts through their agency/organization Facebook accounts. Furthermore, each month an ad was placed in the St. James Press. Lastly, the St. James Municipal Utilities Office sent out approximately 1,800 flyers to residents along with its utility statements.

Results

“104 individuals voluntarily registered with the Phelps County Emergency Alert System”

To analyze online submissions, MRPC was granted administrative access to the Phelps County Emergency Alert System. The number of registered individuals with special needs was recorded before and after the data collection period. Ten new users with special needs registered online with the Phelps County Emergency Alert System over the course of three months.

Seven individuals voluntarily registered by submitting post cards. Two individuals registered over the phone. Lastly, 85 individuals registered by flyer. Over the course of three months, a total of 104 individuals voluntarily registered with the Phelps County Emergency Alert System. Users registered by the methods as seen in **Figure 1**.

Figure 1
Method of Registration

Registration Method	Number of Users
Online	10
Phone	2
Post Card	7
Flyer	*85

* 10 of which was a spouse or roommate included on a registration form.

Determining publicity material effects on registration was possible by the color coordination of post cards and flyers. A total of 13 individuals voluntarily registered using postcards and flyers that were distributed around town; six of which came from the St. James Caring Center. 81 individuals registered by flyers sent out with the STJMU Statements. For the 10 users who registered online, it was not possible to determine how those individuals learned about the case study.

Figure 2
Publicity Material Effects on Registration

Promotional Strategy	Number of Users
Distributed post cards/flyers	13
STJMU Statements	81
Online	*

* Unable to determine

St. James Vulnerable Population

After the data collection period had concluded, hardcopy registry submissions were uploaded into Everbridge by MRPC staff. To analyze vulnerable populations within and around St. James, a 5-mile radius from the center of St. James was created in Everbridge's mapping system. Within the 5-mile radius, a total of 137 special needs residents are registered

with the Phelps County Emergency Alert System. Of those, 104 registered due to the case study efforts. **Figure 3** depicts the breakdown of vulnerable populations by special needs. It should be noted that this data includes users who registered before the case study began.



Figure 3
St. James Vulnerable Populations by Special Needs

Special Needs	#
# of Individuals	137
Hearing Impaired	36
Vision Impaired	13
Speech Impaired	2
Mental/Cognitive	17
Mobility Impaired	41
Supplemental Oxygen	51
Life Sustaining Equip.	30
Dialysis	3
Refrigerated Medicine	40
Homecare Assistance	24
Service Animal	4
Language Interpreter	1

Of the one 137 special needs residents registered, 37.22 percent require supplemental oxygen, 29.92 percent are mobility impaired, 29.19 percent utilize a refrigerated medicine, and 26.27 percent are hearing impaired. The special needs with the lowest registered users include service animal (2.9 percent), dialysis (2.1 percent), speech impairment (1.4

percent), and language interpreter (.7 percent).

Cost Analysis

For the case study, funds spent on marketing for user registration was tracked. Approximately 2,705 copies were printed for post cards and flyers from July 1 to October 31. The total cost was \$189.35. The total cost for advertisement in the St. James Press once a month for three months was \$108.90. Lastly, MRPC agreed to pay half of postage related costs to include flyers with the STJMU Statements. That cost was \$530.00. Altogether, \$828.25 was spent on marketing.

Figure 4
Marketing Costs

Marketing	Cost
Print	\$189.35
St. James Press	\$108.90
Postage	\$530.00
Total	\$828.25



Per Registration Cost

Since it is unknown whether a new user was reached via St. James Press, Facebook, press release, MRPC website, or other method, the overall acquisition cost was determined by taking total marketing costs and dividing it by the number of new users (\$ 828.25/104). It cost \$7.96 in marketing for each new registration.

Registry Examination

As MRPC conducted the case study, it was quickly acknowledged that utilizing a voluntary registry for vulnerable populations comes with a few challenges. Communities looking to replicate or build upon this case study should recognize and consider the following challenges before embarking on a similar project.

The first challenge is with administration. Who will be in charge of marketing, data collection, database administration, and updates? Finding a dedicated administrator is difficult. Due to limited budgets and time constraints, it is hard to find an individual willing to step up to the plate. Emergency management directors, Enhanced 911 dispatch, health departments, and administrators for agencies similar to the St. James Caring Center are all possible candidates to maintain a registry and make it available to emergency responders.

Secondly, how will user information be stored? Many communities do not have access to a MNS. Those that do might not have the ability to collect and store special needs information within their system.

Other software that could be used to store user data could include Excel (Appendix F), Access, or Enhanced 911 system. If a community's E-911 system has the ability to house a vulnerable population registry, then it would make sense that the dispatch 911 would be the administrator.

Third, as soon as an individual registers with the system, that information is considered outdated. Many individuals change address, phone numbers, etc. on a regular basis. Keeping an updated registry can be difficult.

Fourth, concerns regarding the Health Insurance Portability and Accountability Act (HIPPA) arose during planning meetings. It is essential when developing a similar program to make sure registration is voluntary and to publicize the program as voluntary. In addition, obtaining permission in the form of signatures for information sharing during emergencies would be favorable for HIPPA compliance.

Lastly, marketing costs can be seen as a road block for many communities. According to the case study, it took \$7.96 in marketing costs for each registration. Many communities do not have funds to support such an endeavor. To decrease marketing costs, similar programs should build partnerships with local organizations that work with and provide services to vulnerable populations.

Summary

Limited data is available regarding vulnerable populations within the Meramec Region. This report helps

identify those populations utilizing a voluntary registry in one rural community within the region. Additionally, marketing strategies and cost analysis were analyzed so other communities can replicate or build upon methods used.

A total of 104 new users registered with the Phelps County Emergency Alert System and disclosed at least one special need. Various marketing strategies were utilized to share the voluntary registry with the public. The incorporation of flyers with utility statements showed the best response in terms of new user registration. However, the cost of incorporating flyers with utility statements made up 63.9 percent of the total marketing costs. The overall user acquisition for the case study was \$7.96 per registration. Since this is the first study of its kind in the region, it is difficult to expand upon that cost. However, acquisition costs would ideally be lower.

The most abundant special need in and around the city of St. James is the dependency upon supplemental oxygen followed by mobility impairment, required refrigerated medicine, and hearing impairment.

Lastly, numerous challenges associated with developing, administering, and paying for a registry were acknowledged. These challenges can deter many communities within the region from building their own registry. Nevertheless, many individuals who signed up for the voluntary registry expressed gratitude, relief, and admiration for the endeavor.

Appendix A

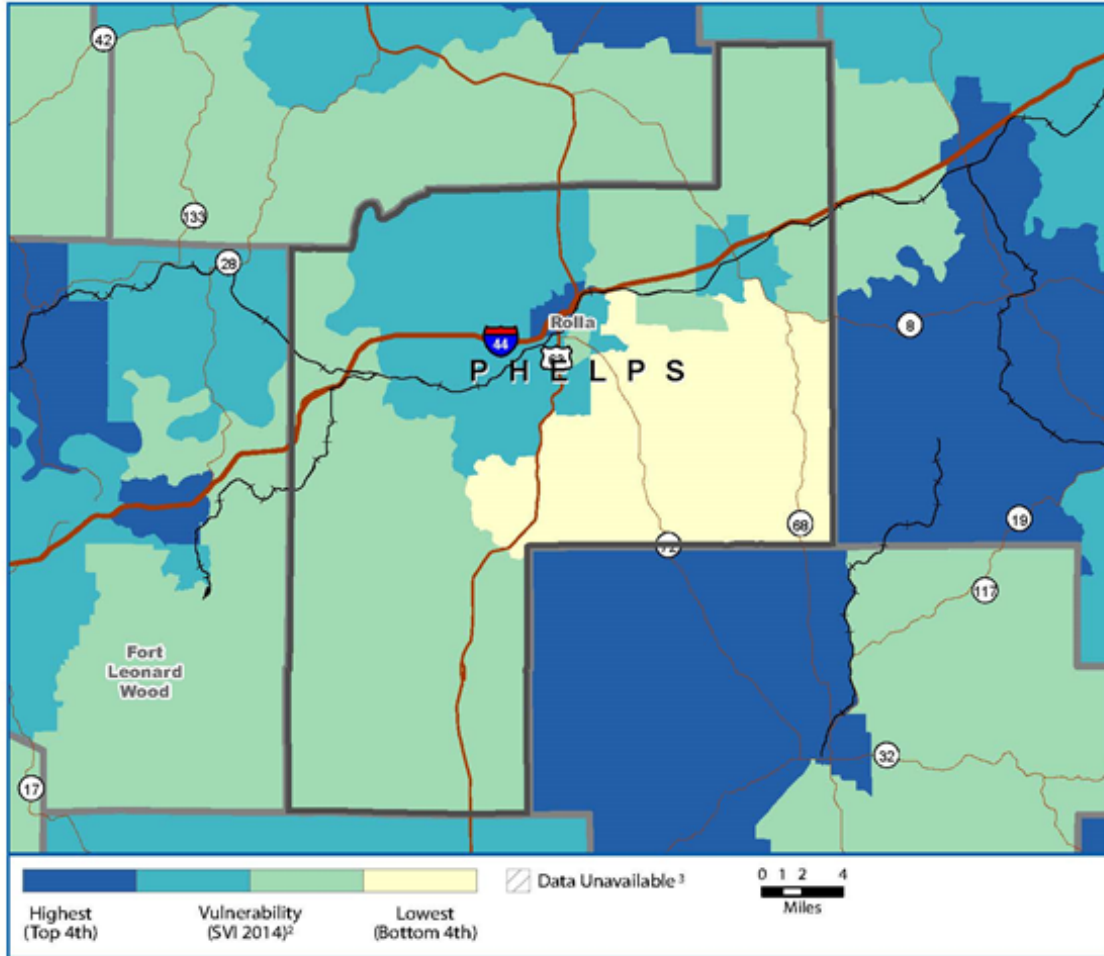
Social Vulnerability Index 2014

Phelps County, Missouri

PART 1



Overall Social Vulnerability¹



Social vulnerability refers to a community's capacity to prepare for and respond to the stress of hazardous events ranging from natural disasters, such as tornadoes or disease outbreaks, to human-caused threats, such as toxic chemical spills. The **Social Vulnerability Index (SVI 2014)⁴ County Map** depicts the social vulnerability of communities, at census tract level, within a specified county. SVI 2014 groups **fifteen census-derived factors** into **four themes** that summarize the extent to which the area

is socially vulnerable to disaster. The factors include economic data as well as data regarding education, family characteristics, housing, language ability, ethnicity, and vehicle access. Overall Social Vulnerability combines all the variables to provide a comprehensive assessment.

MAP PRODUCED 7/15/2016



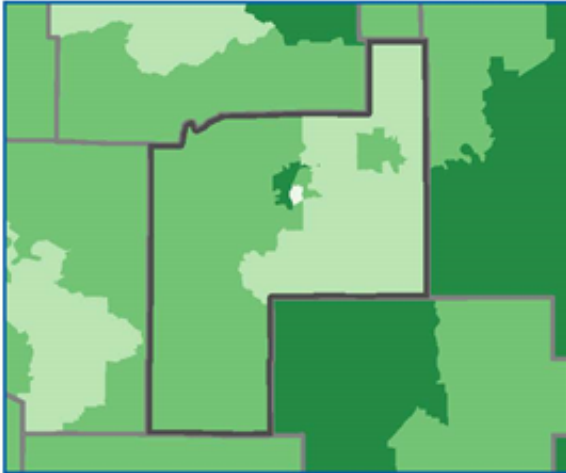
Agency for Toxic Substances and Disease Registry
Division of Toxicology and Human Health Sciences



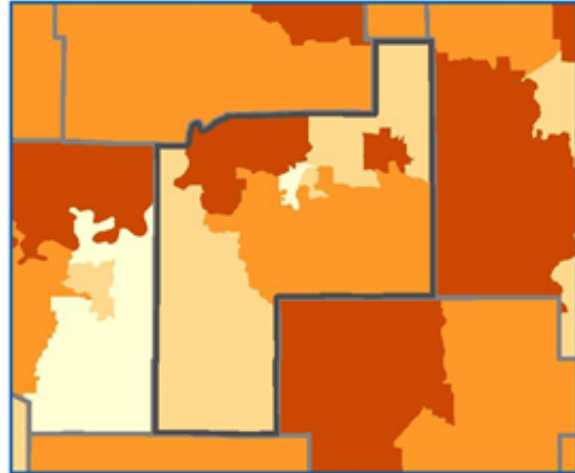
FINAL - FOR EXTERNAL USE

SVI Themes

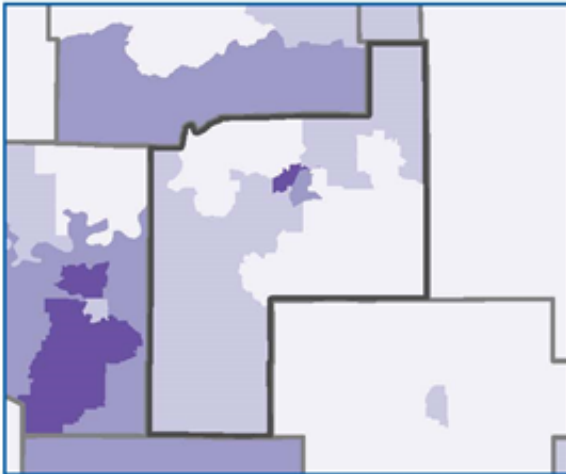
Socioeconomic Status⁵



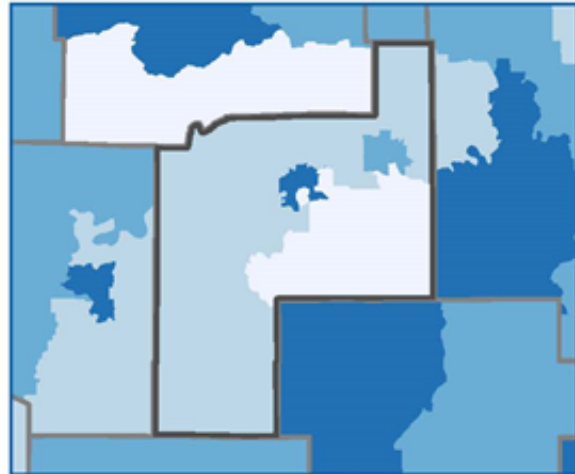
Household Composition⁶



Race/Ethnicity/Language⁷



Housing/Transportation⁸



Data Sources: ¹ATSDR GRASP.

Notes: ¹Overall Social Vulnerability: All 15 variables. ²Census tracts with 0 population. ³The SVI combines percentile rankings of US Census American Community Survey (ACS) 2010-2014 variables, for the state of interest, at the census tract level. ⁴Socioeconomic Status: Poverty, Unemployed, Per Capita Income, No High School Diploma. ⁵Household Composition/Disability: Aged 65 and Over, Aged 17 and Younger, Single parent Household, Aged 5 and over with a Disability. ⁶Race/Ethnicity/Language: Minority, English Language Ability. ⁷Housing/Transportation: Multi-unit, Mobile Homes, Crowding, No Vehicle, Group Quarters.

Projection: NAD 1983 UTM Zone 15N.

Reference: Flanagan, B.E., et al., A Social Vulnerability Index for Disaster Management. *Journal of Homeland Security and Emergency Management*, 2011, 8(1).

Appendix B

Do You Need Special Help During Emergencies?



The Meramec Regional Planning Commission (MRPC) and the City of St. James are conducting a study of Vulnerable and At-Risk populations – those folks who need special assistance during emergencies because of health-related limitations and special needs. For example, do you require electricity to operate medical equipment? Do you need help or special transportation to evacuate your home? The study consists of a VOLUNTARY registry with the Phelps County Emergency Alert System. Data collected will help emergency responders plan for assisting special needs populations during a disaster.

(MORE ON BACK)

Do you have one of the following special needs?

- Dialysis
- Hearing Impairment
- Homecare Assistance
- Language Interpreter Needed
- Life-sustaining Equipment
- Mental/Cognitive Condition
- Mobility Impairment
- Refrigerated Medicines
- Service Animal Required
- Speech Impairment
- Supplemental Oxygen Required
- Vision Impairment

If so, please visit www.stjamesmo.org. Click the link under "Emergency Alert System" to register online.

To register offline, please fill out the information below and to the left. Drop off this card at the St. James Municipal Utilities Office.

Name _____

Address _____

Phone _____

Cell _____

Email _____

For questions contact MRPC at 573-265-2993 or City Hall at 573-265-5585.

Information collected is available for viewing by emergency response, city, county, and MRPC administrators. Registering does not guarantee immediate assistance during a natural disaster. Individuals without special needs are encouraged to register as well.

Appendix C

Do You Need Special Assistance During Emergencies?



The Meramec Regional Planning Commission (MRPC) and the City of St. James are conducting a study of Vulnerable and At-Risk populations – those folks who need special assistance during emergencies because of health-related limitations and special needs. For example, do you require electricity to operate medical equipment? Do you need help or special transportation to evacuate your home? The study consists of a VOLUNTARY registry with the Phelps County Emergency Alert System.

Data collected will help emergency responders plan for assisting special needs populations during a disaster.

To register online, please visit www.stjamesmo.org. Click the link under “Emergency Alert System”.

To register offline, please fill out the information below. Drop off this pamphlet at the St. James Municipal Utilities Office.

Name _____
Address _____
Phone _____
Cell _____
Email _____

Do you have one of the following special needs?

- | | | |
|--|---|---|
| <input type="checkbox"/> <u>Dialysis</u> | <input type="checkbox"/> <u>Life-sustaining</u>
Equipment | <input type="checkbox"/> <u>Service Animal</u>
Required |
| <input type="checkbox"/> <u>Hearing</u>
Impairment | <input type="checkbox"/> <u>Mental/Cognitive</u>
Condition | <input type="checkbox"/> <u>Speech Impairment</u> |
| <input type="checkbox"/> <u>Homecare</u>
Assistance | <input type="checkbox"/> <u>Mobility Impairment</u> | <input type="checkbox"/> <u>Supplemental Oxygen</u>
Required |
| <input type="checkbox"/> <u>Language</u>
Interpreter Needed | <input type="checkbox"/> <u>Refrigerated</u>
Medicines | <input type="checkbox"/> <u>Vision Impairment</u> |



For questions, contact MRPC at 573-265-2993 or City Hall at 573-265-5585.

Information collected is available for viewing by emergency response, city, county, and MRPC administrators. Registering does not guarantee immediate assistance during a natural disaster. Individuals without special needs are encouraged to register as well.

Appendix D

Vulnerable Population Marketing Strategy

KEY DELIVERABLE DESCRIPTION						
Vulnerable/at-risk population case study will run from July 28th to October 31st.						
TASK NO.	Strategy	Description	COST PER TASK	PROGRESS STATUS	TIMELINE STATUS	COMMENTS
1	Newspaper	St. James Press	\$ 108.90	Complete	Aug., Sept., Oct.	Ad ran once a month. \$108.90 is the total for the 3 months
2	Online Advertisement	MRPC	N/A	Complete	July 28th	Press Release
3	Social Media (Facebook)	MRPC, City of St. James, St. James PD, Phelps Co. Emergency Management, Rolla Police Dept., St. James Ambulance Dist.	N/A	Complete	July 31, Aug. 28th, Sept. 25th, Oct. 23rd	As of 8/2/17, 3,145 reached, 24 shares
4	STJMU Statements	Flyers	\$ 530.00	Complete	Sept. Statements	1,800 Flyers
5	Storefront locations	Caring Center, St. James Mercy Pharmacy, Forest City Health Mart, Forest City Medical Center Pharmacy, Forest City Dr. Office, St. James Public Library, STJMU front desk, First Assembly of God Church, Pyramid Home Health Services, Visiting Angels Rolla, Premier HHC, American Homecare Rolla, Tri-County Center for Individual Living	Post cards, and flyers	Complete	Starting July 31	Flyers and post cards delivered around St. James on July 31. Fax sent to home health services on August 2nd
6	Press Release	Bott Radio Network, KKID, KMNR, KMST, Results Radio, Regional Newspapers	N/A	Complete	July 28th	Sent to MRPC regional newspapers and radio. Ad ran once over radio with information from Caitlyn's cost inquiries.
7		TOTAL COST	\$ 638.90			
		TOTAL TIME	3 MONTHS			
ADDITIONAL NOTES						
*Please visit www.stjamesmo.org . Click the link under "Emergency Alert System" to register online or contact Ryan Dunwoody at the Meramec Regional Planning Commission 573-265-2993. *Registry URL - https://member.everbridge.net/index/1332612387831861#/signup						

Appendix E

