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ABSTRACT

There are still up to 75,000 incidents of sanitary sewer overflows each year across the country (United States Environmental Protection Agency, 2014). Overflows of untreated sewage can compromise water quality, contaminate waterways and threaten public health. The National Institute of Environmental Health Sciences recommended areas for further research, which included studying methods and channels to translate research findings to the community and improving communication strategies, particularly encouraging community participation in research efforts (Srinivasan, O'Fallon, & Deary, 2003, p. 1446).

Following the Community Readiness Model (CRM), individuals from communities experiencing the greatest disparities regarding sewer overflow were interviewed to measure community attitudes, knowledge of efforts, and activities and resources with regards to sewer overflows. A mixed-model approach was adopted that included a conventional content analysis of the individual transcribed interviews. Findings validated our study hypothesis about the lack of community and leadership awareness of sewer overflows in areas where there has been limited community engagement. Based on the results of CRM's qualitative scoring and thematic analysis process, appropriate and targeted intervention strategies can be developed to address specific community readiness levels in each individual community.

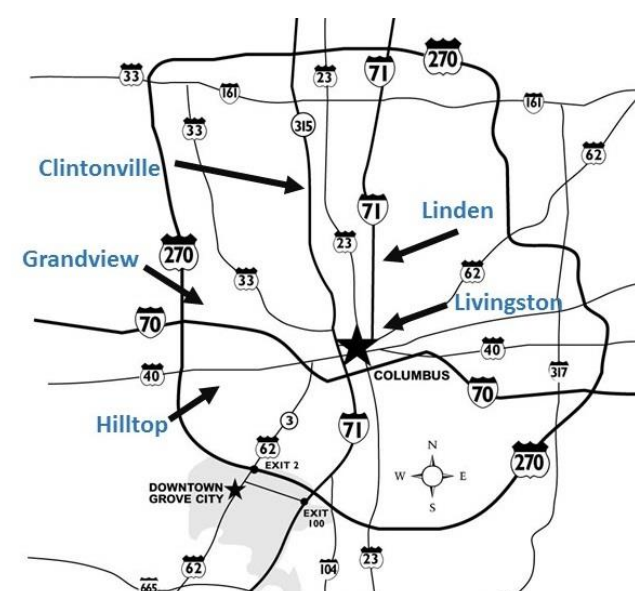
INTRO

Blueprint Columbus is the city of Columbus' plan to eliminate sanitary sewer overflows by addressing the source of the problem mostly occurring on private property. Built environment is a current public health issue that refers to "all of the physical parts of where we live and work and encourages a healthier community" (Centers for Disease Control and Prevention, 2011, para. 1). Blueprint is an example of incorporating the built environment into the community. Strategies of the initiative include lining leaky residential sewer laterals, redirecting roof water runoff, installing green infrastructure, and a voluntary sump pump program.



OBJECTIVES

- Identify appropriate interventions per community to address sewer overflow based on the community's readiness level.
- Demonstrate how the Community Readiness Model can be used to address sewer overflow in a community.
- Describe the significance of determining a community's readiness level before implementing built environment interventions.



MATERIALS & METHODS

Using the CRM framework, the following steps were conducted to assess specific community readiness levels regarding sewer overflow in each community:

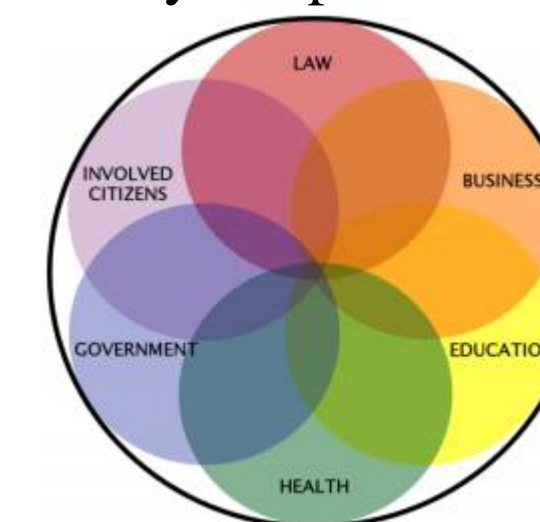
- IRB Approval from the OhioHealth Institutional Review Board
- 6-8 people identified and interviewed within each community about their knowledge of sewer overflow & Blueprint Columbus
- Interviews transcribed via recordings from www.saveyourcalls.com
- Two sub-investigators scored separately, then agreed upon final scoring
- Overall stage of readiness evaluated for each community

Six Dimensions

Community Efforts
Leadership
Community Climate
Community Knowledge about the Issue
Resources Related to the Issue



Key Respondents



Note. Retrieved from *Community readiness: A handbook for successful change*. Copyright 2006

RESULTS

Table 1
Demographics

	Clintonville N=7	Hilltop N=6	Grandview N=6
Gender			
Male	5 71.43%	2 66.67%	4 66.67%
Female	2 28.57%	2 33.33%	2 33.33%
Race: Caucasian	7 100.00%	6 100.00%	6 100.00%
Age			
35-44	0 0%	2 33.33%	2 33.33%
45-54	2 28.57%	2 33.33%	1 16.67%
55-64	2 28.57%	1 16.67%	1 16.67%
65 and above	3 42.86%	1 16.67%	2 33.33%
Employed			
Full-time	2 28.57%	5 83.33%	6 100.00%
Part-time	2 28.57%	0 0%	0 0%
Not currently employed	3 42.86%	1 16.67%	0 0%
Live in Community of Interest			
Yes	7 100.00%	3 50.00%	4 66.67%
No	0 0%	3 50.00%	2 33.33%
Work in Community of Interest			
Yes	2 28.57%	5 83.33%	4 66.67%
No	5 71.43%	1 16.67%	2 33.33%

Interviews were conducted, transcribed, and scored, for the Clintonville, Hilltop, and Grandview communities. Demographics of the interviewees are shown below. The Linden and Livingston-James communities were slow to obtain interviewees and were not included in this analysis.

Table 2
Community Readiness Dimension Scores

	Clintonville	Hilltop	Grandview
A. Existing Community Efforts	5.9	2.67	3
B. Community Knowledge of Efforts	3.6	2	2.83
C. Leadership	3.1	2.34	2.5
D. Community Climate	3.4	1.84	3.17
E. Community Knowledge of Issue	4	3	3.67
F. Resources	4.4	3.84	2.67
Overall Stage of Readiness	4.1	2.62	2.97
	Preplanning	Denial/Resistance	Vague Awareness

RESULTS cont.

Key Interview Statements:

- "I'm assuming that they're probably thinking about it but not necessarily taking a lot of actions." (Grandview)
- "I don't think most people think about it a lot. When they do, they think about it a lot." (Clintonville)
- "Nobody cares. Unless it affects you nobody cares. If my sewer was backing up, yes, I would care." (Hilltop)

CONCLUSIONS

Targeted strategies were selected for each community based on the CRM's suggested goals for each stage of readiness. Strategies were chosen based on the uniqueness of each community. Focused community engagement activity is planned in area neighborhoods prior to the beginning of construction on Blueprint Columbus. According to CRM, a key intervention based on each readiness score is:

Clintonville – Goal: Raise awareness with concrete ideas to combat condition

Strategy: increase media exposure

Grandview – Goal: Raise awareness that the community can do something

Strategy: post flyers, posters and billboards

Hilltop – Goal: Raise awareness that the problem exists in this community

Strategy: present information to local community groups

REFERENCES

- Centers for Disease Control and Prevention (2011). Impact of the built environment on health. Retrieved from: <http://www.cdc.gov/nceh/publications/factsheets/impactofthebuiltenvironmentonhealth.pdf>
- Plested, B.A., Edwards, R.W., & Jumper-Thurman, P. (2006, April). *Community readiness: A handbook for successful change*. Fort Collins, CO: Tri-Ethnic Center for Prevention Research.
- Srinivasan, S., O'Fallon, L. R., & Deary, A. (2003). Creating healthy communities, healthy homes, healthy people: initiating a research agenda on the built environment and public health. *American Journal of Public Health, 93*(9), 1446-1450.
- Tetra Tech, Inc. (2014). Draft summary of blending practices and the discharge of pollutants for different blending scenarios background information. Retrieved from http://water.epa.gov/polwaste/npdes/sso/upload/sso_lit_review_draft.pdf.
- United States Environmental Protection Program. (2014). Sanitary sewer overflows and peak flows. Retrieved from: <http://water.epa.gov/polwaste/npdes/sso/>.
- Waganet, L.P. and Pfeffer, M. J. (2007). Organizing citizen engagement for democratic environmental planning. *Society & Natural Resources: An International Journal, 20*(9), 801-813.
- Younger, M., Morrow-Almeida, H. R., Vindigni, S. M., & Dannenberg, A. L. (2008). The built environment, climate change, and health. *American Journal of Preventive Medicine, 35*(5), 517-526.

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