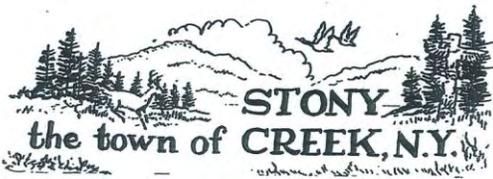


## **Appendix B**

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## Hamlet Revitalization Plan Business Survey

Name: \_\_\_\_\_

Contact Number \_\_\_\_\_

Business Name or Area of Interest: \_\_\_\_\_

**1. What are Stony Creek's *strengths* as a place to do business?**

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**2. What are Stony Creek's *weaknesses* as a place to do business? What hinders or has the potential for hindering your business plans in the future?**

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**3. What is the most important action that should be taken to improve the local business climate and enhance economic development in the Town of Stony Creek?**

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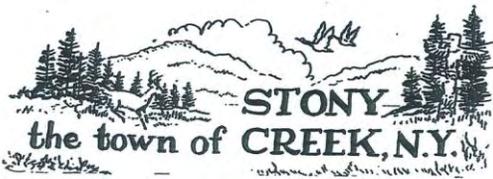
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## **Hamlet Revitalization Plan Business Survey**

**4. In your opinion, what types of stores, services, or other businesses are most needed and would be most successful in Stony Creek?**

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**5. How do you market your business?**

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**6. How can the Town better utilize the Stony Creek and other natural and historic features as economic/tourism assets?**

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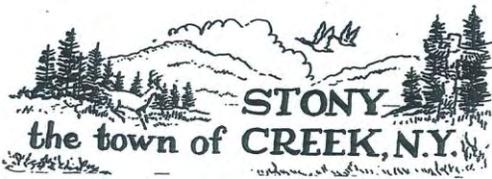
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**Please return completed questionnaire to:  
Laberge Group, Attn: Stephanie Siciliano  
4 Computer Drive West  
Albany, NY 12205  
Phone: (518) 458-7112  
Fax: (518) 458-1879  
Email: [ssiciliano@labergegroup.com](mailto:ssiciliano@labergegroup.com)**



# Hamlet Revitalization Plan Business Survey

## *Response Summary*

### **1. What are Stony Creek's *strengths* as a place to do business?**

- Scenic, beautiful area, natural environment, rural beauty
- Tourist potential
- Central location, near other points with larger population
- Minimal zoning restrictions
- Well-maintained roads
- Established public services (fire, emergency, post office, fed ex, UPS, DSL, internet)
- Public library
- Museum
- Great people
- Strong sense of community
- Active Chamber of Commerce
- Supportive Town Board

### **2. What are Stony Creek's *weaknesses* as a place to do business? What hinders or has the potential for hindering your business plans in the future?**

- Lack of cell service
- Need for improved internet service
- Small workforce/small population
- No employment opportunities
- Negative attitude of local residents
- Lack of future vision
- Too rural
- Little emphasis on the towns appeal to employee generating businesses and industries
- Lack of zoning
- Lack of sewer system
- Future loss of post office
- Lack of small business (groceries, fuel, supplies, etc.)
- Lack of volunteers for helping clean up
- Minimal engagement of some businesses in collaborative projects

### **3. What is the most important action that should be taken to improve the local business climate and enhance economic development in the Town of Stony Creek?**

- Improve cell services
  - Improve internet services
  - Provide incentives for light manufacturing companies
  - Recruit a warehouse or distribution facility, something that provides skilled or semi-skilled employment opportunities
  - Develop a hiking trail system
- 
-

- Develop and promote snowmobile trail system
- Develop fishing access points and overlooks to capitalize on the natural beauty of this place
- Provide rough camp sites for bicycle tours
- Adopt minimal local zoning
- Develop public sewer
- Advertise existing assets and local events
- Develop a long term plan to attract people/economic/marketing plan
- Upgrade exterior of buildings
- Hire a grant-writer
- Have museum open with regular hours, especially during the summer and have paid staff
- Bring in an industry or attraction to lure people in
- Hold larger music events with more crafts and local artisan sales

**4. In your opinion, what types of stores, services, or other businesses are most needed and would be most successful in Stony Creek?**

- Gas station
- General store, keep it local, well-stocked and have regular business-hours
- Stewarts or other franchise-supported convenience store with gas
- Shuttle or taxi service
- Light manufacturing or distribution center to provide employment
- Destination B&B or small hotel
- Small local eateries, diner, pizza parlor
- Hardware store
- Local artisan displays/hand-made crafts/gift shop
- Mail order business via internet
- Service-based business
- Tourist/seasonal attractions
- Outdoor activities center
- A destination business that would attract people year round
- Senior citizen housing complex

**5. How do you market your business?**

- Word of mouth
  - References/referrals
  - Brochures/business cards
  - Web/internet
  - Yellow-page ads
  - Newspaper ads
  - Signage
  - Attend local events for advertisement
-

- Local displays in open businesses

**6. How can the Town better utilize the Stony Creek and other natural and historic features as economic/tourism assets?**

- Increase funding for public library and museum to draw outside interest to area with new programs and increased operating hours.
  - Property tax credits for new and existing businesses that increase employment/offer new jobs
  - Develop Town Park swimming hole and staff it
  - Develop trail system (snowmobile, hike, bike)
  - Lure leaf peepers, vacationers, americaiders, etc.
  - Continue to promote the rural, mountain setting
  - Concentrate on year round business development, not tourism (too hard to compete with surrounding well-established tourist areas)
  - Provide residents with good programs and services
  - Build up the summer music series to bring/attract more out-of-towners
  - Invest and develop activities related to rural Adirondacks (snowmobiling, hunting, fishing, hiking, camping, etc.
  - Provide more fishing access sites
  - Stock stream with trout
  - Establish central information and check-in point for those coming to town for fishing, canoeing, hiking/x-country skiing, snowmobiling, atv, nature walks
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## **Appendix C**

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## Focus Group Meeting Notes December 7, 2011

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### Table 1:

#### BUSINESS GROWTH AND DEVELOPMENT

##### Job Creation:

- Well stocked store
- Café
- Gasoline
- Hardware
- Social Services one stop outreach
- Community Center
- Garbage Pick-up

##### Encourage Growth:

- Tax Credits
- Lift APA restrictions
- Education –Small Business Development
- Hamlet expansion Attract \$, people
- Public Transportation
  - Bus, train, community van

##### Impediments to Growth:

- Rural location
- Public will for smallness

##### Types of Business:

- Wood products/wood chip
- Unique destination
- Call center
- Small business park
- Water recreation

#### TOURISM

- Recreation- hunting, fishing, hiking, sled dog trails, guided stuff
  - Shopping
  - Tours
  - Museums
  - Eatery
  - Snowmobile –unattended gas station
- 
-

- Library events
- Music in park
- Mountain Festival
- More accommodations
- B&B
- Shuttle
- Bike route –mountain bike
- Advertise –pin point bike, snowmobile, etc.

#### HAMLET CENTER IMPROVEMENT

- If businesses were operating –signage, lighting, sidewalks
- Library project –expansion, parking, community center
- Develop the Dean property
- Gas station
- General store
- Museum –Open & Staffed

#### INFRASTRUCTURE

- Fast Internet
- Co-op office space
- Artist Studio
- Sidewalks
- Lighting

#### Table 2:

- Signage above SC 11 miles
- Need cell service
  - Makes out-of-towners feel unsafe/nervous
- Destination – trail head –soon?
  - train had no impact in SC
  - advertisement
- Enlarge Hamlet –for business to grow
  - Gas station
  - Wood based business (using natural resources)
  - Gift shops
  - Hardware/general store
  - Antiques
  - Local crafters (consignment)
  - Winter activities/to help keep local business open
  - Miniature golf
  - ATV/snowmobile
  - Upgrade/refurbish existing buildings (homes and business)
  - Build & grow
- Help improve existing business
  - Museum
  - Community center
- Money
- People

- 
- Enlargement of Hamlet – too small
  - Lighting needed
  - Think SC is “far” Away

**TOURISM:**

- Encourage having destination activities
- Lens, Wilcox, Harrisburg Lake
- Showcase our history
  - Mills
  - Tannery
  - Museum
- Fourth of July celebrations w/band & fireworks
- Swimming

**Table 3:**

- #1 con No cell service
  - Gas/fuel station needed
  - Impediment - distance and price of gas
  - General Store
    - Grocery
    - Hardware
  - Lodging
    - Bed & Breakfast
  - Transportation services
  - Food service - more
  - Town co-op store
  - Recreation field usage and promotion
    - Permanent concession
    - Outside advertising
  - Town-wide support for local business
  - Stores should have evening business hours
  - Restaurant/food service/café
  - Ski trails
  - Snowmobile trails
  - Beach improvements
  - Invest in store/Harrisburg Lake Club
    - Bit & Bridle
  - Need property access
  - Cut across Wilcox Road
  - Small shops
  - Historical aspect
  - Gun club expansion
  - Town sewer
  - Funds to help people fix their houses
  - Retail/grocery/hardware
  - Manufacturing/assembly
  - Office spaces/professional
-

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- Sewer plant
  - Small engine repair

#### PRIORITIES

- Grocery store/co-op/hardware/general store w/gas
- Sewer –Creation of jobs
- Sidewalks

#### **Table 4:**

#### BUSINESS GROWTH & DEVELOPMENT

- How many people employed in Town government or outside town?
- Seasonal jobs are finite number –what is not?
- Job creation is not important?
- Not possible for small business. Cannot offer incentive substantial enough to get people to come here.
- Business has to come here for what?
- Tax incentive is temporary
- People work outside the Town so local business can't offer more for people to come.
- Cell service in the Hamlet but not necessarily for the whole Town.
- SC is an unusual Town in that it is not on a route to another attractive destination

#### TOURISM

- The last 3 years business is down.
- 1,000 Acres-business is down. Find someone to buy it and partner with RR to for their tourism approach
- Town needs destination
- Town needs private investment

#### HAMLET CENTER IMPROVEMENTS

- Senior housing
- Septic w/Hamlet
- Stormwater run-off –could keep pressure off septic system if we could afford it
- Lights
- Zoning is a blessing and a curse
- Lack of zoning –zoning inside the Hamlet might be acceptable

#### PRIORITIES

- Convenience store
  - Destination business
  - 1,000 Acres –Town should buy it
  - Approach RR
  - Trail expansion
  - Stormwater run off –work with County to address problems
  - Zoning within the Hamlet/No zoning within the Hamlet – participants do not agree
- 
-

## **Appendix D**

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# Retail Goods and Services Expenditures

Stony Creek town, NY\_2  
 Stony Creek town, NY (3611371641)  
 Geography: County Subdivision

Top Tapestry Segments:		Demographic Summary	2010	2015
Rural Resort Dwellers	59.0%	Population	820	837
Rooted Rural	41.0%	Households	339	349
		Families	234	240
		Median Age	43.1	44.1
		Median Household Income	\$41,897	\$49,044

	Spending Potential Index	Average Amount Spent	Total
<b>Apparel and Services</b>	<b>45</b>	<b>\$1,083.40</b>	<b>\$367,273</b>
Men's	43	\$198.74	\$67,373
Women's	39	\$327.73	\$111,099
Children's	51	\$204.13	\$69,201
Footwear	34	\$142.18	\$48,200
Watches & Jewelry	65	\$127.18	\$43,113
Apparel Products and Services (1)	89	\$83.45	\$28,290
<b>Computer</b>	<b>67</b>	<b>\$73.95</b>	<b>\$25,066</b>
Computers and Hardware for Home Use	67	\$129.12	\$43,770
Software and Accessories for Home Use	66	\$18.77	\$6,362
<b>Entertainment &amp; Recreation</b>	<b>78</b>	<b>\$2,517.37</b>	<b>\$853,389</b>
<b>Fees and Admissions</b>	<b>55</b>	<b>\$340.74</b>	<b>\$115,512</b>
Membership Fees for Clubs (2)	54	\$88.02	\$29,839
Fees for Participant Sports, excl. Trips	62	\$66.10	\$22,407
Admission to Movie/Theatre/Opera/Ballet	58	\$87.35	\$29,611
Admission to Sporting Events, excl. Trips	55	\$32.95	\$11,169
Fees for Recreational Lessons	48	\$66.01	\$22,376
Dating Services	42	\$0.32	\$110
<b>TV/Video/Audio</b>	<b>71</b>	<b>\$887.63</b>	<b>\$300,908</b>
Community Antenna or Cable TV	78	\$561.69	\$190,412
Televisions	62	\$119.19	\$40,404
VCRs, Video Cameras, and DVD Players	70	\$14.21	\$4,818
Video Cassettes and DVDs	71	\$37.49	\$12,709
Video and Computer Game Hardware and Software	56	\$31.24	\$10,591
Satellite Dishes	85	\$1.07	\$363
Rental of Video Cassettes and DVDs	68	\$27.91	\$9,462
Streaming/Downloaded Video	41	\$0.57	\$193
Audio (3)	61	\$89.55	\$30,357
Rental and Repair of TV/Radio/Audio	62	\$4.72	\$1,600
Pets	107	\$460.86	\$156,233
Toys and Games (4)	73	\$106.91	\$36,243
Recreational Vehicles and Fees (5)	124	\$401.85	\$136,226
Sports/Recreation/Exercise Equipment (6)	67	\$122.17	\$41,414
Photo Equipment and Supplies (7)	70	\$72.71	\$24,650
Reading (8)	72	\$112.19	\$38,032
Catered Affairs (9)	50	\$12.31	\$4,172
<b>Food</b>	<b>73</b>	<b>\$5,595.30</b>	<b>\$1,896,807</b>
<b>Food at Home</b>	<b>76</b>	<b>\$3,399.17</b>	<b>\$1,152,319</b>
Bakery and Cereal Products	78	\$462.94	\$156,938
Meat, Poultry, Fish, and Eggs	74	\$765.56	\$259,526
Dairy Products	80	\$397.03	\$134,594
Fruit and Vegetables	73	\$570.52	\$193,406
Snacks and Other Food at Home (10)	77	\$1,203.11	\$407,855
<b>Food Away from Home</b>	<b>68</b>	<b>\$2,196.13</b>	<b>\$744,488</b>
Alcoholic Beverages	60	\$341.44	\$115,748
Nonalcoholic Beverages at Home	76	\$333.91	\$113,195



## Retail Goods and Services Expenditures

Stony Creek town, NY\_2  
 Stony Creek town, NY (3611371641)  
 Geography: County Subdivision

	Spending Potential Index	Average Amount Spent	Total
<b>Financial</b>	<b>91</b>	<b>\$2,985.58</b>	<b>\$1,012,112</b>
Investments	93	\$1,616.14	\$547,871
Vehicle Loans	89	\$4,355.02	\$1,476,352
<b>Health</b>	<b>100</b>	<b>\$304.99</b>	<b>\$103,391</b>
Nonprescription Drugs	98	\$100.89	\$34,201
Prescription Drugs	102	\$509.09	\$172,581
Eyeglasses and Contact Lenses	76	\$58.72	\$19,907
<b>Home</b>	<b>75</b>	<b>\$2,769.11</b>	<b>\$938,727</b>
Mortgage Payment and Basics (11)	64	\$5,964.44	\$2,021,946
Maintenance and Remodeling Services	63	\$1,246.68	\$422,626
Maintenance and Remodeling Materials (12)	93	\$347.51	\$117,805
Utilities, Fuel, and Public Services	78	\$3,517.79	\$1,192,530
<b>Household Furnishings and Equipment</b>	<b>69</b>	<b>\$114.61</b>	<b>\$38,852</b>
Household Textiles (13)	74	\$98.23	\$33,300
Furniture	66	\$396.54	\$134,428
Floor Coverings	61	\$45.46	\$15,412
Major Appliances (14)	89	\$268.59	\$91,053
Housewares (15)	65	\$55.95	\$18,967
Small Appliances	79	\$25.76	\$8,733
Luggage	67	\$6.23	\$2,111
Telephones and Accessories	47	\$20.09	\$6,809
<b>Household Operations</b>	<b>74</b>	<b>\$300.85</b>	<b>\$101,987</b>
Child Care	55	\$254.59	\$86,305
Lawn and Garden (16)	84	\$352.21	\$119,399
Moving/Storage/Freight Express	80	\$48.74	\$16,523
Housekeeping Supplies (17)	78	\$547.85	\$185,720
<b>Insurance</b>	<b>82</b>	<b>\$826.14</b>	<b>\$280,062</b>
Owners and Renters Insurance	84	\$391.14	\$132,598
Vehicle Insurance	75	\$872.24	\$295,690
Life/Other Insurance	82	\$342.28	\$116,032
Health Insurance	88	\$1,698.90	\$575,928
<b>Personal Care Products (18)</b>	<b>72</b>	<b>\$288.75</b>	<b>\$97,886</b>
<b>School Books and Supplies (19)</b>	<b>61</b>	<b>\$65.13</b>	<b>\$22,080</b>
<b>Smoking Products</b>	<b>95</b>	<b>\$404.83</b>	<b>\$137,237</b>
<b>Transportation</b>	<b>80</b>	<b>\$2,228.63</b>	<b>\$755,505</b>
Vehicle Purchases (Net Outlay) (20)	81	\$3,564.82	\$1,208,473
Gasoline and Motor Oil	84	\$2,408.20	\$816,379
Vehicle Maintenance and Repairs	76	\$712.87	\$241,662
<b>Travel</b>	<b>61</b>	<b>\$217.15</b>	<b>\$73,613</b>
Airline Fares	53	\$244.13	\$82,761
Lodging on Trips	68	\$295.20	\$100,072
Auto/Truck/Van Rental on Trips	50	\$18.40	\$6,237
Food and Drink on Trips	71	\$310.86	\$105,380

**Data Note:** The Spending Potential Index (SPI) is household-based, and represents the amount spent for a product or service relative to a national average of 100. Detail may not sum to totals due to rounding.

**Source:** ESRI forecasts for 2010 and 2015; Consumer Spending data are derived from the 2006 and 2007 Consumer Expenditure Surveys, Bureau of Labor Statistics.



Stony Creek town, NY\_2

Stony Creek town, NY (3611371641)

Geography: County Subdivision

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- (1) **Apparel Products and Services** includes material for making clothes, sewing patterns and notions, shoe repair and other shoe services, apparel laundry and dry cleaning, alteration, repair and tailoring of apparel, clothing rental and storage, and watch and jewelry repair.
  - (2) **Membership Fees for Clubs** includes membership fees for social, recreational, and civic clubs.
  - (3) **Audio** includes satellite radio service, sound components and systems, digital audio players, records, CDs, audio tapes, streaming/downloaded audio, tape recorders, radios, musical instruments and accessories, and rental and repair of musical instruments.
  - (4) **Toys and Games** includes toys, games, arts and crafts, tricycles, playground equipment, arcade games, and online entertainment and games.
  - (5) **Recreational Vehicles & Fees** includes docking and landing fees for boats and planes, purchase and rental of RVs or boats, and camp fees.
  - (6) **Sports/Recreation/Exercise Equipment** includes exercise equipment and gear, game tables, bicycles, camping equipment, hunting and fishing equipment, winter sports equipment, water sports equipment, other sports equipment, and rental/repair of sports/recreation/exercise equipment.
  - (7) **Photo Equipment and Supplies** includes film, film processing, photographic equipment, rental and repair of photo equipment, and photographer fees.
  - (8) **Reading** includes magazine and newspaper subscriptions, single copies of magazines and newspapers, and books.
  - (9) **Catered Affairs** includes expenses associated with live entertainment and rental of party supplies.
  - (10) **Snacks and Other Food at Home** includes candy, chewing gum, sugar, artificial sweeteners, jam, jelly, preserves, margarine, fat, oil, salad dressing, nondairy cream and milk, peanut butter, frozen prepared food, potato chips, nuts, salt, spices, seasonings, olives, pickles, relishes, sauces, gravy, other condiments, soup, prepared salad, prepared dessert, baby food, miscellaneous prepared food, and nonalcoholic beverages.
  - (11) **Mortgage Payment and Basics** includes mortgage interest, mortgage principal, property taxes, homeowners insurance, and ground rent.
  - (12) **Maintenance and Remodeling Materials** includes supplies/tools/equipment for painting and wallpapering, plumbing supplies and equipment, electrical/heating/AC supplies, materials for hard surface flooring, materials for roofing/gutters, materials for plaster/panel/siding, materials for patio/fence/brick work, landscaping materials, and insulation materials for owned homes.
  - (13) **Household Textiles** includes bathroom linens, bedroom linens, kitchen linens, dining room linens, other linens, curtains, draperies, slipcovers, decorative pillows, and materials for slipcovers and curtains.
  - (14) **Major Appliances** includes dishwashers, disposals, refrigerators, freezers, washers, dryers, stoves, ovens, microwaves, window air conditioners, electric floor cleaning equipment, sewing machines, and miscellaneous appliances.
  - (15) **Housewares** includes plastic dinnerware, china, flatware, glassware, serving pieces, nonelectric cookware, and tableware.
  - (16) **Lawn and Garden** includes lawn and garden supplies, equipment and care service, indoor plants, fresh flowers, and repair/rental of lawn and garden equipment.
  - (17) **Housekeeping Supplies** includes soaps and laundry detergents, cleaning products, toilet tissue, paper towels, napkins, paper/plastic/foil products, stationery, giftwrap supplies, postage, and delivery services.
  - (18) **Personal Care Products** includes hair care products, nonelectric articles for hair, wigs, hairpieces, oral hygiene products, shaving needs, perfume, cosmetics, skincare, bath products, nail products, deodorant, feminine hygiene products, and personal care appliances.
  - (19) **School Books and Supplies** includes school books and supplies for college, elementary school, high school, and preschool.
  - (20) **Vehicle Purchases (Net Outlay)** includes net outlay for new and used cars, trucks, vans, motorcycles, and motor scooters.
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## **Appendix E**

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GREEN  
RESERVE

The American Recovery and Reinvestment Act (ARRA), Green Reserve of 2009, through the State Revolving Fund, provides funding for a wide variety of qualifying projects in the categories of: *green infrastructure, energy efficiency, water efficiency, and other innovative projects*. For more information on ARRA, to find out if your current or future planned project meets the necessary criteria, and how to apply, visit [www.Recovery.gov](http://www.Recovery.gov).

A CONCEPTUAL GUIDE TO  
EFFECTIVE GREEN STREETS  
DESIGN SOLUTIONS

# Green Streets

Residential Streets  
Commercial Streets  
Arterial Streets  
Alleys



Green Street designs provide better environmental performance while creating attractive, safer environments.

*A Green Street is a street that uses natural processes to manage stormwater runoff at its source.*

Streets comprise a significant percentage of publicly owned land in most communities, and thus offer a unique opportunity to manage for environmental outcomes. A Green Street uses a natural systems approach to reduce stormwater flow, improve water quality, reduce urban heating, enhance pedestrian safety, reduce carbon footprints, and beautify neighborhoods.

Through various combinations of plants and soils, these objectives—and several others—can be met on different types of streets in many settings. Green Street features include vegetated curb extensions, sidewalk planters, landscaped medians, vegetated swales, permeable paving, and street trees. This guide provides an overview of different strategies that can be employed in transportation rights-of-way at the local or neighborhood scale.

# Residential Streets

STORMWATER CURB EXTENSIONS  
PERMEABLE PAVING  
VEGETATED SWALES

Residential streets offer the greatest potential for building Green Streets in new neighborhoods or retrofitting existing streets because the streets are typically slower, less trafficked, and likely to already have some landscape elements.

These days, it is fairly common for homes to have rain gardens incorporated into their landscaping to collect and store stormwater runoff from rooftops, driveways, and patios. "Rain garden" is the general term used to describe stormwater strategies that use plants and soils to filter, absorb, and slow rainwater on the landscape surface.

Similar types of rain gardens can take various forms within the street right-of-way itself—the edges of the street can be built to allow stormwater to flow into a landscape area, or space within the paved area of the street can be converted to landscape, increasing permeability. Additionally, permeable

paving that is durable, load-bearing, and built with an underlying reservoir can temporarily store water prior to infiltration.

In new construction situations, Green Streets can be designed to handle significant volumes of water. In retrofit situations, they can typically handle all of the rain from small storms, while excess water from large storms can overflow into existing storm sewer systems.

*Rain gardens are beautiful landscape features that naturally filter runoff and require less maintenance than turf grass.*

## STORMWATER CURB EXTENSIONS

Conventional curb extensions (also known as curb bulb outs, chokers, or chicanes) have been used for decades to enhance pedestrian safety and help in traffic calming.

A stormwater curb extension simply incorporates a rain garden into which runoff flows.



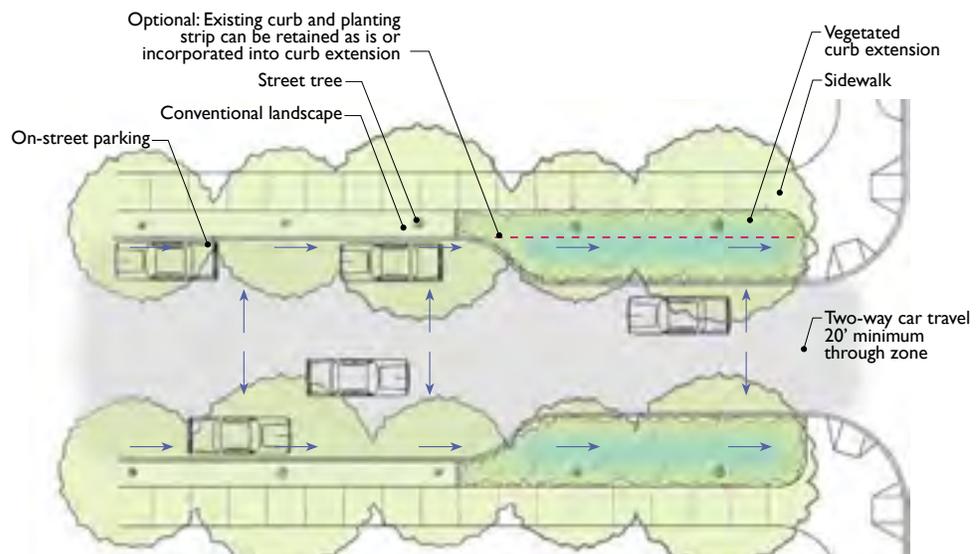
TYPICAL STREET



OPPORTUNITY



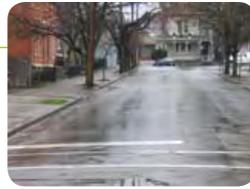
IMPLEMENTATION



**PERMEABLE PAVING**

Permeable paving (pavers, or porous asphalt and pervious concrete) in the parking lane converts impervious surfaces to allow stormwater to absorb into the ground, which reduces the amount of runoff without any loss of parking on the street.

The aesthetics of permeable paving can also give the illusion of a narrower street and therefore help calm traffic.



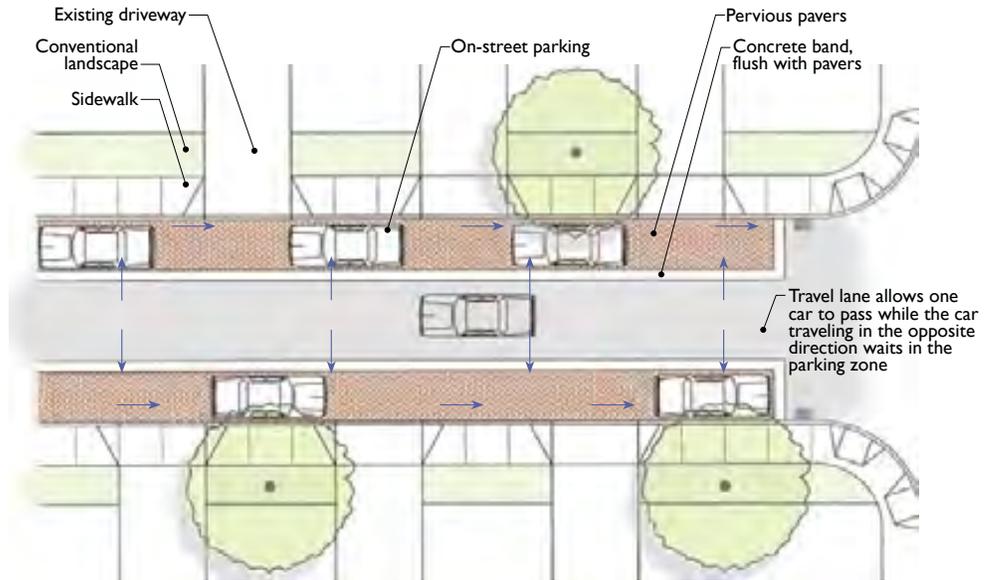
EXISTING



OPPORTUNITY



IMPLEMENTATION



**VEGETATED SWALES**

Swales are long, shallow vegetated depressions, with a slight longitudinal slope. As water flows through the swale, it is slowed by the interaction with plants and soil, allowing sediments and pollutants to settle out. Water soaks into the soil and is taken up by plants, and may infiltrate further into the ground if the soil is well-drained.



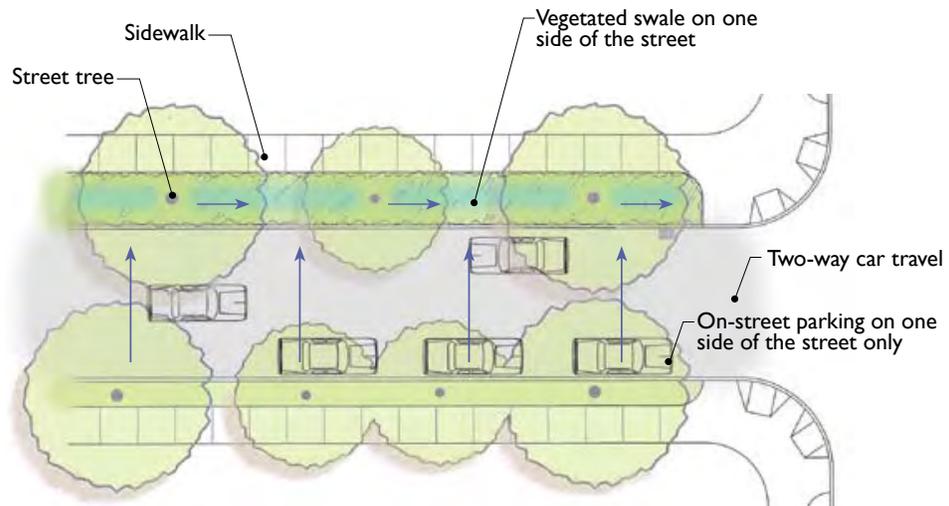
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IMPLEMENTATION



# Commercial Streets

STORMWATER PLANTERS  
STORMWATER CURB EXTENSIONS  
PERMEABLE PAVING

Commercial streets in most urban areas need to accommodate a wide range of users and uses including pedestrians, drivers, bikers, transit riders, on-street parking, outdoor seating, lighting, trees, etc. Because of all these demands, finding space to collect and manage stormwater can at first appear challenging. There are, however, several design options that towns and cities can consider when integrating stormwater management into even their most active streets.

streets where the location of underground utilities is considered from the start. More strategic design is necessary for streets with existing utilities. The pay-off of these efforts, though, is a more attractive, walkable street that considerably reduces polluted runoff.

The key is thinking creatively in finding space that can accommodate multiple purposes in one space, such as a street tree pit designed to collect runoff, or the curb extensions (also known as “pedestrian bulb outs”) at the corners designed to reducing crossing distances for pedestrians that can also contain a rain garden. These design options are more easily accommodated in new

*A community's identity is often most evident on its commercial streets. Green Street techniques not only achieve environmental goals but can greatly improve the look and feel of a community.*

## STORMWATER PLANTERS

Planters are long, narrow landscaped areas with vertical walls and flat bottoms, typically open to the underlying soil. They allow for more storage volume than a swale in less space.

Water flows into the planter, absorbs into the plants and topsoil, fills to a predetermined level, and then, if necessary, overflows into a storm sewer system. If desired, planters can accommodate street trees.



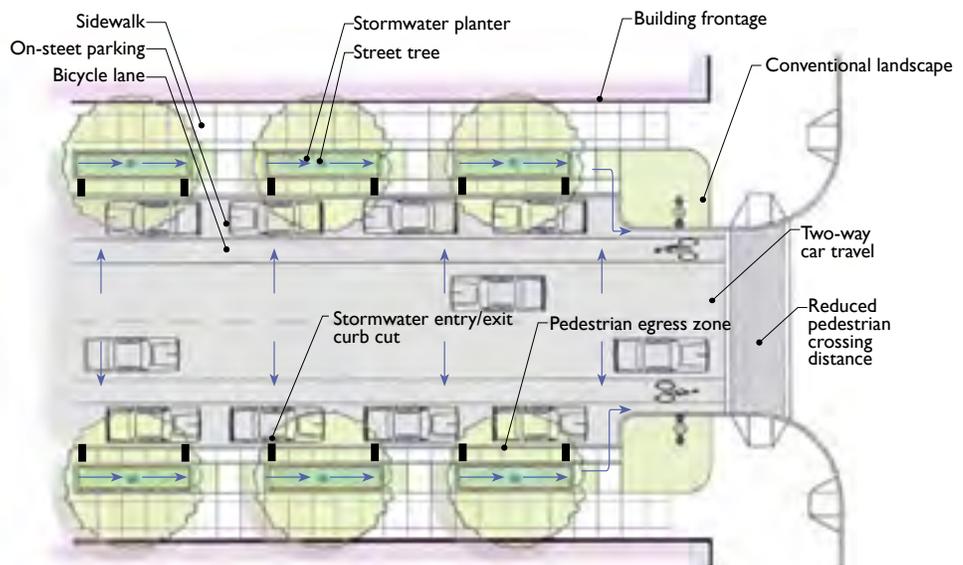
TYPICAL STREET



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### STORMWATER CURB EXTENSIONS

Stormwater curb extensions on commercial streets are similar to those on residential streets. They are rain gardens typically located near the corners that can also provide the pedestrian with a more comfortable crossing.

Curb extensions can also be located mid-block by converting one or more parking spaces.



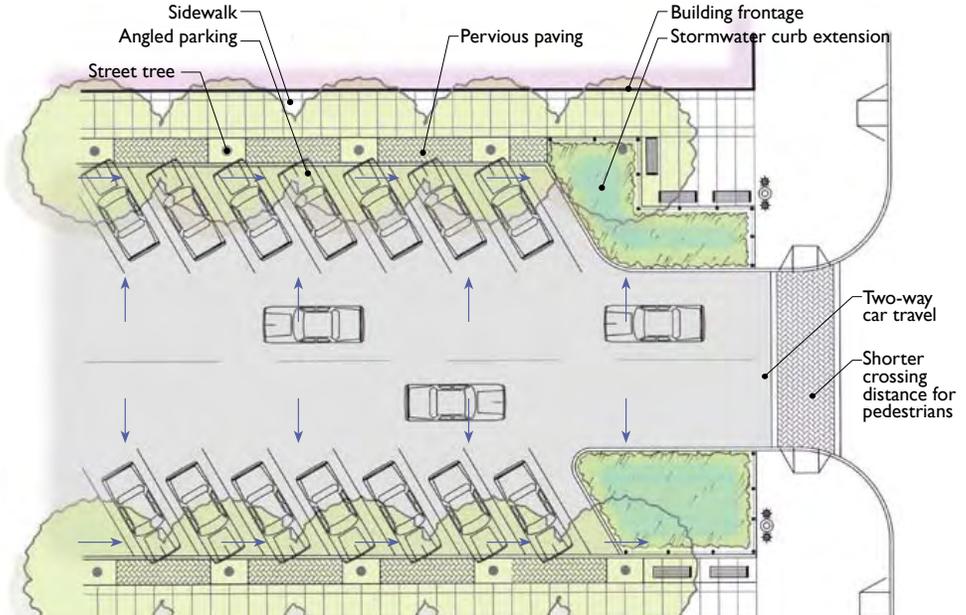
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### PERMEABLE PAVING

Permeable paving on commercial streets can be incorporated into sidewalks and parking lanes.

Recent advances in permeable paving technologies now make many appropriate for higher speeds or where large, heavy vehicles are expected to be parked—areas such as loading zones and bus stops.



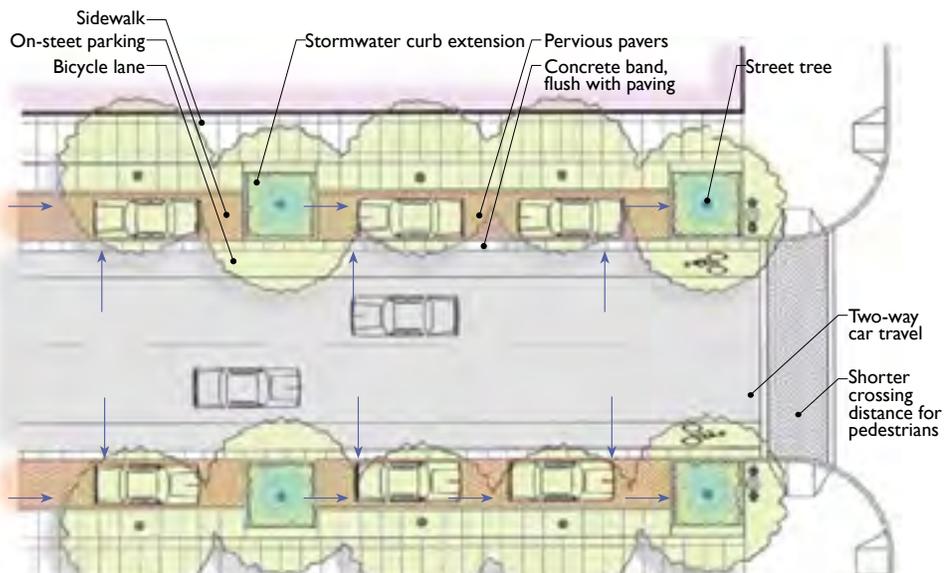
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# Arterial Streets

## VEGETATED SWALES

Arterial streets in towns and cities are often characterized by wide expanses of pavement, little greenery, and little to address pedestrian needs. Should an arterial street already have landscape areas adjacent to the roadway or within grassy medians, then retrofitting these areas to accommodate rainwater will significantly reduce runoff and help protect water quality.

Where adjacent landscape space does not exist, a process of “road dieting” can be undertaken. This involves determining just how much paved surface is necessary to safely manage travel, and how much can be converted to green space. In addition to managing runoff, this is also an opportunity to retrofit the functionality of arterial streets, making them more “multi-modal” by

incorporating sidewalks, on-street bike lanes, or landscape-separated bike greenways.

Again, as with residential and commercial streets, though it is easier to plan and design all of these uses into a roadway from the beginning, most arterials present opportunities to incorporate Green Street features, and can be highly successful.

*Busy arterials need not only be a conduit for traffic. They have the potential to be attractive, green boulevards that reduce runoff and reinforce a community's identity.*

## VEGETATED SWALES

Like residential streets, arterial roadways are good street types for swales because they typically have long, linear stretches of uninterrupted space that can be used to manage stormwater.

Some arterials may not have landscape space in place but do have travel lanes or paved shoulders that can be narrowed to create space for swales.



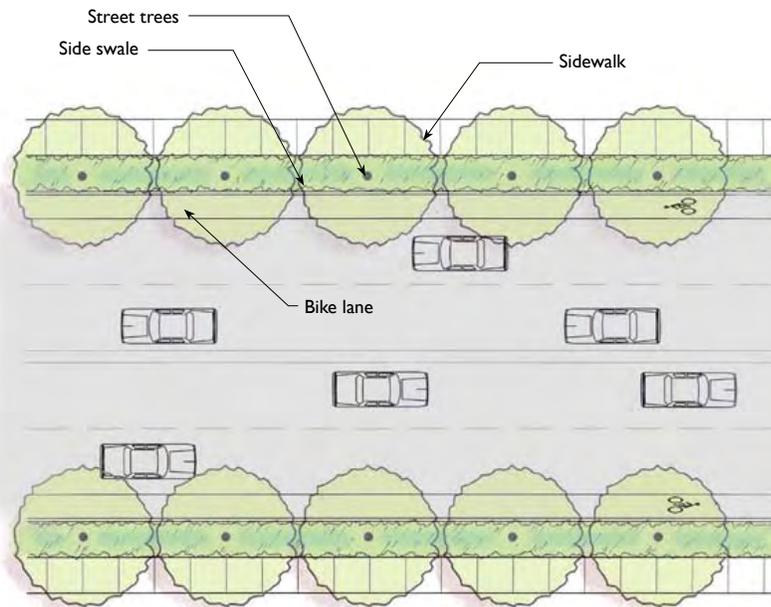
TYPICAL STREET



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## Alleys

### PERMEABLE PAVING VEGETATED SWALES

In many towns and cities, alleys comprise a significant amount of impervious surface and are sometimes prone to flooding because they are often not connected to the sewer system. Green Street techniques like vegetated swales and permeable paving effectively reduce and treat runoff, alleviate flooding, and are far less expensive than installing connections to sewers.

*Alleys are the “low-hanging fruit” of Green Street design—a good starting point for towns and cities to begin incorporating stormwater management.*

### PERMEABLE PAVING

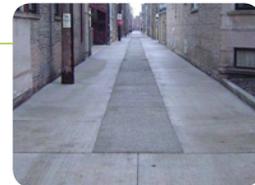
Alleys are typically low-speed and low-trafficked streets and therefore suitable locations for using permeable paving. The entire surface could be permeable, or if heavier vehicles are anticipated for loading and unloading, or the alley is “reversed crowned” (sloping toward the center line), then only the middle section needs to be permeable.



TYPICAL ALLEY



OPPORTUNITY



IMPLEMENTATION

### VEGETATED SWALES

If the alley is crowned in such a way that water flows to the side, then stormwater can be accommodated by simply greening edges of the alley with swales and planters.

If necessary, water can flow through pipes or covered trenches to allow vehicle access to garages and driveways.



TYPICAL ALLEY



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Illustrations and photographs used in this brochure are from the EPA publication *Stormwater Management Handbook—Implementing Green Infrastructure in Northern Kentucky Communities* and were created by Nevue Ngan Associates of Portland, Oregon.

This handbook, as well as other valuable resources, are available at both [www.epa.gov/smartgrowth](http://www.epa.gov/smartgrowth) and [www.epa.gov/greeninfrastructure](http://www.epa.gov/greeninfrastructure).