

Conservation Subdivision Design



A Planning Tool to Mitigate the Impacts of
Development on Natural Resources

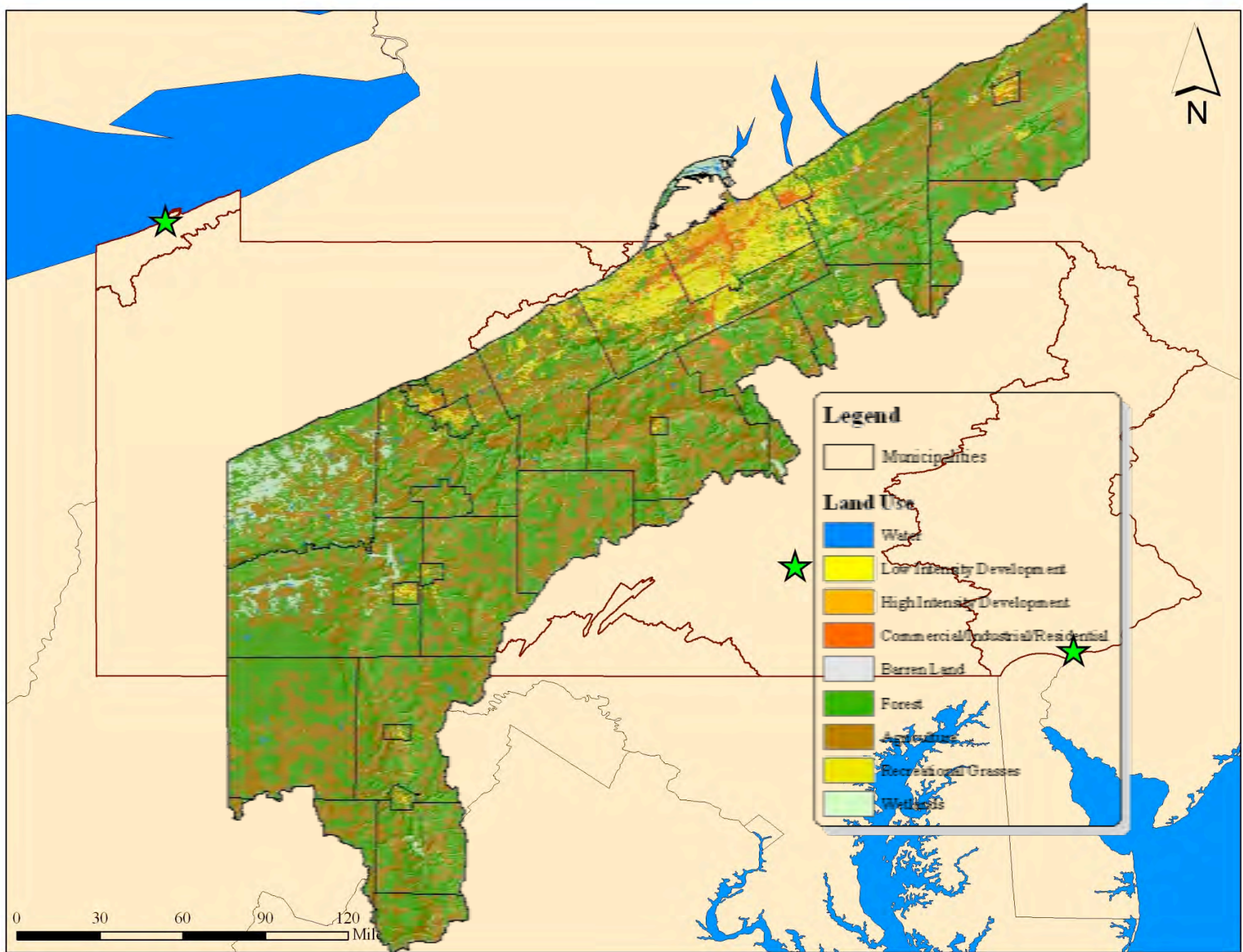
Crown Point Subdivision (Millcreek Township)
and Harborcreek Township

Sean Rafferty

Lake Erie Coastal Outreach
Specialist

Pennsylvania Sea Grant





Outline

- Crown Point Subdivision:
 - Characteristics
 - Site Design
 - Development Cost
 - Benefits

- Harborcreek Township Regulations:
 - Comprehensive Plan
 - Stormwater Ordinance
 - Zoning Ordinance



Conservation vs. Conventional Design

Conventional

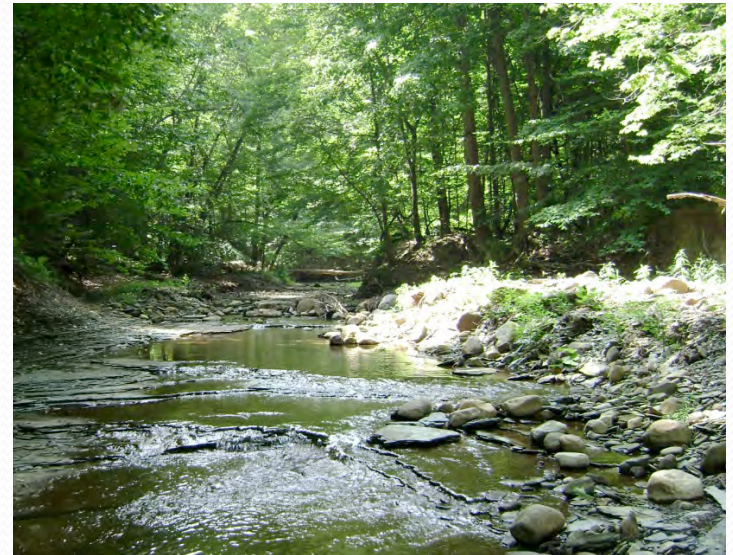
- Limited preservation of open space
- Majority of site disturbed during construction
- May result in negative impacts to the environment
 - Increased runoff
 - Reduced groundwater recharge
 - Minimizes buffers and open space

Conservation

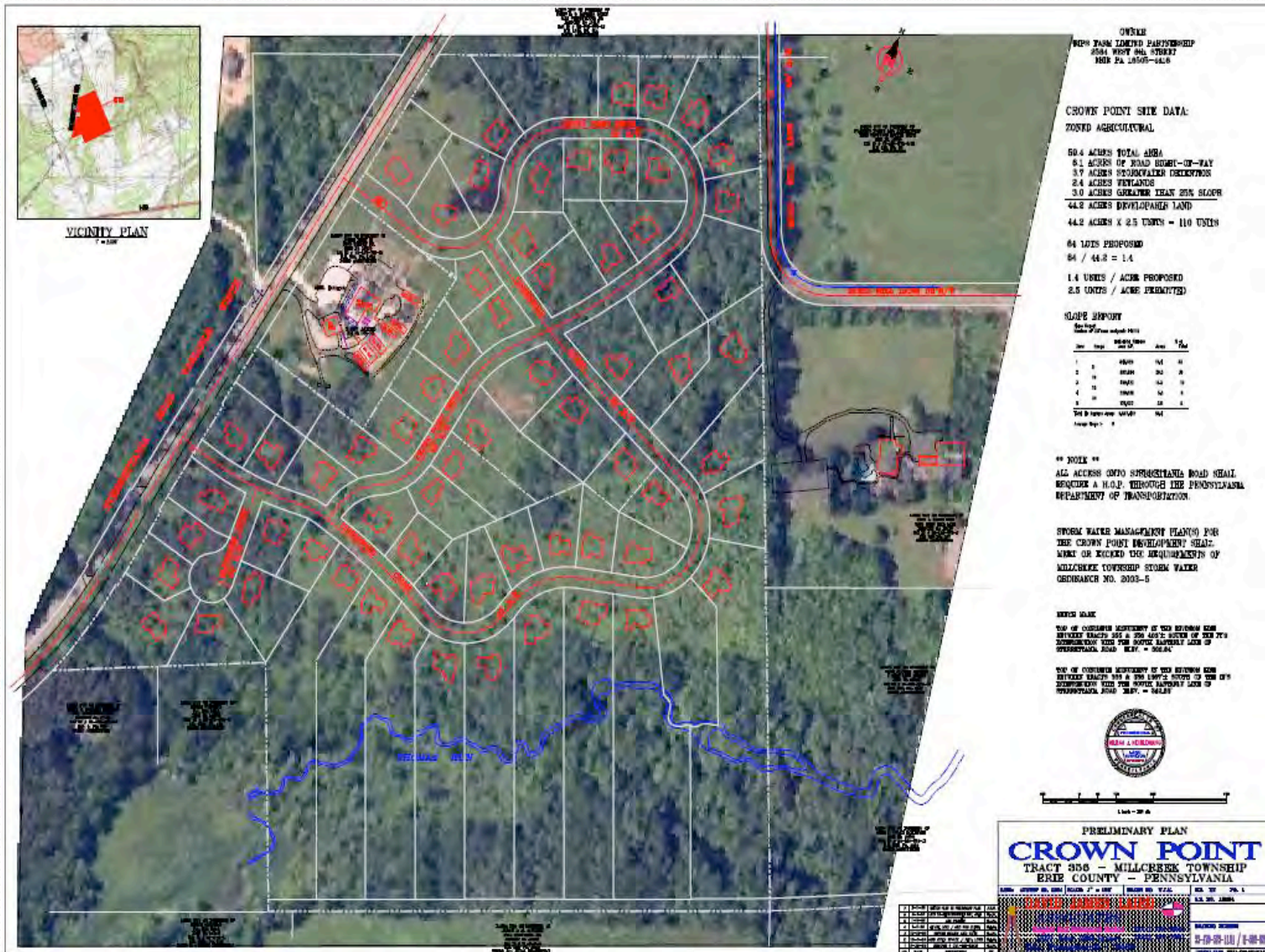
- Conserves 50-70% of site as open space
- Minimizes site disturbance
- Maximizes views of and access to open space
- Achieves the developers objectives

Crown Point Subdivision

- March 2006 – Luciano Builders
 - Builder contacted our office expressing an interest in conservation design
- 63 Acre Property
 - HQ stream on site
- July 04 – July 06
 - 5 meetings
 - Millcreek Township Supervisors, Engineers, Zoning Officer, and Lawyer
 - Luciano and Laird
- PASG Contracted Laird Associates
 - Conservation site plan
 - Compare conservation and conventional site plans and costs



Crown Point: Conventional Design



Crown Point: Conventional Design

- Total Site Area = 63.4 acres
- Roads and Sidewalks = 6.1 acres
- Future R/W (per transportation plan) = 0.94 acres
- Storm water Management = 3.7 acres
- Wetlands = 2.4 acres
- 100 Yr. Floodplains = 7.8 acres
- Steep Slopes = 3.0 acres
- Developable Land = 39.46 acres
- Allowable Density = 2.5 units/acre (39.46
X 2.5 = 99 units
permitted)
- Units Proposed = 64
- Proposed Density = 1.5 units/acre

Crown Point: Conventional Design

- Developers density requirements met
- **NO** open space provided for residents of development
- 80% of overall site disturbed during construction
- Multiple point source discharges for storm water runoff
- Wetlands impacted by utility and roadway crossings
- Majority of existing vegetation removed

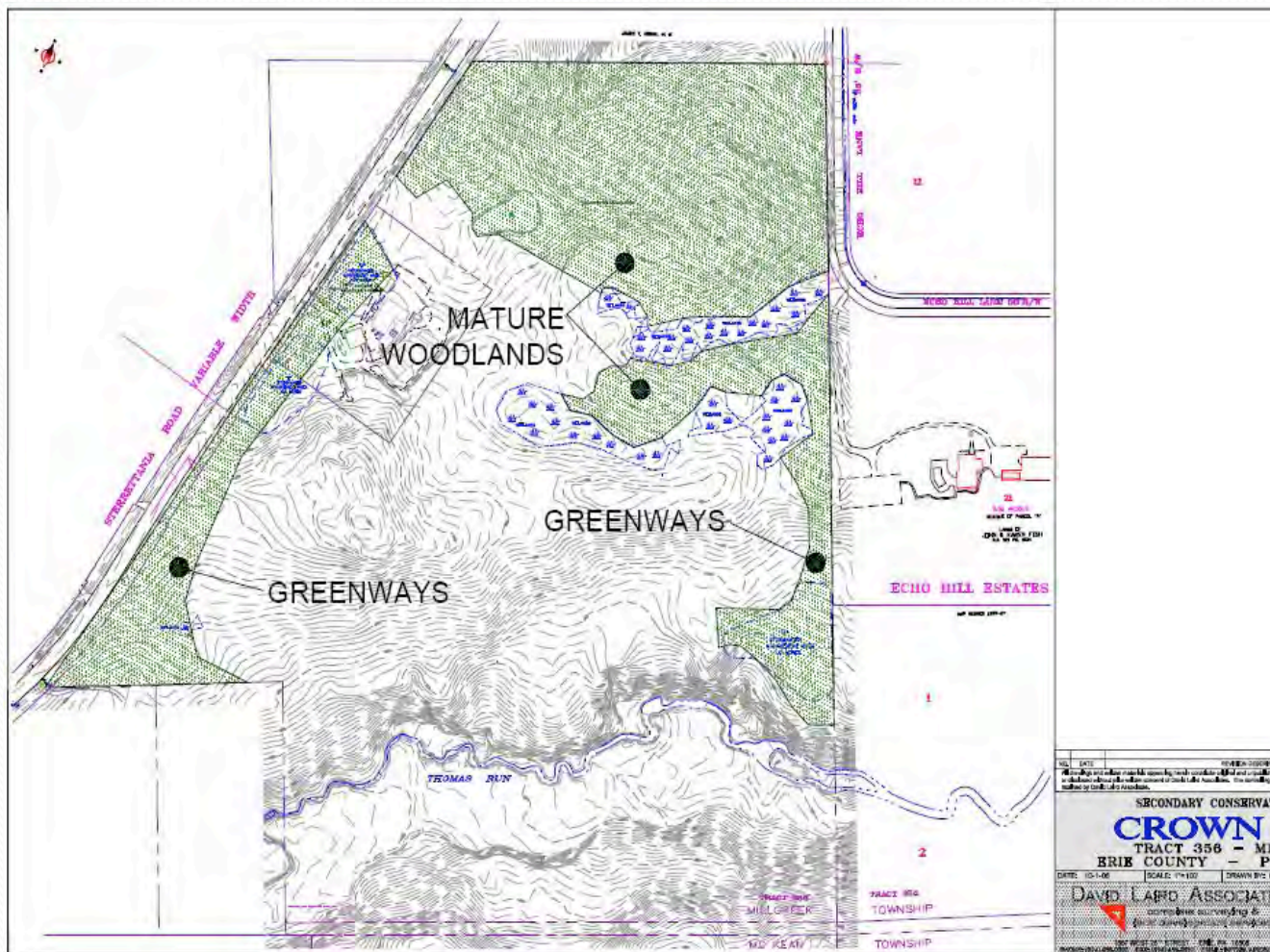


Crown Point: Conservation Design



Conservation Design: A Four Step Process

Step 1: Identify land that should be permanently protected



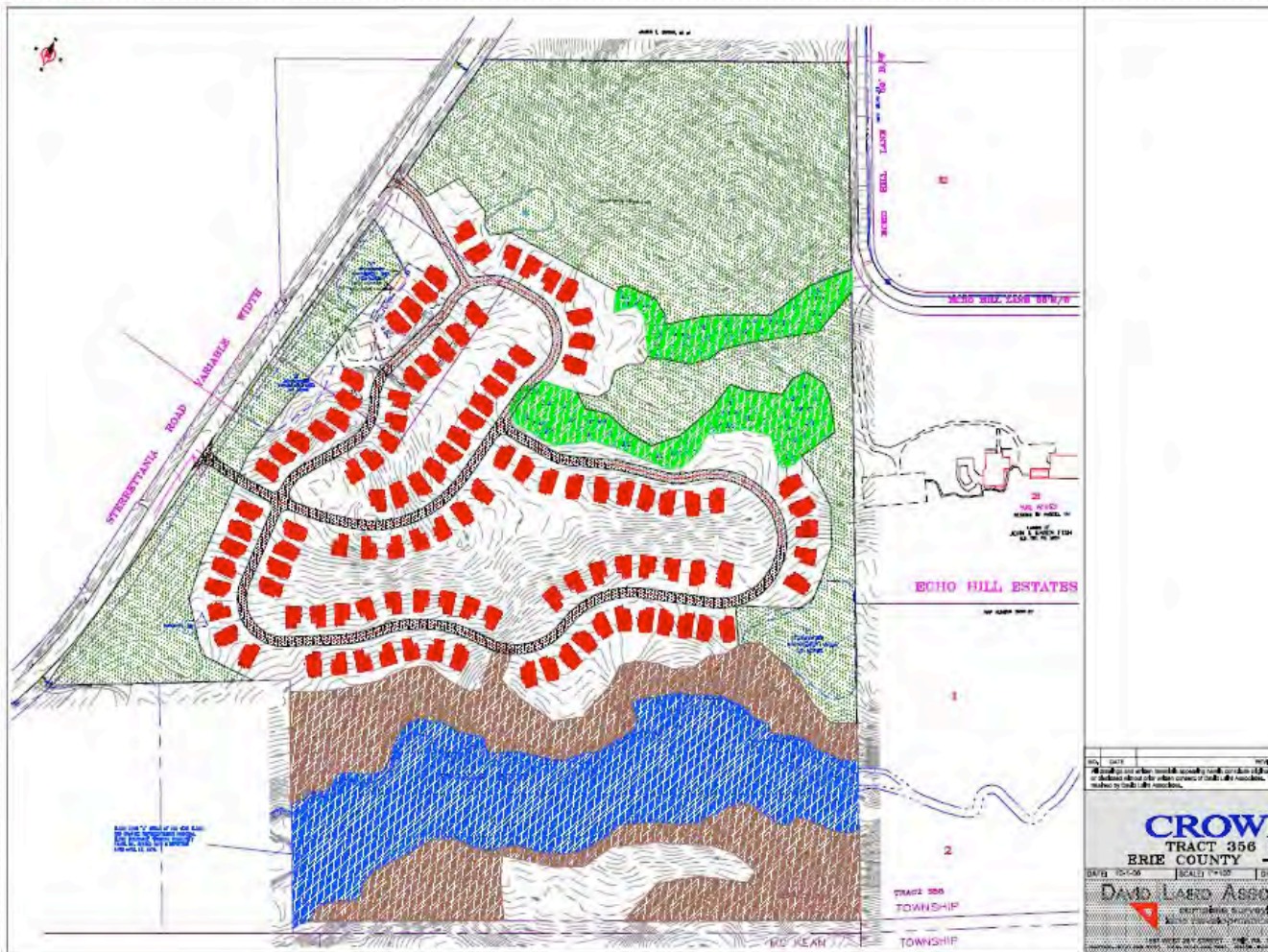
Conservation Design: A Four Step Process

Step 2: Locate houses, maximizing views of open space



Conservation Design: A Four Step Process

Step 3: "Connect the dots" with streets



Crown Point: Conservation Design

- Total Site Area = 63.4 acres
- Roads and Sidewalks = 3.3 acres
- Future R/W (per transportation plan) = 0.94 acres
- Storm water Management = 2.1 acres
- Wetlands = 2.4 acres
- 100 Yr. Floodplains = 7.8 acres
- Steep Slopes = 3.0 acres
- Developable Land = 43.86 acres
- Allowable Density = 2.5 units/acre (43.86
X 2.5 = 110 units
permitted)
- Units Proposed = 110
- Area of Common Open Space = 38.54 acres (~61%)

Conventional vs. Conservation Design

	<u>Conservation</u>	<u>Conventional</u>
• Total Site Area	= 63.4 acres	63.4 acres
• Roads and Sidewalks	= 3.3 acres	6.1 acres
• Future R/W	= 0.94 acres	0.94 acres
• Storm water Management	= 2.1 acres	3.7 acres
• Wetlands	= 2.4 acres	2.4 acres
• 100 Yr. Floodplains	= 7.8 acres	7.8 acres
• Steep Slopes	= 3.0 acres	3.0 acres
• Developable Land	= 43.86 acres	39.46 acres
• Allowable Density	= 2.5 units/acre (43.86 X 2.5 = 110 units permitted)	2.5 units/acre (39.46 X 2.5 = 99 units permitted)
• Units Proposed	= 110	64
• Area of Common Open Space	= 38.54 acres (61%)	0.00 acres (0%)

Development Cost

		<u>Conventional</u>	<u>Conservation</u>
• Land Acquisition	=	\$800,000	\$800,000
• Design and Permitting	=	\$200,000	\$200,000
• Storm Sewer	=	\$333,000	\$225,000
• Water Line	=	\$210,000	\$225,000
• Sanitary Sewer	=	\$375,000	\$460,000
• Roadway	=	\$520,000	\$400,000
• Earthwork and Grading	=	<u>\$250,000</u>	<u>\$110,000</u>
• Total Development Cost	=	\$2,688,000	\$2,420,000

Development Cost and Potential Profit

	<u>Conventional</u>		<u>Conservation</u>
Total Development Cost	= \$2,688,000		= \$2,420,000
Total Number of Units	= 64		= 110
Total Land Cost/Unit	= \$42,000		= \$22,000
Average Price/Unit (Land)	= \$65,000		= \$40,000
Estimated profit based on 64 lots (64 x \$23,000)	= \$1,472,000	(110 X \$18,000)	= \$1,980,000
Estimated profit on construction of homes (\$300,000 x 12% profit margin : \$36,000 x 64)	= \$2,304,000	(\$200,000 x 12% profit margin: \$24,000 x 110)	= \$2,640,000
Total profit (lot profit + house construction profit) (\$1,472,000 + \$2,304,000)	= \$3,776,000	Total profit (\$1,980,000 + \$2,640,000)	= \$4,620,000

Potential Profit Using Conservation Design

Conventional Profit = \$3,776,000

Conservation Profit = \$4,620,000

*Additional Profit to Developer Using
the Conservation Design Approach*

+ \$844,000

Who Benefits?

- Municipalities
- Homeowners
- Developers
- Environment



Benefits to the Municipality

- No road maintenance
- No winter road plowing (or in our case fall, winter, and spring)
- More units to tax
- Opportunity to be one of the many municipalities leading the charge in conservation land planning (one of the only in NW Pennsylvania)



Benefits to Homeowners

- Access to common open space and recreational areas
- Greater anticipated appreciation of home
- Maintenance free living (via association)



Benefits to the Developer

- Greater # of units = **Profit**
- Less earthwork and clear cost = **Profit**
- More marketable development = **Profit**
- Potential tax write-off for open space donation = **Profit**



Benefits to the Environment

- Large area of existing vegetation to remain and act as a natural filter
- Promotes groundwater recharge and infiltration
- Limited impact on existing high quality watershed
- Preserves natural habitat
- Maintains greenways



Lessons Learned

- Ordinances are key
 - No conservation ordinances on record
 - Township is not really interested
 - Parcel delineation
 - Township will allow conservation subdivisions
- Density is frowned upon
 - Zoning: 2.5 Units/acre
 - Township did not like the idea of 110 units
- Private roads a problem
- Bright Side!
 - 100% open space instead of 61%!



Harborcreek Township

- GCCA, Inc. (Graney, Grossman, Ray & Assoc.)
 - Hired to review township comp plan, zoning ordinance, and subdivision ordinance
- Pennsylvania Sea Grant
 - Assisted with the review of the comp plan and ordinances
- July 05 – March 07
 - 7 meetings
 - Harborcreek Township Zoning Officer and Supervisors
 - GCCA
- **March 17, 2010**
 - Supervisors adopted Comp Plan, Zoning Ordinance, and Storm water Ordinance
 - Planned Residential Development

Comprehensive Plan

- Integrate Smart Growth into existing zoning
 - Agricultural areas: cluster development
 - Residential areas: planned residential development ordinance
 - College: traditional neighborhood design and mixed uses (special zoning)



Harborcreek Township Endorses Smart Growth as a means to both enjoy prosperity and protect natural resources.

Since Harborcreek Township is committed to "smart growth", some explanation of the term is in order. Smart growth is a very broad movement in the United States that encompasses many interests with various discontents about current patterns of growth

and development. Together, this broad, mostly unorganized, coalition has advocated a number of reforms in planning and development practice. Smart growth is broadly defined as growth, which balances social, economic, and environmental needs. Many smart

growth advocates have broadly accepted ten principles to achieve smart growth (See below). The remainder of this chapter of the Comprehensive Plan is an action plan to achieve smart growth within the context of continuity with the land use plan.

Smart Growth Principles

- Mix Land Uses
- Take Advantage of Compact Building Design
- Create a Range of Housing Opportunities and Choices
- Create Walkable Neighborhoods
- Foster Distinctive, Attractive Communities with a Strong Sense of Place
- Preserve Open Space, Farmland, Natural Beauty, and Critical Environmental Areas
- Strengthen and Direct Development Towards Existing Communities
- Provide a Variety of Transportation Choices
- Make Development Decisions Predictable, Fair, and Cost Effective

Smart growth is broadly defined as growth which balances social, economic, and environmental needs

Successful Smart Growth: One size does not fit all

The manner in which an urban, small town, suburban, or rural community might implement these broad principles would be very different. For example, many cities have great walkability but may not have any farmland and open space to preserve. A suburban community may make fair, predictable and cost effective development decisions, but lack sense of place. Thus,

one of the real lessons of the smart growth movement is that there is no one answer or approach that fits every community. An example of this is the contentious area of density and minimum lot sizes. Some have confused smart growth as being solely concerned with smaller lot sizes or higher density. However, smart growth techniques have been successfully adapted to com-

munities maintaining lot sizes ranging from 5,000 square feet to 40 acres per dwelling unit. The uniform principle applied in either case is planning goals achieved by the density standards.

As Harborcreek Township has villages, open rural areas, and suburban areas, more than one tool will be necessary.

March 2010

Acknowledgements

Zoning Ordinance

- Planned residential development ordinance
 - R-1 (1 unit/acre)
 - R-2A, R-2B, and LF (2 units/acre)
- 20-acre minimum
- Public sewer and water
- Storm water ordinance compliance
- No minimum lot size
- Maximum for residential use = 50%
- Minimum for open space = 50%
- At least 50% of trees shall be preserved
- Ownership of open space (land trust, homeowner association, or government)

Harborcreek Township Board of Supervisors

Dean S. Pepicello , Chairman
Joseph D. Peck , Vice Chairman
Timothy J May , Supervisor

Harborcreek Township Planning Commission

Dennis Hollarn
Karen Bugaj
Charles Peters
Louis Sherwood
Gary Faulhaber

Township Staff

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Questions?

Pennsylvania Lake Erie NEMO

<http://seagrant.psu.edu/nemo/>

Harborcreek Township Zoning Ordinance

<http://www.harborcreektownship.org/zoning.shtml>

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