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Final Project Report

Neighborhood Revitalization & Disorder: An Intervention Evaluation

August, 2001

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Neighborhood Revitalization & Disorder: An Intervention Evaluation

The Project: Overview

We examine physical incivilities (disorder), social strengths and vulnerabilities, and police reports in a declining first-ring suburb of Salt Lake City. The physical and social conditions are assessed on residential face blocks surrounding a new subdivision that was built as a revitalization effort. Data were collected before and after the completion of the new subdivision to assess the effects of the subdivision and of more proximal social and physical conditions on residents' blocks in order to understand important revitalization outcomes of crime, fear, and housing satisfaction and conditions. The studies also highlighted place attachment as a psychological strength of residents that deserves greater attention. The time line below clarifies the sequence of events in the study:

TIME 1

1993	On-site assessment of physical incivilities; 59 surrounding blocks (n=488 individual properties)
1994-1995	Interviews with surrounding block residents (n=365 both interviewed and assessed)
1995-1996	Police report data collected for nine months after interviews completed
1995	(December) new 84-unit subdivision completed
1997 -	Interviews with residents in new neighborhood

TIME 2

1998	(August, September) NIJ funds on-site assessments of physical incivilities, 60 blocks (including same addresses from Time 1), with expanded sample size (n=901 assessed addresses)
1998-1999	November 1998-August 1999 - Interviews, surrounding and new blocks (total Time 2 interviews = 618)
1999-2000	Police report data and building permit data collected for 12 months after interviews completed

Six separate studies have been conducted with the data to date, and they are separately summarized in the report. The research topics for each study are detailed below:

1. Assessment of social and physical strengths and vulnerabilities associated with police reports, Time 1.
2. Replication of above for Time 2; analysis of Time by Distance from new subdivision effects on incivilities and police reports; prediction of unexpected changes in police reports from Time 1 to Time 2, using Time 1 and unexpected changes in Time 1 to Time 2 predictors.
3. Psychological associations with reported property repairs and upgrades, observed housing conditions, and resident reported housing satisfaction, Time 2.

4. Social and physical strengths and vulnerabilities associated with fear of crime, Time 2.
5. Social and physical strengths and vulnerabilities associated with place attachment, Time 2.
6. Description of in-movers to the new subdivision; associations with their place attachment and confidence in the neighborhood, Time 1.

This report focuses on the first two research projects in detail, provides short summaries of projects two through six, discusses their policy implications, then appends a methodological report that would be useful to anyone considering working with the data set.

Housing intervention: New houses as revitalization

In 1993, city officials secured a \$3.9 million HUD demonstration grant (a special Congressional appropriation) to help build an 84-unit single family detached housing subdivision on a former brownfield site. The new subdivision, completed in December of 1995, replaced an abandoned school, a crumbling parking lot, a defunct florist/nursery, and a garbage strewn field. The HUD grant provided environmental clean-up (from pesticide contamination by the former floral property), flood plain mitigation, and infrastructure (new roads, sewers, etc.) in order to attract a private developer. The resulting homes look identical to middle class subdivisions provided by the same builder in other neighborhoods.

This project represents at least five new directions for research. First, it examines the linkages between neighborhood revitalization and disorder, crime, and fear. Second, it evaluates the effects on the surrounding community of a popular new policy approach to revitalization: the construction of large, new, middle-income, in-fill housing developments to encourage home ownership and neighborhood stability. Third, it compares data collected in two waves, four to five years apart, as opposed to the more typical one year lag. Fourth, it uses Hierarchical Linear Modeling to analyze data simultaneously at two, ecologically valid and important levels of analysis: the individual resident or household and the streetblock (as opposed to the neighborhood, census unit, or precinct). Fifth, it considers crime and disorder in an area similar to many working-class suburbs built in the post-World War II building boom that have begun to deteriorate physically. Most research on incivilities and crime has concentrated on central city neighborhoods.

Research Results for Studies 1 - 6

Study 1 rationale: Incivilities, place attachment, & police-reported crime, Time 1

The incivilities or disorder theory of crime undergirds police practices, policies, and the public consciousness, despite disagreement about how the theory works or should be measured (See Taylor, 1999b, for a review). The incivilities thesis is that disorderly conditions, such as a broken window, become important symbols, both to law abiding residents and others, that residents can not or will not protect their neighborhoods from antisocial behavior and crime. According to Wilson and Kelling (1982, p. 32), unrepaired windows, weedy lawns, and uncared for homes can both frighten neighbors into withdrawal and embolden criminals into lawlessness with impunity. Therefore, incivilities are expected to lead to fear of crime, crime, and eventual neighborhood decline. The present paper revisits Wilson and Kelling's original incivilities thesis and extends it by arguing that the psychological sense of place attachment is an important component of the model, when applied to residential neighborhoods. Based on household and street block data, the research asks whether place attachment to the home, alongside perceived and assessed incivilities and neighborhood social ties, predict subsequent police reports of crime.

The original description of the incivilities thesis highlighted uncivil behavior in public areas--transit stops, corner stores, commercial structures, streets with panhandlers (Wilson & Kelling, 1982). Subsequent research that has tested the incivilities thesis has, in contrast, been applied in largely residential areas (Hope & Hough, 1988; Perkins & Taylor, 1996; Perkins et al., 1993). However, there may be a fundamental difference between the meaning and consequences of incivilities occurring in public versus those that occur in privately owned residential spaces. In public settings, residents may attribute incivilities to strangers drawn into an area by its commercial and other public facilities. In more residential neighborhoods the incivilities--the unkempt lawns, sagging roofs, and broken lights or windows--are on private property and more likely due to the action or inaction of one's neighbors. Consequently, research in residential neighborhoods must address crime-related outcomes when residents or their neighbors are the most likely producers of the incivilities. Do residents with incivilities on their own property or on neighboring properties support the claim that incivilities signify that "no one cares" (Wilson and Kelling, 1982, p. 31)? A review of the research on residential appearances suggests a number of possible relationships among disorder, psychological bonds with home, and crime-related outcomes.

Place attachment & incivilities. "Place attachment involves positively experienced bonds ... developed over time from the behavioral, affective, and cognitive ties between individuals and/or groups and their sociophysical environment" (Brown & Perkins, 1992, p. 284). As the place in the world where resident control is maximized, residents often extend their sense of self to their homes and properties (Brown, 1987). This psychological bond to place is cultivated by the accumulation of memories, the active investment of effort in personalizing or decorating one's house and yard to reflect one's taste, and in the mundane acts of daily upkeep and the seasonal embellishments associated with holiday celebrations (Brown, 1987; Brown & Werner, 1985). Past

research has even measured the strength and geographic extent of residents' territorial bonds by timing how long it takes residents to remove litter deposited on the areas in front of their homes (Worchel & Lollis, 1982). Other research finds homeowners are more likely to repair homes and invest more in repairs (see Rohe & Stewart, 1996 for a review). Positive features of the environment, such as freshly painted homes, are hypothesized to symbolize that residents are capable territorial guardians (Felson, 1987). Although place attachment can occur at many levels of scale, the present study, given its focus on incivilities around private residential properties, will consider residents' feelings about their homes and their pride in home appearance.

Place attachments may be implicated in local disorder in different ways for the residents who live on properties with incivilities versus their neighbors. Unkempt properties may reflect the presence of someone who does not care or is unable to maintain order on his/her own property. If a resident is unable to maintain order on his/her own property, it is indeed unlikely he or she will control disorderly behaviors on the block. Consequently, the resident's uncivil property is the physical manifestation of someone who will be an ineffective guardian of personal and block-level property. Beyond the unkempt property itself, its appearance is visible to both neighbors and prospective offenders. Neighbors may come to see run down properties as symbols that those neighbors are not invested in the home, the neighborhood, or both. In fact, naive raters of photos of homes, where residents' interviews showed them to have either low or high levels of home and neighborhood level territorial and place attachment, were able to identify residents who were committed either to the home or the block, or both. When asked why they judged residents as uncommitted, respondents cited numerous physical cues, many of which included classic indicators of incivilities (e.g., unkempt lawn, poor condition of house exterior; Harris & Brown, 1996). Prospective offenders may read the disorderly conditions as a vacuum of control, and believe that activities near run down properties will be less likely to be policed or stopped by residents.

Neighboring, disorder, and crime. Another way in which individuals become invested in and attached to their residential areas is through interaction with their neighbors. Socially disorganized neighborhoods, whether the disorganization is rooted in poverty, residential transience, or ethnic heterogeneity, may be unable to establish the norms and watchful relationships that could protect from fear and crime (Bursik & Grasmick, 1993). The appearance of the houses may even suggest the presence of social ties in the neighborhood; well kept houses imply neighborliness (Skogan, 1990). In fact, incarcerated burglars consistently labeled houses as poor burglary target choices when they inferred from the appearance of the house that neighbors would react to their presence (Brown & Bentley, 1992).

In terms of crime outcomes, research has shown that local friendships predict lowered incidence of some crimes (burglary, street robbery, total crimes) but not others (auto theft, vandalism, stranger violence; Sampson & Groves, 1989). Neighborhood level social ties relate to a lesser risk of assault in white neighborhoods, but not in minority or mixed neighborhoods (Warner & Rountree, 1997). Measures of collective efficacy, which include social cohesion with neighbors, predict lower neighborhood level violent victimizations and homicides in Chicago (Sampson, Raudenbush, & Earls, 1997).

Finally, just getting together with neighbors once a year or more was related to lower self reported burglary, auto theft, and robbery victimizations (with sociodemographic controls, Bellair, 1997).

However, others question the utility of social ties in declining neighborhoods, given that the evidence of decline already suggests the loss of social order and the limited effectiveness of social ties (Rosenbaum, 1987). Many studies have found few links between social ties and crime, especially in the presence of demographic controls (Greenberg, Rohe, & Williams, 1982; Lynch & Cantor, 1992; Perkins, Wandersman, Rich, & Taylor, 1993; Taylor, Gottfredson, & Brower, 1984). Thus, social ties only sometimes relate to lower crime, although social ties likely relate positively to place attachment and are crucial to any model of social control of crime, thereby meriting consideration.

Methods. The first two analyses presented use assessed environmental qualities, interview data, and police reports. This section summarizes methodological issues, with more detailed methodological explorations reserved for the Appendix.

Revised Block Environmental Inventory (BEI). The procedure involves in-person observation by trained raters of a variety of residential and nonresidential physical cues associated with crime, fear, and indicators of residential vitality or decline. Property-level items (both residential and nonresidential) include defensible space features, such as lighting and barriers, territorial markers and home or yard improvements, and physical signs of decay. Incivilities associated with residential homes included poor roof and paint conditions; poor yard maintenance; and evidence of graffiti and litter (adapted from reliably rated inventories by Brown & Altman, 1983; Perkins, Meeks, & Taylor, 1992; Perkins, Rich, Wandersman, & Taylor, 1993). A total of 488 residential properties at Time 1 and 901 at Time 2 were assessed.

Home incivilities (T2HCIV8, coefficient alpha = .69 Time 1 and .62 Time 2) is an 8-item version of the above and included observed amounts of litter; graffiti; broken windows or lights; peeling paint; roofs, lawns, and sidewalks in poor condition; and the absence of flower or vegetable garden (Taylor, Shumaker, & Gottfredson, 1985).

Home attachment (PA3W alpha = .88 Time 1 and .90 Time 2). Place attachment can be measured for many different geographic levels, from rooms in a home to cities. However, residents' home attachments, including expressions of pride in the home and the home's exterior appearance, is deemed the most relevant aspect of place attachment when the research concerns physical incivilities present on private properties. A 3-item composite assessed how proud residents are of their house, the way their front yard looks, and the way their house exterior looks (Brown & Werner, 1985).

Crimes Reported to Police. Crime reports were tracked after each house assessment of incivilities and each resident interview was complete and until nine months (at Time 1) or twelve months (at Time 2) after the end of the interviews. Balancing the need to avoid highly skewed measures with the need to recognize the

importance of multiple victimizations, data were coded into four categories: No reports (55.5% Time 1, 55.8% Time 2), 1 report (20.0% Time 1 and 22.7% Time 2), 2-3 reports (14.3% Time 1 and 13.9% Time 2), and 4 or more reports (10.2% Time 1 and 7.6% Time 2) after the interview. The top coding meant that the top 3.5% of repeat report addresses (those with between 7 and 20 reports) did not distort the analysis. This four-point report measure was divided by the number of months after the interview to compute a crime rate measure, which ranged from 0 to .33 crime reports per month; the measure was log transformed for the multivariate analyses.

Crime reports summarized across all codes, given the limited size of the Time 1 sample. Although even more instances would have been available for analysis had calls for service alone been utilized (Kurtz, Koons, & Taylor, 1998; Warner & Pierce, 1993), a more conservative strategy was used that required a formal police report. Particular types of formal reports were collected for Time 2 data and they revealed a continuum of neighborhood problems, larcenies (14.5%), family offenses (13.3%), assaults (12.0%), and public peace incidents (11.4%). Formal reports to the police are likely to be more serious or have more evidence of their existence than total calls for service, although still subject to the discretion of police reporting practices.

Informal neighboring. A 6-item composite assessed frequency (never, less than once a month, monthly, weekly, daily) of four different informal neighboring contacts: borrowing/loaning something, visiting, speaking with a neighbor about a neighborhood problem, and keeping watch on neighbors' homes while they are away. Residents also reported how many block neighbors they knew by sight or name (5 options, from none to all or almost all) and how much they felt they had in common with neighbors (nothing, not much, a little, a lot; coefficient alpha = .74).

HLM analysis strategies. All HLMs utilize full maximum likelihood procedures, robust standard errors, and pairwise missing data specifications. Level 1 variables are centered around their block means and Level 2 variables are grand-mean centered. HLM separates variability in outcome variables into amounts attributable to Level 1 (individuals within blocks) versus Level 2 (between block) variability. HLM analyses start with an analysis of Level 2 (block) units, to determine whether there is significant variability worth investigating at this level. This test is analogous to a oneway analysis of variance, but corrects for variable sample sizes within blocks. All the HLM analyses to be presented in this report indicated significant block level variability. All tests of significance for individual variables in the HLM tables indicate unique significance levels, controlling for all other variables entered within that level.

Study 1 results: Incivilities, place attachment & police-reported crime, Time 1

Multilevel analyses reveal that homeowners and those with fewer physical incivilities observed on their property and on their neighbors' properties experience more subsequent police reported crimes (Brown, Perkins, & Brown, 2001a). In addition, blocks with lower levels of place attachment had individual residents more subject to future crime reports. The relationship between physical incivilities and block crime varied across the blocks in the neighborhood. Those blocks with lower levels of social cohesion had the strongest relationships between physical incivilities and subsequent crime. Results suggest that there are block variations in factors that are associated with crime even in one socio-economically similar neighborhood. Assessed incivilities are an important physical feature of individual properties and blocks that are linked with increased association with police reported crime.

Table 1: Associations with crimes reported to police: HLM analysis Time 1

Fixed Effects	Coefficient	S.E.	T-ratio	d.f.	P=
Average report rate, γ_{00}	0.021	0.002	12.350	55	0.000
Level 2					
Home attachment, γ_{01}	-0.013	0.005	-2.736	55	0.009
Home incivilities, γ_{02}	0.025	0.005	4.896	55	0.000
Level 1					
Homeowner, γ_{10}	-0.003	0.006	-1.799	475	0.072
Home incivilities, γ_{20}	0.003	0.007	1.705	56	0.093
Home inciv. by Inf. neighboring, γ_{21}	-0.010	0.021	-1.922	56	0.059
<u>Random Effect</u>	<u>S.D.</u>	<u>Variance</u>	<u>d.f.</u>	<u>Chi²</u>	<u>P =</u>
Report rate, U0	0.012	0.00015	55	659.034	0.001
Home incivilities, U2	0.006	0.00004	56	82.676	0.012
Level 1, R	0.015	0.00022			

Study 2 rationale: Crime, housing incivilities, and revitalization, Time 2

Incivilities and a new housing subdivision. The present study (Brown, Perkins, & Brown, 2001b) takes advantage of a neighborhood revitalization intervention to determine whether new housing has an influence on neighborhood crime and incivilities over time. Recall that the new 84-unit subdivision was completed on the site of a former brownfield that included an abandoned school, parking lot, florist, and a garbage strewn field. A U.S. Department of Housing and Urban Development Demonstration Grant was used to provide environmental clean-up (from pesticide contamination by the former floral property), floodplain mitigation, and infrastructure (new roads, sewers, etc.) in order to attract a private developer. The resulting homes appear the same as middle class sub-divisions provided by the same builder in other neighborhoods. Although the city hoped to attract middle income residents, special loans were also available to attract moderate income buyers (those making 80% or less of area median income).

From the perspective of incivilities theory and research, the new housing represents the reverse situation from what is typically encountered in research. Here is an infusion of "civility," new and attractive houses replacing a dangerous eyesore that had been a vacuum of social control in the neighborhood. Although civilities are rarely investigated, it can be assumed that if vacant and trash strewn places are bad for the neighborhood, new housing, in better condition than surrounding housing, must do some good. In fact, city officials hoped the new housing would help initiate improvement of the surrounding neighborhood.

Nevertheless, past research has shown little effect of many neighborhood revitalization efforts. Ineffective interventions, such as scattered site rehabilitation, do not inspire surrounding residents to improve their own properties (Varady, 1986). Although Varady speculated that more concentrated efforts, such as a new sub-division, might result in more beneficial spillover results for the neighborhood, few studies of such interventions exist. Those studies that do exist focus on very high profile projects, such as the South Bronx, where many sources of financial assistance and social services are funneled into a high profile effort to effect change in social and physical conditions in the neighborhood (Schorr, 1997). Although such high profile case studies are useful, they are not typical of the low level of resources available to most declining neighborhoods. Furthermore, spillover benefits have not been assessed in these projects. Regardless of the paucity of research, the hope for beneficial effects was one reason the Clinton administration initiated the Homeownership Zone program. This program helps fund site preparation and construction of large housing developments, ideally 300 units or more, in distressed urban areas (U.S. HUD, 1996). Consequently, it is important to begin to assess spillover consequences of new housing interventions.

Neighborhood revitalization scholars hope that such visible neighborhood improvements inspire "incumbent upgrading," the improvement of private properties by residents themselves (Clay, 1983). The theory is that residents see neighborhood improvements, develop a greater sense of confidence in the neighborhood, and feel better about staying in the neighborhood and investing their own money in needed

maintenance or property improvement. Although the effects of neighborhood improvements on surrounding crime are less discussed, one could extrapolate benefits based on the incivilities thesis. First, an area that formerly had no resident guardians from crime was removed. The old property had no regular legitimate users and was mostly hidden from surveillance by surrounding residents; both features have been implicated in crime (Brown & Altman, 1981; Newman, 1972). If the new development removes an area where offenders had been free to gather unnoticed, then this should decrease crime, especially to those residents immediately surrounding the former vacuum in social control. In past research, greater incumbent upgrading of houses has been limited to an area only 1/16th of a mile from the intervention site (Ginsberg, 1982). Logically, the effect of replacing the vacant and abandoned properties with homeowners who want to assert control over their neighborhood should benefit the immediate area of the intervention, if there is any spillover benefit at all. Thus, we will examine whether the new housing has distinctive effects on nearby residents.

The quasi-experimental analyses proceed in two phases. First, descriptive data and HLM analyses of combined Time 1 and 2 files tested for significant Time by Distance interactions that are consistent with an effect of the housing intervention. These analyses start with home place attachments and observed housing incivilities, given that they were significant cross sectional predictors at Time 1 (Brown, Perkins, & Brown, 2001a). Second, the study tests whether the block incivility composite (with OLS regression) and the incivility composite and specific incivilities (with HLM) are associated with crime. These analyses test the cross sectional relationships between incivilities and crime, the relationship between incivilities and changing levels of crime, and the longitudinal relationships between initial and changing levels of incivilities and unexpected changes in crime (following procedures similar to Taylor, 2001 and Taylor & Covington, 1993).

Study 2 results: Time by Distance effects, Times 1 & 2

If spillover benefits from the new housing intervention occur, they would be expected to emerge as a significant Distance by Time interaction effect. That is, the residents nearby would benefit with extra reductions in incivilities and /or crime, over and above any changes occurring in the larger neighborhood. Any spillover improvements are expected to be very geographically circumscribed (Ginsberg, 1982). Physical distance from the new housing site data were coded into six 1000 foot increments (except for the last category, which involved distances from 5001 to 7000 feet).

The analyses began descriptively, with Tables 2 and 3 and Figures 1 and 2 revealing that incivilities were highest at Time 1 in the three zones closest to the redevelopment site and lowest in the zones further away. Observed incivilities are reduced, but still positive, in the three zones closest to the redevelopment site at Time 2. A similar pattern appears with home ownership. Home ownership levels hovered at about 75% for blocks at Time 2, but varied from 64% to 93% at Time 1, with higher levels of ownership further from the redevelopment site. This pattern of interaction appears consistent across the neighborhood, including the physical incivilities indexed in Table 2. Whether one examines years of residence, number of pieces of litter seen on the property, peeling paint, or the presence of gardens, significant interactions generally reveal greater variability across blocks at Time 1 than at Time 2. Furthermore, the worse conditions—more litter, more peeling paint, more cracked bricks or sidewalks, and fewer gardens—tend to occur in the three zones closest to the redevelopment site at Time 1.

Table 2: Area Characteristics by Distance to New Subdivision and Time:
Means and Analyses of Variance

Variable description	Time	Distance from subdivision (in 1000 foot increments)						F tests and significance levels			
		up to 1000' (n=164)	1000- 2,000' (n=294)	2,000- 3,000' (n=269)	3,000- 4,000' (n=282)	4,000- 5,000' (n=279)	5,000- 7,000' (n=127)	Total	Distance	Time	D x T
Police reports	1	.07	.05	.06	.05	.04	.02	.05	3.42**	.50	1.33
by month	2	.06	.05	.07	.04	.05	.05	.05			
Home incivilities	1	.21	.10	.27	.03	-.12	-.33	.06	17.15**	2.02	3.96**
(z)	2	.06	.05	.14	-.18	-.15	-.03	-.03			
Income (z)	1	-.15	.09	-.06	.32	-.34	.05	.00	4.01**	.21	1.08
	2	-.02	-.09	-.09	.18	-.10	.22	.00			
Age (in years)	1	49.91	47.22	47.69	41.57	49.10	46.63	46.82	1.43	6.95**	.75
	2	43.72	43.18	44.71	42.84	44.30	42.80	43.64			
Household size	1	3.13	3.05	3.15	4.00	2.76	3.04	3.21	3.61**	2.66	1.54
	2	3.17	3.63	3.41	3.58	3.16	3.48	3.42			
# Children	1	1.04	1.21	1.13	1.70	.87	1.11	1.20	1.87	.04	1.50
	2	1.11	1.35	1.17	1.17	1.10	1.29	1.20			
Years of residence	1	14.02	17.41	12.93	11.03	14.44	19.19	14.45	.71	1.94	2.63*
	2	13.15	11.38	13.85	15.63	11.63	14.14	13.21			
% Home owner	1	.64	.72	.68	.74	.66	.93	.71	.79	.19	2.25*
	2	.75	.77	.73	.76	.78	.66	.75			
% White, non-Hispanic	1	.63	.63	.72	.63	.75	.93	.69	3.54**	5.41**	.74
	2	.63	.53	.65	.64	.62	.74	.62			
% LDS religion	1	.53	.43	.49	.29	.52	.70	.46	2.92*	13.26*	2.15
	2	.41	.34	.31	.37	.34	.42	.36			
% Married	1	.60	.46	.53	.67	.44	.63	.54	2.42*	.57	1.69
	2	.40	.53	.57	.55	.49	.65	.53			
% Female	1	.64	.58	.59	.69	.58	.69	.62	.17	.44	1.65
	2	.65	.73	.66	.63	.69	.54	.66			
% Single family detached	1	.91	.89	.87	.99	.76	.93	.89	3.73**	3.74	1.28
	2	.80	.89	.82	.90	.82	.83	.85			

Table 3: Specific Housing Conditions by Distance to New Subdivision and Time: Means and Analyses of Variance

Variable	Time	Distance from housing site						Total	F tests and significance levels		
		up to 1,000'	1,000- 2,000'	2,000- 3,000'	3,000- 4,000'	4,000- 5,000'	5,000- 7,000'		Distance	Time	D x T
		1,000'	2,000'	3,000'	4,000'	5,000'	7,000'				
Roof (new=0, needs repair=2)	1	1.09	1.06	1.06	.94	.97	.75	1.00	4.57	.97	1.69
	2	.92	.98	1.05	.86	.97	.92	.95			
Litter (# pieces)	1	1.82	1.53	2.84	1.40	.59	.65	1.56	15.06*	53.88**	11.27**
	2	1.39	.62	.56	.46	.40	.70	.63			
Peeling paint (10% increments)	1	2.05	1.29	1.94	1.29	.84	.23	1.34	15.63**	17.60**	3.75**
	2	1.04	1.13	1.34	.54	.40	.74	.85			
Graffiti (# pieces)	1	.02	.02	.03	.03	.00	.03	.02	2.11	.23	1.02
	2	.04	.04	.05	.01	.00	.01	.02			
Broken windows/ lights present	1	.16	.16	.12	.11	.16	.03	.13	1.39	8.12**	1.87
	2	.27	.15	.20	.14	.14	.21	.18			
Cracked brick/ walk present	1	.73	.74	.75	.76	.66	.45	.71	2.90*	.88	4.96**
	2	.57	.70	.81	.68	.68	.80	.71			
Poor lawn present	1	.35	.30	.39	.23	.15	.20	.27	7.77**	.34	.65
	2	.33	.27	.35	.15	.20	.22	.25			
Garden present	1	.48	.57	.53	.59	.65	.83	.59	7.84**	4.09*	3.09*
	2	.53	.38	.45	.67	.65	.60	.55			

** p < .01 * p < .05

Figure 1: Police Reports by Time by Distance from New Housing

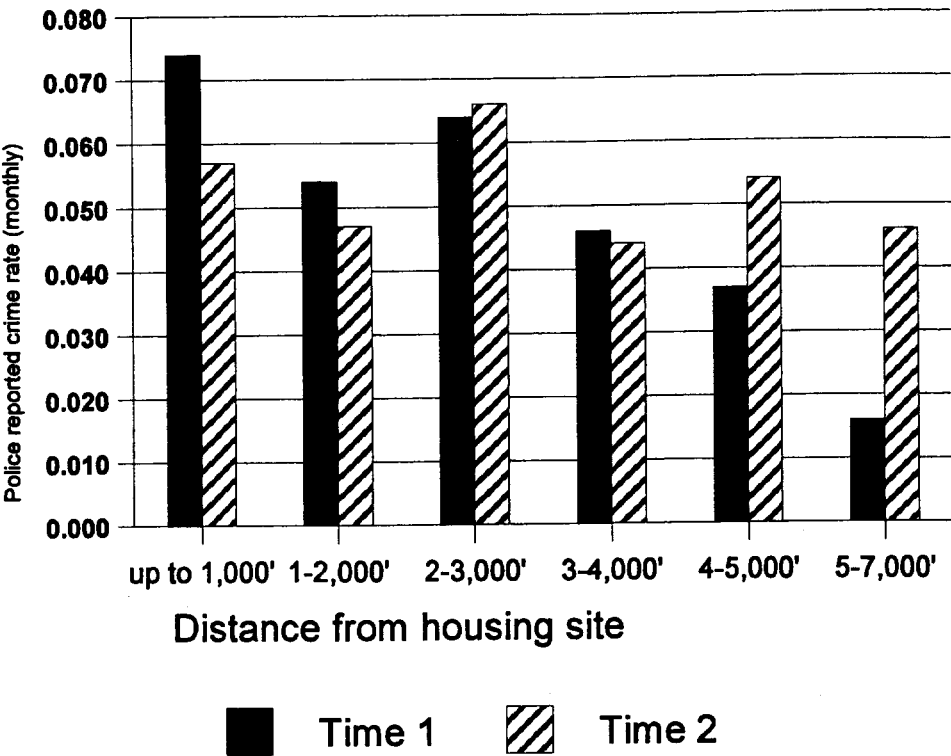
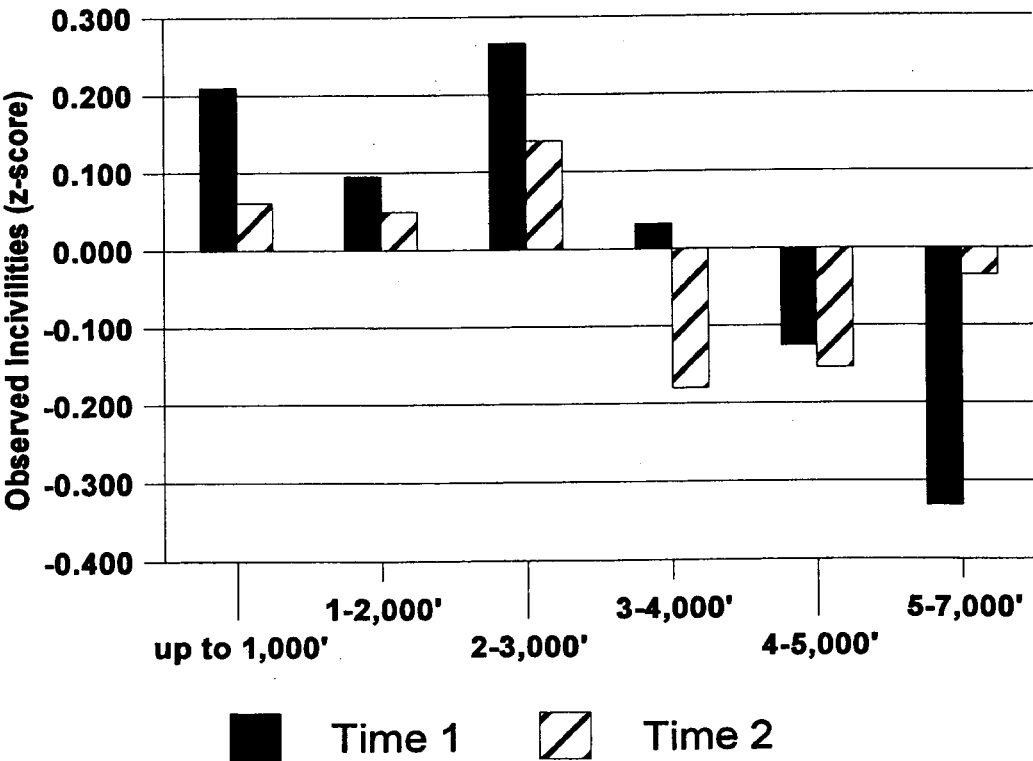


Figure 2: Incivilities by Time by Distance from New Housing



For the HLM tests, both time and distance measures were standardized to compute the time by distance interaction effect. Recall that the first step in HLM is to examine variance components for Level 1 (within blocks) and Level 2 (between blocks), as in a oneway analysis of variance across blocks, adjusting for unequal sample sizes within blocks. The unconditional model for the combined Time 1 and 2 data set showed that 14.06% of the variance was between blocks, a significant amount (Chi-sq (57) = 275.53, $p < .001$).

The term for the interaction between Time by Distance from the new subdivision, when entered alone into the equation, is significant, t (approx df. 967) = 2.38, $p = .017$. Figure 1 shows that at Time 1 crime reports were highest near the area to be developed, and lower further away from the development site. For example, crime rates less than 1,000' from the building site were .074 per month, but those furthest from the subdivision (5000 to 7,000' away) were .016. At Time 2, raw monthly crime rates were more equal across the neighborhood; in the closest zone they had decreased to .057 and in the furthest zone they had increased to .046 final reports per month.

The next model, summarized in Table 4, enters demographic variables that are significantly associated with log transformed crime reports, as well as the observed incivilities and home attachments that were significant at Time 1. The unconditional model shows significant between block variability in police reports, Chi-square (57) = 275.53, $p = .000$, Deviance (3) = -6340.39

Significant individual Level 1 associations show that younger residents and those who do not own their homes are more susceptible to subsequent crime. Properties with more observed incivilities also tended to have more subsequent crime. When these other predictors are entered into the equation, the Time by Distance interaction term maintains its statistical significance. This combination of Level 1 predictors explained a significant amount of variance over the unconditional model, Chi-square (4) = 47.87, $p < .0001$.

At the level of the street block, blocks with higher average resident ages tended to have more crime. Residents were also more likely to experience crime if their block had more observed incivilities. Residents tended to be more likely to experience crime if their neighbors had lower levels of attachment to the homes on the block. These predictors significantly increased variance explained by the model over the Level 1 predictors alone, Chi-square (3) = 26.04, $p < .001$. The combination of variables explain 3.64% of variance between individuals within blocks and 44.44% of variance between blocks.

However, these results are strongly influenced by the data collected at Time 1. Prior to the intervention, Study 1 (Brown, Perkins, & Brown, 2001a) showed both lower home-focused place attachments and higher levels of physical incivilities were associated with police reported crime. After the intervention, combined Time 1 and 2 data revealed that physical incivilities, home attachment, age, and home ownership associated with police-reported crime. However, Time 2 analyses alone showed these

associations were less significant at Time 2. If the data are re-analyzed using only Time 2 data (and deleting the Time by Distance interaction term), only individual level age and home ownership are significant and the explained variability is 4.25% at the individual declines to 16.67% at the block level. Thus, as the neighborhood has changed over time, and its distribution of crimes became more spatially diffuse instead of concentrated, the associations between police reported crime and the physical incivilities and home attachments in the area decreased.

Table 4. Police Final Reports: Hierarchical Linear Models ,Time 1 & 2

Fixed Effects	Coefficient	S.E.	T-ratio	approx. d.f.	p <
Intercept, γ_{00}	.0214	.0011	19.00	54	.001
Level 2 (street block)					
Residents' ages, γ_{03}	.0003	.0002	1.79	54	.078
Home incivilities, γ_{01}	.0171	.0049	3.47	54	.001
Home attachment, γ_{02}	-.0069	.0038	-1.81	54	.075
Level 1 (individuals)					
Age, γ_{30}	-.0001	.0001	-3.38	962	.001
Homeowner, γ_{20}	-.0049	.0018	-2.76	962	.006
Home incivilities, γ_{10}	.0031	.0016	1.93	962	.053
Time x Distance, γ_{40} (from subdivision)	.0013	.0006	2.22	962	.026
Random Effect	S.D.	Variance Component	d.f.	Chi ²	P =
Intercept, U_0	.0070	.00005	46	184.74	.001
Level 1, R	.0231	.00053			

Study 2 results : Predicting unexpected increases in crime, Time 1 & 2

Another way to test patterns of incivilities and crime in the area is to test for unexpected increases in crime over time. Although the present study did not provide a panel study, where the same individuals were interviewed at Times 1 and 2, there is still a possibility of relating physical assessments to crime, controlling for what is known about significant block demographics.

Block level OLS multiple regressions can test what predicts unexpected changes in crime from Time 1 to Time 2. By using Time 1 crime to predict Time 2 crime, then saving standardized residuals, the resulting unexpected changes in crime can serve as dependent variables (Bursik, 1986; Taylor, 2001). Because more properties were observed for their level of incivilities than the number of completed interviews, these analyses utilize police reports of crime subsequent to the assessment of incivilities. Thus police reports that occurred after the house observation, but before the interview, are included in the total police reports. This provides a more reliable indicator of crime conditions subsequent to the observation of incivilities.

A block level regression was computed to determine whether incivilities could predict unexpected increases in crime over time, controlling for a variety of other predictors. Incivilities can have one of two effects in this analysis. The Time 1 incivilities may predict Time 2 crime changes, with initial levels of crime and other variables controlled. A significant result would suggest that incivilities at Time 1 beget unexpected increases in crime at Time 2. Another way that incivilities can have an effect is dynamically over time. Here unexpected changes in incivilities from Time 1 to Time 2 may go with unexpected increases in crime from Time 1 to Time 2.

One question in such analyses involves the number of needed control variable, given the limited number of blocks and the fact that each control variable is represented by two separate pieces: Time 1 levels and unexpected changes from Time 1 to Time 2. Some researchers feel that the presence of racial ethnic minorities, residential stability, and income are important predictors of crime and that incivilities must be demonstrated to have an effect above and beyond these variables. However, these presumptions about significant demographic predictors are less valid in the present analysis. The present analysis examined one neighborhood, which effectively limits the degree of variability and importance of potential demographic controls. However, two analyses were conducted, one with home ownership changes, the only control variable related to police reported crime changes. This analysis shows that incivilities at Time 1 was the only predictor of crime report changes from Time 1 to Time 2 (beta = .33, $t(51) = 1.95$, $p = .056$; multivariate $F(6, 51) = 2.24$, $p = .054$). Other variables in the analysis without a significant unique effect included Time 1 home ownership, unexpected decreases in home ownership (where $p = .102$), days between Time 1 and 2 assessments, police reported crime at Time 1 and unexpected changes in incivilities from Time 1 to Time 2.

A second analysis adds six potential control variables: block level Time 1 income, years of residence, proportion non-Hispanic whites and unexpected changes from Time

1 to Time 2 in these variables. A preliminary analysis was run with these six variables alone, with an insignificant model as a result ($F < 1$). Consistent with these lack of effects, adding these six potential controls to the above model simply changed the significance level of Time 1 incivilities from $p = .054$ to $p = .040$. Similarly, unexpected decreases in home ownership went from $p = .102$ to $p = .036$. However, the addition of six non-significant predictors reduces the overall multivariate significance of the model to $F(12, 45) = 1.81, p = .075$. Thus these results do not support the idea that racial, income, or stability effects exist beyond those captured by the variable of home ownership in this intact neighborhood. Part of these lack of effects may be due to the fact that one similar neighborhood has been sampled and part of it may be due to the fact that the racial and ethnic mix in the neighborhood is primarily non-Hispanic whites and Hispanics. Many of the other studies findings racial effects have larger proportions of African Americans, who have a distinct history of segregation and discrimination that might drive effects in those other studies. Furthermore, home ownership in this sample may serve as a proxy for combined effects of stability and status and race. Time 1 block level home ownership is correlated with Time 1 block level income ($r = .58, p < .01$), block proportion non-Hispanic white ($r = .33, p < .05$), and years of residence ($r = .31, p < .05$). Thus, it is difficult for multiple demographic variables to sustain significant independent effects, and their inclusion simply strains the already limited degrees of freedom.

Results from both analyses suggest the following conclusion. Time 1 incivilities pave the way for unexpected increases in police reported crime.

Specific observed incivilities. Specific observed incivilities were tested, given the limited internal consistency of the observed incivilities composite, the variety of incivilities in the composite, and the fact that few studies of inner suburban ring incivilities have been conducted. The tests involved an analysis of the changing relationships between incivilities and crime over time.

Table 5 includes the analyses of total incivilities (a composite of eight items) as well as two specific incivilities—poor lawn conditions and litter. These specific incivilities appeared to be promising predictors of subsequent crime from a review of their simple correlations, and they also represent the types of incivilities more likely to occur in suburban areas. For each incivility tested, models labeled "A" test whether Time 2 incivilities are associated with subsequent crime, models labeled "B" test whether Time 2 incivilities are related to unexpected changes in crime; models labeled "C" test whether incivilities observed in 1993, and unexpected changes in incivilities from Time 1 to 2 can predict unexpected crime changes in 1999-2000. Unexpected changes are assessed by saving the standardized residuals from using Time 1 variables to predict the same variable in Time 2. All models control for Time 2 individual home ownership, age, interview mode, and the time interval between Time 1 and Time 2 assessments of incivilities. Models A and B also control for Time 2, block level home ownership and age; models C also control for Time 1 block level home ownership and age and the change in ownership from Time 1 to Time 2. Final police reports were collected after house conditions were rated and log transformed.

The composite measure of observed incivilities show that, at Time 2, police reported crimes are related to observed incivilities at the block level, with a trend toward a significant association at the individual level ($p = .080$). In addition, model B shows that Time 2 incivilities are more prevalent on blocks that are experiencing unexpected increases in crime. Model C shows that blocks with more incivilities in 1993 predict a trend ($p = .078$) toward greater unexpected crime changes in 1999-2000, changes that are independent of the initial level of crime at Time 1. All Model C tests were rerun with Time 1 crime as a control as well, and no significance level changes were observed.

Similar patterns of effects occur for the individual incivility of a poor lawn. Here, the cross sectional relationships between poor lawns and more crime are also significant at the block level. Model B shows that poor lawns at Time 2 are indicative of increasing crime levels at Time 2, significantly for the block and with a trend ($p = .083$) at the individual level. Longitudinally, blocks with poor lawns in 1993 predict unexpected increases in crime in 1999-2000.

Relationships between litter and crime were the most significant. Cross sectionally, blocks and individual properties with more litter at Time 2 had more crime at Time 2. Model B shows that blocks with more litter at Time 2 also showed a tendency ($p = .068$) to increasing levels of crime; individual properties with more litter at Time 2 were properties with unexpected increases in crime. Blocks with more litter in 1993 predicted unexpected increases in crime in 1999-2000. In addition, individual properties that saw unexpected increases in litter also showed unexpected increases in crime.

Table 5: Predicting Police Reports with Time 1, Time 2 and Unexpected Change (Δ) in Selected Incivilities from Time 1 to Time 2: HLM Results

Predictors	Crime outcome	Model	Variables	Final Police Reports	
				Coefficient	p =
Incivilities (8 items)	Time 2	1a	L1 (House), Time 2 L2 (Block), Time 2	.003098 .010789	.080 .001
	Time 2 change	1b	L1 (House), Time 2 L2 (Block), Time 2	.036093 .369162	.453 .023
	Time 2 change	1c	L1 incivilities, Time 1 L1 incivilities Δ , Time 1-2 L2 incivilities, Time 1 L2 incivilities Δ , Time 1-2	.019896 .011194 .215450 .041298	.796 .686 .078 .589
Bad lawn condition	Time 2	3a	L1 (House), Time 2 L2 (Block), Time 2	.002910 .018094	.116 .001
	Time 2 change	3b	L1 (House), Time 2 L2 (Block), Time 2	.100742 .768016	.083 .001
	Time 2 change	3c	L1 lawn, Time 1 L1 lawn Δ , Time 1-2 L2 lawn, Time 1 L2 lawn Δ , Time 1-2	.052752 .041866 .590328 .118897	.438 .152 .025 .211
Litter	Time 2	2a	L1 (House), Time 2 L2 (Block), Time 2	.003642 .006250	.000 .000
	Time 2 change	2b	L1 (House), Time 2 L2 (Block), Time 2	.072634 .169258	.001 .068
	Time 2 change	2c	L1 litter, Time 1 L1 litter Δ , Time 1-2 L2 litter, Time 1 L2 litter Δ , Time 1-2	-.013342 .094210 .072277 .114818	.413 .001 .016 .112

Note. All models control for Time 2 individual homeownership, age, interview mode, and the time interval between Time 1 and Time 2 assessments of incivilities. Models named "A" and "B" also control for Time 2, block level homeownership and age; "C" models also control for Time 1 block level homeownership and age and the change in ownership from Time 1 to Time 2. Final reports are collected after house conditions were rated.

Study 3: Housing satisfaction, reported upkeep, and observed housing conditions, Times 1 & 2

Individual and streetblock-level effects were tested to associate place-based community psychological ties (place attachment, collective efficacy, perceived neighborhood qualities), perceived quality-of-life and crime problems with incumbent upgrading and home satisfaction (Perkins, Brown, Long & Brown, 2001). Data used in the present study included both waves of resident survey data, the Time 2 environmental inventory, and a city archive of 1993-2000 building permits (see Methods, below). Geographic proximity to the new subdivision, measured using a geographic information system (GIS), was linearly unrelated to any Time-2 revitalization indicator and most other predictors.

New measures. Similar to Perkins et al. (1990; 1993; 1996), Study 6 divides perceived block problems into Perceived Block Quality-of-life Problems (T2BLKPRB; alpha = .56; 6 items: vacant homes or buildings, neighbors who don't keep up their property, and 1-10 ratings of the following problems on the block in the last 12 months: graffiti, loud neighbors, traffic problems, and stray animals) and Perceived Block Crime Problems (T2CRIME; alpha = .73; 5 items: drug house, burgled homes, street robbery or assault, youth gang activity, and number of gang incidents (recoded 0-1).

Observed Exterior Conditions (T2HIRAW; 11 items, inventoried by trained raters; alpha = .63; R = reverse coded):

- a. Roof condition (0=new, 1=average, 2=needs repair).
- b. # pieces of litter on and in front of property. (R)
- c. % exterior paint peeling * 10. (R)
- d. # personalizations on the property
- e. # house, yard, or window decorations
- f. Any graffiti on property? (R)
- g. Any broken windows or fixtures (incl. lights)? (R)
- h. Any cracked brick or concrete on property (incl. driveway, sidewalk)? (R)
- i. Is lawn in poor condition (>6in., brown, weeds)? (R)
- j. Any flower or vegetable garden on the property?
- k. Any current or recent home improvements?

Psychological/Functional Proximity to New Subdivision (T2RPPSYP; alpha = .58; r w/ Geographic Proximity (below) = .34 (individual level)/ .71 (block level)):

- a. Is the area between... and... part of your neighborhood?
- b. Are you aware of the River Park subdivision?
- c. How often do you see these homes from driving along 5th or 7th South?
- d. Do you personally know anyone who lives in this new subdivision?

Community Place Attachment (T2RPLAC; alpha=.87; used in Study 3).
On a 1 to 10 scale (1 = not at all satisfied, 10 = completely satisfied, how satisfied are you with

- a. your neighborhood,
- b. your block as a place to live?

c. How attached do you feel to the block you live on from 1 to 10, if 1 is not at all attached and 10 is strongly attached?

On a 1 to 10 scale where 1 is not at all proud and 10 is extremely proud, how proud are you of

d. your neighborhood,

e. your block?

f. If, for any reason, you had to move to another neighborhood would you be: very unhappy, a little unhappy, happy to move, doesn't make any difference?

g. Would you recommend your neighborhood as a good place for young families to move to now?

Both block and individual-level effects were significant in each HLM, except for building permits and permit valuations, which were unpredictable and showed little block-level variation. Unexpected (residualized) change in place attachment was the strongest block-level predictor of inventoried home conditions at Time 2 in the final model (Table 6). Improvement in block-level place attachment, relative to other blocks, was related to better home conditions. Other block-level predictors include both Time 1 perceptions of quality-of-life problems on the block AND change in perceived block problems. As expected, the more problems at Time 1, and the worse they became relative to other blocks at Time 2, the poorer the home conditions. Change in block-level perceptions of crime also predicted inventoried conditions. But unexpectedly, relative increases in perceived block crime were associated with better conditions. However, this is a suppression effect, most likely due to change in perceived crime's correlation with change in both place attachment ($r = -.56$) and block problems ($r = .43$).

The only Level 1 (individual) significant predictor in the model, aside from income and ethnicity, is an interaction effect between length of residence and psychological/functional proximity to, or awareness of, the new subdivision. Residents who are more aware of the new subdivision show a stronger correlation ($r = .28$ vs. $.16$) between length of residence and observed conditions. This model explained 44% of between block variance and 3% of individual-level, within-block variance. Unlike previous studies, community confidence was not significantly related to upgrading. Results of the intervention were mixed, but the study confirms the importance of both psychological factors and the street block level of analysis in neighborhood revitalization.

Table 6. HLM of Observed Home Conditions: Block level at Time 1 and T1-T2 Residualized Change (Δ), Individual level and Outcome at Time 2

Fixed Effects	Coefficient	S.E.	T-ratio	approx. d.f.	p <	
Intercept, γ_{00}	.563	.008	67.96	52	.001	
Level 2 (street block)						
T1 Comm. attachment, γ_{01}	-.067	.084	-.80	52	.429	
T1 Block problems, γ_{02}	-.216	.099	-2.19	52	.033	
T1 Blk crime problems, γ_{03}	-.027	.062	-.44	52	.663	
Comm. attachment Δ , γ_{04}	.034	.011	3.18	52	.003	
Block problems Δ , γ_{05}	-.014	.007	-2.23	52	.030	
Blk crime problems Δ , γ_{06}	.020	.010	2.11	52	.040	
Level 1 (individuals)						
Income, γ_{10}	.022	.001	2.48	900	.013	
Home owner, γ_{20}	.015	.010	1.46	900	.144	
White non-Hispanic, γ_{30}	.017	.008	2.09	900	.036	
Psych/Func.	.017	.014	1.19	900	.233	
Prox. to Subdivision, γ_{40}						
Community attachment, γ_{50}	-.001	.021	-.01	900	.999	
Block problems, γ_{60}	-.022	.019	-1.17	900	.242	
Block crime problems, γ_{70}	.003	.014	.20	900	.842	
Years residence X Psych/Func.Proximity., γ_{40}	.001	.001	4.04	900	.000	
	Random Effect	S.D.	Variance Component	d.f.	Chi ²	p <
Intercept, U0	.052	.00275		52	186.32	.001
Level 1, R	.139	.01933				

Study 4: Social and physical associations with fear of crime, Time 2

A multilevel analysis of fear of crime (Brown, Perkins & Brown, 2001d) assessed fear by asking residents if they felt fear if out alone at night on their block, fear if stopped by a stranger for directions in the neighborhood, worry over household victimization, and if they avoided specific neighborhood places due to danger (4 items, coefficient alpha = .77). Consistent with past research, residents who are female, with children ($p = .071$), who report past crime victimization, who perceive more incivilities, or who have high levels of these qualities on their blocks are more fearful. However, blocks with fewer assessed incivilities had residents who felt more fearful and blocks with lower social efficacy tend to experience more fear ($p = .058$). The research also integrates place attachment with the incivilities and fear of crime research. On blocks or properties with low place attachment residents express more fear. Given that the protective benefits of place attachment occur at both individual and block levels, fear reduction interventions may profit from programs designed to allow place attachments to flourish.

Table 7: Fear of Crime: HLM summary (n = 618 individuals, 60 blocks)				
Fixed effects				
Level 2 - Block	Coefficient	S.E.	t	P
Intercept, γ_{00}	2.393	.021	116.37	.001
Female, γ_{07}	.587	.160	3.67	.001
Children, γ_{08}	.077	.042	1.84	.071
By new housing, γ_{01}	-.346	.107	-3.27	.003
Attachment, γ_{05}	-.195	.093	-2.09	.041
Self reported victimization, γ_{03}	.234	.071	3.30	.002
Physical Incivilities, γ_{04}	-.305	.109	-2.79	.008
Perceived Incivilities, γ_{06}	.220	.131	1.67	.100
Efficacy, γ_{02}	-.288	.148	-1.94	.058
Level 1 - Individual				
Female, γ_{20}	.198	.040	4.88	.001
Children, γ_{10}	.026	.013	2.04	.041
Attachment, γ_{40}	-.112	.031	-3.59	.001
Self reported victimization, γ_{30}	.039	.018	2.22	.026
Perceived incivilities, γ_{50}	.220	.037	5.96	.001
Random Effects	Variance Component	S.D.	Chi-Square	
Mean fear, U_0	.00669	.08178	82.15	.004
Attachment slope, U_4	.01028	.10141	81.22	.024
Level 1 effect, R	.28359	.53253	--	

Study 5: Social and physical associations with place attachment, Time 2

Place attachments are positive bonds to physical and social settings that support individual identity and well-being. A study of over 600 residents of a neighborhood asks how residents experience gradual physical and social neighborhood decline (Brown, Perkins & Brown, 2001c). Furthermore, the experience of place attachment is examined as both an individual experience and one that is nested within the residential block. Hierarchical linear modeling techniques show that place attachment is a function of social and physical correlates of decline, such as housing decay, length of residence, low social cohesion and control and fear of crime. Place attachment is discussed as a potential strength of neighborhoods that has implications for neighborhood improvement activities and policies in revitalizing neighborhoods.

Table 8: HLM Predicting Place Attachment (n = 617 individuals, 60 blocks)					
Fixed effects					
Level 2 - Block	Coefficient	S.E.	t	approx. d.f.	p <
Intercept, γ_{00}	.012	.014	.840	54	.405
Home owner, γ_{01}	.223	.081	2.741	54	.009
White, γ_{02}	-.190	.071	-2.691	54	.010
Efficacy, γ_{03}	.271	.085	3.175	54	.003
Housing incivilities, γ_{04}	-.239	.067	-3.556	54	.001
Fear of crime, γ_{05}	-.189	.062	-3.043	54	.004
Level 1 - Individual					
Years of residence, γ_{10}	.003	.001	4.675	930	.001
Home owner, γ_{20}	.050	.023	2.190	930	.028
White, γ_{30}	-.120	.021	-5.771	930	.001
Fear of crime, γ_{40}	-.053	.013	-4.112	930	.001
Efficacy, γ_{50}	.110	.021	5.368	930	.001
Random Effects	S.D.	Variance Component	Chi-Square (58)	p <	
Intercept, U_0	.083	.006870	152.65	0.001	
Level 1 effect, R	.265	.070430			

Study 6: Place attachment and community confidence of new subdivision residents

One strategy for neighborhood revitalization currently popular with policy makers is to construct new developments to attract higher income individuals and/or housing to declining neighborhoods. However, little is known about who moves in to such developments, how they compare to residents of the surrounding neighborhood, and whether their experiences in the new housing are positive. Interviews with 56 residents of a new subdivision designed to be a revitalization intervention in a declining neighborhood reveal that the residents are as young and ethnically diverse as surrounding residents (Brown, Brown, & Perkins, 2001). New sub-division residents were wealthier, more likely to be married, more likely to be Asian, less likely to be Hispanic, and almost twice as likely to be homeowners as newcomers to the surrounding older neighborhood. Compared with surrounding residents, they were more confident about the future of their part of the neighborhood, especially those who were nonwhite, who perceived lower levels of disorder, and, surprisingly, who made fewer visible property improvements. They also generally had higher levels of place attachment than surrounding neighbors, especially residents who were nonwhite and who reported low fear of crime. Residents of the new housing were largely attracted by affordable housing, but given their high levels of confidence and place attachment, may become an important source for long term neighborhood revitalization.

Variable	Confidence			Place attachment		
	B (SE)	Beta	r	B (SE)	Beta	r
Step 1						
White	-.58 (.19)	-.40**	-.40**	-.48 (.19)	-.32*	-.33*
Step 2						
White	-.31 (.24)	-.22	-.40**	.00 (.25)	.00	-.33*
Citizen participation	.25 (.14)	.24	-.02	.18 (.15)	.17	.05
Neighborhood qualities	.26 (.14)	.26	.40**	.22 (.14)	.21	.30*
Fear of crime	-.14 (.12)	-.17	-.35**	-.39 (.12)	-.44**	-.53**
Perceived disorder	-.44 (.19)	-.31*	-.39**	.32 (.19)	-.22	-.36**
Property improvements	-.31 (.13)	-.30*	-.16	.00 (.13)	.03	.13

** p < .01 * p < .05.

Policy Implications

The crime data show a persistent effect for physical incivilities, assessed by trained observers, as a predictor of later police reported crime. Depending upon the analysis, these effects occur at both the individual and the block levels, and at both Time 1 and Time 2. In fact, these predictors of crime were more significant than residents' reports of incivilities and when important individual difference predictors (such as home ownership) are controlled. Consequently, the present research confirms an important link between actually observed incivilities and crime related outcomes. Incivilities are not just in the heads of residents, they are in the environment and associated with future crime reports.

Furthermore, the types of environmental predictors of crime go beyond those of incivilities identified in earlier studies of more urban settings. That is, it is not simply minor crimes such as graffiti that put residents at risk, it can also be the more minor suburban annoyance of a poorly maintained lawn. Litter, which is a minor crime that afflicted this more suburban neighborhood, also emerged as predictive of later police reports.

In addition, at Time 1, residents closest to the intervention site experienced the highest crime and observed incivilities and residents furthest from the intervention site experienced the fewest crimes and incivilities. Both crime rates and incivilities were spread more equally across the neighborhood at Time 2, when the intervention site was improved by the addition of the subdivision. It is not known whether an increase in crime and incivilities in the areas most distant (5,000' - 7,000') from the new housing resulted from offenders being displaced from the former abandoned property site or whether new instigators of crime arose in these distant areas independently from the decrease in crime and incivilities immediately surrounding the new housing site. The most distant zone also experienced a substantial drop in home ownership, which might explain the increase in crime, given the added instability and deterioration of the area.

In general, place attachment emerged as significantly associated with crime (at Time 1) and fear (at Time 2). Higher place attachments were also associated with higher collective efficacy, lower fear of crime, and fewer housing incivilities. Thus, place attachment may be an important part of the incivilities framework, and of studies of crime and fear, that merits further attention. Therefore, collaborative teams of residents, non-profits, and others involved in neighborhood improvement may want to consider programs that enhance pride of place as a positive goal that may have the benefits of crime and/or fear reduction.

Providing a nice lawn and keeping litter away from one's home may be actions of a territorial nature that are consistent with higher levels of place attachment and lower levels of crime and incivilities. Yard care and clean up are actions that residents often take spontaneously. However, policy makers may want to provide residents with options that could be a natural extension of such individualistic activities, which may maximize the possibility of positive spillover effects from the presence of concerned residents who actively maintain their properties. Lorraine Green Mazerolle and colleagues (1998) has

found that the collective activities of "place managers," those individuals who assume control over places and their informal policing, were related to decreases in physical incivilities and increases in civil behavior. Furthermore, these benefits, as well as decreased drug sales, were also evidenced in places where an array of place improvement policies (e.g., code enforcement, evictions) were implemented; such place improvement policies have also been found effective in other neighborhoods (Meier, 1983). Similarly, territorial theory posits that places are more orderly when residents extend their sense of territorial control beyond the immediate borders of one's property (Brown & Altman, 1981). Therefore, residents who show well maintained properties may serve as stronger neighborhood assets if they are provided the proper place improvement tools and policies.

Citizens and officials who are involved in neighborhood improvement efforts may also find another source of inspiration in these results. The additional risks of crime accrued to individuals in many cases because of their block context. That is, even if an individual's property is well-maintained, that individual experiences more risk of a future police report if his or her neighbors' properties show incivilities. Just as evidence of the deleterious effects of second hand cigarette smoke helped improve air quality for non-smokers, evidence of deleterious effects of block incivilities may inspire more effective crime prevention for the neighbors of poorly maintained properties.

These data also provide qualified support for the central purpose of the HUD and city-sponsored intervention. That was to use publicly-funded infrastructure to attract a private, large-scale in-fill housing development for moderate-income residents and encourage incumbent upgrading spillover effects in the surrounding older, declining neighborhood. The intervention was successful in attracting an ethnically diverse group of residents who expressed great confidence in and attachment to the new subdivision.

Given that current policies most akin to this one—the Homeownership Zones—encourage the development of at least 300 units (compared to the 84 units in the present study), such larger scale housing interventions may have even more powerful effects on the surrounding neighborhood. Too few evaluation studies of such interventions exist; such evaluations should become standard practice to determine how best to revitalize neighborhoods.

The finding of block-level effects, independent of individual-level effects (which is only possible using multi-level analysis) confirms the importance of the street block as a unit of analysis for research, as a source of influence on residents, and as a focus of organizing for city and community leaders. Even in a neighborhood with similar demographic and social profiles of residents, significant effects were frequently observed as differences across blocks. Therefore, neighborhood organizing and clean up efforts may want to focus on making salient improvements in targeted areas instead of dissipating effects across areas too large to benefit from block level improvements.

Appendix 1: Research Methods: Information Needed for Replication

Research Methods: Information Needed for Replication

The study began in 1993 with a systematic observational assessment of crime and fear-related physical features on 59 blocks surrounding the planned housing site and eight sampled addresses on each block, followed by interviews with residents during 1994-95, interviews with new residents in the newly built housing in 1997, and interviews and physical condition assessments on the same blocks in 1998-1999. During the year 2000, police crime report and city building permit data were collected as outcome variables to predict from resident interviews and physical observations. Hierarchical Linear Models are used in each study in order to analyze appropriately the between block variability. Outcomes in the present study varied across blocks, despite the socio-economic similarity of the intact neighborhood.

Geographic area covered by the data collection

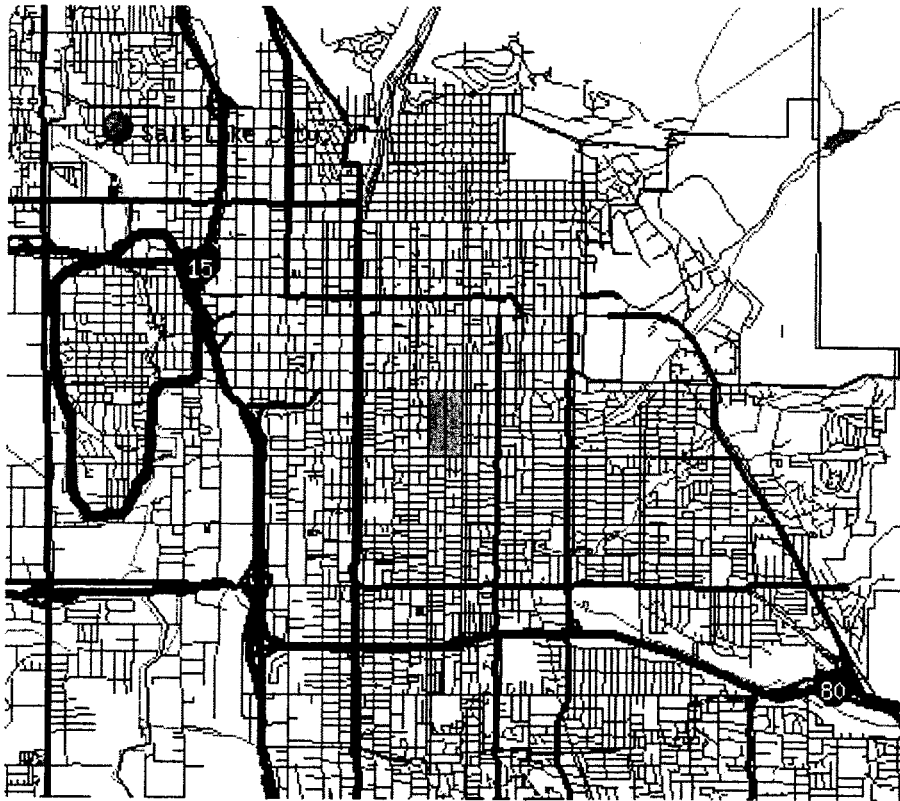
The research site consists of two adjacent neighborhoods located on the near West side of Salt Lake City, Utah, indicated in Figure 3. The fact that the area is undergoing gradual decline makes it compelling as a research site for a study of incivilities and crime. Various researchers have suggested or found that incivilities are especially important for crime related outcomes in neighborhoods facing moderate levels of problems (Taylor & Shumaker, 1990; Taylor, Shumaker, & Gottfredson, 1985; Wilson & Kelling, 1982). The target neighborhood has one of the worst reputations for, and reports of, crime in Salt Lake City. Census data from 1970 to 1990 indicate that household incomes in this area have decreased from \$26,000 to \$19,000 (in constant 1989 dollars), despite a city average that remained stable at about \$29,000. The census block groups have an (unweighted) average of 29.43% in poverty compared with 16.4% city wide (Salt Lake City Corporation, 1993); research suggests that the negative effects of concentrated poverty occur in areas with at least 20% in poverty (South & Crowder, 1997).

An increase in ethnic diversity in the area involves young families, as school enrollment figures show that 42% of the student body are ethnic or racial minorities (Salt Lake City Corporation, 1994), compared to about 35% for the population at large. Although single family detached houses comprise the majority of the housing stock, owner occupancy decreased from 68% in 1980 to 56.6% in 1990. In sum, the neighborhood resembles a classic neighborhood in transition, with more transient housing conditions and poorer residents, reflecting the aging of long-term residents and the influx of younger ethnically diverse families.

Although detailed information from Census 2000 for the sampled block groups are still being readied, some of the census tract level data are available. They show the three census tracts bounding the survey area had younger ages (28.3, 27.2, and 27.0 years median age compared to 30 median years age citywide). Owner occupancy was slightly higher in sampled areas than citywide, consistent with the area being a first ring suburb (owner occupancy ranged from 53.4 to 59.2% compared to 51.2 citywide). The

percentage of Hispanic individuals of any race was substantially higher in the three census tracts (44.9%, 45.6%, and 42.6%) than citywide (18.8%).

Figure 3. Study neighborhood is within circled area on map of Salt Lake City



Universe from which the study population is drawn

As explained below, the 60 sampled blocks were restricted to predominantly residential homeowner blocks in the declining, working-class section. One block consisted of three rental apartment complexes at Time 1, but two were renovated and converted to condominiums before Time 2. All nonresidential and at least eight residential properties on each sampled block were environmentally assessed. Within sampled households, the adult resident with the most recent birthday was selected.

Sampling method used to select elements of the universe

Because the purpose of the study was to determine if residents would be inspired to upgrade their housing as well as benefit from lower crime or fear of crime, the sampling strategy was devised to select blocks dominated by homeowners. 1990 Census data provided demographic profiles of the area surrounding the future housing intervention. Block groups surrounding the intervention (tract 1026, block groups 1-3; tract 1027, block groups 1-3, & tract 1028, block groups 2 & 3) were chosen to represent similar demographic groups. Then census blocks and streetblocks were randomly chosen with probability proportionate to size in the following multistage, clustered sampling procedure.

1. In order to decrease the influence of blocks that might provide too few interviewees or be too dominated by multi-family housing, census blocks were chosen if they showed between 10 and 100 household addresses.
2. Within eligible census blocks, households were cumulated for total number of households across the neighborhood. Then random number charts were used to select an address. This address would indicate which census block (a 4-sided block) to choose. This step was repeated 60 times for 60 blocks. (The n of interviews on one block was low and thus it was combined with another block, which was the next segment of that street, resulting in 59 blocks at Time 1. At Time 2, a new 60th block was selected.)
3. Census blocks are not considered as ecologically valid or as meaningful to residents as streetblocks (both sides of a single street; Perkins et al., 1990; 1992; Taylor, 1988). Thus, once a census block was chosen, a second random number was used against an enumeration of households on the four sides to choose the streetblock (one side of the census block as well as the addresses across the street) to be sampled.
4. Within selected streetblocks, in order to ensure samples spread throughout each block, trained Environmental Inventory raters systematically selected households for the sample in person by starting with the lowest number address of a private home, then walking down one side of the street at a time, evaluating every third house or apartment building (skipping two each time). For example, they might choose addresses #600, #606, #612, etc. Initially, raters stopped at eight properties per block. At Time 2, those same eight plus additional addresses per block were selected, resulting in a combined

Time 1-Time 2 sample of 926 different addresses on which we have some data, ranging from 9 to 19 properties per block.

Statistical Power. Previous research indicates that 59 blocks are an adequate sample size (i.e., for an alpha level of .05, effect size of $r = .30$ for block data, statistical power is approximately .75, 1-tailed; for the individual house level power is greater than .995; see Taylor & Perkins, 1989, for a discussion of sample size per block). In keeping with past research (Taylor & Perkins, 1989), significance levels of $< .10$ are discussed for block level data, given the power level of .75. Results should be interpreted cautiously, given multiple tests and relaxed standards for block level effects.

Table 10. Descriptive Statistics (Individual level at Time 2)

<u>Variable (Name)</u>	<u>N</u>	<u>Mean</u>	<u>SD</u>	<u>Min.</u>	<u>Max.</u>
<u>Demographic Variables:</u>					
Income (T2INC)	536	6.12	3.61	1.00	19.00
Length of Residence (T2LGRES)	611	13.21	15.51	0.00	79.00
Home Ownership (T2OWNER)	615	0.75	0.43	0.00	1.00
Ethnicity (White, non-Hispanic; T2WHITE)	604	0.62	0.48	0.00	1.00
Religion (Mormon; T2LDS)	613	0.36	0.48	0.00	1.00
Female (T2FEMALE)	597	0.66	0.47	0.00	1.00
Age (T2AGE)	610	43.64	18.24	18.00	96.00
Married (T2MARRIED)	612	0.53	0.50	0.00	1.00
Live in house (T2HOUSE)	616	0.85	0.36	0.00	1.00
Household size (T2HHSIZE)	616	3.42	1.98	1.00	14.00
Number of Children in Household (T2KIDS)	616	1.20	1.52	0.00	8.00
<u>Substantive Variables:</u>					
Aerial Distance to Subdivision (in feet; AERIAL)	915	3069	1515	476	6695
Psychological Proximity to Subdiv. (T2RRPPSY)	607	0.58	0.28	0.05	1.00
New housing is in my neighborhood (T2BYNEW)	600	0.56	0.50	0.00	1.00
Physical incivilities (T2M13H)	901	0.00	0.44	-1.15	1.65
Nonresidential properties on block (T2NRBLK)	926	0.15	0.36	0.00	1.00
Self reported past victimization (T2VIC4PT)	616	0.93	1.15	0.00	3.00
Fear of crime (T2RAWF4)	618	2.39	.73	1.00	4.00
Place Attachment (T2RPLAC)	605	0.68	0.24	0.11	1.00
Collective Efficacy (T2REFCY)	606	0.57	0.15	0.14	0.97
Rating of Neighborhood Qualities (T2RHQUAL)	602	6.38	1.70	1.50	10.00
Block Neighbors Improved Property (T2Q10N3)	588	0.82	0.39	0.00	1.00
Community Confidence (T2RCONF)	612	2.23	.60	1.00	3.00
Perceived Block Q. of L. Problems (T2RBLKPR)	599	0.46	0.22	0.07	1.00
Perceived Block Crime Problems (T2RCRIME)	598	0.37	0.32	0.00	1.00
Observed Conditions (T2HIRAW)	890	0.57	0.16	0.00	0.94
Self-reported Home Improvements (T2ALLRAW)	605	0.39	0.28	0.00	1.00
Building Permits (PO7_PMTS)	915	0.07	0.27	0.00	2.00
Permit Sum Valuations (PO7_SUMV)	915	472.	4372	0.00	82804
Home Satisfaction (T2HSATRW)	607	7.58	1.85	1.75	10.00

Note. More on each variable under Measures. For a comparison of demographics, crime, and physical conditions by proximity to the intervention and by time, see Tables 2 and 3, above.

Rationale for, and effects of, over sampled block selection, Time 1. In order to maximize the chance of finding effects proximal to the housing intervention site, four blocks were selected at random among the non-chosen blocks within two blocks of the new subdivision. The four over-sampled blocks were tested against the surrounding randomly sampled blocks to see if any important differences were introduced. The only significant difference is that the 42 residents from the four over sampled blocks favored fewer public investments in roads (1.98 vs. 4.69 on a 10-point scale where 10 involved the most new money invested in roads; $t(312) = 4.39, p < .001$). The four blocks include some fairly busy streets, and the residents may have had construction equipment using the roads to prepare the new housing site. Consequently, these residents may have been reluctant to endorse more road work. Given that this variable was not included in any of the composite variables central to the present set of studies, over sampled blocks are grouped with others.

Sources of data

The study included observed assessments of physical conditions, surveys of residents, and archival data from police reports and housing building permits.

Block Environmental Inventory (BEI). This study marks the continued development and use of the BEI, the purpose of which is to measure the physical environment of urban residential blocks (Perkins et al., 1992; 1993). In addition to the items listed below, the BEI includes a variety of block-level social (number and description of users of outdoor space) and physical (e.g., vacant homes, abandoned cars). Based on past work with similar inventories, ratings are conducted when street activity is likely to be present, from 5 to 8 p.m. week nights and noon to 8 p.m. week ends. Ratings are conducted during good weather conditions (in spring and fall in the present study).

A total of 488 residential properties at Time 1 and 901 at Time 2 were assessed. (Fifteen original addresses were not reassessed because either the building was razed, or the original field address recorded could not be located at Time 2). At least 8 properties per block assessed at Time 1 and at least 12 per block, ideally, at Time 2 (due to some limited block sizes and block mergers, between 9 and 19 properties were actually assessed per block at Time 2).

A copy of the part of the BEI that includes the housing incivility items is reproduced below, along with rating instructions.

	0	1	2	3	4	5	6	7	8	9
Address: digit 1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
digit 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
digit 3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
digit 4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Indicate <u>how many</u> of the following:										
1. Barrier: 0=none; 1=on property; 2=perimeter..	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Roof condition: 0=new,1=avg,2=needs repair...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Traces of people: 0=none,1=inanimate,2=animate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Pieces of litter on & in front of property...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. % exterior paint peeling X 10 (1=10%,2=20)...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Unbroken outdoor lights <u>on</u> the property.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Trees on the property.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Personalizations on the property.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. House, yard or window decorations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Indicate no or yes:-

No Yes

- 10. Any **graffiti** on property?..... No Yes
- 11. Any **broken windows or fixtures (incl. lights)?**..... No Yes
- 12. Any **cracked brick, concrete (incl.driveway,sidewalk)?**..... No Yes
- 13. Is **lawn** in poor condition (>6in., brown, weeds)?..... No Yes
- 14. Do any windows or doors have **security bars or gates?**..... No Yes
- 15. Any sign of a **dog** (e.g., house, droppings, "beware")?..... No Yes
- 16. Any **security, alarm, property ID, block watch signs?**..... No Yes
- 17. Any **flower or vegetable garden** on the property?..... No Yes
- 18. Any current or recent **home improvements?**..... No Yes
- 19. Any **place to sit** outside (bench, swing, stoop)?..... No Yes

Instructions:

- 2. Observing from sidewalk, indicate: 0 if there are no "traces" of people present at that address; 1 if you see any inanimate objects that have been left by someone outside (e.g., car in driveway, toy or tool on lawn or porch) but no "animate" traces; 2 if you see or hear any people (incl. television or stereo on) inside or outside at that address.
- 3. Imagine if all street (up to half way across), sidewalk, and yard litter (including overflow from trash cans) were swept up; if you could not cover up the pile with 1 foot, indicate 1 (yes).
- 4. Count graffiti only if it is a painted name, design, or a mark that you could not cover with one hand. Count damage or graffiti just once per vandalized object (i.e., do not count multiple marks on a garage door).
- 5. Include as broken windows that are visibly cracked; these sometimes have tape along the cracks. Broken fixtures to look for include exterior lights and "personalizations" (see #16, below).
- 6. Include any unpatched cracks or broken sections of brick, stucco, sidewalk, or driveway that are at least one foot long.
- 7. Estimate the percentage of the surface of all exterior paint (including trim) that is cracked or peeling).

8. Indicate yes (1) if there is at least 1 square yard of lawn that is either higher than 6 inches (about your thumb to forefinger spread wide), or brown, or has more than just 1 or 2 visible weeds.
9. Count the number of unbroken outdoor **lights** on the property (i.e., not street lamps). Look near front door, porch, garage, and sidewalk.
10. Include any type of **window barrier**. Check front and side windows, doors, and especially basement windows.
11. Any evidence of a **dog** living there (dog house, "beware of dog" sign or droppings on the lawn. Do not count droppings along street or sidewalk.
12. Look for various "**security**" **signs** (e.g., alarm, "Operation I.D.," patrol, or "block watch" stickers) on doors and windows near doors. If you see an alarm or its wires, code this a 1 (yes).
13. Count the number of **trees** (of any size) on private property and visible from the street.
14. Include anything that appears to be intended as a **garden**, unless it is an empty bed.
15. A "stoop" (front steps) should be included if the steps or low wall are at a comfortable height for sitting (2_3 feet).
16. A "**barrier**" is a wall, fence, or hedge of any sort or height. 0 if none; 1 if it surrounds just part of property (e.g., backyard perimeter only); 2 if around the perimeter of the entire property.
17. "**Personalization signs**" include family names, initials, emblems, ornaments, fancy address signs (but not regular address numbers). Look for these on doors, mail boxes, lampposts, welcome mats, windows, and gates and record the total number.
18. **Decorations** include any statuettes, planters, window boxes, awnings, etc., that were not counted in 16. Do not include plants inside windows. Again, record the exact number.
19. **Home improvements** include current or recent construction additions, such as a new garage or car port, porch or deck, addition (room), aluminum siding, driveway resurfacing, landscaping, etc.
20. Indicate by first initial whether the **roof** appears to be New (or is being replaced), in Average condition, or in obvious need of Repair (e.g., missing shingles).

Inter-rater reliabilities for observed housing qualities in the(BEI). Inter-rater agreement has been found to be strong in previous versions of the BEI. After training raters in the same or similar neighborhoods, a selection of target homes were independently rated by two raters at both Time 1 (n = 365) and 2 (n = 201). Resulting inter-rater reliability scores (Cronbach alpha coefficients) yielded acceptable reliability, ranging from .70 to .93 at Time 1 and .92 to 1.00 at Time 2 (See Table 12). The Time 1 reliabilities were obtained with students enrolled in service learning classes; the better reliabilities were achieved by the professional survey research firm. Future researchers may want to examine possible reasons for the discrepancies across the scores (e.g., additional training of students required; additional checks on blindness of inter-rater reports from survey professionals).

Table 11. Inter-rater Reliabilities for Observed Housing Qualities

Variable name			Reliability	
Time 1	Time 2	Label	Time 1	Time 2
ha1	T2H1	barrier	.87	.93
ha2	T2H2	roof condition	.71	.93
ha3	T2H3	traces	.82	.92
ha4	T2H4	litter	.87	.94
ha5	T2H5	peel paint	.90	.96
ha6	T2H6	lights	.84	.98
ha7	T2H7	trees	.92	.97
ha8	T2H8	personal id	.70	.98
ha9	T2H9	decorations	.82	.98
ha10	T2H10	graffiti	.87	.99
ha11	T2H11	broken windows	.83	.98
ha12	T2H12	cracked brick	.79	.98
ha13	T2H13	bad lawn	.84	.99
ha14	T2H14	security bars	.83	1.00
ha15	T2H15	dog	.93	.99
ha16	T2H16	alarm	.77	.99
ha17	T2H17	garden	.79	.98
ha18	T2H18	improvements	.80	.98
ha19	T2H19	seating	.83	.99

Resident Surveys. The approximately 30-minute survey was conducted at Time 1 by 83 graduate and undergraduate university students, including five fluent in Spanish who used a Spanish translation of the survey. At Time 2, NIJ funded a professional survey research firm to complete the survey, again using Spanish or English versions depending upon respondent preference. Surveys were administered by telephone if a phone number was available, in-person if not. At both Time 1 and Time 2, approximately half of the interviews were administered by telephone and half in-person. Respondents were not compensated at Time 1 but were given \$25 for participating at Time 2.

In addition, 16 interviews were completed by mail after a gang confrontation incident in a certain part of the neighborhood. A pair of hired interviewers was confronted by what was perceived to be gang members brandishing guns and driving a van. The pair fled to a restaurant, followed and threatened by the gang members, and called police. Discussions with the police and the interviewers led to a decision that re-entering that particular section of the neighborhood would not be safe for the interviewers and perhaps the interviewees. Therefore, paper versions of the interview were sent to the affected area, with added incentive (\$50.00) for the return of completed questionnaires. Because these exceptions constitute only 2.6% of the total completed interviews, they are not tested for differences with other modes of interview administration.

Purchased telephone lists proved inadequate so telephone interviews were supplemented by at-home in-person interviews. The adult who had the most recent birthday was selected for the interview (O'Rourke & Blair, 1983). Spanish and English versions of the interview addressed perceptions of neighborhood social fabric, crime problems, fear, victimization, citizen participation, perceived physical conditions, reported maintenance, home improvements, and awareness of ongoing city revitalization plans (see response rate information below and survey protocol in the appendix to the full report).

Time 2 Phone vs. In-person Interviews. Slightly over half of completed interviews were completed by phone (316/619 or 51%), with most others being completed in-person (287/619 or 46%). Sixteen (3%) were completed by mail. The method was to try to contact respondents by phone first. However, two published criss-cross directories and a purchased phone list from the telephone company still did not provide adequate coverage for almost half of the addresses. Therefore, in-person visits were necessary to avoid biasing the sample severely.

Table 13 show t-tests on all variables by mode (1 = by phone, 2 = in person). Listed are the variables significant at the 0.00031 level (Bonferroni correction of 0.05 divided by the number of variables (151)) along with the mean scores. The results show that a striking difference between phone and in-person interviewees involved the year they moved in to their homes. In-person interviewees on average moved in about 7 years later, suggesting that a number may be recent in-movers who had not yet started phone service. The in-person interviewees also had more children (T2Kids), were younger (T2Age), and had larger household sizes (T2hhsz). Those interviewed in person, perhaps again reflecting a more newcomer status, were less involved in and less interested in a variety of formal neighborhood groups, such as the community council, anti-gang organizations, or religious organizations (see T2GoCC, T2WkRel, T2GoGang, T2Join, T2KnwOrg,).

However, the in-person interviewees rated more highly a number of general neighborhood conditions such as police protection, housing quality and affordability, school quality, store availability, evening safety, and faith that their neighbors would watch vandals on the block (see T2HdQ1, 5, 9, & 11; T2SfEve; T2Watch). Although those with no listed phones were less likely to visit with neighbors (see T2Nbor2) they were more likely to spend time out on the block (T2TmOut). The in-person interviewees also had greater concern about problems for the poor. They were less likely to see a need for money to be invested in the neighborhood to get new homes built, and more likely to endorse funding for rental apartments (see T2House\$ & T2Rent). They were also more likely to say that new housing should be built for lower income families and showed greater concern over rising incomes in the neighborhood (T2NewFm8 & T2Rich). Finally, they were less likely to have paved or landscaped in the past year (T2Rep5). In short, the in-person interviewees responded in ways that suggested they were relatively new to the neighborhood, less involved, but fairly satisfied with neighborhood conditions, yet concerned about the plight of low income housing needs. It was interesting that the income levels of the two groups may not differ. It may be that the newer residents, who responded in person because they did not have listed phone

numbers, were more conscious of the rising housing prices in the region. In any case, the results suggest that it was important to go to the extra effort needed to find residents in their homes when they had no phones, given their different responses and their more recent arrival to the neighborhood. This feature may distinguish this neighborhood survey from others that rely exclusively on listed phone numbers (e.g., Taylor & Covington, 1993).

**Table 12: Variables that differ by interview mode:
Means (and standard deviations below)**

	Interview mode	
	In person or mail	By phone
T2MOVEYR Year moved in	1989.23	1982.48
	-13.466	-16.605
T2HDQ1 police protection	6.59	5.83
	-2.774	-2.608
T2HDQ5 Housing quality	6.74	6.01
	-2.541	-2.22
T2HDQ6 Housing affordability	6.63	5.82
	-2.552	-2.308
T2HDQ9 Quality local schools	7.32	6.34
	-2.889	-2.836
T2HDQ11 Avail. of needed stores	7.98	7.12
	-2.541	-2.618
T2NBOR2 Visit with nbors	2.68	3.23
	-1.51	-1.342
T2TMOUT Leisure time in yard or nhood	3.38	3.12
	-0.919	-1.082
T2WATCH Nbors watch vandals	0.74	0.54
	-0.442	-0.5
T2GOCC Last 2 yrs go to Comm Coun or Impr Assoc	0.16	0.29
	-0.368	-0.452
T2WKREL Last 2 yrs wrk for rel org	0.15	0.27
	-0.356	-0.445
T2GOGANG Last 2 yrs go to anti-crime, gang, graffiti grp	0.12	0.24
	-0.326	-0.429
T2JOIN Willing to join blk assoc	0.58	0.77
	-0.494	-0.419
T2KNWORG Know of nhood org reduce crme, graffiti, gangs	0.22	0.4
	-0.412	-0.491
T2SFEVE Safe on blk at nght	2.91	2.59
	-0.993	-1.052
T2RENT City \$ new hous rent	2.68	2.34
	-1.045	-1.136
T2NEWFM8 Desired income of newcomers	12.01	12.7
	-2.239	-2.309
T2RICH Not worried re rising incomes	2.2	2.55
	-0.802	-0.677
T2REP5 Paving or landscaping	0.37	0.52
	-0.485	-0.501
T2HHSIZE Household size	3.86	2.99
	-2.113	-1.749
T2KIDS 17 or younger	1.46	0.95
	-1.656	-1.339
T2AGE Age	40.33	46.82
	-17.538	-18.358

Building Permits. A database on city-wide building permits issued from January, 1993, through September, 2000, was supplied by the city. After excluding permits outside the defined study area, each permit was coded based on street address as on, near (within two blocks), or far from (beyond two blocks) the closest sampled block number. Only the number of permits per sampled block or address from November, 1997, through September, 2000, and the pre-construction estimated valuations of those permits were used in the present analyses. Demolition permits were included, but were set to \$0 for valuation.

Units of analysis

The two basic units of analysis are (1) the individual, household, or address (depending on the variable) and (2) the street block (both sides of a street, bounded by street corners or a dead-end. Both levels were analyzed simultaneously using **hierarchical linear modeling (HLM)**. HLM is an appropriate technique for understanding both individual-level and group-level phenomena (Bryk & Raudenbush, 1992). When residents of the same block are analyzed as if they are independently drawn samples, the analysis is biased by overlooking the effect that living on the same block has on individuals. If indeed residents are drawn systematically to particular blocks, or if blocks evolve in ways that create distinct cultures of revitalization, then the embeddedness of residents in their block needs to be taken into account statistically.

Furthermore, HLM can describe the extent to which the variability in the dependent variable occurs at the individual level versus the block level. Typically, HLM analyses find that many social phenomena are more strongly weighted toward individual level sources of variability. That is also true in these analyses, although a substantial portion of the variability in incumbent upgrading and home satisfaction is between blocks. To test this, each HLM analysis begins with an unconditional model that addresses the following question: Given the small scale of the residential block, and the fact that the adjacent neighborhoods were chosen to be demographically similar, do blocks vary in terms of each dependent variable?

According to Bryk and Raudenbush (1992), the number of independent variables should be limited due to model fit and sample size limitations. Study 3 (Psychological predictors of revitalization) illustrates our general strategy for most models: we added sets of predictors hierarchically to the HLM in the following order to see if each set improves model fit significantly: after the unconditional model, we add Time 2 Level 1 (individual/household) demographic control variables (group centered and fixed); then Time 1 Level 2 (block) independent variables, then we add Level 2 Time 1-Time 2 change predictors (standard residuals from linear regressions), then Level 1 Time 2 independent variables (group centered and fixed: i.e., not allowing slopes to vary across blocks). For every Time 2 Level 2 predictor in the model, the corresponding Time 2 Level 1 (individual) predictor was also tested. That is the full model (not including possible interaction terms and prior to testing for random effects: i.e., allowing Level 1 slopes to vary across blocks). We then remove nonsignificant substantive predictors. In most cases, this is the most parsimonious model to report. But we go on to test any

Level 1 interaction terms (fixed) that showed significant correlations with the particular outcome (as well as any components of the interaction terms that may have been removed in the previous step). Finally, we check for significant random variance in substantive level 1 predictors left in the model (one at a time). If an interaction or random effect makes another predictor non-significant, the non-significant predictor is removed. The HLM analyses used full maximum likelihood estimation and pairwise deletion of missing values. The pairwise deletion allows all collected data to enter equations and preliminary testing of listwise vs. pairwise deletion evidenced few differences.

Strategy for analyzing Level 2 over time. In two studies, residualized change scores (based on deviations from the score predicted by the Time 1 value) represent unexpected increases (positive) or decreases (negative) in a predictor and/or and outcome from Time 1 (1994-95) to Time 2 (1998-99). This was done with environmental and crime data at both the address and block levels in Study 2 and with survey data at the block-level only in Study 3. It is important to note that, despite extensive effort to obtain a panel sample, there was considerable change in the individual-level survey sample from Time 1 to Time 2. This was due to a combination of residential mobility, refusals at Time 2, within-household replacements, and increasing the Time 2 sample (see Retention Rate, below). Thus, the Time 1 and change variables represent sampled blocks at different points time, but not necessarily the same individuals to represent those blocks at each time. For every change variable included in the model, the corresponding Time 1 Level 2 predictor was included for comparison (although not to control for their mutual influence since Time 1 and residualized change scores are perfectly orthogonal).

Dates of data collection

Time-1 data (collected prior to the grant) were collected in April and May of 1993, although some were done later during the Time-1 survey, which was conducted from April 25, 1994, to November 18, 1995. (The construction of New West was completed in December, 1995). Many survey items (e.g., witnessing gang activity on the block) asked about experiences over the preceding 12 months. Thus, they refer to various one-year periods starting April, 1993, and ending November, 1995. Data on crimes reported to police were collected for each sampled address from the date of the interview was complete and until nine months after the end of the interviews (ending August, 1996). Building permits issued by the city for sampled addresses, blocks, and nearby blocks were collected but not used at Time One in the present analyses.

For Time Two, environmental observations were made August-September, 1998, and survey data were collected November, 1998 - August, 1999. Many survey items (e.g., self-reported victimization) asked about experiences over the preceding 12 months. Thus, they refer to various one-year periods starting November, 1997, and ending August, 1999. Data on crimes reported to police were collected for each sampled address from the date of the interview was complete through twelve months after the end of the interviews (8/30/00). Building permits and valuations covered the period from November, 1997, through September, 2000, for the present analyses.

Survey response rate

At Time 1 (1994-1995), at least five residents were interviewed on most blocks (one block had three interviews and three had four interviews), for a total of 357 interviews, representing a 72.71% response rate. At Time 2 (1998-1999), at least 7 interviews were completed per block, yielding 617 interviews. For the entire Time-2 study (which includes blocks in the new housing subdivision not included in the present report), of 930 initial contacts for interviews, 13.65% refused and 16.76% were unresolved (no one at home after eight or more contact attempts or no English or Spanish spoken; two interviews were unintentional repeats at the same address and were dropped). Thus 84.2% of English or Spanish speakers contacted provided interviews, whereas 69.59% of all addresses contacted yielded interviews.

Retention rate

Surveys and inventories (see below) were taken during the construction of the subdivision in 1993-95 (Time 1), and after, in 1998-99 (Time 2). The total number of households both interviewed and inventoried at Time 1 was $N = 365$; and at Time 2 was $N = 593$. The total number of addresses inventoried at Time 2 was $N = 901$; and the total number of households surveyed at Time 2 was $N = 618$. Because names were not requested as part of the survey nor as part of the environmental inventory, assuring a true panel study is not feasible. Through meticulous analysis of the variables address, length of residence, and age and other demographic characteristics, the most accurate description of sample panel characteristics is as follows: address matches at both Time 1 and at Time 2 was $N = 315$; same-household matches at both Time 1 and at Time 2 was $N = 147$; and same-person matches at both Time 1 and at Time 2 was $N = 78$. Since panel attrition is substantial, individual-level longitudinal analyses are impossible. Most of the present data are from Time 2, but each of the substantive Time 1 independent variables was aggregated to the street block level and used both in raw form and to derive regression residuals on the same variables at Time 2. This was done in order to test the effects of unexpected block-level changes in each independent variable (see Strategy for Analyzing Level 2 over Time, above).

Measures and scales

In order to test for interaction effects, composite variables were generally computed with raw, rather than standardized, scores. Items were adjusted to the same scale as needed. Cronbach's Alpha reliabilities listed below are based on Time 2 and would be slightly higher if standardized items were used. A complete list of measures used across all analyses are described below. Different composites are used in different analyses and sometimes individual items will contribute to more than one composite, although composites within any one analysis do not have overlapping items.

Demographic Control Variables are listed in Tables 2 and 10, above, and varied, depending on the analysis.

Home incivilities (T2HCIV8, coefficient alpha = .69 Time 1 and .62 Time 2) is an 8-item version of the above and included observed amounts of litter; graffiti; broken windows or lights; peeling paint; roofs, lawns, and sidewalks in poor condition; and the absence of flower or vegetable garden (Taylor, Shumaker, & Gottfredson, 1985).

Home attachment (PA3W alpha = .88 Time 1 and .90 Time 2). Place attachment can be measured for many different geographic levels, from rooms in a home to cities. However, residents' home attachments, including expressions of pride in the home and the home's exterior appearance, is deemed the most relevant aspect of place attachment when the research concerns physical incivilities present on private properties. A 3-item composite assessed how proud residents are of their house, the way their front yard looks, and the way their house exterior looks (Brown & Werner, 1985).

Place attachment. (Z2ATTACH, 5 items, coefficient alpha = .82 in Study 4; alpha = .78 in Study 6) Residents were asked about their attachment to the block; pride in their block and neighborhood; their pride in their house and appearance of their yard and house exterior (3 house specific items were averaged); and how they would feel if they had to leave the neighborhood.

Community Place Attachment (T2RPLAC; alpha=.87; used in Study 3).
On a 1 to 10 scale (1 = not at all satisfied, 10 = completely satisfied, how satisfied are you with

- a. your neighborhood,
- b. your block as a place to live?
- c. How attached do you feel to the block you live on from 1 to 10, if 1 is not at all attached and 10 is strongly attached?

On a 1 to 10 scale where 1 is not at all proud and 10 is extremely proud, how proud are you of

- d. your neighborhood,
- e. your block?
- f. If, for any reason, you had to move to another neighborhood would you be: very unhappy, a little unhappy, happy to move, doesn't make any difference?
- g. Would you recommend your neighborhood as a good place for young families to move to now?

Crimes Reported to Police. Crime reports were tracked after each house assessment of incivilities and each resident interview was complete and until nine months (at Time 1) or twelve months (at Time 2) after the end of the interviews. Balancing the need to avoid highly skewed measures with the need to recognize the importance of multiple victimizations, data were coded into four categories: No reports (55.5% Time 1, 55.8% Time 2), 1 report (20.0% Time 1 and 22.7% Time 2), 2-3 reports (14.3% Time 1 and 13.9% Time 2), and 4 or more reports (10.2% Time 1 and 7.6% Time 2) after the interview. This measure was divided by the number of months after the interview to compute a crime rate measure, which ranged from 0 to .33 crime reports per month; the measure was log transformed for the multivariate analyses.

Crime reports summarized across all codes, given the limited size of the Time 1 sample. Although even more instances would have been available for analysis had calls for service alone been utilized (Kurtz, Koons, & Taylor, 1998; Warner & Pierce, 1993), a more conservative strategy was used that required a formal police report. Particular types of formal reports were collected for Time 2 data and they revealed a continuum of neighborhood problems, larcenies (14.5%), family offenses (13.3%), assaults (12.0%), and public peace incidents (11.4%). Formal reports to the police are likely to be more serious or have more evidence of their existence, although still subject to the discretion of police reporting practices.

Informal neighboring. A 6-item composite assessed frequency (never, less than once a month, monthly, weekly, daily) of four different informal neighboring contacts: borrowing/loaning something, visiting, speaking with a neighbor about a neighborhood problem, and keeping watch on neighbors' homes while they are away. Residents also reported how many block neighbors they knew by sight or name (5 options, from none to all or almost all) and how much they felt they had in common with neighbors (nothing, not much, a little, a lot; coefficient alpha = .74).

Geographic Proximity to New Subdivision: Reverse of Geographic Information System (GIS)-calculated aerial distances from centroid of subdivision to each block and to each sampled address within 2 blocks.

Psychological/Functional Proximity to New Subdivision (T2RPPSY; alpha = .58; r w/ Geographic Proximity (below) = .34 (individual level)/ .71 (block level)):

- a. Is the area between... and... part of your neighborhood?
- b. Are you aware of the River Park subdivision?
- c. How often do you see these homes from driving along 5th or 7th South?
- d. Do you personally know anyone who lives in this new subdivision?

Self reported Victimization (T2VIC4PT). Following the National Crime Survey and Perkins and Taylor (1996), sampled residents were asked if they or other household members had been victimized by several common types of crime during the previous 12 months. These included burglaries (attempted or completed); theft from home, car, or property; vandalism or graffiti of property or vehicle; and mugging, robbery, or physical attack.

Fear of Crime (T2RAWF4; 4 items, coefficient alpha = .77). Based on Perkins and Taylor (1996), residents stated the extent to which they would feel fearful if out alone at night on their block or if stopped by a stranger for directions in the neighborhood. They also declared their degree of worry regarding criminal victimization of someone in their household and whether they avoid specific places in the neighborhood because they are dangerous.

Home Satisfaction (T2HSATRW; alpha = .53; 2 items): On a 1 to 10 scale where 1 is not at all satisfied and 10 is completely satisfied, how satisfied are you with your house as a place to live? What best describes the condition of your home/apartment? poor, acceptable, good, excellent

Community Confidence (T2RCONF; alpha = .57) consists of two items:

- a. In the past 2 years (or since you moved in), have the general conditions on your block gotten better, stayed about the same, gotten worse?
- b. In the next 2 years do you feel that general conditions on your block will get worse, stay about the same, get better?

Collective Efficacy (T2REFCY; 13 items; alpha = .65) is related to the idea of social capital (Briggs, 1998; Coleman, 1988; Saegert & Winkel, 1998) based on Sampson's (et al., 1997) conception containing social cohesion and social control. Social Cohesion includes knowing neighbors by name, informal borrowing/loaning relationships with neighbors, visiting neighbors, speaking with neighbors about a local problem, keeping watch on neighbors' homes while they are away, feeling one has much in common with neighbors. Social Control consist of wanting to be involved in neighborhood improvements; willingness to join a block association; feeling in control of the sidewalk in front of the home; belief that their neighbors would confront kids, talk to neighbors, and/or call the police when they see kids spraying graffiti; and having called a community or government official in the last year.

Perceived Neighborhood Qualities (T2RHQUAL; alpha = .78) is a 7-item scale rating the following qualities in the neighborhood on a 1 to 10 scale: police protection, availability of child care, nearby parks and playgrounds, housing quality, housing affordability, friendliness of neighbors, and the public image of the neighborhood (excellent, good, fair or poor recoded 1-10).

Perceived incivilities/crime (T2PCiv10 alpha = .73 Time 1 and .72 Time 2). A 10-item composite indicating whether the block, in the past 12 months has had vacant homes/buildings, neighbors who don't keep up their property, house or place on the block where the resident suspects drug dealing occurs, houses on the block burglarized, incidents of street robbery or assault on the block, or evidence of gang activity. Residents also rated, on a 10-point scale where 1 = no problem and 10 = very big problem, the degree to which their block had experienced, in the past 12 months, problems with graffiti, loud neighbors, traffic, and loose or stray dogs and cats.

Similar to Perkins et al. (1990; 1993; 1996), Study 6 divides perceived block problems into Perceived Block Quality-of-life Problems (T2BLKPRB; alpha = .56; 6 items: vacant homes or buildings, neighbors who don't keep up their property, and 1-10 ratings of the following problems on the block in the last 12 months: graffiti, loud neighbors, traffic problems, and stray animals) and Perceived Block Crime Problems (T2CRIME; alpha = .73; 5 items: drug house, burgled homes, street robbery or assault, youth gang activity, and number of gang incidents (recoded 0-1).

Neighbor improved property (T2Q10N3, 1 item). In the past 12 months, has your block had any neighbors who have improved their property?

Observed Exterior Conditions (T2HIRAW; 11 items, inventoried by trained raters; alpha = .63; R = reverse coded):

- a. Roof condition.

- b. Pieces of litter on and in front of property. (R)
- c. % exterior paint peeling * 10. (R)
- d. Personalizations on the property
- e. House, yard, or window decorations
- f. Any graffiti on property? (R)
- g. Any broken windows or fixtures (incl. lights)? (R)
- h. Any cracked brick or concrete on property (incl. driveway, sidewalk)? (R)
- i. Is lawn in poor condition (>6in., brown, weeds)? (R)
- j. Any flower or vegetable garden on the property?
- k. Any current or recent home improvements?

Self-Reported Home Repairs & Improvements (T2ALLRAW; alpha = .86) asks residents about 15 interior and exterior home repairs or improvements that have been made over the preceding 12 months, including:

- a. painting on the outside of the house?
- b. carpentry work on the outside of the house?
- c. work on the roofing or gutters?
- d. structural work, masonry work on bricks, stone, or concrete?
- e. paving or work on the landscaping?
- f. remodeling any room or making any additions to your home?
- g. painting or papering?
- h. carpentry?
- i. work on the floors or floor coverings?
- j. replacement or repair of a major appliance, e.g., refrigerator, stove, washer, AC?
- k. electrical work?
- l. work on the plumbing fixtures?
- m. work on the heating system, insulation, or air conditioning?
- n. work on windows, screens, storm windows or doors?
- o. did you do or have any other repairs or improvements done totaling \$50.00 or more inside or outside your house?

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