



The Importance of Assessing Stakeholder Knowledge and Community Values to Enhance Public Participation in Environmental Planning

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5 Enhance Public Participation in Environmental Planning
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12 **Abstract**
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15 Engaging the public is an important component of environmental planning. Citizen
16 engagement is most effective when it moves beyond just information exchange and offers
17 opportunities for meaningful involvement. In order to explore how knowledge and values could
18 affect public participation, this research reports the results telephone survey of residents in close
19 proximity to a nuclear facility that is currently being decommissioned by the U.S. Department of
20 Energy. The survey was designed to assess community values, knowledge and familiarity with
21 the site in question, and sources of information related to the site. Results emerge underscoring
22 the importance of proximity in relation to public awareness with people who live closest to the
23 site being most familiar with it. Differences based on levels of knowledge and familiarity also
24 suggest additional challenges in coordinating effective public participation at facilities that have
25 a legacy of excluding the public from the decision-making process.
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Introduction

Public participation in environmental planning is most effective when it moves beyond just information exchange and offers opportunities for meaningful involvement. Structured public participation evolved in 1969 when Arnstein proposed a “ladder of citizen participation,” which is still referred to in evaluating community engagement (Arnstein, 1969). She presents a model that identifies major differences between “manipulation,” which is on the lowest rung of the ladder, and “citizen control,” which is on the top rung. The “nonparticipation” and “tokenism” rungs of the ladder are essentially those activities that involve an emphasis on educating the public and one-way information flow. Arnstein argues that that public participation actually occurs only when there is a true partnership with citizens and they have some power in the planning process.

Creating partnerships and empowering citizens implies that they are respected as sources of knowledge about the issues being discussed and that planners are sincerely interested in their experiences and values. This means that planners and decision makers must go beyond just “hearing” what the public has to say to “listening” to what they are saying so that they can understand the “public mindset” (Conrad et al., 2011). As such, effective public participation and community engagement should start with exploring and documenting opinions and knowledge of those most affected by pending decisions. There is a wealth of information readily available from local citizens but accessing this information requires decision makers to move well beyond informing the public to accepting the public as legitimate partners in environmental planning.

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3 Among the many challenges of public participation in planning is that fact that even
4 when there are opportunities provided to participate in decision making, there are factors that
5 contribute to the likelihood that citizens will actually get involved. These factors include
6 perceived costs and benefits to participating (Mannarini et al, 2010; Bryson & Adneron 2000),
7 the design of the participatory process (Webler & Tuler, 2006), and even gender (Piccoli &
8 Rollero, 2010). In addition, there has been substantial research on the role that public trust in
9 decision makers plays in the planning and policy-making process (Lange & Gouldson, 2010;
10 Pautz, 2009; Konisky, Milyo, & Richardson, 2008), with several of these studies focusing
11 specifically on sites managed by the U.S. Department of Energy (Greenberg, et al., 2007;
12 Williams, Brown, & Greenberg, 1999).
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28 The U.S. Department of Energy (DOE) has a history of public participation in decisions
29 regarding their facilities; however, for many years, this participation was on the lower rungs of
30 the citizen participation ladder and involved community relations rather than engagement. The
31 situation at many federal facilities has changed recently, and with these changes has come a new
32 emphasis on moving up the public participation ladder. While most of the emphasis on
33 community engagement is mandatory through federal laws and agency directives, the impact of
34 involving the public in decisions about the future of contaminated federal facilities is beginning
35 to emerge. This emergence is due to several public participation projects that were funded by the
36 DOE to engage local communities in long-range planning related to former uranium enrichment
37 plants in Paducah, Kentucky and Piketon, Ohio.
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52 This research focuses on the importance of understanding the role of local public
53 knowledge in relationship to an environmental planning process at one federal facility, the
54 Portsmouth Gaseous Diffusion Plant (PORTS) in southeastern Ohio. PORTS is located in an area
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3 identified in the Appalachian region of the country, specifically in Pike County, near Piketon,
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5 Ohio. PORTS was built in the early 1950s to enrich uranium for use on nuclear weapons and
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7 uranium enrichment continued into the 1970s, but shifted from supporting national defense
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9 initiatives to enriching uranium for nuclear power plants. Uranium enrichment ceased at the
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11 approximately 3700 acre site in 2001 and in 2005 the site entered a phase known as “deactivation
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13 and decommissioning” or the cleanup phase. Clean-up activities are currently ongoing as
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15 required by administrative orders and in compliance with federal and state environmental laws
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17 and regulations.
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23 Community involvement is one mandated component of cleanup at federal facilities and
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25 this is especially challenging considering a history of secrecy surrounding these sites. While
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27 uranium enrichment for nuclear weapons was occurring at multiple locations in the United
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29 States, the government maintained strict control over the flow of information, in the name of
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31 national security. Furthermore, due to federal facilities’ exemption from many environmental
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33 laws, such as the National Environmental Policy Act (NEPA) and hazardous waste legislation
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35 that required public participation in environmental decision making, local citizens were not
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37 aware of activities affecting their communities until the early 1990s when these facilities began
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39 environmental cleanup. Since that time, there have been numerous opportunities for public
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41 participation at PORTS. While many of these public participation opportunities have emphasized
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43 information exchange (the lower rungs of the ladder), current activities are focusing more on
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45 empowering local citizens to contribute to decisions related to the future use of the site. This has
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47 required DOE to move the higher rungs of the participation ladder starting with understanding
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49 the local public values and knowledge as important components of the decision-making process.
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56 57 **Challenges and history of citizen participation at PORTS** 58 59 60

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As a result of legislative mandates and public pressure, citizen participation at U.S. uranium enrichment facilities has progressed as these sites transitioned from being managed by the Department of Defense to the Department of Energy. For many years, the federal government deliberately withheld information from the public due to concerns about national security and public participation was nonexistent. When information did start to flow to the public, it was not transparent and was only one-way; information was filtered by the government and did not paint an honest picture of activities at these sites. When the United States signed the Treaty on the Non-Proliferation of Nuclear Weapons in 1968, we agreed that uranium enrichment for the purpose of arming nuclear weapons would cease. However, production of nuclear materials, including enriched uranium, could continue for peaceful purposes, such as energy generation and research. As the production of fuel for nuclear weapons was no longer a national priority and the cloak of secrecy surrounding federal facilities weakened, questions began to arise about the safety of the facilities where uranium was enriched.

Secrecy and non-participation

Uranium enrichment in the United States began in the early 1940s mainly as a reaction to World War II and global threats to national security. Concerns immediately arose about information related to the enrichment activities being obtained by enemies of the United States. As such, the Atomic Energy Commission (AEC) maintained strict control over information released and was criticized for doing so. In a 1955 column in the *Bulletin of the Atomic Scientists*, reporter Gene Marine argued that the need to keep uranium enrichment a “secret” was illogical and the press at the time contributed to the myth of secrecy. He contends that reporting on U.S. atomic activities during this very active time involved simply taking “handouts” from the AEC and reprinting them in the newspaper. His main argument is that the press did the public a

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3 huge disservice by propagating the need to keep all of the nuclear activities clandestine and the
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5 result was enhanced public misunderstanding and fear about radiation and radioactivity.
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8 An example of the impact of the information blackout surrounding uranium enrichment
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10 facilities can be found in a 1959 *Saturday Evening Post* article (Bird, 1959) which explains
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12 activities in Oak Ridge, Tennessee. Oak Ridge, which was the home of the Manhattan Project,
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14 was the site of America's first successful attempt at uranium enrichment. The community was
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16 planned and created by the Atomic Energy Commission in the early 1940s. AEC made an
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18 arrangement with the state of Tennessee to own the land, but the site never became a federal
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20 reservation. As such, when the time came to consider establishing an actual town, rather than a
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22 work camp of scientists researching uranium enrichment, it was important to encourage
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24 businesses to locate in the community. According to one AEC official in 1959:
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32 "We couldn't tell a prospective merchant much of anything about the town. They would
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34 ask what the population was—but that was secret. How big was the payroll? Secret too.
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36 Well, what were we manufacturing here? Biggest secret of all. We could only give them
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38 strong hints we needed their kind of goods or service here and hope they would come in
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40 on a one-year lease with a thirty-day cancellation clause" (Bird 1959, 120).
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46 Oak Ridge was known as "Secret City" and, according to Harper (2005, 42), "one did not
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48 speak of one's work to anyone, and one did not question rules, procedures, or even objectives of
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50 one's work." Maintaining secrecy around the facility was seen as crucial to ending World War
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52 II, however the mystery persisted as Oak Ridge transitioned to a suburb of Knoxville in 1959,
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54 and recently into the Oak Ridge National Laboratory, a hub of technology and research. This
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3 persistence was the result of “the shared values of discretion and silence” which were seen as just
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5 as important during the Cold War (Harper 2005).
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8 This brief discussion of secrecy provides context to the role of information accessibility
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10 in encouraging meaningful public engagement. Historically, information about activities at
11
12 uranium enrichment sites has been tightly controlled by the government to the point that even
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14 workers did not share information with family and neighbors. When information was released, it
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16 was done so in a measured way and local citizens relied on news reports that were essentially
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18 propaganda from the federal government. For more than 50 years, information was essentially
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20 embargoed at federal nuclear facilities and this embargo contributed to contemporary issues with
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22 the perceived trustworthiness of agencies responsible for managing these sites. There was no
23
24 public participation in the decisions that were being made at these facilities, even as they were
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26 beginning to contribute to serious environmental hazards that would eventually affect local
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28 residents.
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33 34 *Moving up the participation ladder* 35 36

37 In order for DOE to move from information exchange and nonparticipation to meaningful
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39 public participation, it was clear that local citizens must be engaged in structured ways that could
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41 contribute to public support of their clean-up decisions. Productive engagement starts by
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43 appreciating the public’s inherent knowledge about how the facilities have affected their
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45 communities and an assessment of community values. Members of the public who are most
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47 directly affected by environmental planning decisions have knowledge about community
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49 impacts. This type of knowledge has been referred to as “indigenous knowledge” and can be a
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51 critical component of long-term environmental planning (Newson and Chalk, 2004; Singh,
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53 2008). In complex environmental situations, lay people are “technical experts” who have
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3 “access to knowledge that is not available to others” (Petts and Brooks, 2006). This local
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5 knowledge is based on experience and direct connections to facilities in the form of employment,
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7 relationships, or indirectly through community benefits and costs.
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11 The requirement for community relations at PORTS was specified in 1989, when the
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13 Ohio Environmental Protection Agency (Ohio EPA) and DOE entered into a consent decree in
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15 order to avoid enforcement actions that could lead to litigation regarding environmental
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17 conditions at the site. A specific component of this agreement was that DOE would create a
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19 community relations plan
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24 “...with responsible local and State officials and interested community leaders, for the
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26 dissemination of information to the public regarding investigation and cleanup
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28 alternatives study activities and results. Opportunities for comment and input by citizen,
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30 community, and other groups must also be identified and incorporated into the plan”
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32 (Ohio EPA v. US DOE, 1989).
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37 With the consent decree mandating that strategies for involving the local community be
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39 documented, DOE started on the lower rungs of the participatory ladder with the publication of
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41 the first *Environmental Bulletin* for PORTS in 1990. The purpose of the Bulletin was to provide
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43 information to interested stakeholders about activities at the site and to encourage citizen
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45 engagement. Shortly after publishing the first *Bulletin*, DOE created an Environmental
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47 Information Center to provide public access to documents and reports related to site actions. This
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49 center is still operated by DOE, houses numerous technical reports and documents, and is open
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51 to the public during specific hours.
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3 Ten years before the consent decree between Ohio EPA and DOE was established, the
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5 Comprehensive Environmental Response Compensation and Liability Act (CERCLA) included
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7 an emphasis on community relations in environmental decision making. Superfund, which is one
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9 component of CERCLA, was a trust fund established to pay for cleanups at abandoned
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11 hazardous waste sites, was a component of the 1980 law. However, it wasn't until 1992 that U.S.
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13 EPA developed a handbook for community relations at Superfund sites in order to ensure that
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15 local communities were informed about clean-up decisions. The 2005 update of the handbook
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17 was renamed the "Community Involvement Handbook" because U.S. EPA now distinguishes
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19 between one-way information exchange (i.e. community relations) and a productive dialogue
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21 (i.e. community involvement) about sites (USEPA, 2005).
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28 Prior to the publication of the updated handbook, the Federal Facilities Compliance Act
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30 (FFCA) was passed requiring federal facilities, such as PORTS to comply with federal
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32 environmental laws. Until this act was passed in 1992, federal facilities were exempt from the
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34 many major environmental laws. In the case of PORTS, the compliance requirement now
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36 included CERCLA with its focus on community relations, and subsequent community
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38 involvement. About this same time, U.S. EPA was concerned enough about the lack of public
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40 participation at federal facilities that it created a Federal Facilities Environmental Restoration
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42 Dialogue Committee. This committee issued an interim report in 1993 that summarized serious
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44 problems with public participation at federal facilities, especially in terms of the lack of trust
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46 between the public and DOE. One solution to address these problems was to recommend that
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48 DOE establish citizen advisory boards to involve local residents in productive ways.
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55 At PORTS the *Environmental Bulletin* was used as one of the tools to develop the first
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57 community relations plan for PORTS in 1993 and the concurrent public participation plan that
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3 was submitted to Ohio EPA in 1993 as well. In 1994, DOE conducted a survey of local residents
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5 in close proximity to PORTS to see if there was support for creating a site specific advisory
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7 board (SSAB). Although only 8% (25/300) of the mailed surveys were returned, DOE concluded
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9 that it would be a good idea to create an SSAB and steps were taken to establish one. However, it
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11 wasn't until 2008 that the SSAB at PORTS was officially chartered by DOE and held their first
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13 meeting.
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18 Between 1994 and 2008, when the PORTS SSAB first met, there was a significant
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20 amount of community involvement activity including updates to the public participation and
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22 community relations plans, the formation of a local economic development organization
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24 specifically focused on the relationship between PORTS and the community, and an important
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26 report that renewed the importance of meaningful local engagement. This report, the *Politics of*
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28 *Cleanup*, was prepared by an independent organization at the request of U.S. Congress for the
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30 purpose of identifying lessons learned during the ongoing clean-up activities at federal facilities.
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32 The report emphasized the importance of understanding community values in environmental
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34 decision making and the need for DOE to establish trust with local communities as a critical
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36 element in productive citizen involvement.
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43 In order to assess community values, the community must be understood in terms of its
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45 geographic and social context. In terms of geographical context, defining the community from
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47 which to draw public participation is a critical step in the planning process because proximity
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49 can affect values and concern both positively and negatively. In the case of environmental
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51 problems, proximity to hazardous facilities has been shown to be related to perceived risk from
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53 these facilities with people who live closer often exhibiting less concern (Greenberg & Bloustein,
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55 2009; Burger, 2004). Lower levels of concern based on proximity can be a function of
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3 familiarity combined with the fact that those who live closer to hazardous facilities may directly
4 benefit from the facility due to jobs and other economic considerations.
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9 One important example of the social context related to community values is local
10 economic conditions. Blanchard and Matthews (2006) conducted a study that included
11 households across the United States to examine the relationship between the economy and civic
12 participation. Their findings suggest that the decline of “main street” retail businesses and the
13 concentration of employment in one or two large businesses or industries is correlated with a
14 lack of citizen involvement as measured by voting and participating in protests. There is no
15 doubt that the federal facilities built in outlying rural areas small communities in the 1950s led to
16 what Blanchard and Matthews refer to as “economic concentration” which includes “(1) the
17 concentration of employment into a small number of businesses; (2) the share of employment
18 accounted for by non-local business owners; and (3) the industrial concentration of business
19 activity” (p. 2247).
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36 Public involvement in environmental decision making has a rich research base and a
37 significant amount of this research has focused on attempting to identify the important factors
38 that contribute to productive citizen engagement. It is clear that there is a range of factors that
39 contribute to public involvement including proximity, perception, and social conditions such as
40 the state of the economy. Underlying all of these factors however is the question of the impact
41 of knowledge and understanding on motivating people to participate in planning and whether
42 there are indicators related to the level of knowledge.
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52 53 **Data and methods** 54 55 56 57 58 59 60

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3 This research was conducted as part of a larger public outreach project at PORTS which was
4 funded by a grant from DOE, but facilitated by neutral third party. The overall purpose of the
5 project was to obtain community input on the future use of the site that could then serve as the
6 basis for clean-up and long range planning decisions. The project, known as *PORTSFuture*,
7 involved multiple approaches to community engagement including large public meetings,
8 attendance at community events, and speaking engagements with local organizations. In an effort
9 to move up the participation ladder and go beyond one-way information exchange, several
10 research activities examined local knowledge and perceptions about the site. The activities
11 included key informant interviews, focus groups, a telephone survey, and community visioning.
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25 Key informants are individuals within a community who have historical and current
26 knowledge about important issues. In the case of PORTS key informants were identified by their
27 familiarity and experience with the site and included former and current employees, local public
28 officials, representatives from citizen groups and local planning agencies. Eight interviews were
29 conducted in the summer of 2010 with a semi-structured guide that allowed researchers to probe
30 responses but still obtain comparable information. Interviews lasted from 60 to 90 minutes,
31 followed approved ethics protocol, and were audio-recorded and transcribed. Several key themes
32 emerged in these interviews and will be reported elsewhere.
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45 In contrast to the key informants, the focus groups sought to involve local citizens regardless
46 of their familiarity with the site. A discussion guide was based on information gathered during
47 the key informants interviews and additional historical research. Participants were recruited
48 through direct contact and by advertising in the local newspaper; they received a small incentive
49 for their participation. The discussion was audio-recorded and transcribed following approved
50 ethics protocol.
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3 The focus groups and key informants interviews are not the emphasis of this paper, they are
4 noted here in order to provide context for the survey research. Results from the key informant
5 interviews and focus groups were used to develop a telephone survey targeted only to individuals
6 who live in the four counties immediately surrounding the site. The decision about the
7 geographic context of the project was based on the need to identify clear boundaries and the four
8 counties selected include those that are likely most directly affected by facility decisions. These
9 four counties share a close proximity to the site as well as some demographic characteristics as
10 noted in Table 1. The unemployment rate and percent below poverty is higher than the state
11 percentages, while median household and per capita incomes are lower than the state values.
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13 Pike County, the location of PORTS, has the highest unemployment rate in the state of Ohio.
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31 The survey was specifically designed to gather data related to public perception of major
32 problems facing the region and preferences for the future use of the site, additional questions
33 sought to probe citizen knowledge and awareness about PORTS. The survey was pilot tested
34 with focus group individuals and key informants provided feedback on the survey questions.
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36 Sections in the survey included: (1) demographics; (2) community concern; (3) familiarity with
37 the PORTS site; (4) awareness and information; (5) sources of information; and (6) preferences
38 for the future of the site. Specifically the survey was designed to answer four broad questions:
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- 48 1. What are the community priorities and values?
 - 49 2. What does the public know about PORTS?
 - 50 3. Who does the public rely on and trust for information?
 - 51 4. What is the current public opinion on the potential for uses for the site?
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3 The community priorities question is an example of one way to measure community
4 values. The open-ended question asked respondents to list the two biggest problems facing the
5 community. No prompts were given and like responses were aggregated. The familiarity and
6 information sections assessed knowledge and access to information sources. Respondents were
7 asked whether they were familiar with the site and if they followed news about it. In addition,
8 one item measured self-reported knowledge by asking respondents if they felt they knew a lot
9 about the site. It was critical to assess familiarity to the site because only respondents who said
10 they were familiar with the site were questioned about concerns related to the site's future.
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23 One section of the survey was intended to assess levels of awareness with organizations
24 that are working at the site. An open-ended question probed respondents to list public and private
25 organizations that are currently operating at the site. This item was followed up with a listing of
26 some of the key organizations involved and respondents were asked to identify if they were
27 aware of each organization. The key informant interviews were important in identifying the
28 organizations that should comprise the list. One survey item attempted to measure trust by
29 having respondents identify levels of confidence in whether organizations provide accurate
30 information about the site.
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43 In order to evaluate the impact of information sources on community awareness, the
44 survey provided a list of sources including media, the internet, and personal sources.
45 Respondents identified how frequently they accessed each of the sources for information about
46 their community. An additional question was included to measure the level of trust and
47 confidence in the media when it comes to reporting the news. The reason for including items
48 related to media coverage is to explore whether there is a relationship between use of sources
49 of information and whether people feel knowledgeable about the site. To answer this question,
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3 we used on-way analysis of variance (ANOVA) to compare means between those who say they
4 are knowledgeable (1) and those who say they have no knowledge (2).
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9 The final section of the survey included items that were specifically targeted to quantify
10 public preferences for the future of the site. First, a general question about the importance of the
11 site for the future of their community was asked. Then, a list of four possible future uses of the
12 site were provided, and respondents were asked to identify their most and least preferred use for
13 the site. This section was important in that it provided baseline data relevant to the overall
14 purpose of the project, that is, to gather future use alternatives.
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24 Since only people who live in the four counties were eligible to participate in the survey,
25 it was critical to obtain as representative as sample as possible. The overall goal was to complete
26 1000 surveys and gender and age quotas were constructed for the four counties using population
27 estimates from the U.S. Census. Table 2 shows the number of respondents identified by gender
28 and age which conformed established quotas.
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40 The survey was implemented by using randomly generated lists of landline phone
41 numbers only. The use of landline phones is an important limitation that has emerged in survey
42 research in recent years, because of the prevalence of cell phones leading to a decline in the use
43 of landlines phones. However, the approach to stratify the sample based on demographic
44 characteristics is one way to address the limitation with landline phones.
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52 Since the questions explored in this paper are largely related to comparisons between and
53 across groups based on survey responses, most of the analysis involves cross-tabulations using
54 the Chi-Square statistic. The focus of this analysis was to discover significant differences based
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3 on several characteristics including proximity, knowledge and awareness, and community
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5 values.
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8 9 **Results**

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12 There is no question that the economy provides social context to community values as
13 residents in the four counties were more concerned about economic conditions than any other
14 issue. This first became clear during the key informant interviews and in the focus groups as
15 “jobs” was the first response to the question: “what is the most important issue facing the region
16 right now?” As Figure 1 shows, survey results confirmed that jobs and the economy were of
17 greatest concern to residents in the four counties. More than 82 percent of the respondents
18 identified jobs and the economy in response to the open ended questions: What do you feel are
19 the two biggest problems facing your community?
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32 <Figure 1>
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35 In keeping with past research, proximity to the site was related to differences in
36 knowledge and familiarity about the site. Those who lived in the county that houses PORTS (i.e.
37 Pike County) were more likely to state that they were familiar with and knowledgeable about the
38 site. Overall, the residents of the four counties said they were familiar with the site, which was
39 important because many of the survey questions were only intended for people who were
40 familiar. The finding of general familiarity with the site was somewhat unexpected based on
41 discussions with key informants who were mixed in their opinions about how familiar the public
42 would be with the site. One key informant specifically stated that “nobody knows about the
43 plant.” However, other key informants believed that people were generally interested in the site
44 because of its impact on the employment in the region. One key informant noted that people
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3 have “learned to live with it, understand it” and believed that those who live in the area around
4
5 the site are the “best educated community.”
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9 As Table 3 shows, almost 75 percent of all respondents said that they were familiar with
10 the facility. In this case, familiarity was not reported on a Likert scale, rather people were asked
11 if they were familiar with the facility or not. As such, if someone said they were familiar with the
12 site, it could have meant that they have worked there for 30 years, or that they read an article in
13 the newspaper once. When familiarity was broken down by county of residence, respondents in
14 Pike and Scioto counties were more likely to be familiar with the facility than residents in
15 Jackson and Ross counties. This was likely due to the fact that PORTS is located in Pike County
16 and Scioto County has been a historical base of employment for the site. On the other hand,
17 Jackson and Ross counties are less likely to house people who work at the plant since their
18 economies are more diverse and they are closer to other sources of employment.
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33 <Table 3>
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37 To get a sense of how much the public knows about the site, a self-reported level of
38 knowledge was measured. The results of the survey confirmed some of the comments from key
39 informants in that only 38.5% of the respondents said that they knew “a lot” about the site.
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41 Similar to familiarity, proximity seems to be an important indicator of this knowledge. As Table
42
43 4 shows, residents of Pike County were more likely than residents in any of the other counties to
44 say they knew “a lot” about the facility. More than one-half of the respondents from Pike County
45 stated that they had knowledge about the site compared to the other counties in which one-third
46 or so of the residents claimed to have knowledge about the site. Furthermore, when collapsing
47 the respondents into just two counties, Pike and “not Pike,” only about 36 percent of those who
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3 did not live in Pike county stated that they had knowledge about the site as compared to 54.5
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5 percent in Pike county.
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9 <Table 4>

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12 The impact of knowledge on concern and risk perception is compelling to planners who
13 are managing citizen participation, especially when this participation focuses on providing
14 information to the public. In some cases knowledge might make the public more concerned and
15 in other cases the reverse is true; either way perception is likely to affect community values. In
16 this case, knowledge played a role in how important the respondents perceived the site to be to
17 the future of the region and how concerned they are about the future of the site. Table 5
18 summarizes knowledge by perceived importance of the site. As these results show, more than 80
19 percent of the respondents thought the site was very important to the future of the community.
20 When this is broken down by self-reported knowledge, almost 88 percent of those who said that
21 they had a lot of knowledge about the site thought that the site was very important. Similarly,
22 people who said they had a lot of knowledge about the site were more concerned about the future
23 of the site than those who said they had no knowledge.
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41 <Table 5>

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44 Respondents were asked to identify where they obtained information about their
45 community and Figure 2 shows how frequently people used various information sources. Key
46 informants identified the local newspaper and the radio as an important information source, and
47 were in general agreement that the internet was not an important source for the local community.
48 Survey results indicated that the most prominent source of information is TV with about 69
49 percent of the respondents saying they used TV frequently as a source of information about the
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3 community; only 72 of 999 respondents said they never used the TV as a source of information.
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5 Radio was the next most used source, followed by family and friends. While the internet was
6
7 used frequently by about 44 percent of the respondents, almost 35 percent said they never used
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9 the internet. The statewide paper was never used by about 56 percent of the survey respondents.
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13 <Figure 2>
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17 Table 5 reports the results of the ANOVA and shows that there significant differences in
18
19 self-reported knowledge among those who read the local and statewide papers and those who
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21 listened to radio for information about their community. The more frequently respondents said
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23 that they used information sources in general the more knowledgeable they believed they were
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25 about the facility.
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29 <Table 6>
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32 33 **Implications for Public Participation in Planning** 34 35

36 Understanding public concern and quantifying familiarity and knowledge related to the
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38 environmental issues is an important component of citizen participation on the highest rungs of
39
40 the participation ladder. As such, planners would be wise to assess levels of concern and
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42 understanding prior to making plans to engage citizens in decision making. This research shows
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44 that factors such as proximity and information sources can influence public concern and help
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46 predict community values.
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50 The “Politics of Cleanup” which was the document that has guided recent DOE public
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52 participation endeavors explains that decision makers must understand community values in
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54 order for effective citizen engagement. In this case, community values were measured with a
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3 question related to the most important problems and jobs and the economy were clearly the
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5 greatest concerns, followed distantly by drugs. The public wants to talk about how to address the
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7 issues of unemployment and a weak economy and because unemployment rates are so high in
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9 the region surrounding the plant, this creates context for all public engagement activities. The
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11 first hint of how important discussing the economy is to the community emerged in the key
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13 informant interviews and focus groups and the survey results confirmed the importance.
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18 The emphasis on jobs and the economy leads to some challenges for citizen engagement
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20 focused on planning for the future of the site. Since the overall goal of this research project was
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22 to gather public opinion about alternatives for the future of the site, it is likely that those
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24 scenarios that the public perceive will create the most jobs will emerge as the most preferred.
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26 Furthermore, the fact that the environment was identified as an important community concern by
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28 only three percent of survey respondents suggests that planners will need to proceed cautiously
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30 in emphasizing environmental quality as a priority in site activities. However, if environmental
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32 cleanup can be shown to create additional jobs for the community, then it might be a good idea
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34 to include some discussion about environmental quality.
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41 The community value on local economic conditions aside, the results of the survey
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43 indicate general familiarity with the site but less self-reported knowledge. This raises an
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45 important issue in how to involve a public who is aware that the site exists, but doesn't know a
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47 lot about it. To further complicate this situation, those who live closest to the site are the most
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49 familiar and most knowledgeable about it. As such, there are multiple audiences who need to be
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51 accommodated in decision making and there is not a "one size fits all" approach to engagement
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53 that will be work in this situation. Furthermore, planners might want to consider how to involve
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55 those citizens with the most knowledge about the site in overall public participation activities.
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3 This is especially relevant considering that evaluation of Superfund community involvement
4 activities indicates that citizens who are most informed are also likely to be most satisfied with
5 public participation activities (Charnley & Engelbert, 2005)
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11 Planners and decision makers face constant challenges with how to communicate with the
12 public who is not engaged, but perhaps paying attention. In many cases media outlets are relied
13 upon as communication channels and in this case the television might be the best tool to use in
14 general information dissemination. Statewide newspapers are least likely to be an effective
15 means to inform the public. An issue arises in that those who are most knowledgeable about the
16 site are more likely to frequently read the paper than those who are not knowledgeable. Whether
17 this means that media contributes to knowledge or that knowledgeable people are more likely to
18 look for additional information about the site is not answered in this research; it does raise the
19 question about the use of media as a main tool to communicate with the public.
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33 In terms of the impact of proximity on perceptions related to the site, this study indicates
34 that there are differences in familiarity and knowledge related to county of residence.
35 Specifically, respondents who live in Pike County which houses PORTS, express greater
36 familiarity and levels of knowledge than respondents from the other three counties. The role of
37 proximity has been examined by Sharp and Adua (2009) in assessing how Ohioans feel about
38 agriculture. They found that people who live in rural areas are more trusting and supportive of
39 farmers than those who live in urban areas. However, they also found that geographic proximity
40 was not necessarily as important as whether people had relationships with farmers. In applying
41 this finding to PORTS, it might not be the physical distance to the site that influences perception,
42 rather it could be the personal connections that people have to the site that are more important in
43 motivating their participation in the planning process.
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Table 1. Select Demographic Characteristics of Four-County Region

County	Population (2010)	Unemployment rate (2011 %)*	Manufacturing jobs	% below poverty	Median Household income (\$)	Per capita income (\$)
Jackson	33,225	9.8	2,756	20.5	34,279	18,775
Pike	28,709	13.9	1,442	23.4	40,363	17,494
Ross	78,064	8.9	5,068	16.0	43,187	20,595
Scioto	79,499	11.5	3,188	22.1	34,124	17,778
State	162,694,945	7.6	774,572	13.6	45,052	

* All data from 2010 U.S. Census, except unemployment rate from Ohio Department of Job and Family Services.

Table 2. Telephone Sample Based on Gender and Age Quotas

	Jackson		Pike		Ross		Scioto		Total	
	N	%	N	%	N	%	N	%	N	%
Males										
18-34	22	2.2	19	1.9	62	6.2	57	5.7	160	16.0
35-49	21	2.1	18	1.8	58	5.8	46	4.6	143	14.3
50-64	18	1.8	15	1.5	44	4.4	40	4.0	117	11.7
65+	12	1.2	10	1.0	26	2.6	28	2.8	76	7.6
Females										
18-34	23	2.3	20	2.0	46	4.6	53	5.3	142	14.2
35-49	22	2.2	18	1.8	47	4.7	48	4.8	135	13.5
50-64	19	1.9	14	1.4	41	4.1	43	4.3	117	11.7
65+	17	1.7	14	1.4	36	3.6	43	4.3	110	11.0
Total										
	154	15.4	128	12.8	360	36.0	358	35.8	1000	

Table 3. Familiarity with the facility by County of residence

County	Familiar (%)	Not familiar (%)	Total
Jackson	103 (67.3)	50 (32.7)	153
Pike	110 (85.9)	18 (14.1)	128
Ross	248 (68.9)	112 (31.1)	360
Scioto	286 (80.1)	71 (19.9)	357
Total	747 (74.8)	251 (25.2)	998

Pearson Chi-Square 25.013 (3) Sig .000

Table 4. Knowledge about the site by county of residence

County	Yes	No	Total
Jackson	34 (33.0%)	69 (67%)	103
Pike	60 (54.5%)	50 (45.5%)	110
Ross	87 (35.2%)	160 (64.8%)	247
Scioto	104 (36.6%)	180 (63.4%)	284
Total	285 (38.3%)	459 (61.7%)	744

Pearson Chi-Square 18.584 (6) Sig .005

Table 5. Importance and Concern by Knowledge

How important do you think the site is to the future of your community?

Knowledge	Very important	Somewhat important	Not at all important	Total
Yes	248 (87.9)	24 (8.5)	10 (3.5)	282
No	340 (75.7)	101 (22.5)	8 (1.8)	449
Total	588 (80.4)	125 (17.1)	18 (2.5)	731

Chi square: 25.213 (2), sig .000

Are you concerned about the future of the site?

Knowledge	Yes concern	No concern	Total
Yes	248 (87.3)	36 (12.7)	284
No	363 (80.3)	89 (19.7)	452
Total	611 (83.0)	125 (17.0)	736

Chi square: 6.06 (1), sig .014

Table 6. Comparison of Use of Information Sources by Self-reported Knowledge
(1=has knowledge, 2 = no knowledge)

Source of information	Grouping	Knowledge Mean	F
Local paper	Frequently (358)	1.57	3.82*
	Sometimes (245)	1.64	
	Never (141)	1.70	
Statewide paper	Frequently (113)	1.44	11.04*
	Sometimes (246)	1.60	
	Never (385)	1.68	
Radio	Frequently (402)	1.57	3.73*
	Sometimes (231)	1.67	
	Never (111)	1.67	
TV	Frequently (501)	1.62	1.44
	Sometimes (187)	1.62	
	Never (55)	1.51	
Internet	Frequently (338)	1.60	.625
	Sometimes (166)	1.60	
	Never (240)	1.65	
Family	Frequently (344)	1.58	1.44
	Sometimes (308)	1.65	
	Never (92)	1.65	

* One-way analysis of variance, $p < .05$

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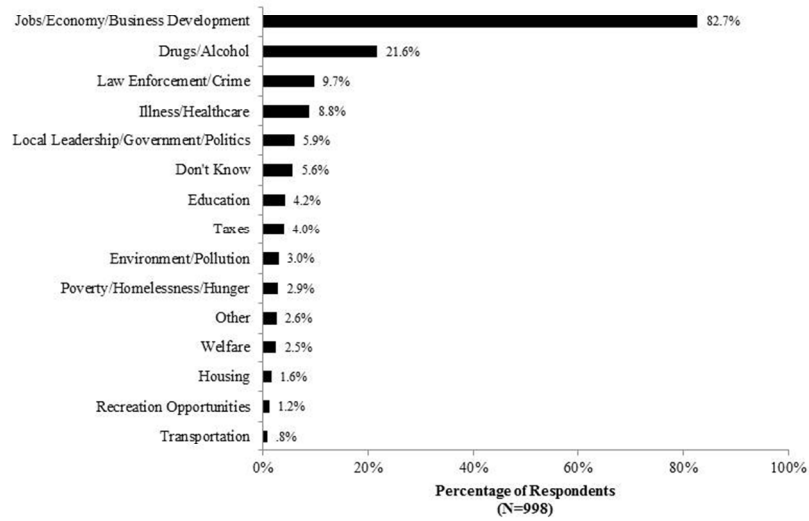


Figure 1. Important Community Concerns
254x190mm (96 x 96 DPI)

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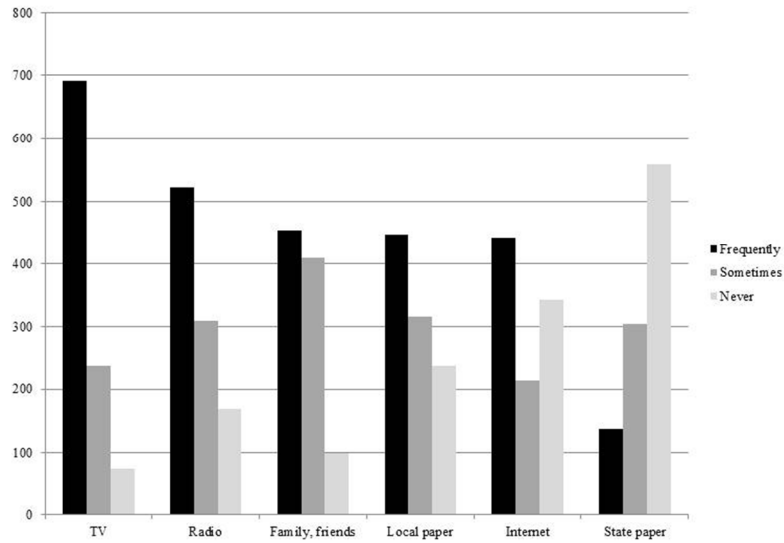


Figure 2. Frequency of Use of Information Source, N=1,000
254x190mm (96 x 96 DPI)