



4ward Planning Inc.
301 Grant Street, Suite
4300 Pittsburgh, PA
15219
412.428.9644 O
866.989.0032 F

Is Your Land-Use Strategy “4ward Tested”?™

October 31, 2018

Branden S. Diehl
Grant and Project Consultant
Foundation for PA Watersheds

Memo: Stonycreek River Counterfactual Economic Impact Analysis

Located in Somerset and Cambria Counties, the Stonycreek River was once considered among the most degraded in Pennsylvania, largely the result of acid mine drainage (AMD) from the long history of coal mining in the region. Due to millions of dollars invested in the clean-up and the creation of a water treatment system, the Stonycreek River watershed currently exhibits a relatively high-water quality, which has led to an increase in recreational uses on the river and associated expenditures. Conversely, if the current water quality conditions were to decline significantly, there would likely be a decline in recreational usage, associated expenditures, related jobs, and tax revenues.

This memo presents the result of a high-level “counterfactual” economic impact analysis examining the negative economic consequences (impacts) of water-quality degradation in the watershed over a 10-year period (from 2020 to 2030). A “counterfactual” analysis presumes the opposite of currently observed conditions and seeks to understand the economic impact implications of said opposite conditions.

This analysis is not aimed at providing an in-depth examination, but an order-of-magnitude understanding of the economic consequences (e.g., reduced employment, labor income, and tax revenues) associated with water quality degradation in Somerset and Cambria Counties. All monetary estimates are provided in 2018 dollars.

1. Non-Local Outdoor Watersport Visitor Spending

Since recreation spending by local residents would likely remain within the region or shift to another category if water quality were to decline significantly, this economic impact analysis focuses on “non-local” visitor spending from those residing outside the local region, as their spending constitutes “new dollars” to the region. For this reason, potential additional impacts from local resident spending are not included (e.g., Greenhouse Park, Whitewater Park, and Quemahoning Family Recreation Area users are largely coming from the local area).

Furthermore, while there are additional existing outdoor recreation users (e.g., Quemahoning Creek, Bens Creek, and the Stonycreek are popular fishing spots) and prospective outdoor recreation users (e.g., Quemahoning Lake Mountain Bike Trail, and the Jim Mayer and Path of the Flood Trails) who could also be impacted by future reductions in water quality, non-local participation and spending estimates within the watershed are difficult to measure without detailed user surveys. As a result, this analysis focuses on available outdoor watersport participation data provided by Brad Clemenson from the Stonycreek-Quemahoning Initiative.

Existing Participation and Spending

The following section estimates existing spending from non-local watercraft participants in the watershed. These estimates will be the baseline for projecting potential negative economic impacts should the water quality in the watershed decline.

- **Stonycreek Rendezvous Boaters:** Each year, the three-day Stonycreek Rendezvous whitewater boating festival attracts approximately 1,000 whitewater boaters. Based on surveys of participants in 2014, 2015, and 2016, people who come to the Rendezvous spend, on average, \$140 each per weekend. Furthermore, ZIP Code data collected from festival participants show that, in recent years, the audience is about 20 percent from the local region (less than an hour drive), 40 percent from elsewhere in Pennsylvania, and 40 percent from outside the state.
- **Release Weekend Boaters:** In addition to the Stonycreek Rendezvous festival, each year, an estimated 400 to 800 non-local visitors boat the Stonycreek Canyon on water release weekends every other weekend from April through October, depending on water levels. A realistic estimate is that, on average, 60 non-local boaters participate over nine release weekends (a total of 540 non-local visitors) and spend \$100 each weekend.
- **Tubing Participants:** Coal Tubin' is a private business that outfits whitewater raft and kayak trips through the Stonycreek Canyon and tubing from Whitewater Park to Johnstown. Tubing is the largest segment of the business, with approximately 4,000 people participating in Coal Tubin' river activities and 90 percent of them coming from outside of the Johnstown area. With an average tube rental of about \$20 per person, a conservative estimate of the direct annual spending from 3,600 non-local participants is \$72,000 per year.

As summarized in the following table, when including direct, indirect, and induced effects, the estimated \$238,000 in annual spending from 4,940 non-local watercraft participants currently supports approximately three jobs; \$84,590 in total labor income; \$135,910 in value added; \$219,340 in economic output; and \$19,360 in local and state taxes in Cambria and Somerset Counties. The relatively small number of annual jobs supported, notwithstanding nearly 5,000 non-local watercraft participants, is due to the seasonality of the activities, generally, and the limited number of participation days within the season, in particular.

Economic Impacts from Existing Outdoor Watersport Participation and Non-Local Spending (2018 Dollars)

Impact	Stonycreek Rendezvous Boaters	Release Weekend Boaters	Tubing Participants	Total
Non-Local Visitors	800	540	3,600	4,940
Non-Local Spending	\$112,000	\$54,000	\$72,000	\$238,000
Total Effect				
Jobs	1.9	0.7	0.7	3.3
Labor Income	\$46,133	\$15,114	\$23,339	\$84,586
Value Added (GDP)	\$73,725	\$27,467	\$34,717	\$135,909
Output	\$104,962	\$52,148	\$62,234	\$219,344
State and Local Taxes	\$10,476	\$3,905	\$4,978	\$19,359

Hypothetical Reduction Due to Reduced Water Quality

Should the water quality in the Stonycreek River watershed decline to the point that scenic quality and swimming safety is reduced, the watershed would not attract as many watercraft participants. For purposes of analysis, if water quality in the watershed were to decline significantly, it is assumed that the number of watercraft participants would likely decline by 50 to 75 percent by 2020.

- By 2020, if water quality in the watershed were to decline significantly and the number of non-local outdoor watercraft participants were to decline to between 50 and 75 percent of existing levels (4,940 participants), the number of non-local outdoor watercraft participants would decline to between 2,470 and 3,705 (a reduction of between 1,235 and 2,470 participants). As a result, estimated local spending from non-local participants would be reduced by between \$59,500 and \$119,000 per year. The decline in annual spending would result in a loss of between one and two jobs; between \$38,450 and \$49,060 in total labor income; between \$59,260 and \$79,460 in value added; between \$76,510 and \$115,710 in economic output; and between \$8,270 and \$11,970 in local and state taxes in Cambria and Somerset Counties.
- From 2020 to 2030, the decrease in non-local watercraft participants within the watershed would result in a cumulative loss of between \$595,000 and \$1.2 million in local spending. The decline in total spending would result in a loss of between \$244,390 and \$488,790 in total labor income; between \$382,940 and \$765,880 in value added; between \$577,030 and \$1.12 million in economic output; and between \$54,490 and \$108,990 in local and state taxes in Cambria and Somerset Counties.

Total Participation and Spending Impacts by Scenario (2018 Dollars)

	Reduction by 2020		2020-2030 Reduction	
	Low	Very Low	Low	Very Low
% of Existing	-25%	-50%	-25%	-50%
Non-Local Visitors	-1,235	-2,470	-12,350	-24,700
Non-Local Spending	-\$59,500	-\$119,000	-\$595,000	-\$1,190,000
Total Effect				
Jobs (Annual)	-1.6	-2.1	-1.6	-2.1
Labor Income	-\$38,455	-\$49,063	-\$244,394	-\$488,789
Value Added (GDP)	-\$59,261	-\$79,459	-\$382,943	-\$765,884
Output	-\$76,509	-\$115,705	-\$577,026	-\$1,154,052
State and Local Taxes	-\$8,272	-\$11,968	-\$54,492	-\$108,986

2020 Participation and Spending Impacts by Participation Scenario (2018 Dollars)

Impact	Stonycreek Rendezvous Boaters			Release Weekend Boaters			Tubing Participants			Total Participants			Difference	
	Existing	Low	Very Low	Existing	Low	Very Low	Existing	Low	Very Low	Existing	Low	Very Low	Low	Very Low
% of Existing	100%	75%	50%	100%	75%	50%	100%	75%	50%	100%	75%	50%	-50%	-75%
Non-Local Visitors	800	600	400	540	405	270	3,600	2,700	1,800	4,940	3,705	2,470	-1,235	-2,470
Non-Local Spending	\$112,000	\$84,000	\$56,000	\$54,000	\$40,500	\$27,000	\$72,000	\$54,000	\$36,000	\$238,000	\$178,500	\$119,000	-\$59,500	-\$119,000
Direct Effect														
Jobs (Annual)	1.6	0.7	0.4	0.5	0.3	0.3	0.5	0.4	0.3	2.6	1.4	1.0	-1.2	-1.6
Labor Income	\$33,693	\$13,323	\$8,882	\$10,105	\$6,424	\$8,042	\$16,919	\$12,063	\$8,093	\$60,717	\$31,810	\$25,017	-\$28,907	-\$35,700
Value Added (GDP)	\$52,184	\$23,696	\$15,797	\$18,808	\$11,425	\$10,762	\$22,642	\$16,144	\$10,830	\$93,634	\$51,265	\$37,389	-\$42,369	-\$56,245
Output	\$64,118	\$44,749	\$29,833	\$35,551	\$21,576	\$18,880	\$39,719	\$28,320	\$18,999	\$139,388	\$94,645	\$67,712	-\$44,743	-\$71,676
Total Effect														
Jobs (Annual)	1.9	0.8	0.6	0.7	0.4	0.3	0.7	0.5	0.3	3.3	1.7	1.2	-1.6	-2.1
Labor Income	\$46,133	\$19,897	\$13,265	\$15,114	\$9,593	\$11,094	\$23,339	\$16,641	\$11,164	\$84,586	\$46,131	\$35,523	-\$38,455	-\$49,063
Value Added (GDP)	\$73,725	\$35,013	\$23,342	\$27,467	\$16,881	\$16,502	\$34,717	\$24,754	\$16,606	\$135,909	\$76,648	\$56,450	-\$59,261	-\$79,459
Output	\$104,962	\$66,432	\$44,288	\$52,148	\$32,030	\$29,582	\$62,234	\$44,373	\$29,769	\$219,344	\$142,835	\$103,639	-\$76,509	-\$115,705
Taxes														
State and Local	\$10,476	\$5,084	\$3,391	\$3,905	\$2,452	\$1,634	\$4,978	\$3,551	\$2,366	\$19,359	\$11,087	\$7,391	-\$8,272	-\$11,968

Economic & Real Estate Analysis for Sustainable Land Use Outcomes™

NEW YORK PHILADELPHIA PITTSBURGH

www.LandUseImpacts.com

Cumulative Impact Breakdown by Activity from Reduced Participation Scenarios: 2020-2030 (2018 Dollars)

Impact	Stonycreek Rendezvous Boaters			Release Weekend Boaters			Tubing Participants			Total Participants			Difference	
	Existing	Low	Very Low	Existing	Low	Very Low	Existing	Low	Very Low	Existing	Low	Very Low	Low	Very Low
% of Existing	100%	75%	50%	100%	75%	50%	100%	75%	50%	100%	75%	50%	-50%	-75%
Non-Local Visitors	8,000	6,000	4,000	5,400	4,050	2,700	36,000	27,000	18,000	49,400	37,050	24,700	-12,350	-24,700
Non-Local Spending	\$1,120,000	\$840,000	\$560,000	\$540,000	\$405,000	\$270,000	\$720,000	\$540,000	\$360,000	\$2,380,000	\$1,785,000	\$1,190,000	-\$595,000	\$1,190,000
Direct Effect														
Jobs (Cumulative)	16.5	8.0	10.6	8.0	6.0	4.0	10.6	15.9	5.3	35.1	29.9	19.9	-5.2	-15.2
Labor Income	\$359,376	\$173,270	\$327,583	\$173,270	\$129,953	\$86,635	\$327,583	\$491,374	\$163,791	\$860,229	\$794,597	\$578,009	-\$65,632	-\$282,220
Value Added	\$554,685	\$267,437	\$438,383	\$267,437	\$200,578	\$133,719	\$438,383	\$657,574	\$219,191	\$1,260,505	\$1,125,589	\$791,293	-\$134,916	-\$469,212
Output	\$675,453	\$325,665	\$769,043	\$325,665	\$244,249	\$162,832	\$769,043	\$1,153,564	\$384,521	\$1,770,161	\$1,723,478	\$1,316,396	-\$46,683	-\$453,765
Total Effect														
Jobs (Cumulative)	20.0	9.7	14.0	9.7	7.2	4.8	14.0	22.6	7.0	43.7	39.5	25.8	-4.2	-17.9
Labor Income	\$491,380	\$236,915	\$451,880	\$236,915	\$177,687	\$118,458	\$451,880	\$735,967	\$225,940	\$1,180,175	\$1,150,569	\$796,278	-\$29,606	-\$383,897
Value Added (GDP)	\$783,293	\$377,659	\$672,189	\$377,659	\$283,244	\$188,830	\$672,189	\$1,110,611	\$336,094	\$1,833,141	\$1,771,514	\$1,197,113	-\$61,627	-\$636,028
Output	\$1,108,786	\$534,593	\$1,204,959	\$534,593	\$400,945	\$267,297	\$1,204,959	\$1,995,392	\$602,479	\$2,848,338	\$2,930,930	\$2,074,735	\$2,012,501	\$2,786,104
Taxes														
State and Local	\$111,187	\$53,607	\$96,389	\$53,607	\$40,206	\$26,803	\$96,389	\$155,854	\$48,195	\$261,183	\$249,667	\$171,387	-\$11,516	-\$89,796

2. Local Real Estate Values

Multiple studies have demonstrated that views of and/or access to oceans, lakes, rivers, streams, and wetlands generate substantial property price premiums. Conversely, those real estate premiums can be reduced or removed as a result of reductions in water quality. For example, a 2007 study estimate property price impacts on homes located within a quarter-mile of an AMD-impaired waterways in the Cheat River Watershed of West Virginia. Study results found that being located within a quarter-mile of an AMD-impaired stream in the watershed reduced median home values by \$5,790 per home (\$4,780 in 2007 dollars).¹

According to data provided by Esri (community analysis software) and the Pennsylvania Department of Transportation's streams database, approximately 12 percent of all owner-occupied housing within the Stonycreek watershed (3,030 homes) is located within census block groups located within a quarter-mile of one of the watershed's major rivers (e.g., Quemahoning Creek, Bens Creek, or Stonycreek). These 3,030 homes have an existing median home value of approximately \$75,770 (compared to \$111,790 within the watershed). By 2020, if water quality within the watershed's major rivers were to decline significantly and the median home value of these 3,030 homes were to be reduced by \$5,790 per home, the median home value of these homes could be potentially reduced by eight percent.



Source: Esri; Pennsylvania Department of Transportation stream database; 4ward Planning, Inc.

¹ Williamson, J.M., Thurston, H.W. & Heberling, M.T. Ann Reg Sci (2008) 42: 987.