

Economic Impacts of Alternative Transportation Systems in National Parks and Other Federally Managed Lands

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Overview.

The provision of transit in national parks can have national economic implications as well as significant economic benefits for local areas surrounding the parks. These local and overall economic effects can be relevant for project planning as well as for program financing.

Impacts on public and private sector revenues and spending patterns occur as a result of three basic forces: (a) capital investment in equipment and facilities, (b) ongoing transportation system operations, and (c) changes in park visitation and associated visitor spending. The economic impacts can also have very different interpretations, depending on whether they are viewed from the viewpoint of the national economy or the viewpoint of local economic development. The economic impacts and benefits are discussed here from both viewpoints.

National Perspective.

National View of Impacts. The implementation of ATS requires initial capital investments and ongoing operations activities. Based on the estimated level of investment and ongoing for these systems, the following types of economic effects are expected to occur:

- **Increased capital investment in transportation vehicles** – mostly buses, with some boats and rail or other types of shuttle systems. The *purchases* of these vehicles would provide orders to vehicle manufacturers, supporting production-related jobs and providing associated income to those workers.
- **Increased capital investment in right-of-way and terminal facilities** – including parking lots, benches, shelters, loading docks or piers, vehicle maintenance and storage facilities, and in some cases dedicated travel lanes or other right-of-way improvements. The *construction* of these facilities would provide construction-related jobs and associated income to workers.
- **Increased operations activities** – including operating and maintaining shuttle vehicles that would provide jobs and associated income for vehicle drivers and vehicle repair / maintenance workers.
- **Increased spending on suppliers of materials and services** – including suppliers of sheet metal, motors, rubber tires, plastic interior components and other parts required by the vehicle manufacturers. It would also include suppliers of wood, gravel, cement,

structural metal or other materials needed for the facility construction. It would further include suppliers of motor fuel and replacement parts needed for ongoing operation of the vehicles.

- **Effects caused by the spending of income by workers** – when new jobs are created, they provide new sources of income that generate additional consumer spending demand, which creates the need for additional jobs.
- **Other effects on visitor spending patterns among parks** will also occur, as some parks are now able to accommodate greater demand and provide a higher level of service to visitors. While those effects represent definite benefits to visitors around the country, their economic effects would differ greatly from park to park. When viewed from the perspective of the overall national economy, though, they would appear as a redistribution of where visitor spending occurs and would not be expected to change the aggregate total amount of household spending on recreation activities in the US.

Potential National Level Impacts. The total capital and operating costs of ATS at all of the proposed sites were estimated and then summed to represent the national-level “direct effect” of the ATS program. The spending mix associated with these direct effects was also calculated based on available information about the types of vehicles, facilities and services being proposed.

These direct effects will generate additional flows of income and support additional jobs through the US economy. The calculations of these flows of dollars, and particularly the indirect and induced effects, were calculated using the IMPLAN version of the national input-output model. That national model is primarily based on inter-industry purchase and spending data compiled by the US Dept. of Commerce, Bureau of Economic Analysis.

Capital investment for the full ATS program will involve almost \$450 million of one-time direct spending, and is estimated to ultimately support over \$1.3 billion in total business output (sales), providing over 10,000 job-years of employment and almost \$400 million in personal income in the US. Due to the equipment-intensive nature of vehicle manufacturing, the capital investment element of the program is expected to support roughly 23 jobs per million dollars of direct expenditure.

Average annual expenditures on operations and maintenance are expected are estimated to be \$57 million per year (in constant 1999 dollars). These expenditures are estimated to ultimately support \$150 million in total business output (sales) each year, providing almost 2,300 jobs and almost \$65 million in total personal income every year. Due to the more labor-intensive nature of transit operations and maintenance, that element of the program is expected to support roughly 40 jobs for each million dollars in direct spending.

Table 1 summarizes these overall national economic effect of the proposed transit program. It is important to note that national spending on other types of programs or services (instead of transit) could also support jobs and provide income to workers within the US. Thus, these

figures represent just the economic effects of spending on the transit program, and do not reflect the opportunity costs (if any) of foregoing other possible uses of federal funds.

**Table 1. National Total Transit Program:
Potential Economic Impacts of Program Investment and Operations**

<u>Category</u>	<u>Direct Program Expenditures</u>	<u>Total Effect -- National Level</u>		
		<u>Output</u>	<u>Employment</u>	<u>Income</u>
One-time Capital Expenditures	\$650M	\$1929M	16,600	\$65M
One-time Project Development Expenditures	\$90M	\$287M	3,500	\$118M
Annual Operations & Maintenance	\$49M	\$129M	1,900	\$54M

All estimates are in 1999 dollars and are not adjusted for inflation; Total effects calculated using IMPLAN model for US.

Local/Regional Perspective.

From the perspective of communities in the local area surrounding a national park, the economic effects of implementing ATS are different from the national perspective:

- The effects of changes in *visitor spending* patterns, while viewed as a redistribution of spending at the national level, are potentially very significant for the local or county level economies of affected areas. For some gateway communities, clogged roads, insufficient parking or other problems of park access are now constraining the number of visitors or the length of time they stay in the community. In some of those cases, ATS can expand the number of visitors to the park and expand the amount of visitor spending in the surrounding communities. The aggregate change in local spending is both a measure of direct economic impact on the local economy and an indicator of the increase in park visitation – reflecting the benefit to park visitors.
- The direct capital investment in *purchases* of transportation vehicles will generally not provide jobs or income to local workers unless there happened to be a manufacturer of transit vehicles in those counties. That does not appear to be the case for transit sites.
- The direct spending on *construction* of right-of-way and terminal facilities will provide local construction jobs and associated income for workers which would generally not occur without the transit investment. The construction activity would represent a net growth of jobs and income generated in the local area, as long as there are residents of the county who are available to work on such construction activity or residents of surrounding areas who could travel to the area to work on the construction.

- The direct *operations* activities would provide jobs and associate income for drivers and maintenance workers which also will most likely not occur without the ATS investment. That operations activity will provide a net growth of jobs and income generated in the local area, as long as there are residents of the county who are available to work at these activities or residents of surrounding areas who could travel to the area to work at them.
- The broader *indirect* effects will be much smaller at the county level than at the national level, since they will occur only insofar as there are some local area suppliers of materials used in manufacturing or delivery of the vehicles (very limited in most cases) or local area suppliers of construction materials and services (generally applicable for most areas).
- The *induced* effects caused by re-spending of worker income will also represent economic growth at the county level, insofar as it represents additional dollars spent on food, clothing, and other consumer purchases would not occur without the additional local jobs supported by the transit program.

The localized effects will differ by location, depending on (a) the expected change in visitation to the specific park, (b) the amount of visitor-oriented business activity occurring in surrounding communities, (c) the nature of the proposed ATS system construction and operation, and (d) the size and diversity of the county economic base (as a source of suppliers for related goods and services). These localized effects are illustrated through five examples.

For each of these examples, the gateway communities were identified based on local interviews, and specific counties surrounding (or adjacent to) the national parks and their gateway communities were identified. The indirect and induced effects on those local counties were then calculated using county-specific IMPLAN models. These IMPLAN models provide different estimates of local (county) impacts for each site by accounting for the following factors:

- The levels of business activity to be supported in each county will differ depending on the nature of the ATS spending and the projected change in visitor spending. Those projects requiring less equipment and more operators, and those projects with larger ATS impacts on visitation, will also tend to have larger local job impacts.
- The levels of business activity to be supported in each county will also differ depending on the portion of total spending which goes to local firms, as opposed to suppliers outside the county. Those counties with larger and more diverse business sectors will tend to keep more of the business sales for goods and services suppliers within the county.
- The level of income generated in each county will further differ depending on the average wage levels in that county. Those counties with higher wage rates will also provide more income per job.

Local Level Findings. Findings are provided below for five case studies:

Chincoteague National Wildlife Refuge (Accomack County, Virginia)– The transit proposal for Chincoteague National Wildlife Refuge includes a tram for transit between the town and visit center, as well as in in-town circulator that passes through the visitor center. The park is currently operating below its carrying capacity because of a severely constrained parking lot. The proposed improvements are expected to allow the park to serve an additional 24,000 visitors and \$1.2 million in new visitor spending yearly. This increased demand for food, lodging, and retail purchases could expand local business sales (including indirect and induced effects) by almost \$1.7 million, providing 47 jobs and a net growth of over \$640 million in local income. The ATS operations and maintenance activities could lead to an additional \$132,000 in county-wide business sales, providing roughly three new jobs and a net growth of \$63,000 in local income. One-time capital expenditures could generate a further \$1.3 million in local business sales, providing \$436,000 in local personal income (with the equivalent of 17 local jobs for one year).

**Table 2. ATS at Chincoteague National Wildlife Refuge:
Potential Local Economic Impacts on Accomack County, Virginia**

<u>Category</u>	<u>Direct Program Effect</u>	<u>Total Effect on County Economy</u>		
		<u>Output</u>	<u>Employment</u>	<u>Income</u>
One-Time Capital Expenditures	\$2,924,000	\$1,283,000	17	\$436,000
Annual Operations & Maintenance	\$215,000	\$132,000	3	\$63,000
Annual Visitor Spending	\$1,200,000	\$1,680,000	47	\$640,000

All estimates are in 1999 dollars and are not adjusted for inflation; Total effects calculated using county-level IMPLAN model.

Salem Maritime Historic Site (Essex County, Massachusetts)– An ATS proposal for Salem includes establishment of a water ferry route connecting Boston and Salem. The availability of ferry service is expected to result in 25,000 new visitors and over \$1million of visitor spending annually in the Salem area. Of these visitors, eighty percent are expected to come from outside Essex County and many of them are expected to spend at least one night in the Salem area, thus increasing the demand for local restaurant, retail, and lodging services. In all, activity associated with tourist spending plus operation of ferry facilities will generate an additional \$2.2 million of business sales, providing over 40 jobs with a net growth of almost \$1 million in personal income. One-time capital investment in construction of facilities and purchases of boats will also generate \$2.7 million in business sales, providing over \$1.1 in local personal income (with the equivalent of another 32 local jobs for one year).

**Table 3. Transit at Salem Maritime Historic Site:
Potential Local Economic Impacts on Essex County, Massachusetts**

Category	Direct Program Effect	Total Effect on County Economy		
		Output	Employment	Income
One-Time Capital Expenditures	\$4,867,000	\$2,702,000	32	\$1,129,000
Annual Operations & Maintenance	\$370,000	\$467,000	6	\$180,000
Annual Visitor Spending	\$1,090,000	\$1,720,000	36	\$730,000

All estimates are in 1999 dollars and are not adjusted for inflation; Total effects calculated using county-level IMPLAN model.

Merrit Island National Wildlife Refuge (Brevard County, Florida) – The ATS proposal for Merrit Island National Wildlife Refuge includes two new shuttle buses and one new water ferry. These improvements will allow the park to serve over 20,000 more increase visitors per year. Although a majority of these new visitors will be from the local area and thus generate little in the way of "new" economic activity, 20 percent of the new visitors will be non-locals, whose spending will generate new business sales in the county. In all, new "non-local" visitors plus ATS operations will together generate nearly \$1.7 million in business sales, providing roughly 39 jobs with a net growth of \$725,000 in local income (see Table 4). One-time capital investment in the buses, boats and ferry facilities will also generate nearly \$2.9 million in business sales, providing almost \$1.1 million in local personal income (with the equivalent of another 36 jobs for one year).

**Table 4. ATS at Merrit Island National Wildlife Refuge:
Potential Local Economic Impacts on Brevard County, Florida**

Category	Direct Program Effect	Total Effect on County Economy		
		Output	Employment	Income
One-Time Capital Expenditures	\$3,667,000	\$2,850,000	36	\$1,092,000
Annual Operations & Maintenance	\$270,000	\$220,000	4	\$105,000
Annual Visitor Spending	\$1,000,000	\$1,460,000	35	\$620,000

All estimates are in 1999 dollars and are not adjusted for inflation; Total effects calculated using county-level IMPLAN model.

Chiricahua National Monument (Cochise County, Arizona)-- The ATS proposal for Chiricahua National Monument is a shuttle bus which is expected to bring 42,000 new visitors to the site annually. These visitors, the majority of whom will be campers, are expected to spend \$2.3 million in the local area (see Table 5). In all, new visitors plus ATS operations will together generate over \$3.4 million in business sales, provide up to 113 jobs and a net growth of nearly

\$1.3 million in local income. One-time capital investments include \$400,000 in vehicle costs. Since there are no locally purchased capital items, business sales are zero.

**Table 5. ATS at Chiricahua National Monument:
Potential Local Economic Impacts on Cochise County, Arizona**

Category	Direct Program Effect	Total Effect on County Economy		
		Output	Employment	Income
One-Time Capital Expenditures	\$400,000	\$0	0	\$0
Annual Operations & Maintenance	\$220,000	\$84,000	3	\$35,000
Annual Visitor Spending	\$2,350,000	\$3,320,000	110	\$1,250,000

All estimates are in 1999 dollars and are not adjusted for inflation; Total effects calculated using county-level IMPLAN model.

Gettysburg National Military Park (Adams County, Pennsylvania)– The ATS proposal for Gettysburg is part of a larger park enhancement program which also includes a new, larger visitor center. The ATS part of that program involves two shuttle bus services -- one to take visitors from the visitor center to downtown Gettysburg, and a second to circulate around the park area. The visitor center and shuttle services are intertwined, so it is not possible to assign proportional credit to any of these components alone.

Overall, the addition of these services is expected to add 150,000 more visitors each year, as well as increase the average length of stay and amount of spending for the existing base of visitors. These factors will lead to an increase of over \$23 million in visitor spending in the Gettysburg area. In all, new visitors plus ATS operations will together generate over \$32 million in business sales, providing roughly 800 jobs with a net growth of over \$12.8 million in local income. One-time capital investment for the ATS alone will generate another \$816,000 of business sales, providing \$333,000 in local personal income (with the equivalent of another 11 jobs for one year).

**Table 6. ATS at Gettysburg National Military Park:
Potential Local Economic Impacts on Adams County, Pennsylvania**

Category	Direct Program Effect	Total Effect on County Economy		
		Output	Employment	Income
One-Time Capital Expenditures	\$1,780,000	\$816,000	11	\$333,000
Annual Operations & Maintenance	\$295,000	\$294,000	7	\$143,000
Annual Visitor Spending	\$23,460,000	\$31,870,000	790	\$12,670,000

All estimates are in 1999 dollars and are not adjusted for inflation; Total effects calculated using county-level IMPLAN model.