

To: City Council

From: Parks Advisory Board

For: Informational purposes

## 7 New Recreation Programs for Your Organization to Try

Image source: Active.com

People like “new.” And to stay on the cutting edge of programming, parks and recreation agencies are always looking to improve their classes and events. New and different program ideas are exciting and can increase participation and revenue. Today, we’ll outline seven new and/or little-known recreation programs and sports that you could offer at your facilities:

### **1. Mob™ Races**

Mob™ races are really popular these days. Mud runs, obstacle courses, adventure runs, and costume races are all considered Mob™ events. These events are usually team based and are a lot of fun for all ages.

### **2. Beach Workouts**

Not every P&R department has access to a beach, but for those that do, beach workouts are a great way for people to have fun and get a good workout. You can combine a lot of different exercises into one from swimming to running and strength training.

### **3. Trangleball**

Trangleball is a team sport that can accommodate up to 36 players and is suggested for ages 8 and up. With multiple types of games based on the number of players, the ball is thrown onto a 3-sided pyramid structure and bounced back. Players quickly learn to develop creative approaches and strategies.

### **4. Wallyball (rebound volleyball)**

Wallyball has been around since 1979 but is not often played. Wallyball is played in a racquetball court and can have between two and four players on each side. A net is hung across the middle and the ball is made of rubber. Simply put, Wallyball is like volleyball but you can play it off the wall.

### **5. Pickleball**

Pickleball is a popular game in recreation these days. It is played on a badminton court and the net is lowered to the height of a tennis net. The ball is plastic (like a wiffle ball) and the paddles are made of wood or composite.

### **6. Inner Tube Water Polo**

Water polo is a fun sport, but also extremely exhausting. But with inner tubes, practically anyone can play and have fun. Without having to tread water and less contact, this sport could be a good fit for any P&R agency that manages a pool.

### **7. Outdoor Yoga**

You’ve offered plenty of yoga classes – nothing new here. But when the weather is nice, add a twist to that workout by offering a class outside in the park.

	Park/Project	Estimate	
1	<b>Liberty</b>	<b>\$230,000.00</b>	
a.	Woods Cleared	\$5,000.00	
b.	Parking Lot Expanded	\$50,000.00	
c.	Trail around Pond and Park	\$75,000.00	
d.	Future Structures	\$100,000.00	
2	<b>Freedom Park (Plan Created 2016)</b>	<b>\$120,000.00</b>	
a.	Lighting	\$20,000.00	
b.	Shelter Improvements	\$20,000.00	
c.	Parking Lot Expansion	\$40,000.00	
d.	Field Improvements	\$40,000.00	
3	<b>Karr Park</b>	<b>\$100,000.00</b>	
a.	Woods Cleared/Improved	\$5,000.00	
b.	Shelters Improved/Painted	\$10,000.00	
c.	Garden Area Improved	\$10,000.00	
d.	Asphalt Trail Repaired	\$50,000.00	
e.	Future Connection using Wellfield/Police Station	\$10,000.00	
4	<b>Citizen's Park</b>	<b>\$140,000.00</b>	
a.	Pond Improvements	\$30,000.00	
b.	Identify Use of Large Field (Passive Activity)	\$30,000.00	Mow/Wildflowers
c.	Shelter Structure	\$30,000.00	
d.	Parking Lot Improvement/Expansion	\$20,000.00	
e.	Additional Entrance on East Side		
5	<b>Foundation Park</b>	<b>\$150,000.00</b>	
a.	Improve Conaway Trail	\$25,000.00	
b.	Asphalt Trail	\$120,000.00	
c.	Add Parking Areas	\$30,000.00	
d.	Identify Use of Large Eastern Field Area	???????	
6	<b>Municipal Park</b>	<b>\$50,000.00</b>	
a.	Parking Lot Improvements	With RAMP 2017	
b.	Ballfield Maintenance/Improvement	\$10,000.00	
c.	Trail Enhancements	\$20,000.00	
d.	Additional Lighting Along Trail	\$20,000.00	
7	<b>Leads Park</b>	<b>\$30,000.00</b>	Gravel/Red Base Maintenance
	Total Cost Improvements by Nonprofit=	\$62000.00	
8	<b>Municipal Pool</b>		
	Total Improvements by Nonprofit 2017:	<b>\$16,000.00</b>	

## Freedom Park Improvements

### Maintenance and Repair:

1. Parking lot needs regraded and another 2 inches of stone put on top, min.
2. Fill in pot holes at entrance drive.
3. Fill in walkways at fence, adjacent to parking lot.  
Fill in walkways where the fence is divided to get from the parking lot to the tot lot and to the shelter house and to the fields. There is standing water in the main walkway to the tot lot and the shelter. These could be mulch.
4. Mulch new trees from last year and previously planted trees.
5. Trim evergreens and other trees.
6. Put another finish coat on new benches. Finish coat is already wearing off.
7. Clean up dead trees; remove them.
8. Taylor Road side planting areas: Mulch needs to be freshened and we need to plant grass where there's no grass growing.
9. Mulch in tot lot needs another layer.
10. Taylor Road planter area: there's been a tree removed and now there is a great big mulch spot with nothing growing. Plant another tree or turn it back into grass
11. Beautification at park entrance:
  - a. Define drive way with treated 4x4 on either side of drive way to separate driveway from grass.
  - b. Correct areas where no grass is growing.

## Freedom Park Improvements

### Master Plan Related:

1. Walking Path around the park.
2. Pole Mounted Security Lighting- include entranceway and entire parking lot.
3. Construct a path to connect to the new 2018 Taylor Road path.
4. Install concrete entrance drive with head walls with curbs at drainage pipe. Leave parking area gravel.
5. Expand Tot Lot climbers.
6. Expand the green space area to the south and southeast as much as possible.
  - a. Considerations:
    - i. If we expand the level field south, towards the neighborhood, we will likely need some type of fence.
    - ii. Southside trees are planted too far away from the edge creating an unusable space to the south of the trees. The trees need to be moved when this area is expanded and if this area is not expanded, move the trees when the drainage is corrected.
7. Correct drainage in the park:
  - a. Install drainage around tot lot and shelter.
  - b. Fix the field drainage. Multiple wet areas. There appears to be a high spot along the east boundary between the open space in the park and the adjacent farmers field blocking drainage to the drainage structure. Some areas of the park are not usable due to drainage issues and standing water.
  - c. Relocate the evergreen trees to the south, extending the available green space by 25-30? feet.
  - d. Fix the drainage at the road front adjacent to Havens Corner and adjacent to Taylor Rd.
8. Move Shelter and install a softball field/soccer. Install an equipment storage shed. Ball field to have pole mounted lighting.

# Excerpt from Planning & Zoning Study 12/08, Harris

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Supply: Pataskala's residents enjoy ample access to an affordable range of housing. Even before the market slow down, Pataskala had approved a respectable number of housing units in its planned growth areas. Large tracts of open land already have appropriate zoning to subdivide for more housing. This ample supply reduced competition for available housing and helped to keep prices low.

Housing Types: Pataskala offers a range of life styles in the arena of single family living; ranging from very large lots, to typical suburban lots, to historical village settings. There have been constructed an acceptable supply of apartments and duplexes for rental purposes. Condominium living has been a little slower getting started here. One notable dwelling type missing from the community are the loft style dwellings carved out of old warehouses and mills which are now popular with young people and some active senior citizens.

Schools: Pataskala is served by two different suburban school districts that are well regarded by the general public.

The Great Migration: In the late 1970's a Federal Court Order to Columbus City Schools to bus children out of their neighborhoods to other schools created a tidal wave of emigrants out of the Columbus City School System. Those unwilling or unable to turn to private school educations looked to the relatively low cost suburban towns and villages as more desirable places to live. The central Ohio highway system at the time provided easy access back to the employment centers in Columbus. The homebuilding industry responded with lots of new housing for the new transplants from Columbus. The region also experienced natural population growth as birth rates increased and others sought employment opportunities in the relatively stable and growing economy of central Ohio.

There is one theory that by the end of the twentieth century, the school system as driver for migration to the suburbs was beginning to play itself out. Nearly all those who had the means or desire to leave for the suburbs had already done so. However, in the meantime, the home consumer had come to expect it as a norm that a family would regularly "move up" to larger homes with more conveniences and to value less the stability and roots of the "old" neighborhood. The homebuilding industry gladly indulged this demand for "new".

Now Ohio is faced with statewide net job loss, though the jobs impact is still less in central Ohio than other areas. However, the availability of jobs is not a very strong driver of growth in the area, and is certainly not a strong factor in Pataskala. The demand to leave inner-city schools has been mostly satisfied and there is a recent trend for young families and college graduates to gravitate to a more urban and urbane way of life than found in the suburbs in which they grew up. Nevertheless, MORPC continues to project significant growth in central Ohio over the next 30 years and the suburban communities are expected to continue to share in that growth. Their projections appear to be based more on past growth rates and perhaps an assessment that Central Ohio will see an influx of residents from other parts of the State, looking for what opportunities exist for job growth here.

Parks and Open Space: Various community amenities factor into a home buying decision. Parks and permanent open space are features that are highly prized across the many niches of homebuyers: the

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younger, the “creative”, the environmentally conscious, families, active elders, those who grew up in urban areas and those who grew up on farms.

There have been several studies showing that access to parks, recreation and passive open space has a positive effect on home values. The Royal Institute of Chartered Surveyors published a paper titled, “Urban parks, open space and residential property values”, July 2007, that drew on data from both the United Kingdom and the United States. The article concludes that “...open space is an amenity, and as such, has positive influence on property values...” and “...all forms of recreational open space had a statistically significant influence...”. They further found that higher quality open spaces led to higher property values, but that the effect was limited to parks and open space within one-quarter mile of the home; and that permanently preserved open space conveyed a higher value than developable land. A 1998 study by Cheshire and Sheppard concluded that demand for open space rises with income.

*Brooke Warrick, principal of San Francisco-based American LIVES, Inc., says there is definitely a market for communities that incorporate conservation development. "Other conservation-sensitive communities in which we have been involved are successful because they tend to attract what we call cultural creative residents, who are characterized by a focus on environmental responsibility and community participation," he says. From "Real Estate: The Benefits of Conservation Development", by Christine Rombouts, June 2006, [www.Buildernewsmag.com](http://www.Buildernewsmag.com).*

Recreation programs are important to active Americans today as well. As our society does tend to be more mobile than in the past, recreational programs provide an important avenue for not only physical activity and relaxation, but opportunities for social interaction and mental stimulation. Busy families appreciate recreation programs for the opportunity to engage with each other and their neighbors in an active social setting. This helps to involve newcomers in the community while providing the important health and relaxation benefits that accrue from play and engagement with nature.

This said, sometimes newcomers come to a largely undeveloped community like Pataskala, somehow expecting that expanses of farm fields, wood lots and riparian corridors they see are somehow part of the publicly provided open space that attracted them to the community. Since much of the land is often not held publicly, the property owner may have every reasonable expectation that at sometime in the future, the land will be developed in some way. In fact the community may even have long standing plans that will direct development into certain parts of the community. This creates conflict as those who have come to “adopt” land belonging to others as part of the public open space protest efforts to develop. But this again demonstrates the great value that the general public places on the experience, no matter how passive, of open and green spaces.

The National Parks and Recreation Association provides guidelines on the ideal amounts of passive and active open space based upon the size of a population. A well rounded community will have easy access to the spectrum of parks and open space configurations. Such space can be provided in a number of ways in addition to outright public ownership.

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As the population increases, the schools will also need to expand. Southwest Licking Local Schools has recently completed a study of educational facility needs, and has determined that within the next five years a new elementary school will be necessary for the District. The potential for a new school location within the city limits should be discussed with Southwest Licking whenever new land within the district is considered for rezoning. The City should consider how land use decisions will effect both Southwest Licking Local and the Licking Heights school districts as it relates to the general welfare of the citizens.

## TRANSPORTATION/THOROUGHFARES

The existing infrastructure of both the old Village and Township roads will need to be expanded to accommodate the new growth of the area. Existing roadways will need to have right-of-way expansion, as well as pavement reconstruction. The major corridors, Broad Street, SR 310 and Mink Road, will have significant changes in land use. The Transportation and Thoroughfare Plan and accompanying roadway and right-of-way information shown on pages 38-41 should be referenced for any new development along roadways.

## PARKS & RECREATION

### Pataskala Recreational Facilities

The City of Pataskala has six parks. Parks are classified on the basis of size, facilities, and service area. Neighborhood parks range between five to 20 acres in size, providing service for one-quarter to one-half mile radius. For every 1,000 people, 2.5 acres of neighborhood park space is recommended. Among the facilities included in a neighborhood park are play apparatus, sports fields, and picnic areas. Due to the size and facilities, Karr Park would be classified as a neighborhood park.

District parks are usually between 20 to 100 acres, and provide service for a one-half to three mile area. For every 1,000 people, 2.5 acres of district park space is recommended. In addition to the facilities typically found in a neighborhood park, a district park may include a swimming pool, tennis complex, or recreation center building.

The six parks that are currently in existence within the City of Pataskala are detailed as follows:

- 1) **William V. Karr Park** is 9 acres, located on the east side of the City of Pataskala on East Broad Street (State Route 16) just west of 84 Lumber. Karr Park is equipped with 2 shelter houses, grills, expanded playground and a volleyball court. This passive park has on-site restrooms and water. This park does allow dogs.
- 2) **Municipal Park** is 15 acres, located at the intersection of Mill Street, Creek Road and Township Road in the old village of Pataskala. Municipal Park supports a softball diamond, playground, basketball court, sand volleyball court, soccer fields, horseshoe pits and a shelter house with grills. It is also home to the municipal swimming pool.
- 3) **Foundation Park** is 78 acres, with 22 acres being wooded. The park is accessible from both McIntosh Road and Oak Meadow Drive on the north side of the City of Pataskala. The park includes softball diamonds, soccer fields, basketball courts, 2 play areas, sand volleyball courts, a small fishing pond, 2 concession stands, a motorized car track, shelter house in the wooded area and a 1 mile walking trail. This very active park has on-site restrooms available.
- 4) **Freedom Park** (east side of Taylor Road) is an 8+ acre passive park that is also in the planning stage. It is located on the west side of Taylor Road, north of East Broad Street (State

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Route 16) on the west side of the City of Pataskala. This park will be designed for a playground, shelter house and future softball diamond and soccer field.

- 5) **Liberty Park** (west side of Taylor Road) is an 8+ acre active park that is also in the planning stage. It is located on the west side of Taylor Road, north of East Broad Street (State Route 16) on the west side of the City of Pataskala. This park will be designed for a basketball court, tennis court, small fishing pond, playground and perhaps a shelter house in the wooded area.
- 6) **Citizens Park** (in the Glenbrooke housing development) is a 9+ acre passive park located on the west side of Summit Road, north of East Broad Street and just north of Summit Station, again in the planning stage. This park will be designed for a playground, shelter house, 2 soccer fields, 1 softball diamond and a fishing pond.

The survey of Pataskala area residents indicated that the most desired facility improvements included biking and walking trails, lighted tennis courts, athletic fields, and a skating rink. City efforts to provide these facilities on undeveloped park land should be continued. There has also been strong interest expressed in having a community center. There are a number of potential locations for this center. The city should carefully evaluate the alternatives considering access, proximity to users, site characteristics such as a slope, and site size.

A continuation of the policy of park land set aside in conjunction with major development is recommended in order to continue to provide sufficient recreational space as the number of residents in the area grows. If dedication of land is not feasible or desirable, a fee-in-lieu of dedication may be used.

It is also important that park land set asides relate to an overall plan of integrated and connected parks and open spaces. In this regard, attempts should be made to link Pataskala park areas providing bikeways or walkways along the river banks, railroad or street right-of-ways, utility easements, or open space buffers throughout Pataskala. Implementation of the park linkages should be accomplished through negotiations with property owners and developers.

### **Regional Park & Recreation Issues**

There are two regional concerns. First is the provision of a large, regional park. Pataskala is close enough to parks in the Columbus Metropolitan area and parks in Licking County to satisfy the minimum requirement for an urban park within a half-hour driving time. Within 20 years, there will likely be a large enough population in the southwest quadrant of Licking County to justify an urban park serving 50,000 people. Real estate prices will likely continue to escalate, and park development will likely take time, identification and acquisition of a site during the five years is recommended. Facilities should include hiking trails, picnic areas, sports fields, and other active and passive recreational activities. A location with mature trees is preferred. Due to the size of such a project and its regional scope, it is recommended that the City and townships work cooperatively with the Licking Park District to help make such a facility a reality.

A second regional concern is the provision of a bike trail for the southwestern portion of the county. Existing bike trails in the county extend: 1. Between Johnstown and Newark in the center of the county; 2. throughout Newark; and 3. between Claylick and Toboso in the eastern part of the county. The railroad running through Pataskala, and extending east to Heath originally included several railroad tracks. Since some of these tracks have been abandoned, there may be space along the railroad for a bike trail. A bike trail running along this track would be a short distance away from the Newark to Johnstown trail, thereby

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providing service throughout a great deal of the western part of the county. Such a trail could also connect with Infirmary Mound Park on SR 37 with the acquisition of a small strip of property. This project would be difficult to implement but it would be a worthwhile improvement for future generations.

## 2008 Pataskala Parks and Recreation Survey

**Age:**

- Under 12      13%
- 13-19
- 20-35          46%
- 36-55          33%
- 55 and older   8%

**Gender:**

- Male          50%
- Female        50%

**City:**

- Pataskala City   40%
- Baltimore
- Reynoldsburg
- Harrison Township   33%
- Other \_\_\_\_\_ Licking Hts   6% \_\_\_\_\_
- Heath
- Etna          21%
- Jersey Township

Please identify the Park Facilities and/or Parks Programs that either you or a member of your household use in the City of Pataskala. Please mark all that apply.

- Citizens Park (Monarch Drive)    4%
  - Liberty Park
  - Freedom Park (Taylor Road)      33%
  - Karr Park (Broad Street)
  - Community Park (Township Road/Pool Complex)    26%
  - Foundation Park (Soccer, Softball, etc.)    45%
- 73% marked two parks

Which of the facilities do you use most often? Please mark one.

- Citizens Park (Monarch Drive)    4%
- Liberty Park
- Freedom Park (Taylor Road)      4%
- Karr Park (Broad Street)
- Community Park (Township Road/Pool Complex)    4%
- Foundation Park (Soccer, Softball, etc.)    88%

As a resident or participant in the Parks and Recreation Programs, how would you rate the following: (1-Excellent, 2-Good, 3-Fair, 4-Poor, 5-Don't Know/Not Applicable)

Amount of Land	1	2	3	4	5
Variety of Park Shelters and Facilities	1	2	3	4	5
Spring Park Programs	1	2	3	4	5
Fall Park Programs	1	2	3	4	5
Adult Programs	1	2	3	4	5
Open Spaces and Natural Areas	1	2	3	4	5
Park Maintenance	1	2	3	4	5
Ease of Access to Facilities and Park Programs	1	2	3	4	5
Non-sports Related Events	1	2	3	4	5

How would you rate the Parks Programs and Facilities for ages:

Pre-school Age	1	2	3	4	5
Elementary School Age	1	2	3	4	5
Middle School Age	1	2	3	4	5
High School	1	2	3	4	5
Adult (less than 55 years old)	1	2	3	4	5
Adult (over 55 years old)	1	2	3	4	5

5 rating followed by 4 (poor) rating

What facilities would you like to see added to the Pataskala Parks?

- |                       |                               |   |
|-----------------------|-------------------------------|---|
| o Shelters 6          | o Children's Play Equipment 6 | I |
| o Walking Trails 10   | o Other ___ Roller Hockey 1   |   |
| o Volleyball Courts 4 | o Other ___ Biking Trails 1   |   |
| o Basketball Courts 4 | o Other ___ Tennis Courts 1   |   |
| Indoor Pool 1         |                               |   |

Which facility addition is the most important to you? Walking Trails followed by Citizen's Park Developed; 35% did not provide an answer

Please indicate your level of agreement to the following statements:

- Pataskala Parks and Recreation Programs are vital to our community and worthy of taxpayer dollars.

Strongly Agree 88% Somewhat Agree 11% Somewhat Disagree Disagree

- The City of Pataskala should invest in additional land, recreational facilities and services.

Strongly Agree 40% Somewhat Agree 46% Somewhat Disagree 12% Disagree 12%

- The Parks and Recreation programs and facilities should be supported by those who use them rather than by taxpayer dollars (fields, softball diamonds, etc.).

Strongly Agree 20% Somewhat Agree 40% Somewhat Disagree 20% Disagree 20%

- The City of Pataskala should create walking trails.

Strongly Agree Somewhat Agree Somewhat Disagree Disagree

40%

60%

- 5. The City of Pataskala should plan for a central indoor recreational complex area for the citizens of Pataskala.

Strongly Agree	Somewhat Agree	Somewhat Disagree	Disagree
46%	20%	13%	

- 6. Is the current state of facility's and programs meeting your family's needs?

Strongly Agree	Somewhat Agree	Somewhat Disagree	Disagree
20%	53%		6%

- 7. The Parks and Recreation programs should be supported by a volunteer group that will represent the community interests and provide a volunteer base to utilize in support of our facilities and programs.

Strongly Agree	Somewhat Agree	Somewhat Disagree	Disagree
20%	40%	6%	6%

What do you think the City of Pataskala should do to improve the Parks and Recreational Programs and/or facilities? Please write here.

4<sup>th</sup> of July fireworks; Walking trails; Would be willing to pay for other activities; Indoor pool came up on 5 surveys; More shelters and advertising of activities; find a way to pass tax levys or slightly increase fees; provide more programs for younger kids including Tball;

How do you see yourself participating in the future of the Parks Programs?

Coaching; volunteering; starting adult volleyball or basketball programs;

Are you interested in joining our Friends of the Park volunteer? If so, please provide your contact information or contact us by an email to [pataskalaparks@ci.pataskala.oh.us](mailto:pataskalaparks@ci.pataskala.oh.us).

Coaching soccer and keeping kids interested;

What are your interests? (Gardening, facility maintenance assistance, administrative, information channeling, grant and sponsorship opportunities, put me where you need me, etc.). Please provide.

Volunteers for mowing, gardening administrative and anywhere I can help.

Please return by November 30, 2008. We appreciate your time and attention.

## **APPENDIX II: COMMUNITY SURVEY**

## **APPENDIX II: COMMUNITY SURVEY**

The Mayor's Ad-hoc Comprehensive Plan Committee conducted a community survey in 1998 to help shape this Comprehensive Plan. The committee designed the survey to determine community attitudes about planning and development issues. The survey included 12 questions about various issues affecting the city, plus an open-ended question that invited comments about other issues that concerned the citizens who responded. Additionally, the survey collected demographic information about the people responding, such as their general age group, whether they owned or rented their residence, how long they had lived in Pataskala, and where (if) they worked.

The survey was mailed to over 3,700 households of registered voters in the city, based on mailing lists from the Licking County Board of Elections. Copies were also available at City Hall and various public locations.

Citizen response to the survey was excellent. The committee received 711 responses - about a 20% response rate, and 2-3 times the normal response rate for a survey of this type. Respondents were asked to pick the five survey questions or issues that concerned them the most, then rank the five they picked. Of the 711 responses, 647 were completed in this manner.

Analysis of the survey responses helped the committee gain a more complete picture of the community and about the citizens' opinions, needs and concerns with regards to improving their quality of life over the next twenty years. Highlights of the survey are as follows:

- The majority of the city residents responding have lived there for longer than 17.71 years.
- Nearly 83% of the respondents are between the ages of 25 and 64.
- Over 40% of those responding work in Columbus.
- Over 90% of those responding own their own homes.
- 67% of the residents responding stated it was necessary to preserve the rural character through open space/woodland and ground water management and protection.
- A majority of respondents were very concerned about increased traffic, signs and billboards, appearances of businesses, home occupations, and disabled vehicles. The majority responding were somewhat concerned about high density housing in the City of Pataskala.
- 48% of the residents responding stated it was necessary to cooperate with the private sector in the pursuit of industrial and office-commercial development so as to increase the tax base of the city.
- There was also a strong desire to establish a limit to the number of units (houses) developed each year within the city limits.

- 54% of the residents responding stated it was necessary to establish a strictly enforced land use plan for diverse development guide to the city's growth.
- There was also a strong desire to develop regulations to reduce and prevent traffic congestion on roadways.
- 32% of the residents want to develop land use regulations to insure sidewalks and bike paths throughout the city, linking residential areas to future and present parks as well as commercial zones.

## Ranking

In order to evaluate the responses, each of the 12 specific issues or questions were assigned a score, or point value. If a question was ranked #1 (the most important), it was given a value of 12. Questions ranked #2 were given a value of 11, and so on. The total score for each question was calculated, and the questions ranked by total score. The question that was picked the most often and with the highest priority had the highest overall score.

## Survey Results

Rank	Question	Score	% of Total
1	Q7: Take steps necessary to preserve the rural character of Pataskala through open space/woodland and ground water management and protection.	4549	15.2%
2	Q9: City council will establish a limit to the number of units (houses) developed each year.	3721	12.4%
3	Q5: Establish a strictly enforced land use plan for diverse development to guide the city's growth.	3619	12.1%
4	Q12: Develop regulations to reduce and prevent traffic congestion.	3343	11.2%
5	Q4: Cooperate with the private sector in the pursuit of industrial and office-commercial development so as to increase the tax base of the city.	3267	10.9%
6	Q10: Develop comprehensive "streetscape" plan (e.g., lighting, sidewalks, trees, landscaping, uniformed signage, etc.)	2080	6.9%
7	Q11: Cooperate with the private sector in the pursuit of retail development.	2013	6.7%
8	Q2: Develop land use regulations to insure sidewalks and bike paths throughout the city, linking residential areas to future and present parks as well as commercial zones.	1938	6.5%
9	Q1: A revitalization of historic areas within the City of Pataskala, with special attention given to the "Old Village."	1764	5.9%
10	Q8: A comprehensive park and recreation system.	1371	4.6%

11	Q6: Build a community center complex, which will provide centralized governmental offices and a place for community activity.	1262	4.2%
12	Q3: Develop a comprehensive transportation system with an emphasis toward a commuter-rail connection.	1036	3.4%

### **Incomplete Surveys**

Even the 64 surveys that were not completed according to the instructions provided useful information. The committee also counted the number of times each question was selected on these surveys, even though they were not ranked by importance. The top five questions in this category were the same as above, with Question 7 ("Take steps necessary to preserve the rural character of Pataskala through open space/woodland and ground water management and protection") being selected most often.

### **Other Comments**

The survey also prompted over 400 individual comments about a wide range of issues. The committee grouped these comments into general categories, such as transportation, utilities, city administration, planning and zoning, commercial development, etc. Some comments concerned immediate issues; the committee will forward these to the appropriate city department for possible action. Other comments about long-term issues will be considered during the remainder of the Comprehensive Plan update process.

## **LAND CAPABILITY**

### **Environmental Scan**

An environmental scan is a close examination of the physical features, including development constraints and opportunities, and public services offered by a municipality. The City of Pataskala, Ohio is a rapidly developing, newly formed city experiencing increasing growth pressures from the surrounding areas. In order for growth to occur effectively, an assessment of the physical features and public services currently offered by the city will help to plan and to preserve areas of interest to the community. The following memorandum details the physical constraints and opportunities for future growth, and based on these constraints and opportunities suggests areas where future employment concentrations and public services should be located.

### **Physical Opportunities and Constraints**

Pataskala, like many rapidly developing rural towns in Ohio, is under tremendous pressure for development. The challenge for city staff in Pataskala is to manage growth while simultaneously preserving valuable natural assets. Such a task cannot be achieved without conventional land use zoning practices. The purpose of a land use management plan for Pataskala is to:

- \*determine where growth should and should not occur.
- \*guide public investments.

\*take advantage of the positive aspects of urbanity and increase access for all citizens to the widest range of opportunities.

Surveying Pataskala's land use provided the basis for determining areas of positive and negative land use practices and natural attributes. The data and perceptions gathered were used as input for a PARK analysis of the area. PARK analysis is a concept used in analyzing an area's perceived ambience. The following four questions were asked:

**PRESERVE:**

Which natural and man-made elements should be kept in area?

**ADD:** What is lacking in the area?

**REMOVE:**

What does not belong in the area?

**KEEP OUT:**

What should not be allowed in the area?

### **Results of the PARK Analysis**

#### ***Preserve***

We should seek to preserve:

- The rural character of the area. To preserve the rural character of the area, farms, open fields and wooded areas need protection from development pressures through zoning or farmland preservation legislation.
- The commercial viability of remaining farms. Incentives, financing and extension opportunities for intensive farming methods may improve the quality and reduce the costs of produce for local and wider markets.
- The mixed use nature of the old village center. A greater mix of opportunities in a small area improves accessibility for the very young, the old, pedestrians and those who do not have access to private transportation. It also makes for a vibrant village center, taking advantage of the positives aspects of urbanity.
- Higher density residential areas near the village center. This creates sufficient threshold for a greater range of activities and services, and increases economics of scale, as well as efficiencies.
- Historic buildings and facades. To reinforce Pataskala's unique sense of place.
- Positive (pastoral) view sheds visible from the public domain.
- Hilltops for public facilities.

#### ***Add***

The following elements would improve the quality of life in Pataskala:

- A Conservation Plan for agricultural land and areas worthy of preservation. For example riverbanks, flood plains, wetlands, and land in the public viewshed should be preserved.
- A Spatial Development Concept that promotes more compact development combined with land conservation.

- Growth management techniques to control urban sprawl into agricultural land and other open spaces. This may be accomplished by adding a growth boundary to inhibit new development and implement a growth provision of services.
- Parks linked to an integrated open space system, for example, river reserves, bicycle paths, walking trails, scenic natural areas in addition to an active recreational area.
- Landscaping in the village center and commercial/industrial areas. The greening of the commercial area will provide climatic and social benefits to the less favored parts of Pataskala.
- Visual buffers (landscaping) to screen visually intrusive uses from public viewshed and incompatible uses from one another.
- Road widening. Widening and/or repair of major thoroughfare and collector streets could alleviate existing and anticipated traffic congestion.
- Sidewalks and bicycle paths to make the village center and the residential areas more pleasant for pedestrians.
- Buffer/setbacks along rural roadways.
- Design review for new subdivisions, commercial and industrial areas including tree planting requirements.
- Greater densities in proposed subdivisions.
- A wider range of services through more intense development at town center.
- A Town Hall close to the village center, linked by pedestrian paths and bicycle paths.
- Public libraries with a library on wheels service for the less mobile.
- Incentives for historical preservation. Incentives and/or subsidy programs to remodel and update houses, and historically significant buildings usually speeds up the process.
- New schools to accommodate natural growth and new residents.

### ***Remove***

The following are elements that negatively affect the environment and/or quality of life:

- The parking lot along the railway line is unsightly. It can be landscaped to improve its appearance and to blend in with the adjacent residential zone.
- Abandoned buildings too dilapidated for conservation or rehabilitation.
- Traffic congestion in village center and along roads with new subdivisions, (e.g. Broad Street, Hazelton-Etna Road (SR 310)). Road widening is necessary in village center and along roads with new subdivisions.
- Urban blight by reinforcing/developing a strong design review ordinance.
- Large lot zoning practices. Such practices eat up rather than preserve agricultural land, resulting in a bleak landscape of larger than normal lots and little else.

### ***Keep Out***

The following elements that could have negative effect, and should be prevented from coming into the city:

- Unsightly new subdivisions. Avoid subdivision designs that disrupt the rural characteristic of the area, and that do not preserve public viewsheds.
- Articulated trucks from village center. These could be rerouted.

- Unsightly commercial chains. Building design must adhere to the design standards in the new design review ordinance.
- Pollution caused by increased traffic, runoff from roadways, and ill-managed industrial uses.

## **Conclusion**

In short, new development should be concentrated in existing nodes, and along roads, which have already been linked up with water and sewer. Steps should be taken to introduce sound land management practices to preserve natural and agricultural areas and to link potential wildlife areas. The increase in population density throughout the planning areas warrants a wider range of services and opportunities than is currently available to Pataskala's residents. Compact development concepts and sensitive subdivision design should increase resident's choices (in housing, employment, and facilities) while at the same time preserving farmland and natural areas.

# 03

CITY PARKS FORUM  
BRIEFING PAPERS

## How cities use parks for...

# Economic Development

### Executive Summary

Parks provide intrinsic environmental, aesthetic, and recreation benefits to our cities. They are also a source of positive economic benefits. They enhance property values, increase municipal revenue, bring in homebuyers and workers, and attract retirees.

At the bottom line, parks are a good financial investment for a community. Understanding the economic impacts of parks can help decision makers better evaluate the creation and maintenance of urban parks.

#### Key Point #1

Real property values are positively affected.

#### Key Point #2

Municipal revenues are increased.

#### Key Point #3

Affluent retirees are attracted and retained.

#### Key Point #4

Knowledge workers and talent are attracted to live and work.

#### Key Point #5

Homebuyers are attracted to purchase homes.

**KEY POINT #1:**

*Real property values are positively affected.*

More than 100 years ago, Frederick Law Olmsted conducted a study of how parks help property values. From 1856 to 1873 he tracked the value of property immediately adjacent to Central Park, in order to justify the \$13 million spent on its creation. He found that over the 17-year period there was a \$209 million increase in the value of the property impacted by the park.

As early as the 19th century the positive connection between parks and property values was being made. Olmsted's analysis shows the real dollar amount impact of parks. His study was not a unique situation, however. Several studies conducted over the last 20 years reaffirm his findings, in cities across the country. Below are more examples of how proximity to a park setting is connected to property values.

**Chattanooga, Tennessee:** In the early 1980s this city was facing rising unemployment and crime, polluted air, and a deteriorating quality of life. To lure middle-class residents back, local government, businesses, and community groups decided to improve the quality of life by cleaning the air, acquiring open space, and creating parks and trails. As a result, property values rose more than \$11 million, an increase of 127.5 percent.

**Atlanta:** After Centennial Olympic Park was built, adjacent condominium prices rose from \$115 to \$250 a square foot. As noted on the Centennial Olympic Park website, "Thousands of people who have made the move to downtown Atlanta have chosen Centennial Olympic Park as their front yard." [www.centennialpark.com](http://www.centennialpark.com).

**Amherst, Massachusetts:** Cluster housing with dedicated open space was found to appreciate at an annual rate of 22 percent, compared to a comparable conventional subdivision's rate of 19.5 percent. This translated in 1989 dollars to a difference of \$17,100.

**KEY POINT #2:**

*Municipal revenues are increased.*

Another component of the Central Park study was an assessment of increased tax revenue as a result of the park. The annual excess of increase in tax from the \$209 million in property value was \$4 million more than the increase in annual debt payments for the land and improvement. As a result of building Central Park, New York City made a profit.

Increased property values and increased municipal revenues go hand in hand. Property tax is one of the most important revenue streams for cities. By creating a positive climate for increased property values, the tax rolls will benefit in turn. As shown with Central Park, parks can both pay for themselves and generate extra revenue. In addition, tax revenues from increased retail activity and tourism-related expenditures further increase municipal monies.

**Property Tax Benefits**

**Chattanooga:** Improvements in Chattanooga resulted in an increase in annual combined city and county property tax revenues of \$592,000 from 1988 to 1996, an increase of 99 percent. (Lerner and Poole, 1999).

**Boulder:** The presence of a greenbelt in a Boulder neighborhood was found to add approximately \$500,000 in property tax revenue annually.

**Sales Tax Benefits**

**Oakland, California:** The presence of the East Bay Regional Park District is estimated to stimulate about \$254 million annually in park-related purchases, of which \$74 million is spent in the local East Bay economy.

**Shopping Districts:** Surveys indicate that prices for products in districts with trees were on average about 11 percent greater than in no-tree districts; the quality of products were rated 30 percent higher than in areas with no sidewalk landscaping.

**Tourism-Related Benefits**

**Atlanta:** Centennial Olympic Park has an estimated 1.5 million visitors each year, attending 175 public events.

**San Antonio, Texas:** Riverwalk Park, created for \$425,000, is lined with outdoor cafes, shops, bars, art galleries, and hotels, and has overtaken the Alamo as the most popular attraction for the city's \$3.5-billion tourism industry.

**KEY POINT #3:**

*Affluent retirees are attracted and retained.*

"There is a new, clean growth industry in America today—The industry is retirement migration" (Foreward in Longino, 1995, 7).

By the year 2050, according to the U.S. Census Bureau, approximately 1 in every 4 Americans will be 65 years of age or older, creating an affluent group of retirees with financial benefits, including Social Security, military benefits, and pension plans. With an average life expectancy of between 75 and 83 years, this is a significant population group, both in size and affluence.

They are also mobile, moving to various locations across the country—places as diverse as northern Wisconsin and Michigan, the mountains of Colorado and Montana, and New England. Members of this mobile retiree cohort have been termed "GRAMPIES": (Growing [number of] Retired Active Monied People In Excellent Shape).

GRAMPIES want communities that provide leisure and recreation amenities. In a study by Miller et al. (1994), a retiree sample was asked to review 14 features and indicate their importance in the decision to move. The first three in rank order were scenic beauty, recreational opportunities, and mild climate.

Retirees bring expendable income into their communities. If 100 retired households come to a community in a year, each with a retirement income of \$40,000, their impact is similar to that of a new business spending \$4 million annually in the community. (Crompton, p. 65).

They increase the tax base and are "positive" taxpayers, using fewer services than they pay for through taxes. For example, they pay taxes to school districts but do not send children there.

Retirees transfer significant assets into local investment and banking institutions, expanding the local deposit base that can be used for commercial and industrial financing.

**KEY POINT #4:**

*Knowledge workers and talent are attracted to live and work.*

"...cities are characterized by a sense of place, beauty in the natural environment, a mixed-use transportation system and a 24-hour lifestyle. These are the characteristics that will attract the creativity and brainpower that undergird the new economy." Steven Roulac, futurist, The Roulac Group.

A significant change has occurred in the American economy. Industry today is composed of smokeless industries, high technology, and service-sector businesses, collectively referred to as the "New Economy." The workers in the New Economy are selling their knowledge, as opposed to physical labor, as the main source of wealth creation and economic growth. These employees, referred to in studies as "knowledge workers" or "talent," work in a "footloose" sector—companies are not tied to a certain location in order to achieve a competitive advantage.

What the companies are attached to is retaining their talent and attracting more talent. As a result, several studies have been conducted to determine what factors are important to talent when they are making employment decisions.

A survey of 1,200 high technology workers in 1998 by KPMG found that quality of life in a community increases the attractiveness of a job by 33 percent.

Knowledge workers prefer places with a diverse range of outdoor recreational activities, from walking trails to rock climbing. Portland, Seattle, Austin, Denver, and San Francisco are among the top cycling cities; they also are among the leaders in knowledge workers.

Workers attracted to an area are then positioned to put money back into the local economy through jobs, housing, and taxes, which then contribute to parks.

**KEY POINT #5:***Homebuyers are attracted to purchase homes.*

"Parks, ponds, bike paths." "Nearly five acres of woodland protected as a nature sanctuary" "My lake...my park...my home."

All around the U.S. real estate brokers and homebuilders are advocating parks as one of the top residential selling points. The desire to live near parks also translates into real dollars.

A 2001 survey by the National Association of Realtors (NAR) revealed that 57 percent of voters would choose a home close to parks and open space over one that was not.

In addition, the NAR survey found that 50 percent of voters would be willing to pay 10 percent more for a house located near a park or protected open space.

The National Association of Home Builders found that 65 percent of home shoppers surveyed felt that parks would seriously influence them to move to a community.

According to Economics Research Associates (ERA), a 1991 survey in Denver found that 48 percent of residents would pay more to live in a neighborhood near a park or greenway.

One of the most popular planned community models today is golf-course residential development. However, surveys have shown that the majority of people who live in golf course communities don't play golf regularly—as many as two-thirds, according to ERA. They are attracted to the dedicated open space, the expansive views, and the guarantee that both elements will stay the same. By promoting, supporting, and revitalizing urban parks, cities can help attract a significant portion of the homebuying community.

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Cover photo: San Antonio Riverwalk, courtesy of Alexander Garvin

**City Parks Forum Briefing Papers**

This is one in a continuing series of briefing papers on how cities can use parks to address urban challenges. We hope the information here helps you to create great urban parks in your city.

Please visit our website at [www.planning.org/cpf](http://www.planning.org/cpf) to learn more about The City Parks Forum.

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## Top 10 Reasons Parks Are Important

By Richard J. Dolesh, Monica Hobbs Vinluan and Michael Phillips

Public parks and recreation offers countless value to our citizens and to our country. As advocates and supporters of parks and recreation who live these values every day, we may sometimes take the uncounted benefits of parks and recreation for granted. So we don't lose sight of the forest for the trees, every once in awhile it is useful to remind ourselves of these basic values and reaffirm their essential worth.

The following "top 10" list of park and recreation values is in no particular order; rather, it encompasses the range of why we collectively believe that public parks and recreation is an essential part of our national heritage:

- 1. Public parks provide millions of Americans with the opportunity to be physically active.** Physical activity is an essential part of an individual's efforts to stay healthy, fight obesity and prevent chronic conditions that lead to coronary disease, high blood pressure and diabetes. Having close-to-home access to places where one can recreate is one of the most important factors linking whether people will become active and stay that way.



- 2. Parks have true economic benefits.** Proximity to a developed state, regional or community park improves property value. The economic benefits of park and recreation areas are manifold, but one of the most significant is the increase in value of private land adjacent or near protected public land. The proximity of parks to residential areas leads to increased value of private land, a higher tax base and ultimately many economic benefits to a community including increased local and regional revenue from heritage tourism, steady jobs, and numerous small business benefits. Park and recreation areas are economic engines that improve the quality of life and make communities livable and desirable for businesses and homeowners.

- 3. Parks provide vital green space in a fast-developing American landscape,** and provide vegetative buffers to construction and development, thus reducing the effects of sprawl. More importantly, parks and public lands also provide groundwater recharge areas, floodplain protection, natural sound barriers, storm water protection from wetlands, reductions in heat island effects, and carbon uptake from abundant trees and vegetation. Parks keep our living environment healthy.



**4. Parks preserve critical wildlife habitat.** As our nation develops and our rural, agricultural and forest landscape is being lost, open space and wildlife habitats are disappearing at an alarming rate. The connected network of local, regional, state and national parks across our country provide permanently protected wildlife habitat corridors for thousands of indigenous and migratory wildlife

species. In addition, stream valley parks and community parks allow natural wildlife to co-exist with people while providing enjoyment and educational opportunity for children and families.

**5. Parks and recreation facilitate social interactions** that are critical to maintaining community cohesion and pride. Parks provide a meeting place where community members can develop social ties, and where healthy behavior is modeled and admired. People gather to share experiences, socialize and to build community bonds in common green spaces. These public commons are often the glue that holds the community together and the means to maintaining and improving future positive social interactions.

**6. Leisure activities in parks improve moods, reduce stress and enhance a sense of wellness.** In an increasingly complex world, more and more people are placing a high value on achieving the feelings of relaxation and peacefulness that contact with nature, recreation and exposure to natural open spaces bring. People go to the park to get in a better mood, to reinvigorate themselves and to decrease the anxieties of daily life.



**7. Recreational programs provide organized, structured, enjoyable activities** for all ages. The diverse range of recreational programs offered by public park and recreation agencies offers all Americans the opportunity to develop the skills necessary to successfully and confidently engage in sports, dance, crafts and other social activities. Public recreation leagues and classes offer seniors, adults and children alike the opportunity to interact with coaches and teachers who often turn into mentors and role models. Quality recreational programs facilitate safety, good sportsmanship and community participation.

## Connect


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# Importance of Parks and Recreation

## Economic Value

- Spending at local and regional public parks contributed \$140 billion in economic activity and generated nearly 1 million jobs in 2013. When combined with the National Park Service and state park systems, public parks are responsible for \$200 billion in annual economic activity (NRPA, 2016).
- Parks improve the local tax base and increase property values.
- American Forests, a national conservation organization that promotes forestry, estimates that trees in cities save \$400 billion in storm water retention facility costs.
- Quality parks and recreation are cited as one of the top three reasons that business cite in relocation decisions in a number of

## Inside Look



RPA  
Celebrates  
the NPS  
Centennial  
at  
Cumberland  
Island  
with  
Park  
Management  
class!

Recreation &  
Park  
Administration  
(RPA)  
students had  
another  
chance to

studies.

- Parks and recreation generate money for the local economy. A 2012 study shows Mammoth Cave National Park generates \$62 million a year for the south-Central Kentucky area.

### Health and Environmental Benefits

- Parks and recreation facilities are the places that people go to get healthy and stay fit.
- According to studies by the Centers for Disease Control and Prevention, creating, improving and promoting places to be physically active can improve individual and community health and result in a 25 percent increase of residents who exercise at least three times per week.
- A study by Penn State University showed significant correlations to reductions in stress, lowered blood pressure, and perceived physical health to the length of stay in visits to parks.
- Parks and protected public lands are proven to improve water quality, protect groundwater, prevent flooding, improve the quality of the air we breathe, provide vegetative buffers to development, produce habitat for wildlife, and provide a place for

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Check out some of our very own RPA students competing on ESPN over the next couple of Days!...

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### Events

children and families to connect with nature and recreate outdoors together.



2016 NRPA  
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### Social Importance



2016 KRPS  
Conference

- Parks are a tangible reflection of the quality of life in a community. They provide identity for citizens and are a major factor in the perception of quality of life in a given community. Parks and recreation services are often cited as one of the most important factors in surveys of how livable communities are.
- Parks provide gathering places for families and social groups, as well as for individuals of all ages and economic status, regardless of their ability to pay for access.
- An ongoing study by the Trust for Public Land shows that over the past decade, voter approval rates for bond measures to acquire parks and conserve open space exceeds 75%. Clearly, the majority of the public views parks as an essential priority for government spending.
- Parks and recreation programs provide places for health and well-being that are accessible by persons of all ages and abilities, especially to those with disabilities.
- In a 2007 survey of Fairfax County,

[More Events](#)





# 8 Reasons Why Parks Are Important

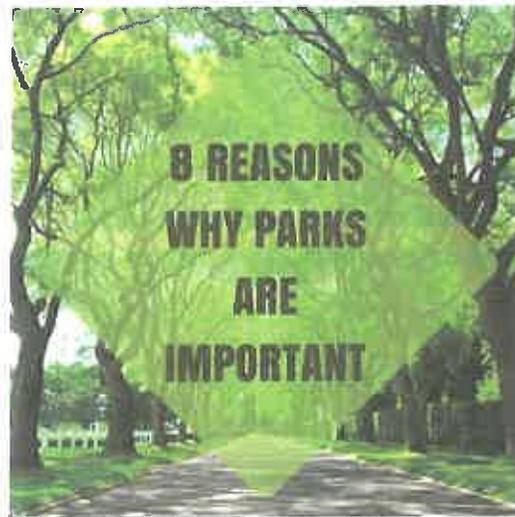
by **Cassandra** | Follow me on Twitter [@green](#).



We all like to spend time in parks, but are they just the perk of a great neighbourhood?

Or is it crucial for people to be able to interact with nature in spaces like parks?

Many of your our childhood memories happened in parks. To some extent, we're probably aware that the parks in the neighbourhood where you grew up had an impact on who you are today.



It turns out parks are a crucial part of any community. They have a significant impact on the development of children and the happiness of everyone in the neighbourhood.

Here's why parks are important to our neighbourhoods—and why Toronto needs to actively improve its own park network.

## 1. Storm Water Collection

Unpaved ground absorbs water. Trees and grass are a far more efficient—and less expensive—method of managing storm water than sewers

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and drainage ditches made of concrete. With extreme weather patterns on the rise, an increase in green space could save the a lot of money.

Don't believe it? In Garland, Texas they took an [active approach](#) to encouraging private property owners to plant trees on their land. Their tree coverage reduces storm water runoff by 19 million cubic feet during a storm. These measures have also significantly increased air quality, making their urban forest worth \$5.3 million annually.

## 2. Reduction of the Urban Heat Island Effect

The abundance of flat, dark surfaces made up of asphalt and concrete in cities creates what is known as the [urban heat island effect](#). This makes urban neighbourhoods noticeably warmer than other nearby areas, and is a major factor in smog creation.

Luckily, even a small increase in the number of trees in the neighbourhood can reduce this effect. It can be virtually eliminated from cities through a combination of increased park space and green roofs. Strategic planting of trees and vegetation—this means letting the branches hang over the sidewalk—can [reduce summer temperatures](#) by 1-5°C.

## 3. Centre of Community

Parks provide space for neighbourhood residents to interact with each other and meet new people. They're also great spaces for events and for people to engage in recreational activities. This allows people to develop a sense of community. A park is perfect for a picnic, a concert, or a farmer's market—whatever your community feels it needs.

Increasing the number of parks and recreational facilities in a neighbourhood also reduces crime rates, especially among youth. By giving young people a safe place to interact with one another they keep them off the streets and out of trouble. For example, many [American communities](#) have created "Midnight Basketball" programs, keeping



**Gardiner Green  
Ribbon**

December 22, 2014

"Instead of deterring driving, why not encourage biking?"

<http://cityminded.org/copenhagen-en-bicycle-super-highways-pus...>



Copenhagen Island

courts open late and drastically reducing their youth crime rates. Similarly, when parks are used by many people, there are more eyes on the street, creating a safer environment for everyone.

## 4. Clean Air

Trees remove a wide variety of [pollutants from the air](#). Air pollution can increase risk of certain cancers and have adverse effects on children, the elderly and anyone with underlying respiratory problems. It also reduces the distance you can see on a summer day and increases the mortality rate in highly polluted cities.

Even a small increase in the number of city parks or their size can make a big difference when it comes to air pollution. In Atlanta, a U.S. city renowned for its lack of green space—though they are actively working to change that reputation—trees remove [19 million pounds of pollutants](#) each year, a service that would cost \$47 million if done by a company.

## 5. Mental Health Boost

It seems obvious that a place where people are able to make connections, meet new friends and participate in recreational activities is also good for the locals' mental health. After all, physical health and strong relationships are important to maintaining mental well being.

Yet the [mental health benefits of parks](#) go beyond the obvious. Direct exposure to nature has its own benefits on mental health, reducing stress and increasing happiness. And these effects take place almost immediately. A study by [Finnish researchers](#) found that even ten minutes in a park or urban woodland area could tangibly reduce stress. Participants felt most restored after time spent in the urban woodland.

## 6. A Place for Physical Activity

You've probably heard about the many problems caused by a lack of physical activity. The sedentary lifestyle many Canadians live today is

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## National Recreation and Park Association

22577 Belmont Ridge Road  
Ashburn, VA 20148-4501  
703.858.0784  
Fax 703.858.0794  
www.nrpa.org

## Why Parks and Recreation are Essential Public Services

Parks and recreation have three values that make them essential services to communities:

1. Economic value
2. Health and Environmental benefits
3. Social importance

Just as water, sewer, and public safety are considered essential public services, parks are vitally important to establishing and maintaining the quality of life in a community, ensuring the health of families and youth, and contributing to the economic and environmental well-being of a community and a region.

There are no communities that pride themselves on their quality of life, promote themselves as a desirable location for businesses to relocate, or maintain that they are environmental stewards of their natural resources, without such communities having a robust, active system of parks and recreation programs for public use and enjoyment.

### Economic Value

- Parks improve the local tax base and increase property values. It is proven that private property values increase the value of privately owned land the closer such land is to parks. This increase in private property value due to the proximity to parks increases property tax revenues and improves local economies.
- A Texas A&M review of 25 studies investigating whether parks and open space contributed positively to the property values of surrounding properties found that 20 of the 25 studies found that property values were higher. "The real estate market consistently demonstrates that many people are willing to pay a larger amount for property located close to parks and open space areas than for a home that does not offer this amenity,"
- American Forests, a national conservation organization that promotes forestry, estimates that trees in cities save \$400 billion in storm water retention facility costs.
- Quality parks and recreation are cited as one of the top three reasons that business cite in relocation decisions in a number of studies.



- Parks and recreation programs produce a significant portion of operating costs from revenue generated from fees and charges
- Parks and recreation programs generate revenue directly from fees and charges, but more importantly, provide significant indirect revenues to local and regional economies from sports tournaments and special events such as arts, music, and holiday festivals. Economic activity from hospitality expenditures, tourism, fuel, recreational equipment sales, and many other private sector businesses is of true and sustained value to local and regional economies.

### **Health and Environmental Benefits**

- Parks are the places that people go to get healthy and stay fit.
- Parks and recreation programs and services contribute to the health of children, youth, adults, and seniors.
- According to studies by the Centers for Disease Control and Prevention, creating, improving and promoting places to be physically active can improve individual and community health and result in a 25 percent increase of residents who exercise at least three times per week.
- A study by Penn State University showed significant correlations to reductions in stress, lowered blood pressure, and perceived physical health to the length of stay in visits to parks.
- Parks and protected public lands are proven to improve water quality, protect groundwater, prevent flooding, improve the quality of the air we breathe, provide vegetative buffers to development, produce habitat for wildlife, and provide a place for children and families to connect with nature and recreate outdoors together.

### **Social Importance**

- Parks are a tangible reflection of the quality of life in a community. They provide identity for citizens and are a major factor in the perception of quality of life in a given community. Parks and recreation services are often cited as one of the most important factors in surveys of how livable communities are.
- Parks provide gathering places for families and social groups, as well as for individuals of all ages and economic status, regardless of their ability to pay for access.
- An ongoing study by the Trust for Public Land shows that over the past decade, voter approval rates for bond measures to acquire parks and conserve open space exceeds 75%. Clearly, the majority of the public views parks as an essential priority for government spending.

- Parks and recreation programs provide places for health and well-being that are accessible by persons of all ages and abilities, especially to those with disabilities.
- In a 2007 survey of Fairfax County, VA, residents of 8 of 10 households rated a quality park system either very important or extremely important to their quality of life.
- Research by the Project on Human Development in Chicago Neighborhoods indicates that community involvement in neighborhood parks is associated with lower levels of crime and vandalism
- Access to parks and recreation opportunities has been strongly linked to reductions in crime and to reduced juvenile delinquency.
- Parks have a value to communities that transcend the amount of dollars invested or the revenues gained from fees. Parks provide a sense of public pride and cohesion to every community.

*National Recreation and Park Association*

*For more information on the value and benefits of parks go to [www.nrpa.org](http://www.nrpa.org)*

### RESEARCH SYNTHESIS | May 2011

A detailed summary of the existing evidence base on a given topic that identifies gaps in the knowledge and steps for advancing the science.

# The Economic Benefits of Open Space, Recreation Facilities and Walkable Community Design

## Introduction

**O**verweight and obesity rates have risen dramatically in the United States since the 1970s,<sup>1</sup> and, during a similar time period, physical activity rates have declined in both children and adults.<sup>2,3</sup> Being physically active is more than a personal decision; community design and the availability of open spaces and recreation areas strongly influence how active people are. The Guide to Community Preventive Services created by the Centers for Disease Control and Prevention identifies community designs in which residents can walk or bicycle to nearby destinations (often called compact, walkable or traditionally designed communities) as effective ways of promoting physical activity for adults,<sup>4,5</sup> and other studies demonstrate similar findings for youth.<sup>6,7</sup> People living in walkable neighborhoods get about 35–45 more minutes of moderate-intensity physical activity per week, and are substantially less likely to be overweight or obese, than do people of similar socioeconomic status living in neighborhoods that are not walkable.<sup>8,9,10</sup> Living close to parks and other recreation facilities also is consistently related to higher physical activity levels for both adults<sup>11</sup> and youth.<sup>12</sup> One national study found that adolescents with easy access to multiple recreation facilities were both more physically active and less likely to be overweight and obese than were adolescents without access to such facilities.<sup>13</sup> The Institute of Medicine has stated that improving the walkability of neighborhoods and increasing access to recreation facilities are essential strategies for preventing childhood obesity.<sup>14</sup>

Walkable neighborhoods, parks and open spaces also are believed to generate economic benefits to local governments, home owners and businesses through higher property values and correspondingly higher tax assessments. The economic benefits of open, walkable spaces can play an important role in policy-makers' decisions about zoning, restrictions on land-uses, government purchase of lands for parks and similar initiatives. **This research synthesis reviews the sizable body of peer-reviewed and independent reports on the economic value of outdoor recreation facilities, open spaces and walkable community design. It focuses on "private" benefits that accrue to nearby homeowners and to other users of open space.** While parks may also generate "public" benefits to the whole community, such as alleviating traffic congestion, reducing air pollution, flood control, wildlife habitat, improved water quality and facilitating healthy lifestyles, the literature estimating the economic value of these types of benefits is not reviewed.

#### **A Note on Economic Valuation Methods**

One method for estimating the economic value of open space and recreation areas which do not have a market value is through hedonic pricing methods. This statistical approach is used to link a good traded in the marketplace (i.e. a house) with an environmental good (i.e. clean air) that is not traded in the market at a point in time. An established body of research has used this approach to estimate the value buyers in real estate markets place on seemingly intangible characteristics. Characteristics

such as land-use mix,<sup>12</sup> street pattern,<sup>17</sup> municipal amenities,<sup>18</sup> proximity to transit stations and commercial centers,<sup>22,21</sup> among other factors have been shown to increase the value of residential properties located nearby.

While this review focuses on direct economic effects through property values and fiscal impacts, it is important to note that open spaces can also provide indirect economic benefits. Ecological services and mental health benefits, while outside the scope of this research synthesis, could also be considered as indirect effects of parks. Open spaces may also provide recreational benefits

to users who do not own adjacent property or live within the park municipality. These indirect recreational benefits typically are evaluated using different methods. Two examples of these methods are the Travel Cost Method, which attempts to capture the economic value of open space by calculating visitors' costs to travel to and use a park, and Contingent Valuation, an approach in which willingness to pay for public goods like parks is simulated in surveys.

## Key Research Results

- **Open spaces such as parks and recreation areas can have a positive effect on nearby residential property values, and can lead to proportionately higher property tax revenues for local governments (provided municipalities are not subject to caps on tax levies).**
- **The economic impact parks and recreational areas have on home prices depends on how far the home is from the open space, the size of the open space and the characteristics of the surrounding neighborhood.**
- **Open space in urban areas will increase the level of economic benefits to surrounding property owners more than open space in rural areas.**
- **Open space, recreation areas and compact developments may provide fiscal benefits to municipal governments.**
- **Compact, walkable developments can provide economic benefits to real estate developers through higher home sale prices, enhanced marketability and faster sales or leases than conventional development.**

## Details on Key Research Results

- **Open spaces such as parks and recreation areas can have a positive effect on nearby residential property values, and can lead to proportionately higher property tax revenues for local governments.**

A pair of studies conducted in 2000 and 2001 analyzed the same set of more than 16,400 home sales in Portland, Ore., using two different methods. The first found that the 193 public parks analyzed had a significant, positive impact on nearby property values. The existence of a park within 1,500 feet of a home increased its sale price by between \$845 and \$2,262 (in 2000 dollars). Additionally, as parks increased in size, their impact on property value increased significantly.<sup>22</sup> The second study found that large natural forest areas had a greater positive impact on nearby property prices than did small urban parks, specialty parks such as playgrounds or skate parks, and golf courses. Homes located within 1,500 feet of natural forest areas enjoyed statistically significant property premiums, an average of \$10,648, compared to \$1,214 for urban parks, \$5,657 for specialty parks and \$8,849 for golf courses (in 1990 dollars).<sup>23</sup>

Studies in Howard County, Md.; Washington County, Ore.; Austin, Texas; Minneapolis-St. Paul, Minn., and other areas, have used data from residential sales, the census and Geographic Information Systems (GIS) to examine the marginal values of different types of parks, and confirmed that different types of open space have different effects on property values.<sup>24, 25, 26, 27, 28</sup> The studies found that, in general, urban parks, natural areas and preserved open spaces showed positive effects on property values.<sup>29</sup>

**Value increase to homes located within 1,500 feet of the following types of parks:**

Natural Areas: **\$10,648**

Golf Courses: **\$8,849**

Specialty Parks: **\$5,657**

Urban Parks: **\$1,214**

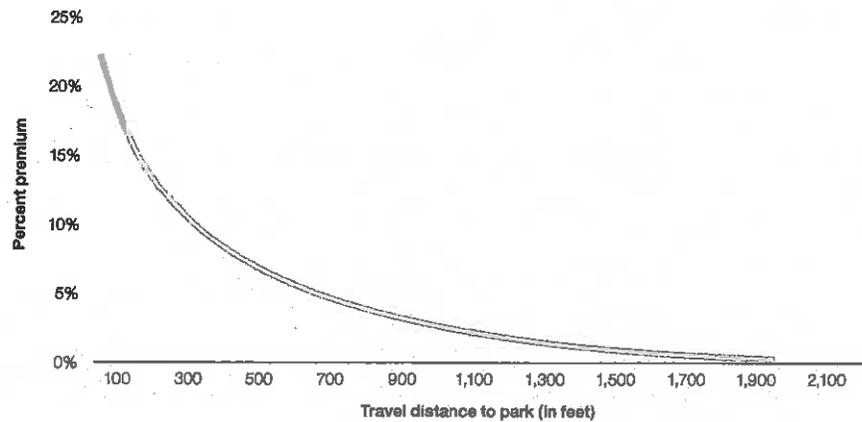
Some types of open space can reduce nearby property values, an outcome sometimes called 'the nuisance effect.' Studies have confirmed that parks that are excessively busy,<sup>30,31</sup> located in highly desirable or undesirable neighborhoods, or unattractive or poorly maintained have a negative impact on home values. In these instances, parks detract from property values due to the perception that they are unsafe, unnecessary or unused. One study conducted in Greenville, S.C., found that attractively maintained small and medium parks have a positive influence on neighboring property values. However, it also found that such parks that are not improved or well maintained had negative impacts on residential property values.<sup>32</sup>

The positive effect natural open space has on nearby property values can result in higher assessments and thus higher property tax revenues for local governments. In one Boulder, Colo., neighborhood, the overall value of the greenbelt was approximately \$5.4 million, which contributed potentially \$500,000 annually to the overall neighborhood property tax revenue. The purchase price of this greenbelt for the city was approximately \$1.5 million and, thus, the potential property tax revenue alone would allow a recovery of initial costs in just three years.<sup>33</sup> A study conducted in three Maryland counties calculated the economic benefits of preserved agricultural land to homeowners and estimated the property tax revenues generated from a 1 percent increase in permanent open space. It found that for a 1 percent (148 acre) increase in preserved agricultural land in Calvert County, Md., the increase in housing values within a one-mile radius generated \$251,674—enough tax revenue to purchase an additional 88 acres of parkland in one year.<sup>34</sup>

At the same time, municipal governments must be aware that the level of property tax revenues will depend on the built environment around the park. An analysis of a 7.9 mile greenbelt in Austin, Texas found that the incremental tax base increases from properties in neighborhoods adjacent to the park were less than the cost of acquiring the greenbelt (\$14.89 million in 2004 dollars). Unlike the City of Boulder, which recovered the park purchase price in three years, the City of Austin met only 28.4 percent of the annual debt charges with property tax increases, in large part because substantial sections of the park had no adjacent private properties.<sup>35</sup>

The impact parks can have on property values may actually underestimate the value of open space, by excluding the nonmarket values associated with passive uses, such as just knowing that open space exists. Stated preference surveys, similar to hedonic pricing methods, attempt to value nonmarket benefits by asking respondents about their willingness to pay for an amenity. Residents in one Boulder, Colo., neighborhood were willing to pay \$234 per household (in 1995 dollars) to keep a 5.5-acre parcel of undeveloped land preserved forever. Extrapolating to the whole neighborhood within a mile of the parcel, the total value was \$774,000, more than the \$600,000 cost of the land.<sup>36</sup> Another method for calculating the recreational benefits of parks and open space estimates the travel costs associated with visiting a park in order to estimate the total benefit to all park users. A study of the Monon Trail in Indianapolis/Marion County, Ind., found that the average property price premiums for 1999 home sales could total \$140.2 million, with an additional net present recreational benefit of \$7.6 million.<sup>37</sup>

FIGURE 1. Impact of 14 Neighborhood Parks on Adjacent Neighborhoods in Dallas–Fort Worth<sup>38</sup>



The 14 parks were between 2.5 acres and 7.3 acres except for two that were .05 and 0.3 of an acre. They were “intermittently maintained” and were selected because of their ordinariness rather than their excellence. The parks were in the neighborhood of single-family houses. The analysis was based on 3,200 residential sales transactions. The price effects compared against home values a half mile from the parks are shown below. Homes adjacent to parks received an approximate price premium of 22 percent relative to properties a half mile away. Approximately 75 percent of the value associated with parks occurred within 600 feet of a park.

■ **The level of economic impact recreational areas have on home prices depends on how far the home is located from a park, the size of the recreational area and the characteristics of the surrounding neighborhood.**

A review of over 60 studies on the impact open spaces have on residential property values showed that most do increase property values but the magnitude depends on the size of the area, its proximity to residences, the type of open space and the method of analysis. The review found that increases in property value existed up to 500–600-feet away from the park.<sup>39</sup> For community-sized parks over 30 acres, the effect may be measurable out to 1,500 feet, but 75 percent of the premium value generally occurs within the 500–600-foot range.<sup>40,41</sup> One study estimated that the average household living half a mile from open space would be willing to pay \$4,104 more for a home (in 1992 dollars) to live a quarter mile closer to the open space.<sup>42</sup>

While the distance between a park and homes is important, park size also is a key determinant of the magnitude of a park’s impact on home prices. So, a small park located close to residential areas may have a larger impact on more houses than a large park located farther away. In Portland, Ore., house prices increased with the size of the natural area, leading the authors of the study to conclude the optimal size of parks and natural areas to be similar to that of a golf course.<sup>43</sup> Increasing the percentage of open space land surrounding a property can increase average house prices by up to 1 percent of the total property value.<sup>44,45</sup> A study conducted in 2001 also found that large parks are more valuable to residents than small parks.<sup>46</sup> However, because the property value premium is small relative to the value of proximity, creating a series of small parks with more total houses in their vicinity may produce a greater economic benefit to the overall community.

Increasing the visibility and accessibility of parks can help maximize their value to the surrounding community. Indirect paths from nearby homes into a park detract from the proximity value boost and decrease the level of benefit that could be experienced. Similarly, parks bordered by roads are substantially more valuable to the surrounding neighborhood than green space only bordered by private lots.<sup>47</sup> Access to open space can also play an important role in the magnitude of the effect. Homes located in a Dallas, Texas subdivision that had publicly usable open space between houses generally sold at a premium, but the effect of the open space was statistically insignificant, and much smaller than the effect of the size of the private lots themselves. Indeed, an additional square foot of private backyard space is estimated to be worth \$384 (in 1985 dollars), while an additional foot of open space is found to be worth less than \$4.<sup>48</sup>

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**■ Open space in urban areas provides a greater economic benefit to surrounding property owners than open space in rural areas.**

How much economic value open space provides to surrounding property may depend on its location.<sup>49</sup> For instance, the value of open space may be higher in urban areas than in suburban ones, with parks, greenways, forests and other natural areas providing greater economic benefits as population density increases.<sup>50, 51</sup> Broadly speaking, urban residents in dense neighborhoods located near downtowns place substantial value on proximity to open space, while suburban and rural residents do not appear to value open space as highly. A study of four large, regional parks in Bastrop County, Texas confirms that open spaces in rural areas may have less of an impact on property values. In the largely rural county near Austin, Texas, the parks—both individually and as a group—had no statistically significant impact on property prices in the rural county in which they are located. The authors cite the relatively large amount of undeveloped land (whether publicly or privately owned) in the area, as well as the rather large size of lots compared to those in the typical American city as reasons why the price premium associated with living close to a public open space in a predominantly rural area might be limited.<sup>52</sup>

Greenbelts, urban growth boundaries and open spaces in clustered subdivisions also appear to have value to the community, but the relationship is difficult to distinguish from the effect of the supply of buildable land.<sup>53, 54</sup> A land containment program in Salem, Ore., added about \$1,200 more per acre (1979 dollars) to the value of urban land near the greenbelts than urban land located 1,000 feet away from the boundary. The impact greenbelt land has on urban land value extends about 5,000 feet inward from the urban growth boundary.<sup>55</sup>

Preserved farmland in rural and suburban areas has a greater impact on surrounding real estate values than land that may be developed. Because many studies on the subject have been conducted in specific geographic areas, there is mixed evidence about how much households are willing to pay to preserve the farmland. However, studies do show there is a price premium when farmland perceived to be under the threat of development is preserved.<sup>56, 57, 58</sup> A 2002 study found that people in Maryland were willing to pay \$3,307 more for a house near permanently preserved open space rather than pastureland that could be developed at some point in the future, suggesting that people value open space because it is not development.

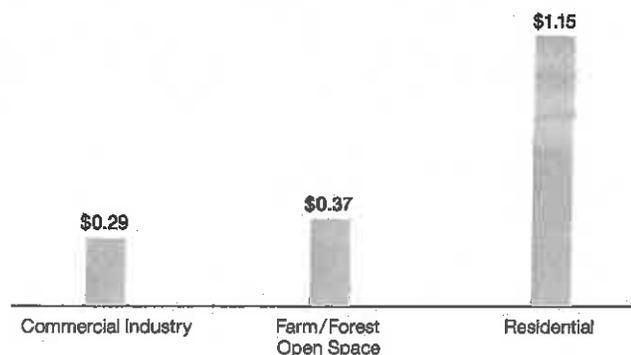
## ■ Open space land, recreation areas and compact developments may provide fiscal benefits to municipal governments.

Compact, walkable development, which preserves open space and concentrates development on smaller lots, also provides financial benefits to municipalities related to lower infrastructure costs. Large-lot suburban development patterns require roads, water supply and sewer services that become more costly when extended over greater distances. One study found that a half acre lot in a centrally located, compact development costs \$198 less in annual water and sewer service and \$72,000 less in additional costs over 30 years than a comparable lot in the suburbs.<sup>59</sup>

Locating a compact, walkable subdivision where there is existing infrastructure may also increase benefits of associated open space. A study conducted in Prince William County, Va., located outside Washington, D.C., found that providing municipal services to a house on a large lot far from existing infrastructure costs the county \$1,600 more than is returned in taxes and other revenues.<sup>60</sup> A study in Rhode Island found the state could save more than \$1.4 billion over 20 years, or \$71.6 million per year, if the state's next 20,000 housing units were built within existing urban areas instead of in undeveloped areas. The study showed savings on roads, schools and utilities and calculated the benefits of agricultural lands not lost and urban centers not decayed.<sup>61</sup>

Fiscal impact studies estimate the public costs and revenues associated with residential or nonresidential growth to determine the net fiscal impact of development. A review of fiscal impact analyses found that: Residential development typically resulted in a fiscal deficit; nonresidential development generated a fiscal surplus but attracted residential development; and open space was fiscally preferable to residential development and equal to or better than commercial and other nonresidential development.<sup>62</sup>

FIGURE 2. The median cost, per dollar revenue raised, to provide public services to different land uses (n = 71 communities)<sup>63</sup>



Using a process pioneered by the National Park Service, studies in 125 communities have used a type of fiscal impact study, the Cost of Community Services, to develop a revenue-to-expenditure ratio for residential, commercial, industrial and open space land use categories.<sup>64</sup> While fiscal impacts to local governments do not represent the same type of economic benefit as increases in property value, the cost savings or revenue to jurisdictions through open space and parks may benefit a community through long-term infrastructure cost savings.

Open space and recreational facilities can require fewer public amenities and municipal services than new land development, offering a cost-effective alternative. The Northeastern Office of the American Farmland Trust, which has frequently used the Cost of Community Services approach, studied six rural towns in Connecticut, Massachusetts and New York and found that, on average, open space lands required only 29 cents in services per dollar of revenue generated.<sup>65</sup> A number of communities have reportedly elected to purchase park and open space land, rather than allow it to be used for residential development, because in the long term this results in less tax burden on existing residents than if new homes were built on the land.<sup>66</sup> Additionally, investment in parks and open space does not incur some of the costs that often accompany residential development, such as traffic congestion, noise, pollution, infrastructure deterioration and changes in community character.<sup>67</sup>

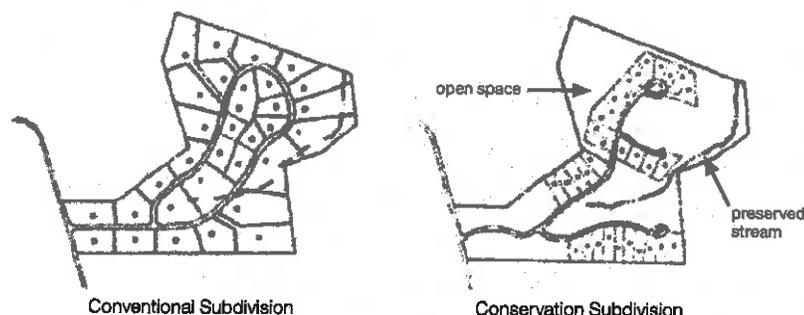
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**Compact, walkable developments can provide economic benefits to real estate developers through higher home sale prices, enhanced marketability and faster sales or leases than conventional development.**

Traditional neighborhood development, also known as compact or walkable development, concentrates neighborhood density, allowing room for large open space areas. Neighborhoods that feature open spaces, parks and greenbelts have higher home sale prices, enhanced marketability and often faster sales or leases than conventional development.<sup>68</sup> A national survey of developers found that they have noted considerable consumer interest in alternatives to conventional, low-density, automobile-oriented suburban development—including support for higher density, mixed use, pedestrian-oriented places.<sup>69</sup>

This demand is expected to continue in the coming decade as demographic changes and consumer preferences shift toward denser, more compact residential environments.<sup>70</sup> One recent study listed additional factors that could support the market for walkable urban places, including: urban job growth, tight urban housing markets, preferences for urban amenities and support for public policies and investments that favor revitalization, alternative transportation modes, historic preservation and urban parks and open space.<sup>71</sup> Open spaces enhance the value of nearby developable lands, allowing compact development to command a premium in the residential real estate market.<sup>72</sup>

Developers who take into account the desire for compact development and the protection of natural areas may spend less on marketing because such projects can have a high profile within the community, solicit high community involvement in their development and design, and generate significant media interest.<sup>73</sup> Compact developments featuring open space, trails and greenways have sold more quickly than similar properties elsewhere<sup>74</sup> and often have a high rate of presold units.<sup>75, 76</sup>

FIGURE 3. Generic Conventional and Conservation Subdivisions<sup>77</sup>

Consumers also seem willing to pay a premium to locate in walkable developments featuring open space.<sup>78, 79, 80</sup> Sites that are more walkable command higher property values across property type, including office, retail, apartment and industrial. Depending on the property type, a 10 percent increase in walkability increases property values by between 5 percent and 8 percent.<sup>81</sup> Lots in a compact, walkable subdivision in South Kingston, R.I., sold for \$122,000 to \$125,000 per acre, while lots in conventional subdivisions sold for \$107,000 to \$109,000 per acre. This translates into premiums ranging from \$13,000 to \$18,000 per acre for lots in walkable subdivisions over lots in conventional subdivisions.<sup>82</sup>

For developers, these economic benefits can translate into reduced financial liability, faster sales and ultimately higher profits. A recent development in Lake Elmo, Minn., highlighted by the Urban Land Institute, demonstrated a similar principle by offering a high density alternative in an area of large-lot development. The developer used only 40 percent of the 241-acre site for the development of 111 homesites, leaving 60 percent of the land to permanent open space composed of farmland, a tree nursery, horticultural gardens, wooded slopes, two ponds and restored native prairie. Close to 80 percent of the homes sold within six months of their offering in two phases.<sup>83</sup>

The design elements of compact developments may also present cost savings to developers. Watershed areas have been used in some developments as a form of natural drainage protection and open space, reducing construction and maintenance costs from storm water drainage systems. In one development, surface stormwater drainage through the use of swales that direct water over porous soils to irrigate agricultural areas saved \$800 per lot when compared to conventional storm sewer construction.<sup>84</sup> Because people can walk to more destinations, reduced parking ratios and shared parking have also been used to offset the increased costs of structured parking.

Finally, as the density of development in these neighborhoods increases, the per-unit cost to developers to supply infrastructure services decreases,<sup>85, 86</sup> with some estimates of the average savings around 32 percent.<sup>87, 88, 89</sup> As developers are often called upon to pick up a significant portion of the tab for the sewer and water capital expenditures associated with their projects, these cost savings have been passed onto them through changes to fee structures.

where parks can be expected to generate the largest economic benefits while also considering physical activity impacts. These studies should be used to inform decisions about land development patterns and zoning decisions.

While this review focuses on direct economic effects through property values and fiscal impacts, it is important to note that open spaces can also provide indirect economic and non-economic benefits. Ecological services, greenhouse gas reductions, and mental health benefits, as well as recreational benefits, should also be considered as indirect effects of parks. These indirect benefits can be evaluated using the Travel Cost Method or Stated Preference Surveys such as Contingent Valuation.

Finally, gaps in the research quantifying the price premium of compact developments make conclusions about the expected increases difficult to determine. While past research suggests that compact communities designed to preserve green space may result in savings to private developers through reduced construction and maintenance costs, recent changes in the finance and construction industries require updates to the existing research.

## Additional Resources and References

Active Living Research  
[www.activelivingresearch.org](http://www.activelivingresearch.org)

American Farmland Trust, Cost of Community Services Fact Sheet  
[www.farmlandinfo.org/documents/27757/FS\\_COCS\\_11-02.pdf](http://www.farmlandinfo.org/documents/27757/FS_COCS_11-02.pdf)

American Trails, National Trails Training Partnership  
[www.americantrails.org/resources/economics/index.html](http://www.americantrails.org/resources/economics/index.html)

National Recreation and Park Association  
[www.nrpa.org](http://www.nrpa.org)

The Trust for Public Land, Center for City Park Excellence  
[www.tpl.org](http://www.tpl.org)

Urban Land Institute  
[www.uli.org](http://www.uli.org)

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For updates and a Web-based version of this synthesis, visit [www.activelivingresearch.org](http://www.activelivingresearch.org).

Active Living Research, a national program of the Robert Wood Johnson Foundation, stimulates and supports research to identify environmental factors and policies that influence physical activity for children and families to inform effective childhood obesity prevention strategies, particularly in low-income and racial/ethnic communities at highest risk. Active Living Research wants solid research to be part of the public debate about active living.

**Active Living Research**  
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3900 Fifth Avenue, Suite 310  
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[www.activelivingresearch.org](http://www.activelivingresearch.org)

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## Table of Studies

The following tables include a more comprehensive list of studies and reports on the economic benefits of open space. The first includes a statement of key findings and conclusions for each item, which can be used as a basis for future research in this area. The second table includes items that are not cited in this synthesis but were reviewed during the writing process.

TABLE 1. **Studies Cited in this Synthesis: Authors, Methodology and Approach, and Key Findings**

Author(s)	Methodology and Approach	Key Findings
<b>Acharya G and Bennett L. (2001)</b>	A hedonic property value analysis was conducted for an urban watershed in New Haven County, Conn., using spatially referenced housing and land-use data to capture the effect of environmental variables around the house. Researchers calculated and incorporated data on open space, land-use diversity and other environmental variables to capture spatial variation in environmental quality around each house location. Using a rich data set of over 4,000 houses, they studied these effects within a watershed that includes areas of high environmental quality and low environmental quality as well as varying patterns of socio-economic conditions.	The results suggested that, in addition to structural characteristics, variables describing neighborhood socio-economic characteristics and variables describing land use and environmental quality are influential in determining values. Additionally, the scale at which researchers measured the spatially defined environmental variables was important.
<b>Anderson S and West S. (2006)</b>	The authors used hedonic analysis of home transaction data from the Minneapolis–St. Paul metropolitan area to estimate the effects of proximity to open space on sales price. They allowed the effects of proximity to vary with demographic and location-specific characteristics and include fixed effects to control for observed and unobserved neighborhood characteristics.	The value of proximity to open space was higher in neighborhoods that were dense, near the central business district, high-income, high-crime or home to many children. Using the metropolitan area's average value may substantially overestimate or underestimate the value of open space in particular neighborhoods.
<b>Arrington G. (2008)</b>	This report provided data on residential trip generation and parking in transit-oriented development (TOD), and the behavior and motivation of TOD residents, employees and employers in their mode choice. The report also identified best practices to promote, maintain and improve TOD-related transit ridership.	As the density of development in these neighborhoods increased, the per-unit cost to developers to supply infrastructure services decreased.
<b>Bailey J and Humphrey E. (2001)</b>	Commenting on an article titled "Current Preferences and Future Demand for Denser Residential Environments", the authors provide research evidence that there are additional factors that can explain the demand for compact, walkable development.	The study provided additional factors that could support the market for walkable urban places, including: urban job growth, tight urban housing markets, preferences for urban amenities and support for public policies and investments that favor revitalization, alternative transportation modes, historic preservation and urban parks and open space.
<b>Benson E, Hansen J, Schwartz A, et al. (1998)</b>	Estimated the value of the view amenity in single-family residential real estate markets of Bellingham, Wash.	Results from a hedonic price model suggested that willingness to pay for the view amenity is quite high.
<b>Bise L. (2003)</b>	This study assessed a tool to assist regional and local policy-makers to develop and evaluate cost-specific measures to support or justify the provision of regional services.	As the density of development in compact neighborhoods increased, the per-unit cost to developers to supply infrastructure services decreased.

TABLE 1. Studies Cited in this Synthesis (continued)

Author(s)	Methodology and Approach	Key Findings
<b>Bolitzer B and Netusil N. (2000)</b>	The impact of open-space proximity and type was examined empirically using a data set including the sales price for homes in Portland, Ore., geographic information system-derived data on each home's proximity to an open-space and open-space type, and neighborhood and home characteristics.	Results showed that proximity to an open-space and open-space type can have a statistically significant effect on a home's sale price. Researchers examined 193 public parks which were collectively found to have a significant and positive impact on the value of properties within 1,500 feet.
<b>Bowes D and Ihlanfeldt K. (2001)</b>	A hedonic price model and auxiliary models for neighborhood crime and retail activity is used to determine the role of property values and rail stations.	Stations may raise the value of nearby properties by reducing commuting costs or by attracting retail activity to the neighborhood. Possibly countering these positive effects are negative externalities emitted by stations and the access to neighborhoods that stations provide to criminals. Results show that all four effects play a role in defining the relationship between property values and rail stations, but the relative importance of these effects varies with distance from downtown and the median income of the neighborhood.
<b>Breffle W, Morey E and Lodder T. (1998)</b>	Contingent valuation (CV) was used to estimate a neighborhood's willingness to pay (WTP) to preserve a 5.5-acre parcel of undeveloped land in Boulder, Colo., that provides views, open space and wildlife habitat. Households were surveyed to determine bounds on their WTP for preservation. An interval model was developed to estimate sample WTP as a function of distance, income, and other characteristics.	The best estimate of neighborhood WTP, \$774,000, was greater than the estimated \$600,000 cost to purchase the property from the developer.
<b>Burchell R and Listokin D. (1992)</b>	Professors Burchell and Listokin of Rutgers University compiled the results of a great many fiscal impact studies, and created a list of fiscal impacts by development type.	Overall cost of compact development was significantly less than sprawl for the affected municipalities, particularly for infrastructure (roads, water and sewer). In the long term, ongoing operating costs for roads and infrastructure also would be reduced with compact development, and there would be less need to acquire land for public parks and recreation.
<b>Burchell R. (1992)</b>	Examined the effects of sprawl, or conventional development, versus managed (or "smart") growth on land and infrastructure consumption as well as on real estate development and public service costs in New Jersey.	In New Jersey, compact development can achieve a 30% reduction in runoff and an 83% reduction in water consumption compared with conventional suburban development.
<b>Cao T and Cory D. (1981)</b>	The purpose of this research was two-fold: 1) to construct a theoretical model of consumer behavior in which both the positive and negative effects of neighborhood land-use externalities are taken into account, and 2) to test this generalized model using hedonic pricing equations in Tucson, Ariz.	Increasing industrial, commercial, multi-family and public land uses tends to increase surrounding home values. The authors concluded that a mix of land uses should be sought in locating economic activities into residential neighborhoods.
<b>Correll M, Lillydahl J and Singell L. (1978)</b>	The paper examined the effect of three greenbelts in Boulder, Colo., using a multiple regression analysis to empirically evaluate the effect of proximity on property price.	The aggregate property value for the neighborhood was approximately \$5.4 million greater than it would have been in the absence of greenbelt. This increment resulted in an annual addition of approximately \$500,000 to the potential neighborhood property tax revenue. The purchase price of this greenbelt for the city was approximately \$1.5 million and, thus, the potential property tax revenue alone would allow a recovery of initial costs in only three years.

TABLE 1. Studies Cited in this Synthesis (continued)

Author(s)	Methodology and Approach	Key Findings
<b>Crompton J. (2004)</b>	Provided economical methods to estimate the local impact of parks and water features on property values. Shows the influence of the "proximate principle" on urban park development.	The economic boost in property value existed up to 500–600 feet away from the park. In the case of community-sized parks over 30 acres, the effect may be measurable out to 1,500 feet, but 75% of the premium value generally occurs within the 500–600-foot zone.
<b>Crompton J and Nicholls S. (2006)</b>	The researchers analyzed the 7.9 mile Barton Creek Greenbelt in Austin, Texas. The cost of acquiring the greenbelt in 2004 dollars was estimated at \$14.89 million, and the annual debt charges were assumed to be approximately \$1.1 million.	When the prevailing tax rates were applied to the property value increments attributable to the greenbelt, they generated tax revenues to the city of \$58,677 and \$311,844 to all the taxing entities. Thus, the tax revenues from the incremental tax base values met only 28% of the annual debt charges. However, a large majority of the greenbelt area users are likely to come from beyond the proximate neighborhoods, so it is likely that neighborhood residents were paying their "fair share" of the greenway's costs.
<b>Curran D and Leung M. (2000)</b>	This study reviews the literature documenting the effect of natural open space preservation on property values, and briefly discusses the economic benefits such an approach has for land developers and municipalities.	Developers who take into account the protection of natural areas and use green products for their buildings spent less on marketing because of the media interest the developments generate. Green developments often have a high rate of units, presold often around 75% as was the case with 2211 W. 4th Avenue in Vancouver
<b>Eppli M and Tu C. (1999)</b>	This study assessed the impact of New Urbanism on single-family home prices using data on 2,061 single-family home transactions and several hedonic price models. Specifically, they use Duany and Plater-Zyberk's traditional neighborhood development (TND) of Kentlands and surrounding conventional subdivisions to estimate the premium, if any, that single-family homeowners are willing to pay to reside in a community with new urbanist features.	Consumers are willing to pay a premium to locate in new urbanist developments.
<b>Espey M and Owusu-Edusei K. (2001)</b>	The effect on housing prices of proximity to different types of parks is estimated using a unique data set of single-family homes sold between 1990 and 1999 in Greenville, S.C. While the value of park proximity is found to vary with respect to park size and amenities, the estimates from this study are larger than previous studies.	The greatest impact on housing values was found with proximity to small neighborhood parks, with the positive impact of proximity to both small and medium-size parks extending to homes as far as 1500 feet from the park.
<b>Freedgood J and Wagner R. (1992)</b>	The Cost of Community Services approach compares annual revenues to annual expenses of public services for various land use categories. Local revenues and expenditures are apportioned to major categories of land use and the result is a set of ratios showing the proportional relationship of revenues and expenditures for different land uses at one point in time. Various assumptions are made in apportioning costs across land uses, and these are most often based on discussions with local staff and officials.	Calculations using the approach in six rural towns in Connecticut, Massachusetts and New York found that, on average, open space lands required only 29 cents in services per dollar of revenue generated.

TABLE 1. Studies Cited in this Synthesis (continued)

Author(s)	Methodology and Approach	Key Findings
<b>Geoghegan J. (2002)</b>	This paper developed a theoretical model of how different types of open spaces are valued by residential land owners living near these open spaces, and then, using a hedonic pricing model, tests hypotheses concerning the extent to which these different types of open spaces are capitalized into housing prices.	The empirical results from Howard County, a rapidly developing county in Maryland, show that "permanent" open space increases near-by residential land values over three times as much as an equivalent amount of "developable" open space.
<b>Geoghegan J, Lynch L, and Bucholtz S. (2003)</b>	Using a unique spatial database, researchers developed a hedonic model to estimate the value to nearby residents of open space purchased through agricultural preservation programs in three Maryland counties. After correcting for endogeneity and spatial autocorrelation, the estimated coefficients were used to calculate the potential changes in housing values for a given change in neighborhood open space following an agricultural easement purchase. Then, using the current residential property tax for each parcel, the expected increase in county tax revenue was computed and this revenue was compared to the cost of preserving the lands.	Findings show preserved open space did increase property values on adjacent residential parcels in two of the three counties in Maryland. Assuming the existing open space increases by 1%, using simulations based on the spatial econometric model, the increased property tax from these agricultural easements could generate enough revenue to purchase a significant portion of the 1% more open space acres, especially if one considers that the increases in tax revenue go on in perpetuity. In both Howard and Calvert counties, the revenue generated from an increase in permanent open space could purchase approximately 60% of the increase of the newly preserved lands in the first year alone.
<b>Guttery R. (2002)</b>	This study examines the sale prices of houses located in subdivisions utilizing rear-entry alleyways in the greater Dallas-Fort Worth-Denton metroplex. Regression analysis on a sample of 1,672 home sales, some of which are located on alleyways, reveals statistically significant impacts.	The regression results suggested that the alleyway subdivision design discounted sale prices about 5%, all else held equal.
<b>H. C. Planning Consultants, Inc. (1999)</b>	The study measures the costs of sprawl by projecting and comparing the gross costs of continued sprawl development with those of compact core development over the next twenty years (between 2000 and 2020).	A study in Rhode Island found the state could save more than \$1.4 billion over 20 years, or \$71.6 million per year, if the state's next 20,000 housing units were built within existing urban areas instead of in undeveloped areas. The study showed savings on roads, schools and utilities and calculated the benefits of agricultural lands not lost and urban centers not decayed.
<b>Hammer Siler George Associates and Gould Evans Goodman Associates (2001)</b>	This report summarized an analysis of the cost of development in the Kansas City region that was completed for the regional Metropolitan Planning Organization (MPO). It was a comparison of the costs of land development for both residential and nonresidential uses under two development concepts. One is "conventional," which is characterized by a separation of uses and subdivision layouts typical of those that have been developed over the past several decades. The other is termed "alternative" and incorporates the principles of Creating Quality Places, such as mixed use, clustering and open space preservation.	The results of the exercise suggested the relative magnitude of the development costs and the relationship between the conventional and alternative concepts. Projects which include denser development in combination with a dramatic increase in the amount of open space had lower infrastructure costs than the conventional developments.

TABLE 1. Studies Cited in this Synthesis (continued)

Author(s)	Methodology and Approach	Key Findings
<b>Irwin E. (2002)</b>	The marginal values of different open space attributes were tested using a hedonic pricing model with residential sales data from central Maryland. The identification problems that arose due to endogenous land use spillovers and unobserved spatial correlation were addressed using instrumental variables estimation with a randomly drawn subset of the data that omitted nearest neighbors.	Results showed a premium associated with permanently preserved open space relative to developable agricultural and forested lands and support the hypothesis that open space is valued for providing an absence of development, rather than for providing a particular open space amenities.
<b>Knaap G. (1985)</b>	Using cross sectional data, this study measures the effects of Urban Growth Boundaries on vacant single-family land values in metro Portland, Ore.	Urban Growth Boundaries and other means of urban containment led to higher land prices by limiting the supply of developable land.
<b>Kotchen M and Schulte S. (2009)</b>	In this paper, authors conducted a quantitative meta-analysis of COCS studies focusing on three land-use categories: residential, commercial/industrial, and agricultural/open-space. The dataset consisted of 125 studies from across the United States. Using data from the studies themselves and the U.S. Census, authors estimated models to investigate underlying patterns regarding the effect of different methodological assumptions and the geographic and financial characteristics of communities.	They found clear support for the common perception that residential land uses tend to have ratios greater than one, while commercial/industrial and agricultural/open-space land uses tend to have ratios less than one. Recent population growth has little effect on COCS ratios for all land-use categories.
<b>Lacy J. (1990)</b>	A study in Amherst and Concord, Mass., found that clustered housing with open space appreciated at a higher rate than conventionally designed subdivisions. The clustered homes in Amherst appreciated at an average annual rate of 22%, compared to an increase of 19.5% for the more conventional subdivision. The home-buyer, speaking in dollar terms through the marketplace, appears to have demonstrated a greater desire for a home with access and proximity to permanently protected land, than for one located on a bigger lot, but without open space.	Market appreciation rates for cluster housing with associated open space can be equal to those for conventionally developed housing types.
<b>Leinberger C. (2008)</b>	This book explains the decisions that have made the "drivable suburban" model dominant in the US and highlights the recent demographic changes that are shifting the demand for this type of development.	The book documents that demographic shifts are converging and increasing the demand for compact development.
<b>Lerner S and Poole W. (1999)</b>	This article drew findings from a Trust for Public Land Report titled: "The Economic Benefits of Parks and Open Space: How Land Conservation Helps Communities Grow Smart and Protect the Bottom Line."	A number of communities have elected to purchase park and open space land, rather than allow it to be used for residential development, because in the long term this reduces the net tax deficit for residents, which would occur if new homes were built on that land.

TABLE 1. Studies Cited in this Synthesis (continued)

Author(s)	Methodology and Approach	Key Findings
<b>Levine J and Inam A. (2004)</b>	This article studied, through a national survey with 676 respondents, US developers' perceptions of the market for pedestrian- and transit-oriented development forms.	Overall, respondents perceived considerable market interest in alternative development forms, but believed there was inadequate supply of such alternatives relative to market demand. Developers attributed this gap between supply and demand to local government regulation. When asked how the relaxation of these regulations would affect their product, the majority of developers indicated that such liberalization would lead them to develop in a denser and more mixed-use fashion, particularly in close-in suburban locales. The results favored land-policy reform based on the expansion of choice in transportation and land use.
<b>Lindsey G, Man J, Payton S, et al. (2004)</b>	This paper presented a taxonomy of the values of greenways and illustrated how two particular types of values can be measured using complementary techniques. Impacts of greenways on property values in Indianapolis, Ind., were measured with geographic information systems (GIS) and hedonic price modeling using residential real estate sales data from 1999. Recreation values were measured for a greenway trail in Indianapolis with the travel cost method using data from a 2000 survey of trail users and counts of trail traffic taken in 1996.	Results show that some but not all greenways have a positive, significant effect on property values and that the recreation benefits of a trail exceed costs. For homes within one half-mile of the Monon Trail, the model estimates that 14% (\$13,056) of the predicted sales price is attributable to the Trail. Assuming this value is correct, the premium for the 334 sales that occurred near the Monon Trail in 1999 would be more than \$4.3 million. Analyses of census data using GIS indicates approximately 8,862 households are located near the Monon Trail. If the average Monon premium were assumed to apply to each household, the total increase in property values associated with the presence of the Monon Trail in Marion County would be \$115.7 million.
<b>Lutzenhiser M and Netusil N. (2001)</b>	Information on home sales in the Portland Metropolitan area was analyzed to determine the effects of proximity of open space and recreational land on sale price. Three models were developed: model A projects the effect of any type of open space within 1500 feet of home; model B refines the analysis by distinguishing between the four open space types; and model C focuses on the effect of distance from an open space by introducing six dummy variables.	Homes that were within one half-block of any type of open space were estimated, on average, to experience the largest positive effect on their sale price.
<b>McConnell V and Walls M. (2005)</b>	This review of more than 60 articles attempted to estimate the value of different types of open space. Both contingent valuation and contingent choice studies, are reviewed.	Both the revealed and stated preference studies generally show a value in preserving most types of open space land, but the values tend to vary widely with the size of the area, the proximity of the open space to residences, the type of open space and the method of analysis. One conclusion drawn from this review was that the value of open space amenity estimates, even for specific types of open space, appear to be site- or location-specific.
<b>Miller A. (2001)</b>	This paper used hedonic regression analysis to quantify the effect of neighborhood parks on residential property values. Using data on housing quality, location and neighborhood characteristics at 14 sites near Dallas-Fort Worth, Texas, researchers used the regression to infer a rent premium gradient within walking distance of parks.	The research found that homes adjacent to parks received an approximate price premium of 22% relative to properties 2,600 feet away. However, because 75% of the value associated with parks occurs within 600 feet of travel distance and indirect paths detract from value, the connectivity of the street network is of great importance in maximizing that park's value to the surrounding residents.

TABLE 1. Studies Cited in this Synthesis (continued)

Author(s)	Methodology and Approach	Key Findings
Mohamed R. (2006)	The paper examined the price premiums, investment costs and absorption rates for lots in conservation versus those in conventional subdivisions in South Kingstown, R.I.	The results showed that lots in conservation subdivisions carry a premium, are less expensive to build and sell more quickly than lots in conventional subdivisions, suggesting that designs that take a holistic view of ecology, aesthetics and sense of community can assuage concerns about higher density. However, the potential negative consequences of conservation subdivisions require further study.
Nelson A. (1986)	This article developed a theory of how urban containment programs influence the regional land market and developed a model to apply the theory to Salem, Ore.	It found that the urban containment program divides the market into urban and rural land markets by making greenbelts out of farmland. The program was found to add an amenity value of about \$1,200 more per acre to urban land located near the greenbelts than urban land located 1,000 feet away from the boundary. The amenity influence of greenbelt land on urban land value extends about 5,000 feet inward from the urban growth boundary.
Nicholls S. (2004)	This paper reviewed recent hedonic price analyses conducted in Portland, Ore.; Dallas, Texas; Austin and College Station, Texas; and Indianapolis, Ind.	The author provides a table comparing the results of studies in the literature with respect to several open space types, three of which—urban parks, greenways and golf courses—increased property values.
Nicholls S and Crompton J. (2005)	This paper demonstrated empirical estimation of the economic value of a greenway in Austin, Texas, through analysis of its impacts on surrounding property prices. This type of analysis is based on use of the hedonic pricing method and allows measurement of two types of greenway value: physical proximity and aesthetics (view).	The authors examined three areas in Austin, with results suggesting that proximity to a greenbelt did trigger significant (12.2%) increases in property values, and that view of the greenbelt was not significant.
Nicholls S and Crompton J. (2005)	In this study, the hedonic pricing method is applied to four large parks in Bastrop County, near Austin, Texas.	The analysis revealed that these large, public open spaces had no statistically significant impact on property prices in the rural county in which they were located. Potential explanations for this lack of significance include the relatively large amount of undeveloped open space (whether publicly or privately owned) in the area, as well as the rather large lot-size compared to the typical American city. Combined, these factors suggest that the premium associated with living in close proximity to a public open space in a predominantly rural area might be limited by the large supply of this commodity.
Payton S, Lindsey G, Wilson J, et al. (2008)	This paper measured the benefits of the urban forest by examining its effect on housing prices. A Geographic Information System was used to develop a measure of the urban forest, the Normalised Difference Vegetation Index, from satellite imagery and to construct other variables from a variety of sources. Spatial hedonic housing the price models for the Indianapolis/Marion County area were estimated.	The models indicated that greener vegetation around a property has a positive, significant effect on housing price, holding everything else constant. This effect was dominated by measures at the neighborhood level, indicating that property owners value the urban forest, at least in part, by premium they pay to live in neighborhoods with greener, denser vegetation. These findings also indicate that public action to maintain and enhance the urban forest may be warranted. Planners and urban foresters can use these findings to inform public and policy debates over urban forestry programs and proposals.

TABLE 1. Studies Cited in this Synthesis (continued)

Author(s)	Methodology and Approach	Key Findings
<b>Pelser R and Schwann G. (1993)</b>	The study evaluates homes located in a Dallas, Texas subdivision that had publicly usable open space houses.	Researchers found that homes generally sold at a premium, but the effect of the open space was statistically insignificant, and much smaller than the effect of the size of the private lots themselves. Indeed, an additional square foot of private backyard space is estimated to be worth \$384 (in 1985 dollars), while an additional foot of open space is found to be worth less than \$4.
<b>Pivo G and Fisher J. (2009)</b>	This study measured the degree to which an area within walking distance of a property encourages walking for recreational or functional purposes. The authors used data from the National Council of Real Estate Investment Fiduciaries (NCREIF) and Walk Score to examine the effects of walkability on the market value and annual investment returns of nearly 11,000 office, apartment, retail and industrial properties over the past decade.	The authors found that, all else being equal, the benefits of walkability are capitalized into office, retail, apartment and industrial property values with more walkable sites commanding higher property values. On a 100 point scale, a 10 point increase in walkability increases property values by 5% to 8%, depending on property type. They also found that walkability is associated with lower cap rates and higher incomes, suggesting that higher values are caused by both higher incomes and expectations of less risk, greater income growth or slower depreciation. Walkability only had a positive effect on historical investment returns for offices. It negatively affected returns for retail and apartments and had no effect on industrial property. All walkable property types generated higher income and therefore had the potential to generate returns as good as or better than less walkable properties, as long as they were priced correctly.
<b>Plaut P and Boarnet M. (2003)</b>	Authors tested the hypothesis that urban design, specifically the design attributes associated with New Urbanism, are reflected in housing prices, using a data set for Haifa, Israel. House sales from 1988 through 1998 were analyzed for three neighborhoods in which there were similar socioeconomic compositions, public services, schools, property taxes and other amenities. One of the neighborhoods had many characteristics of New Urbanism design, while the other two are more traditional urban or suburban developments. Hedonic regression analysis was used to control structure-specific characteristics.	The analysis of the regression values across neighborhoods shows a statistically significant price premium in the New Urbanism neighborhood. The evidence suggests that persons are willing to pay for living in a New Urbanism neighborhood, other things held equal.
<b>Rocky Mountain Institute (1998)</b>	Based on 80 case studies drawn from Green Development Services' extensive worldwide research and consulting work, this report distilled proven procedures, potential pitfalls and practical lessons.	The infrastructure and building design significantly reduced construction and maintenance costs. Narrow residential streets limited the land required for streets to just 20% of the site. Surface drainage handles storm water through the use of swales that direct water over porous soils to irrigate agricultural areas. This design saved \$800 per lot when conventional storm compared to sewer construction.

TABLE 1. Studies Cited in this Synthesis (continued)

Author(s)	Methodology and Approach	Key Findings
<b>Shultz S and King D. (2001)</b>	Hedonic price models for determining marginal implicit prices of open-space amenities and nonresidential land use were estimated using housing data from the census. Alternative model specifications were compared to evaluate the effects of aggregating land-use data by alternative levels of census geography as well as the use of different sample sizes of census blocks. The authors determined that land use was best aggregated at the block group level and that entire populations or very large sample sizes of census blocks should be used with hedonic models.	The results provided empirical evidence that proximity to the large protected natural areas, golf courses, and Class II wildlife habitats, as well as the percentage of vacant and commercial land use, positively influences housing values.
<b>Song Y and Knaap G. (2004)</b>	The authors first developed several quantitative measures of mixed land uses through the use of Geographic Information System (GIS) data and computed these measures for various neighborhoods in Washington County, Ore. They then incorporated those measures in a hedonic price analysis.	Housing prices increased with their proximity to—or with increasing amount of—public parks or neighborhood commercial land uses. Housing prices were higher in neighborhoods dominated by single-family residential land use, where non-residential land uses were evenly distributed, and where more service jobs were available. Finally, they found that housing prices tended to fall with proximity to multifamily residential units.
<b>Speir C and Stephenson K. (2002)</b>	This article assessed the public water and sewer costs associated with alternative housing patterns, defined in terms of lot size, tract dispersion and distance from existing water and sewer service centers. The engineering cost model presented here gives empirical evidence of how sensitive local government service costs are to the spatial pattern of single-family residential development.	The results showed that more spread out housing patterns are more costly to supply with public water and sewer services, but that shifting a majority of these costs to the private sector may be a relatively simple matter.
<b>Walsh R. (2007)</b>	This paper evaluated open space policies using an empirical approach incorporating the endogeneity of both privately held open space and land conversion decisions in a locational equilibrium framework.	The results suggested that increasing the quantity of land in public preserves may lead to a decrease in the total quantity of open space in a metropolitan area. The analysis suggested that while a growth ring strategy is most effective in reducing total developed acreage in the metropolitan area, this reduction was associated with a large net welfare loss, particularly for households that rent their homes.
<b>Weicher J and Zerbst R. (1973)</b>	The externalities of five urban parks in Columbus, Ohio were assessed and related to property values in surrounding areas.	The paper presents clear evidence that neighborhood parks generate externalities for surrounding property, though the relationship was greatest when the property was immediately adjacent to the facilities. Tax assessors in some areas have failed to recognize the positive benefits of proximity to natural open spaces.

TABLE 2. Studies Not Cited in this Synthesis: Full Citation, Methodology and Approach, and Key Findings

Citation	Methodology and Approach	Key Findings
<b>Asabere P, Hackey G and Grubaugh S.</b> "Architecture, Historic Zoning, and the Value of Homes." <i>Journal of Real Estate Finance and Economics</i> , 2(3): 181-195, September 1989	The objectives of this paper were to detect any partial effects on home values due to architecture and to detect the potential impacts of historic zoning in Newburyport, Mass.	Premium prices were associated with the historical architectural styles like colonial, federal, garrison and Victorian, however the historic zoning district did not have any conclusive positive external effects.
<b>Auger P.</b> <i>Does Open Space Pay?</i> Durham, NH: University of New Hampshire Cooperative Extension, 1995.	The Cost of Community Services process was used to compare residential, commercial, industrial and open space land use categories in two communities: Fremont and Deerfield, N.H. The proportionate cost assignments were made using best judgment, reviewing intown records, and/or assigning costs based on the assessed value of the land-use. Expenditures and revenues were totaled by land-use and a ratio was calculated.	Residential land uses often cost communities more than they generate in revenues. Agricultural and open space land paid significantly more in taxes than it required in servicing from local governments. Open space costs as little as 35 cents for every dollar in revenue.
<b>Bergstrom J, Cordell H, Ashley G, et al.</b> "Economic Impacts of Recreational Spending on Rural Areas: A Case Study." <i>Economic Development Quarterly</i> , 4(1): 29-39, February 1990.	Recreational expenditures were collected as part of the Public Area Recreation Visitors Study (PARVS). Economic impacts of these expenditures were estimated using regional input-output models developed from the USDA Forest Service model (IMPLAN).	Recreational spending contributed substantially to gross output, income, employment and value added in the studied rural areas. Outdoor recreation may be a viable rural economic development strategy.
<b>Brighton D.</b> <i>Community Choices: Thinking Through Land Conservation, Development, and Property Taxes in Massachusetts.</i> San Francisco: Trust for Public Land, 1999.	"This study investigated the relationship between property tax bills and permanent land conservation, through public or nonprofit ownership of either land or conservation easements. To examine the short term effects, the study calculates the tax increase caused by removing \$500,000 of property value from the tax rolls in seven sample towns. The long-term effect of land conservation is explored by correlating the residential property tax rate in each Massachusetts town with various measures of development and with various measures of realness."	In the short term, land protection, by fully or partially exempting land from taxation, often reduced the tax base and resulted in a tax increase. In the long term, property tax rates were generally higher in more developed towns than in rural ones. The residential property tax rate was, on average, lower in more rural towns where there are more acres of open land per capita. The residential property tax rate was, on average, higher in more developed towns where there are more residents, there is more commercial and industrial property, and there are more jobs.
<b>Cochrun S.</b> "Understanding and Enhancing Neighborhood Sense of Community." <i>Journal of Planning Literature</i> . 9(1): 92-99, August 1994.	The authors reviewed the literature on creating a sense of community in the context of neighborhood, or community of place. It explored methods planners can use to enhance sense of community through social and physical means.	They found that open spaces are public spaces and provide a setting for planned and casual interactions among neighbors, contributing to the sense of neighborliness and community.
<b>Corbett M and Corbett J.</b> <i>Designing Sustainable Communities: Learning from Village Homes.</i> New York: Island Press, 2000.	This book offers a case study of Village Homes outside Davis, Calif. The area offers features including extensive common areas and green space; community gardens; orchards and vineyards; narrow streets; pedestrian and bike paths; solar homes; and an innovative ecological drainage system.	Village Homes in Davis, Calif., is a 60-acre community based around a village green with adjacent commercial, community and recreational facilities. It houses 220 single family homes, 24 rental apartments and 22 businesses.

TABLE 2. **Studies Not Cited in this Synthesis (continued)**

Citation	Methodology and Approach	Key Findings
<p><b>Crompton J.</b> <i>Parks and Economic Development</i>. Planning Advisory Service Report Number 502. Chicago: American Planning Association and the City Parks Forum. 2001.</p>	<p>This book explained how to measure and report the positive economic impact of parks and open space on the financial health of local businesses and government. It summarized the relevant literature on the subject and provided a comprehensive overview on the topic.</p>	<p>Investing in parks and other public amenities is a proven economic development tool that can help communities attract businesses and wealthy residents. Communities with high quality of life ratings have a competitive advantage in the recruitment and retention of talented workers. Quality of life for employees is the third most important factor in locating a business, according to an annual survey of chief executives conducted by Cushman and Wakefield in 1989.</p>
<p><b>Crompton J.</b> <i>The Impact of Parks and Open Spaces on Property Taxes</i>. Chapter in "The Economic Benefits of Land Conservation." Edited by de Brun C. San Francisco: Trust for Public Land, 2007.</p>	<p>The author surveys peer-reviewed studies of the Proximate Principal, providing visuals and results from a number of surveys.</p>	<p>Over 20 peer-reviewed studies have demonstrated that the proximate effect is substantial up to 500–600 feet away from the park (typically three blocks). In the case of community-sized parks over 30 acres, the effect may be measurable out to 1,500 feet, but 75% of the premium value generally occurs within the 500–600-foot zone. The studies suggested that a positive impact of 20% on property values abutting or fronting a passive park area is a reasonable point of departure for estimating the magnitude of the impact of parks on property values.</p>
<p><b>Crompton J.</b> "The Impact of Parks on Property Values." <i>Parks &amp; Recreation</i>, 36(1): 62, January 2001.</p>	<p>Analyzed the impact of parks on the values of real estate property, covering: the proximate principle in real estate management, a hypothetical illustration of an investment in parks, results of research on urban park development in the late 1960s and 1970s, and the impact of greenways and golf courses on property values.</p>	<p>Twenty of the 25 studies reviewed concluded that parks and open space contributed to increasing property values. In 4 of the 5 that did not, the evidence was inconclusive. The proximate impact of park land and open space is likely to be substantial up to 500 feet, and 2,000 feet for community parks.</p>
<p><b>Curran D.</b> <i>Economic Benefits of Natural Green Space Protection</i>. Vancouver, British Columbia: The POLIS Project on Ecological, Governance University of Victoria and Smart Growth British Columbia, 2001</p>	<p>This study reviewed the literature documenting the effect of natural open space preservation on property values, and briefly discussed the economic benefits such an approach has for land developers and municipalities.</p>	<p>Generally, research indicates that natural open space has a positive effect on real estate values. Quantified benefits to communities include higher residential property values in areas proximate to, and/or with views of, natural open space. Homebuyers are willing to pay a premium for properties near natural open space, and residents will pay to permanently protect a natural open space in their neighbourhood.</p>
<p><b>Dittmar H and Ohland G.</b> <i>The New Transit Town: Best Practices in Transit-Oriented Development</i>. Washington: Island Press, 2004.</p>	<p>New Transit Town explored the key challenges to transit-oriented development, examined the lessons learned from the first generation of projects, and used a systematic examination and analysis of a broad spectrum of projects to set standards for the next generation.</p>	<p>The results documented the demographic shifts that are converging and increasing the demand for compact development.</p>
<p><b>Epli M and Tu C.</b> "An Empirical Examination of Traditional Neighborhood Development." <i>Real Estate Economics</i>, 29(3): 485–501, December 2002.</p>	<p>This study analyzed the impact of the New Urbanism development on single-family home prices using the price differential that homebuyers pay for houses in new urbanist developments relative to houses in conventional suburban developments. Data on over 5,000 single-family home sales from 1994 to 1997 in three different neighborhoods were analyzed using hedonic regression.</p>	<p>Regression results revealed that consumers pay more for homes in new urbanist communities than for those in conventional suburban developments. To live in the new urbanist community, homebuyers pay a premium of approximately 14.9% of property value in Kentlands, 4.1% in Laguna West, and 10.3% in Southern Village. Further analyses indicate that the price premium is not attributable to differences in improvement age and other housing characteristics.</p>

TABLE 2. Studies Not Cited in this Synthesis (continued)

Citation	Methodology and Approach	Key Findings
<b>Eppli M and Tu C. Valuing</b> <i>The New Urbanism: The Impact of the New Urbanism on Prices of Single-Family Homes</i> , Washington: Urban Land Institute, 1999.	This book examines the evidence that consumers will pay additional money to live in single-family homes in new urbanist communities. This study compares the sales transactions and characteristics of homes in four regionally diverse new urbanist developments with homes in nearby conventional neighborhoods.	After accounting for site traits, housing characteristics, unit quality, neighborhood and other market factors, the authors found that buyers were willing to pay a premium for homes in new urbanist communities. Ideal for convincing community groups, public officials and lenders.
<b>Ernst and Young. Analysis of Secondary Economic Impacts of New York City Parks</b> , New York: New Yorkers for Parks, 2003.	The study looked at real estate values, tax assessments and turnover in neighborhoods surrounding six parks: Bryant Park (Manhattan), Prospect Park (Brooklyn), Clove Lakes Park (Staten Island), St. Albans Park (Queens), Crotona Park and P.O. Serrano Park (The Bronx). The authors also researched the history of capital investments in these parks, and used 30 additional neighborhood parks for an aggregate citywide analysis.	Investments in parks, when properly managed and maintained, positively impacted the economic development of surrounding properties. Park investments must be maintained and adequately integrated into a strategic management plan or the capital investment will not serve as an economic development tool. Factors that influence this include effective planning and administration, the local business environment and community involvement. Strategic re-investments in parks, as a part of overall community planning, can effectively enhance local property values.
<i>Cost of Community Services Studies Fact Sheet</i> , Northhampton, MA: Farmland Information Center, 2006.	The report surveyed Cost of Community Services (COCS) studies conducted in at least 125 communities in the United States.	COCS studies conducted over the last 20 years showed working lands generated more public revenues than they receive back in public services. Their impact on community coffers is similar to that of other commercial and industrial land uses. On average, because residential land uses do not cover their costs, they must be subsidized by other community land uses.
<b>Frank J. Cost of Alternative Development Patterns: A Review of the Literature</b> , Washington: Urban Land Institute, 1989.	The author reviews several decades of studies on the cost of providing community services for streets, utilities and schools.	The report concludes that site development costs could be reduced by \$2,400 per unit by clustering development as compared to conventional development patterns, mostly due to savings from road construction.
<b>Gyourko W and Rybczynski E. "Financing New Urbanism Projects: Obstacles and Solutions."</b> <i>Housing Policy Debate</i> , 11(3): 733-750, Fall 2000.	Researchers conducted a survey of 23 industry practitioners from the development and finance fields in order to evaluate the perceived obstacles to New Urbanist projects.	New Urbanist projects, particularly those located in the suburbs, were perceived as generally riskier than typical real estate projects due to their multiple-use nature. The relatively high perceived risk for most New Urbanism projects imposes relatively high required rates of return, which in turn require these projects to generate cash flow quickly to be financially attractive to investors.
<b>Irwin E and Bockstael N. "The Problem of Identifying Land Use Spillovers: Measuring the Effects of Open Space on Residential Property Values."</b> <i>American Journal of Agricultural Economics</i> , 83(3): 698-704, August 2003.	This paper used hedonic models to test whether people's perception of the value of open space amenities is hampered by the fact that a parcel's land use is in part determined by its residential value.	The results showed that the spillover effects were present in the models, resulting in errors estimated marginal value of open space downward.

TABLE 2. Studies Not Cited in this Synthesis (continued)

Citation	Methodology and Approach	Key Findings
<b>Jarasek M.</b> "Back to the Future." <i>Professional Builder</i> , October 1, 2006.	The article profiled Whittaker Homes development, the New Town at St. Charles.	"We had more than one thousand people on the waiting list after those initial meetings. And word just continued to spread from there." The occupancy horizon was 24 months when sales began in 2004.
<b>Kopits E, McConnell V and Walls M.</b> <i>The Trade-off between Private Lots and Public Open Space in Subdivisions at the Urban-Rural Fringe</i> . Washington: Resources for the Future, 2007.	Authors used data on subdivision house sales occurring between 1981 and 2001 in a county on the fringe of the Washington, D.C., metropolitan area to estimate a hedonic price model. They examined how households value being adjacent to open space and having more open space in the subdivision, and how they may be willing to trade off those amenities with their own private lot space.	They found that private acreage matters to households—a 10% larger lot leads to about a 0.6% higher house price, all else being equal. Subdivision open space is also valuable to households, but the marginal effect is much smaller than the marginal effect of private lot space. They also found that subdivision open space does substitute for private land, but the extent of the trade-off is small. They used the results of the estimated hedonic model to simulate the effects on prices of jointly increasing open space and reducing average lot size, holding the size of the subdivision constant. Average house prices were lower with clustering, particularly for interior lots that are not adjacent to open space.
<b>Lee C and Ahn K.</b> "Is Kentlands better than Radburn? The American Garden City and New Urbanist Paradigms." <i>Journal of the American Planning Association</i> . 69(1): 50–71, March 2003.	The study compares two developments that exemplify the American Garden City and New Urbanist paradigms through a morphological case study and quantitative analysis. The subdivisions are similar in scale, development density and date constructed.	Both developments attempted to create a walkable neighborhood, but Kentlands' interconnected street grid creates conflicts between autos and pedestrians. Further, overemphasis on mixed housing styles reduces the marketability and long-term success of Kentlands.
<b>Li M and Brown J.</b> "Micro-neighborhood Externalities and Hedonic Housing Prices." <i>Land Economics</i> , 56(2): 125–141, 1980.	Authors used a multiple regression model to estimate the influence of location-specific attributes such as aesthetic attributes, pollution levels and proximity to amenities on housing prices.	Proximity to certain non-residential land uses affected housing prices by having a positive value for accessibility and negative value for external diseconomies such as congestion, pollution and unsightliness.
<b>Lipscomb C.</b> "An Alternative Spatial Hedonic Estimation Approach." <i>Journal of Housing Research</i> . 15(2): 143–160, Summer 2006.	In this paper, using detailed data on household attitudes and parcel attributes, hedonic regression residuals were used in a structural equations framework to check for additional spatial effects in the hedonic coefficients beyond those captured in the hedonic regression itself. In this way, a "nearest neighbors" approach utilizing parcel level distance variables is compared directly to OLS estimation using spatial variables, showing the relative efficiency of the estimates in the former approach.	Hedonic price analysis is a method of estimating demand or price for a good that does not have a traditional economic market.
<b>Litman T.</b> <i>Economic Value of Walkability</i> . Washington: Transportation Research Board of the National Academies, 2003.	This paper described ways to evaluate the value of walking (the activity) and walkability (the quality of walking conditions, including safety, comfort and convenience).	Walking and walkability provide a variety of benefits, including accessibility, consumer cost savings, public cost savings (reduced external costs), more efficient land use, community livability, improved fitness and public health, economic development and support for equity objectives. Yet current transportation planning practices tend to undervalue walking.

TABLE 2. Studies Not Cited in this Synthesis (continued)

Citation	Methodology and Approach	Key Findings
<p><b>Matthews J and Turnbull G.</b> "Neighborhood Street Layout and Property Value: The Interaction of Accessibility and Land Use Mix." <i>Journal of Real Estate Finance and Economics</i>, 35(2): 111-141, August 2007.</p>	<p>This paper evaluated how consumers value differences in neighborhood composition and street layout, factors not previously included in empirical studies of house value. It used measures of neighborhood street connectivity and their interaction with other neighborhood attributes to evaluate how street layout affects property values. Authors employed two different methods of indexing street layout.</p>	<p>In pedestrian oriented neighborhoods, a more gridiron-like street pattern increases house value using one measure, but greater connectivity decreases house value using the other. In auto-oriented developments, a more gridiron-like street pattern reduces house value using either measure.</p>
<p><b>Meyers D and Gearin E.</b> "Current Preferences and Future Demand for Denser Residential Environments." <i>Housing Policy Debate</i>, 12(4): 633-659, Fall 2001.</p>	<p>This article assessed the future demand for denser, more walkable residential environments in the US, providing a survey of the evidence on preferences and demographic projections and trends to construct a demand projection for the period 2000 to 2010. This project is then compared with demands between 1990 and 2000.</p>	<p>The results showed that home buyers older than 45 who prefer denser, more compact housing alternatives will account for 31% of total homeowner growth during the 2000-2010 period, double the same segment's market share in the 1990s.</p>
<p><i>Economics Impacts of Protecting Rivers, Trails and Greenway Corridors: A Resource Book.</i> Washington: National Park Service, U.S. Department of the Interior, 1995.</p>	<p>This Resource Book was produced to help local planners, park and recreation administrators, citizen activists and non-profit groups understand and communicate the potential economic impacts of their proposed or existing corridor project. It presented evidence that greenways and trails may increase nearby property values and demonstrated how an increase in property values can increase local tax revenues and help offset greenway acquisition costs.</p>	<p>Proximity to open space, parks and trails can increase sales price, increase the marketability of properties and promote faster sales. Clustering the residential development to allow for establishment of a greenway corridor might also reduce total development costs and increase savings to the developer.</p>
<p><b>Nelson A.</b> "Demand, Segmentation, and Timing Effects of an Urban Containment Program on Urban Fringe Land Values." <i>Urban Studies</i>, 22(5): 439-443, October 1985.</p>	<p>This paper provided the results of regression models testing for the additional and reduced demand of the Salem, Ore., urban containment program on the urban fringe land market. Two hundred and nine sales of vacant land ranging in size from 90% of an acre to 100 acres were used in the analysis.</p>	<p>The Urban Growth Boundary may not have had any effects on the land market in the first year, but was shown to influence sales in the second and fourth years of existence.</p>
<p><b>O'Neill D.</b> <i>Environment and Development: Myth and Fact.</i> Washington: The Urban Land Institute, 2002.</p>	<p>This is the fourth publication in a series designed to address myths and offer good examples on issues related to growth and land development. It discussed methods developers may use to balance development with environmental protection.</p>	<p>Prince William County, Va., found that providing municipal services to a house on a large lot far from existing infrastructure costs the county \$1,600 more than is returned in taxes and other revenues. Additionally, Rhode Island could save \$142 million in sewer infrastructure costs if development were more dense and contiguous to existing development.</p>
<p><b>Petit J.</b> <i>Building Greener Neighborhoods: Trees as Part of the Plan.</i> Washington: Home Builders Press, National Association of Home Builders, 1998.</p>	<p>This review examines studies that show developed lots with trees sell for an average of 20% to 30% more than similarly sized lots without trees. Mature trees that are preserved during development add more value to a lot than post construction landscaping.</p>	<p>The National Association of Home Builders has endorsed the view that planting more trees can increase the marketability of new developments because of the environmental and public relations advantages greening creates.</p>

TABLE 2. Studies Not Cited in this Synthesis (continued)

Citation	Methodology and Approach	Key Findings
<p><b>Smith K, Poulos C and Kim H.</b> "Treating Open Space as an Urban Amenity." <i>Resource and Energy Economics</i>, 24(1-2), 107-129, February 2002.</p>	<p>This paper estimated hedonic price functions over nearly 30 years to evaluate whether the distinctions between fixed and adjustable land uses help in measuring the value of open space amenities.</p>	<p>Results indicated open space amenities can be important to residential property values. Proximity to undeveloped land increased the real sales price by about \$2.30/ft in the model developed for sales during the 1995-1998 period and the 1985-1989 period; it was double that value during the 1990-1994 period. The estimates can reflect both the importance of open space to consumers and the changed expectations about the likely future uses of these lands. Markets do signal the overall importance of nearby landscape and open space amenities.</p>
<p><b>Song Y and Knaap G.</b> "New Urbanism and Housing Values: A Disaggregate Assessment." <i>Journal of Urban Economics</i>, 54(2): 218-238, September 2003.</p>	<p>A hedonic price model is built using data from (1) The tax assessment files from Washington County; (2) Regional Land Information System (RLIS) from Portland metro area; and (3) Census data from the US Census Bureau.</p>	<p>Researchers found that some features of New Urbanism are capitalized into property values such as more connective street networks, more streets, shorter cul-de-sacs, smaller block size, better pedestrian accessibility to commercial uses, more evenly distributed mixed land uses and proximity to light rail stations. While features like higher density, containing more commercial, multifamily and public use (relative to single-family uses), and containing major transportation arterials are not attractive to property buyers.</p>
<p><i>The Economic Benefits of Parks and Open Space: How Land Conservation Helps Communities Grow Smart and Protect the Bottom Line.</i> San Francisco, CA: Trust for Public Land, 2009.</p>	<p>The report reviewed over 70 Cost of Community Services studies published in the U.S.</p>	<p>Studies showed that residential development was the least cost effective land use. Communities with larger and readily growing populations appear to experience greater net deficits in their residential land than communities with smaller, stable populations. Sprawling residential growth has higher costs than other types of residential land use.</p>