



EconWorks Users Guide

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PREFACE

P1. Project Products and Reports

This document is one of a series of technical products from SHRP2 Project C03, *Interactions between Transportation Capacity, Economic Systems, and Land Use*.

As of June 2015, the original web tool Transportation Project Impact Case Studies (TPICS) was rebranded into the web tool EconWorks. To provide guidance on the new web tool format, this user guide has been updated to reflect the new changes, although other resources documents may still refer to the original TPICS web tool.

EconWorks Web Tool. One of the products is a web-based database tool that contains 132 case studies: 100 original case studies, 5 added in 2014, 7 added in 2016, and 20 added in 2017. These cases include the economic and development impacts of highway and transit projects, along with analysis tools for screening, viewing and analyzing them. The web site can be accessed via the EconWorks web site sponsored by the:

- American Association of State Highway and Transportation Officials (AASHTO) found at: <https://planningtools.transportation.org/13/econworks.html>

Technical Documents. The project also produced a series of technical reports, which can all be viewed and downloaded from the EconWorks web page by selecting the Research Reports button under the Project Tools category within the green banner on top. These reports include:

Case Study Analysis

- EconWorks Users Guide (current document)
- Handbook for Practitioners: Description and Interpretation of Case Studies
- Case Study Design and Development
- Data Dictionary

Research Methods and Findings

- Economic Impact Data Analysis Findings
- Highway Economic Impact Case Study Database Analysis Findings
- SHRP2 C03 Final Report (TRB format)

P2. Acknowledgements

Contract. This project was conducted under a contract from the National Academy of Sciences and Engineering, through the Strategic Highway Research Program II (Capacity Program, Project C03), to Economic Development Research Group, Inc.

Supervision. The project was undertaken with oversight from staff of the Strategic Highway Research Program, with direction from Stephen Andrie and David Plazak. The project benefitted from review provided by Oversight Panel of the SHRP2 Capacity Program.

Contractors. The case studies and technical reviews were conducted by a team comprised of Economic Development Research Group and subcontractors: Cambridge Systematics, Wilbur Smith Associates, Texas Transportation Institute (TTI) and Susan Jones Moses & Associates.

The original TPICS (Transportation Project Impact Case Studies) data base and web tool were designed and developed by Economic Development Research Group and implemented by ICF Consulting.

The EconWorks web tool was designed and developed by CH2MHill and will be managed by AASHTO.

1

INTRODUCTION

1.1 Project Background and Overview

The Strategic Highway Research Program II (SHRP2), Capacity Project C03 was entitled: *Interactions between Transportation Capacity, Economic Systems, and Land Use*. This project produced a series of reports on methods, models and case studies that examined the economic and development impacts of highway capacity investments projects. This report is one volume in that series.

Project Objective. The intent of this project and its research products and web tool is to further public and transportation agency understanding of the range of economic impacts that occur from various types of highway projects. This information can aid both technical research and public discussion of the topic. It can also help define the broad range of impacts and factors affecting them, to assist transportation agencies in their planning processes. And it can help refine public debate about highway projects by establishing boundaries of the likely positive and negative impacts that typically occur from such projects.

The products of this study were designed to help the collaborative decision-making process for transportation planning, by providing a background context on the range of observed results from past highway projects. Such information can potentially be of substantial use in early stages of the planning process, in which alternative project concepts are being suggested and screened.

Of course, one cannot assume that every proposed project will have the same results as the average observed from past projects of a similar type that were previously implemented elsewhere. That is precisely why local data is collected and models are applied developed in later stages of the planning process, to identify expected changes in local traffic characteristics and subsequent economic development. Thus, this project should be viewed as a complement and not a replacement for local-specific transportation and economic impact analysis that may be necessary in later phases of the planning process.

Case Study Database. The most notable accomplishment of this project was the development of 100 original highway, freight, and transit-oriented case studies, with 32 additional cases added which (a) compared pre-project and post-project changes in economic and land development conditions, (b) contrasted them with corresponding conditions for a base of comparison, and (c) included both quantitative impact measures and qualitative assessments based on local interviews.

This collection of case studies, completed in 2010, 2014, 2016, and 2017, was compiled with the goal of including all known pre-post highway impact studies in the US, plus available English language studies from Canada and abroad. Members of the project team then conducted

additional quantitative and qualitative data collection and analysis to bring all the cases up to a similar standard of comparability. (For further information on the case study development process, readers are referred to report entitled *Case Study Design and Development*, which can be accessed as described in the Preface.)

EconWorks Web Tool. The case studies were put into a web-based viewing and analysis system called “EconWorks.” This system includes: (a) a *case study search function* that allows for user-defined screening and selection of relevant cases, (b) a *case study viewer* that provides user access to impact measures, discussion text, maps and related documents, and (c) an *impact estimation calculator* that shows the average and expected range of impact associated with any user-defined project profile. In addition, the web tool provides access to d) *Wider Economic Benefit (W.E.B.) Analysis tools (SHRP2 C11)* for evaluating Accessibility, Connectivity, and Reliability.

The EconWorks system was designed to assist transportation agencies in project planning and evaluation, by providing agency staff and interested stakeholders with a means for establishing the range of job, income and development impacts typically associated with various types of transportation projects in different settings.

1.2 Objective of the EconWorks Web Tool

The EconWorks web tool was designed for the user to do the following:

- Review, select, and analyze case studies based on criteria selection
- Understand the relationship between project characteristics and economic impacts
- Compare and evaluate projects by specified criteria
- Develop a range of anticipated impacts for your customized project

The tool’s user interface is structured around two different approaches to analyzing projects, which are outlined on the next page:

- **Case Study Search**—which accesses the database of case studies of highway and transit projects, allowing the user to:
 - 1) Filter the cases they want to see based on many factors (type, region, cost, etc).
 - 2) Select cases to view separately or compare based on the user’s criteria.
 - 3) View pre and post conditions, project area settings, project characteristics, AADT, cargo or passenger volume (if applicable) and economic impacts for each case.
 - 4) Read a short narrative on the case that provides background on how the project came to be built, its influence on the local area, and other non-transportation factors that enhanced or mitigated the economic impacts of the project.
 - 5) View a google map image of where the project is located.
- **Assess My Project**—which provides an estimate of economic impacts for a

hypothetical project based on:

- 1) The type, length, and setting of the project chosen by the user.
 - 2) The magnitude of AADT (Average Annual Daily Traffic), miles, and project cost—which are all estimated based on the type, length, and setting but can be changed by the user.
 - 3) The extent to which there is supporting business climate, infrastructure, and land-use policies to encourage economic development.
- **Analysis Tools**—includes five tools to help practitioners use economic analysis in project decision making. These tools are designed to fill the gap between the screening stage where the Case Studies may be useful and later stages where agencies may employ detailed economic models. The analysis tools include:
 - 1) Accessibility: tools designed to explain the benefits and impacts of a project to the labor and buyer-supplier markets.
 - 2) Reliability: tool designed to explain the benefits and impacts of projects designed to improve system reliability (e.g., ITS projects).
 - 3) Connectivity: tool designed to explain the benefits and impacts of improved intermodal connectivity.
 - 4) Accounting Framework: provides a place to assemble the results for all three tools along more traditional benefit categories.

The rest of this document is an instruction manual that explains the logic of the EconWorks web tool and how the system should be used. A separate document, entitled *Handbook for Practitioners*, provides further guidance on the interpretation of EconWorks results.

2

INSTRUCTIONS FOR USING THE ECONWORKS ONLINE DATABASE AND PROJECT TOOL

2.1 Home Page

To access the EconWorks website, the user should type the EconWorks website URL directly into the web browser (<https://planningtools.transportation.org/13/econworks.html>). Figure 1 shows how the EconWorks home page appears. From the homepage, the user can navigate to other sections of the EconWorks website using the green menu bar on the top of the webpage and the Resources links at the bottom of the webpage.



Tools Case Studies FAQ Resources Home

Welcome to EconWorks

EconWorks is a collection of web-based tools designed to help planners incorporate economic analysis into early project decision making. EconWorks includes:

Case Study Search: a library of case studies, searchable by project attributes, to demonstrate the economic impacts of transportation investments in other communities.

Assess My Project: A web-based tool that estimates the economic impact of potential projects based on parameters defined by users.

Analysis Tools: Downloadable spreadsheets useful for assessing other economic benefits from transportation projects.

EconWorks is designed to be used step-wise beginning with case studies.

Search:

Filters:

Project Details

Project Type

- ☐ Access Road
- ☒ Limited Access Road
- ☐ Bypass
- ☐ Connector
- ☐ Beltway
- ☐ Bridge
- ☐ Interchange
- ☐ Widening
- ☐ Intermodal Freight
- ☐ Intermodal

Compare Project

Type	BEA Region	Cost (Millions)	End Date	
<input checked="" type="checkbox"/> Interstate 68 Interstate 68 is part of the Appalachian Development Highway System, a network of roads intended to foster economic development throughout the Appalachian region. The route followed by I-68 was first designated as Corridor E by the Appalachian Regional Development Act of 1965.	Limited Access Road	New England/Mid-Atlantic	\$1,708.26	1991
<input type="checkbox"/> Interstate 29 I-29 was constructed to serve as a major north-south interstate through the upper Great Plains to Canada.	Limited Access Road	Great Lakes/Plains	\$604.31	1973
<input checked="" type="checkbox"/> Central Artery Tunnel	Limited	New	\$2,147.48	2006

Case Study Comparisons

Estimated Project Cost: 1,708.26 million
Estimated Average Annual Daily Traffic: 1,271,000

Activities: [View the data and download spreadsheets](#)

Figure 1: EconWorks Home Page

The menu item 1) “Tools” has six subcategories: A) Case Study Search, B) Assess My Project, C) Analysis Tools, D) Economic Analysis Training, E) Research Reports, and F) 2017 Webinar Series. “Case Study Search” should be selected if the user wants to view case studies of actual projects which have been completed and subsequently researched through ex post analysis. “Assess My Project” should be selected if the user hopes to estimate by analogy the impacts of a hypothetical project based on the cases in the database. To access the Wider Economic Benefits (W.E.B) tools then the user selects “Analysis Tools”. Economic Analysis Training link provides access to a course on how to apply economic analysis in the transportation planning process. The Research Reports page provides a list of linked reference documents, reports, and presentations. The 2017 Webinar series page provides a brief summary of each webinar and if applicable, a PDF of the presentation slides.

The other four menu items are: 2) Case Studies, 3) FAQ (Frequently Asked Questions) 4) Resources, and 5) Home. Selecting “Case Studies” provides access to the page where new case studies are entered into the website and the link below “Case Study Development Training” provides access to 13 training modules that guides users on how to develop new case studies. Frequently Asked Questions (“FAQ”), provides a list of questions commonly asked about EconWorks and its content. Clicking on “Resources” provides the user access to on-line training and a variety of documents, reports, and brochures. Clicking on “Home” will lead the user to the SHRP2 Planning Tools main webpage (e.g. PlanWorks, Travel Works, and EconWorks).

First, we will walk through the **Case Study Search** option. In this section of the EconWorks Website, the user selects a series of project characteristics and parameters. EconWorks then provides a list of project cases that meet the selected criteria for the user to explore.

2.2 Tools

2.2.1 Case Study Search Page

On the Case Study Search webpage (see Figure 2), the user can search for case studies using specific words or filtering for project characteristics. The user can also select case studies to read or multiple ones to compare, as well as print and export the results of their query.

EconWorks
Improved Economic Insight

Case Study Search

To search the case study library, select filters from the column on the left or sort using the column headings. You can compare case studies and print results using the buttons at the bottom of filter column. Click on the underlined project name to learn more about the case study.

Available information includes descriptions of project features and pre/post data about impacts on the local or regional economy. It includes detailed results from local interviews on project objectives, implementation issues and other factors as well as aerial photos and other reports.

To learn more about EconWorks, read the user guide [here](#).

Key Words:

REBET FILTER

132 Results Found

Filters:

Project Details

- Project Flags
- Project Type
- Project Mode
- Motivation

Geographic

- Region
- Length
- Daily Use
- Topography
- Urban/Class Level
- Economic District

Other Criteria

- Airport Travel Distance
- Project Cost
- Market Size
- Income Growth Rate
- Employment Growth Rate
- Population Growth Rate
- Population Density

Interact:

COMPARE CASES

PRINT RESULTS

EXPORT RESULTS

Project	Type	Mode	BEA Region	Cost (Millions)	End Date
<u>Pendleton Industrial Park Access Road (Airport Road Extension)</u> The City of Pendleton is located north of Interstate 84 (I-84) in Umatilla County, Oregon. The Eastern Oregon Regional Airport (PDT) is located north-west of the city. The five-mile extension of the Airport Road west of the PDT Airport to I-84 was built to provide better access to both the airport and the southern portion of the Pendleton Airport Industrial Park, as well as to trigger business development at the industrial park.	Access Road	Highway	Rocky Mountain / Far West	\$6.25	2009
<u>Interlink Station</u> The Interlink station, is an inter-modal terminal located at the T.F. Green Airport (PVD), Rhode Island which connects rail, air, bus, automobiles, and rental cars.	Station	Commuter Rail	New England/Mid-Atlantic	\$297.72	2010
<u>New Mexico Rail Runner Express</u> The New Mexico Rail Runner is a 97-mile commuter rail connecting downtown Albuquerque and Santa Fe, NM. Construction of the first phase of the project (from Bernalillo to Belen) began in 2005, on the tracks already in use by Burlington Northern Santa Fe (BNSF) freight trains and the service began in December 2006. The second phase which stretched the Rail Runner service to Santa Fe, was completed in 2008.	New Line	Light Rail	Southwest	\$443.42	2008
<u>South Bay Expressway</u> The South Bay Expressway project is a 9.2-mile	Limited Access Road	Highway	Rocky Mountain / Far West	\$730.10	2007

Figure 2: EconWorks Case Study Search Page

Search Box and Filters

There are two, non-exclusive ways for a user to search for a project. The user can search for words or phrases in the search box. This option will find words in the title or summary description of the case study. Users can also search for a wide range of projects by using the filters. These filters have been organized into 3 main groups: Project Details, Geographic, and Other Criteria. As the user filters the results, the number of cases shown will decrease. To reset the filters and view the complete list (or reselect filters), click on the “Reset Filters” button.

Below, we explain what is in each of these filter groups—including definitions.

Project Details

Project Flags: This category allows the user to filter any project classified as “intermodal” for highway-based multi-modal freight or transit-oriented projects.

Project Type: This category allows the user to filter for all the case studies project types they desire to view. The types of projects include: Access Road, Limited Access Road, Bypass, Connector, Beltway, Bridge, Interchange, Widening, Freight Terminal, Station, Service Improvement, Line Extension, and New Line.

Project Mode: This category allows the user to select highway only projects or one of 4 different types of transit projects (Bus Rapid Transit, Light Rail, Heavy Rail, and Commuter Rail).

Motivation: This category describes nine different reasons for which the project was built, such as: air access, rail access, border access, marine port access, site development, labor market, delivery market, tourism, and congestion mitigation / air quality. Note that a project can have multiple motivations.

Geographic

Region: There are six geographic regions where the case studies were located which are based on BEA (Bureau of Economic Analysis) defined regions.

Length: This criterion describes the distance (in miles) of the project. A user can use either the sliders or manually type in the range of project length—ranging from 0 to 325 miles.

Daily Use: Average Annual Daily Traffic (AADT) or Weekday Riders counts for the project. The user can use either the sliders or manually type in the range of values - ranging from 0 to 500,000.

Topography: This criterion measures the type of terrain within the case study. The user can use either the sliders or manually type in the range of Topography—ranging from 1 (Flat) to 21 (Mountainous).

Urban/Class level: Based on US Census classifications by county, this criterion defines if a project is located in Metropolitan (Metro), Rural, Mixed (both), or Core (Transit) environment.

A user can select one of these classifications by checking the appropriate checkbox.

Economic distress: Here the user can choose to select or not select case studies where the local/regional unemployment levels are higher than the national average (“distressed”) or lower (“non-distressed”).

Other Criteria

Airport Travel Distance: This metric describes (in miles) the distance required to travel to the nearest commercial airport. The user can use either the sliders or manually type in the range of miles—ranging from 0 to 143 miles.

Project Cost: The cost of a project is measured in 2013\$’s dollars and is periodically updated to the most recent year of expenditure (YOE).

The user can use either the sliders or manually type in the dollar ranges—from \$0 to greater than \$1B

Market Size: This measure describes (in thousands) the size of the population within a 40-minute drive time of the study area (a proxy for a labor market area), ranging from 0 to 12,703 (12.7 million). The user can use either the sliders or manually type in their range.

Income Growth Rate: Based on the case studies in the database, this describes the percentage growth (or decline) of average incomes in the study region from 2001 to 2006. For all case studies added in 2014 and after, these growth rates are calculated using data from six years prior to the project construction year and the pre-construction year. The user can use either the sliders or manually type in their range.

Employment Growth Rate: This describes the percentage growth (or decline) of employment in the study region from 2001 to 2006. For all case studies added in 2014 and after, these growth rates are calculated using data from six years prior to the project construction year and the pre-construction year. The user can use either the sliders or manually type in their range.

Population Growth Rate: This describes the percentage growth (or decline) of the population in the study region from 2001 to 2006. For all case studies added in 2014 and after, these growth rates are calculated using data from six years prior to the project construction year and the pre-construction year. The user can use either the sliders or manually type in their range.

Population Density: Defines the population per square mile which ranges from 0 to 16,200. The user can use either the sliders or manually type in their range.

Case Study Search Results

Once the user has filtered for their project criteria, a list of projects in table format will remain based on the parameters that were chosen. At this point, the user has several options to analyze the cases:

1. **Sorting by Case Study category description**—EconWorks allows users to sort each case by clicking on the category description headers. Cases can be sorted by project

- title, project type, mode, BEA region, project cost, and year of completion.
2. **Compare Cases**—In order to compare cases, select the boxes in the upper left-hand corner of the project summary next to the project title for the cases to be compared, and then select the **“Compare Projects”** button under the title “Interact” on the lower left side of the screen.
 3. **View Case**—To view a specific individual case, select the **linked name of the case under the “Project”** column.

Other options on this screen include:

- **Export Results** - This feature allows the user to export the project case studies captured by the criteria that was selected for the search results as a Microsoft Comma Separated Values Files (CSV).
- **Print Results** - This option prints out the project information listed on this page after setting the search parameters in the filters.
- **Reset Filters** - If changes to the search criteria are required, clicking on the link in the upper left resets all the filters.

Comparing Case Results

After selecting the two or more projects under the **“Compare”** column and selecting the **“Compare Projects”** button, the user will see a screen like the one shown in Figure 3. This view provides an example of the economic impact categories and provides a high-level comparison between the selected projects. This sortable summary view gives the user a better idea of which cases should be examined in more depth.

Case Study Search

To search the case study library, select filters from the column on the left or sort using the column headings. You can compare case studies and print results using the buttons at the bottom of filter column. Click on the underlined project name to learn more about the case study.

Available information includes descriptions of project features and pre/post data about impacts on the local or regional economy. It includes detailed results from local interviews on project objectives, implementation issues and other factors as well as aerial photos and other reports.

To learn more about EconWorks, read the user guide [here](#).

Key Words:

7 Results Found

[VIEW ALL CASES](#)

Filters:

Project Details

Project Flags

Project Type

- ☒ Access Road
- ☐ Limited Access Road
- ☐ Bypass
- ☒ Connector
- ☐ Beltway
- ☐ Bridge
- ☐ Interchange
- ☐ Widening
- ☐ Freight Terminal
- ☐ Station
- ☐ Service Improvement
- ☐ Line Extension
- ☐ New Line

Project	Type	Mode	BEA Region	Cost (Millions)	End Date	Length	AADT
Pendleton Industrial Park Access Road (Airport Road Extension)	Access Road	Highway	Rocky Mountain / Far West	\$6.25	2009	5.00	5,000
DFW Connector	Connector	Highway	Southwest	\$1,100.77	2014	8.40	129,399
Prescott Arizona Airport Connector	Connector	Highway	Southwest	\$25.05	2001	4.50	29,832
Highway 141: Page-Olive Connector	Connector	Highway	Great Lakes / Plains	\$55.82	2012	2.00	28,243
Pioneer Crossing	Connector	Highway	Rocky Mountain / Far West	\$207.20	2010	6.00	25,575
US 25 Kentucky	Connector	Highway	Southeast	\$13.48	2005	2.20	5,800
US 460	Connector	Highway	Southeast	\$252.98	2002	10.00	12,275

Figure 3: Case Study Search—Compare Projects Page

Viewing a Case

To view a specific case, simply click on the Case Study name under the “Project” column, and you will be redirected to the individual case study page (Figure 4). This screen provides all available information regarding the case study, sorted by category. If at any point the user wishes to return to the case study search page, this is done by simply returning to the previous page in your browser (using the arrow). Also, if the user desires to print the information on the individual case study, this can be done by pressing the “Print Case Study” button.

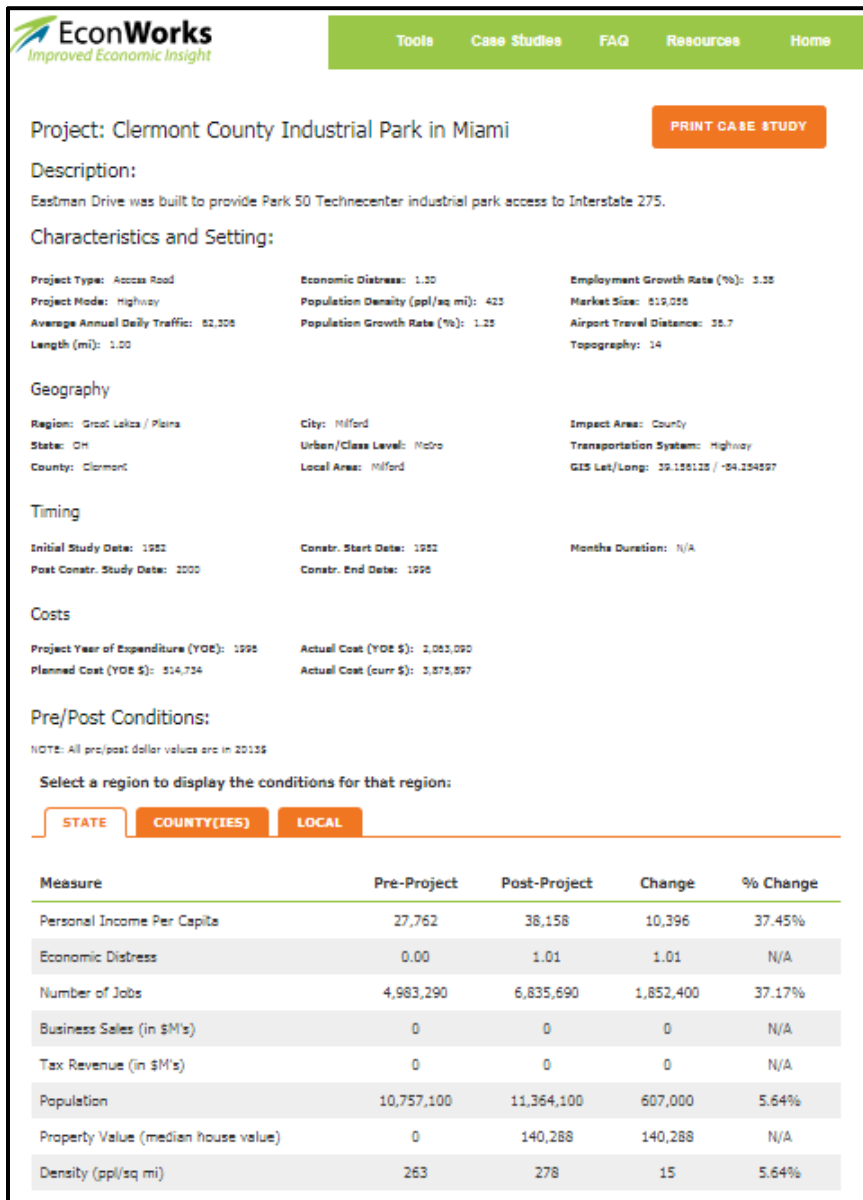


Figure 4: Case Study Search—Individual Case Study Page

Characteristics and Setting

After a short description of the project, the first section of the Case Study Page is labeled “Characteristics and Setting”. It provides a summary of the search parameters with a few additional points of data about the project (geography, timing, and costs).

Characteristics and Setting:		
Project Type: Access Road	Economic Distress: 1.30	Employment Growth Rate (%): 3.38
Project Mode: Highway	Population Density (ppl/sq mi): 423	Market Size: 619,056
Average Annual Daily Traffic: 62,306	Population Growth Rate (%): 1.25	Airport Travel Distance: 36.7
Length (mi): 1.00		Topography: 14
Geography		
Region: Great Lakes / Plains	City: Milford	Impact Area: County
State: OH	Urban/Class Level: Metro	Transportation System: Highway
County: Clermont	Local Area: Milford	GIS Lat/Long: 39.156128 / -84.254597
Timing		
Initial Study Date: 1982	Constr. Start Date: 1982	Months Duration: N/A
Post Constr. Study Date: 2000	Constr. End Date: 1996	
Costs		
Project Year of Expenditure (YOE): 1996	Actual Cost (YOE \$): 2,063,090	
Planned Cost (YOE \$): 514,734	Actual Cost (curr \$): 3,875,897	

Figure 5: Case Study Search—Individual Case Study Page—Characteristics and Setting

Pre/Post Conditions

The next section on the Case Study Page (Figure 6) shows a variety of economic condition measurements at a local (city or municipality), county (or multiple counties), or state level before the project and many years after the project's impacts began to have taken effect. This section shows several relevant economic measures and is useful in establishing the overall trends in the study region's local, county and state economies. These measurements are indicators at the scale of measurement selected (e.g., local, county or state), and should not be viewed as "economic impacts"—these effects are farther down the page. The default view shows local economic metrics; however, the user can toggle between local, county, and state conditions by clicking on the respective tabs for the desired geographic detail. Please note that some measures have not been collected by the case study researcher (or are truly not applicable if the study region extends beyond local metrics— multiple county studies) and are marked as not applicable "N/A". The dollar values are comparable since they have been adjusted to post year equivalent dollars (i.e., pre-year dollars were adjusted using the appropriate CPI to rescale the values).

Pre/Post Conditions:

NOTE: All pre/post dollar values are in 2013\$

Select a region to display the conditions for that region:

STATE COUNTY(IES) LOCAL

Measure	Pre-Project	Post-Project	Change	% Change
Personal Income Per Capita	27,762	38,158	10,396	37.45%
Economic Distress	0.00	1.01	1.01	N/A
Number of Jobs	4,983,290	6,835,690	1,852,400	37.17%
Business Sales (in \$M's)	0	0	0	N/A
Tax Revenue (in \$M's)	0	0	0	N/A
Population	10,757,100	11,364,100	607,000	5.64%
Property Value (median house value)	0	140,288	140,288	N/A
Density (ppl/sq mi)	263	278	15	5.64%

Figure 6: Case Study Search—Individual Case Study Page—Pre/Post-Project Conditions

Impacts

The next section of the page is labeled “Impacts” (Figure 7). This section lists the economic impacts that were estimated for the selected case. These are meant to capture the net economic impacts (i.e. only those impacts that can be attributed to the project). These impacts include): **Number of Jobs, Income/Wages, and Output¹**. They are broken down in terms of:

- **Direct Impacts** – which are those directly attributed to the project
- **Indirect Impacts** – which capture the multiplier effects (from suppliers and worker re-spending of wages) in the local economy generated by the direct impacts.
- **Total Impacts** – which are the sum of direct and indirect impacts. Thus, they are a measure of the “economic footprint” of the project.

¹ Other impact information such as, Investment (in square feet), New Construction, Property Value, Local Taxes, and State Taxes should be added to the spreadsheet template as explained in the on-line training modules but are not currently included on the EconWorks case study page.

County Impacts for: Clermont			
NOTE: All impact dollar values are in 2013\$			
Measure	Direct	Indirect	Total
Jobs	300.00	178.00	478.00
Income (in \$M's)	14.39	8.54	22.93
Output (in \$M's)	43.96	26.09	70.05

Figure 7: Case Study Search—Individual Case Study Page—Project Impacts

Case Location

The next section of the Case Study page, “Case Location”, connects the user to an interactive Google Maps link that highlights the area where the project was developed (Figure 8). It provides a visual assistance to understand the relationship between the project, other transportation linkages, and the surrounding development. Many of the Google links to case images can be viewed at the street level – providing the user with a flexible and informative view of current on-the-ground conditions for each case.

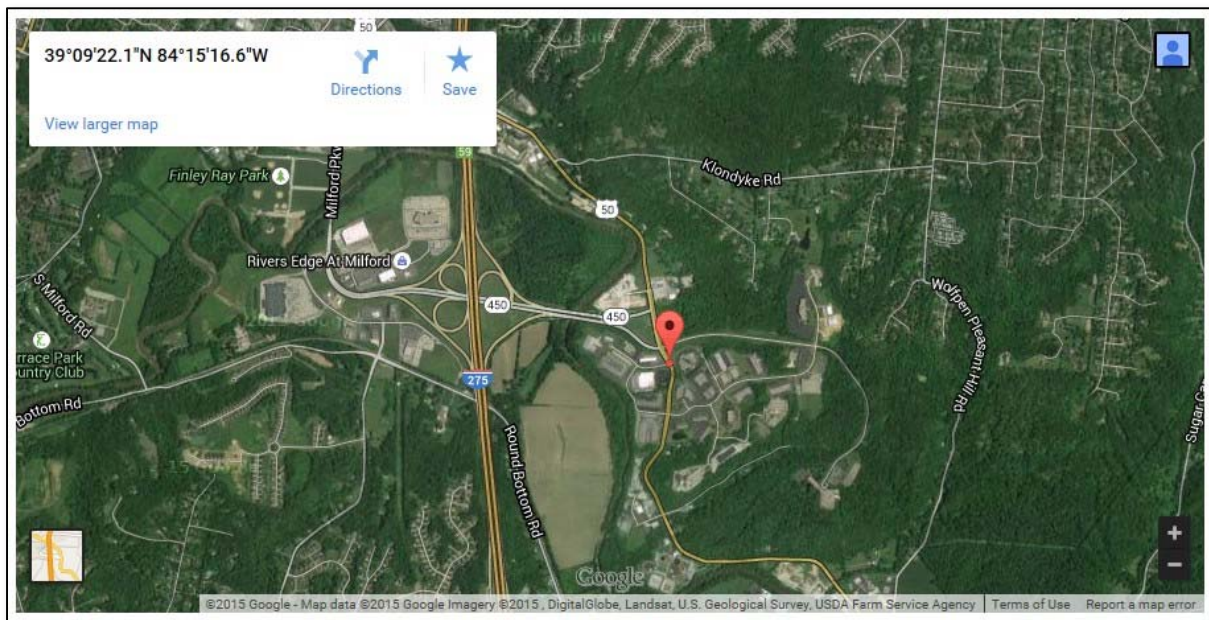


Figure 8: Case Study Search—Individual Case Study Page—Case Location

Narrative

The last section of the Case Study page is the “Narrative” (Figure 9). For each Project Case, several interviews were conducted with Municipal Planning Organizations, Economic Development Corporations, Departments of Transportation, Chambers of Commerce, Planning Departments, and local businesses. The narrative provides background information on the project and context for viewing the economic impacts. Each narrative is divided into six sections:

- 1) Synopsis - an overview of the project and economic impacts.
- 2) Background - a review of the events leading up to project construction.
- 3) Project Description and Motives – an in-depth description of the needs the project was meant to address and the logistics of construction.
- 4) Project Impacts – an analysis of the estimated economic impacts due to the project.
- 5) Non-Transportation Factors – describes other non-transportation related influences that affected economic development in the area.
- 6) Resources – a list of citations for information gathered and organizations interviewed.

At the bottom of this section, there may be linked **Attachments** for additional information in documents, reports, and other analysis regarding the project case.

Narrative:

CLERMONT COUNTY ACCESS ROAD

1.0 Synopsis

Eastman Drive was built to provide Park 50 Technecenter industrial park access to Interstate 275. The park is located in Clermont County, Ohio which is part of the Cincinnati-Middletown metropolitan area. The economic impact of the road has shifted with the expansion and contraction of several businesses. The road was built to support the expansion of James River Corporation, an existing tenant at the park. (The company did expand, but later closed its facility at the park.) A 2000 economic impact study claimed the road was responsible for 300 new jobs due to the expansion of Structural Dynamics, a firm which initially expanded but has since downsized, and moved to another location at the park. More recently, Tata Consultancy, which is part of Tata Group, the largest corporation in India, moved into the park and has pledged to add 1,000 jobs in the next several years. The new road has benefited other companies at the park by improving access to the local market and airport.

2.0 Background

2.1 Location & Transportation Connections

The project is located in the Clermont County portion of Milford, Ohio (population 6,284 in 2000.) Clermont County is part of the Cincinnati-Middletown metropolitan area. It is located east of downtown Cincinnati, which has a population of 178,000. The metropolitan area is served by Interstate 275, approximately 20 miles west of Cincinnati. This interstate is a ring road around Cincinnati that also provides access to a major airport (Greater Cincinnati/Northern Kentucky International Airport) and several other large markets including Indianapolis, IN (130 miles west) and Columbus, OH (100 miles northeast).

2.2 Community Character & Project Context

The Cincinnati- Middletown metropolitan area is home to one of the nation's largest biotechnology clusters. It also has significant manufacturing (e.g. automobile parts) and financial services activities. Clermont County has experienced significant population growth in recent years from both urban commuters and (increasingly) suburban workers, outpacing the growth in Ohio as a whole. From 1982 to 2000, the population of the county grew by 34% compared to 6% for the state. The growth in local employment is primarily the result of expansion of high-end services such as finance, education and healthcare. Between 1982 and 2000, employment in the county grew by 121% compared to 37% in Ohio as a whole.

3.0 Project Description & Motives

The project involved the construction of Eastman Drive, located due east of an interchange at I-275. This access road now serves the Park 50 Technecenter industrial park, which primarily houses high-end manufacturing and service industries. as well as a satellite campus for a local university.

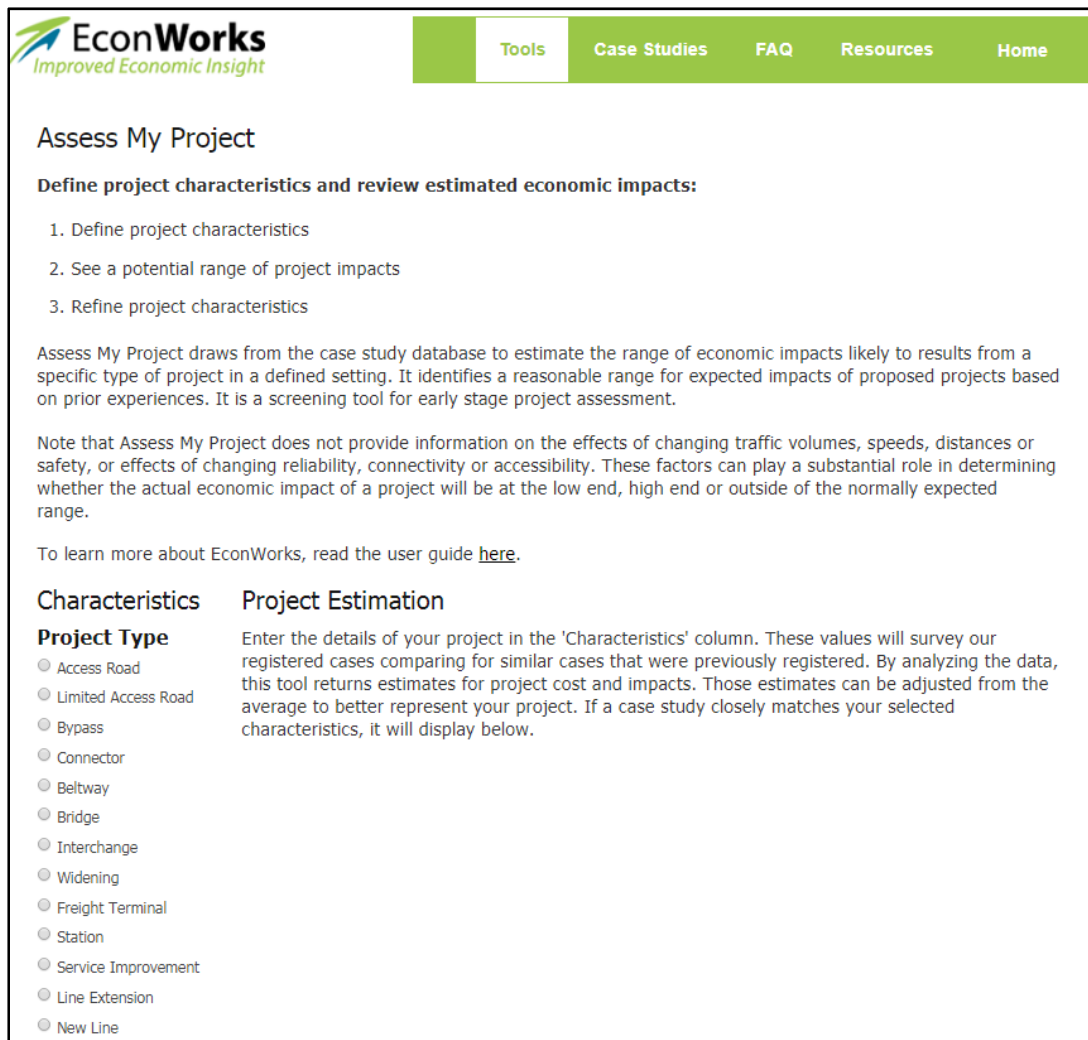
Figure 9: Case Study Search—Individual Case Study Page—Narrative

2.2.2 Assess My Project

If the user wishes to estimate a range of potential economic impacts for a planned project, they should proceed to **Assess My Project** by either clicking the tab on the menu at the top of the EconWorks webpage under “Case Studies”.

Project Parameters

The **Assess My Project** page (Figure 10) differs from the **Case Study Search** page in that instead of defining project criteria to match a case, the user selects parameters for a “hypothetical case” *based on the existing case studies in the database*. These parameters are used to estimate the likely ranges of economic impacts based on project cost, traffic volumes and other parameters. The initial parameters to be defined are: **1) Project Type, 2) Region, 3) Urban/Class Level, 4) Economic Distress, and 5) Length of Project**. Once these initial categories have been selected, click on the “**Get Results**” button on the lower left-hand corner of the screen. (NOTE: For Interchanges, just leave the “**Length of Project**” window blank.)



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Assess My Project

Define project characteristics and review estimated economic impacts:

1. Define project characteristics
2. See a potential range of project impacts
3. Refine project characteristics

Assess My Project draws from the case study database to estimate the range of economic impacts likely to results from a specific type of project in a defined setting. It identifies a reasonable range for expected impacts of proposed projects based on prior experiences. It is a screening tool for early stage project assessment.

Note that Assess My Project does not provide information on the effects of changing traffic volumes, speeds, distances or safety, or effects of changing reliability, connectivity or accessibility. These factors can play a substantial role in determining whether the actual economic impact of a project will be at the low end, high end or outside of the normally expected range.

To learn more about EconWorks, read the user guide [here](#).

Characteristics	Project Estimation
<p>Project Type</p> <ul style="list-style-type: none"> <input type="radio"/> Access Road <input type="radio"/> Limited Access Road <input type="radio"/> Bypass <input type="radio"/> Connector <input type="radio"/> Beltway <input type="radio"/> Bridge <input type="radio"/> Interchange <input type="radio"/> Widening <input type="radio"/> Freight Terminal <input type="radio"/> Station <input type="radio"/> Service Improvement <input type="radio"/> Line Extension <input type="radio"/> New Line 	<p>Enter the details of your project in the 'Characteristics' column. These values will survey our registered cases comparing for similar cases that were previously registered. By analyzing the data, this tool returns estimates for project cost and impacts. Those estimates can be adjusted from the average to better represent your project. If a case study closely matches your selected characteristics, it will display below.</p>

Figure 10: Assess My Project Page

Results Page and Sensitivity Analysis

With the initial criteria defined, the results page (Figure 11) estimates the ranges of economic impacts including Jobs, Wages, and Output. These three categories of impacts are divided into Direct, Supplier and Wage Impacts (i.e. Indirect), and Total Impacts (as defined in the “Impacts” section of the “Case Study Search”).



Figure 11: Assess My Project Page–Impacts Results

Above the ranges of economic impacts are listed a variety of additional project parameters that can be adjusted with a specific range. EDR Group analyzed the relationships between project characteristics and the resulting economic impacts and calculated the sensitivity of how changes in these variables would ultimately affect the economic impact outcomes. The option

to adjust these parameters allows the user to adjust costs, traffic estimates, and other economic development factors to properly reflect the project's local environment. In turn, these adjustments will drive changes in expected economic impacts of the project. They are comprised of the following:

- 1) **Project Cost**—the cost of construction in 2013\$¹, default setting is the median based on the project parameters. The project cost determines the maximum economic impacts so, if this has been reached, toggling with other parameters will not allow the impacts to increase.
- 2) **Average Annual Daily Travel (AADT)**—current AADT, along with mileage is a main driver of economic impacts, default setting is median based on project parameters.
- 3) **Land Use Policies**—a measure of how restrictive or supportive the local area is to land development according to current zoning policies. The default setting is “Average” but moving to either side will increase or decrease economic impacts by a factor ratio (shown by hovering the mouse over the circle dot slider).
- 4) **Infrastructure**—a measure of supporting infrastructure to serve development associated with the project (e.g. water/sewer). The default setting is “Average” but moving to either side will increase or decrease economic impacts by a factor ratio (shown by hovering the mouse over the circle dot slider).
- 5) **Business Climate**—a measure of how supportive the local area is in allowing development (e.g. tax breaks, financing). The default setting is “Average” but moving to either side will increase or decrease economic impacts by a factor ratio (shown by hovering the mouse over the circle dot slider).


These impacts should not be viewed as final since they are a “best guess” *based on the information from the case studies in the case study database*. However, they should be viewed as capturing the appropriate magnitude of impacts given the project specifications. The shifts in impacts should also accurately capture the relationship between economic impacts and the effects of project parameters and local conditions.

Certain selected criteria match specific cases which are listed below the sliders. These cases are included to inform the researcher cases the range of economic impacts are based on as well as case recommendations for narrative reading.

2.2.3 Analysis Tools

The third menu item on the EconWorks, “Analysis Tools”, gives the user access to a set of 5 tools that were developed under the SHRP2 Project C11: *Development of Improved Economic Tools Based on Recommendations from project C03*. (Figure 12). These tools enable users to incorporate Wider Economic Benefits (W.E.B.) into their analysis and decision making. These tools are web-based and require registering a user name and password to gain access.

¹ Current dollars are updated by the EconWorks administrator as Consumer Price Index (CPI) data is available from the Bureau of Labor Statistics (BLS).



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EconWorks Wider Economic Benefits Analysis Tools

SHRP2 included tools to help practitioners incorporate Wider Economic Benefits into project decision making, and in particular into benefit cost analysis. These tools are designed to fill the gap between the screening stage where the Case Studies may be useful and later stages where agencies may employ detailed economic models.

First things first: Are the Wider Economic Benefit (WEB) tools appropriate for your project?

It is important to note that the WEB tools may not always be appropriate to use. If there is no “productivity” effect expected from a project (e.g. it is focused on safety, the environment, or other social benefits), or if all effects will stem from traditional user benefits (e.g. travel time and cost savings), then the tools are not necessary.

However, if your project will achieve meaningful changes in **reliability**, enhance **accessibility**, or enhance **intermodal connectivity**, then the WEB tools may be of help in your analysis. If based on this, you wish to make use of the tools, please choose to continue as a guest or log in to store your work for the future.

Please enter your username and password. [Register](#) if you don't have an account.

User Name:

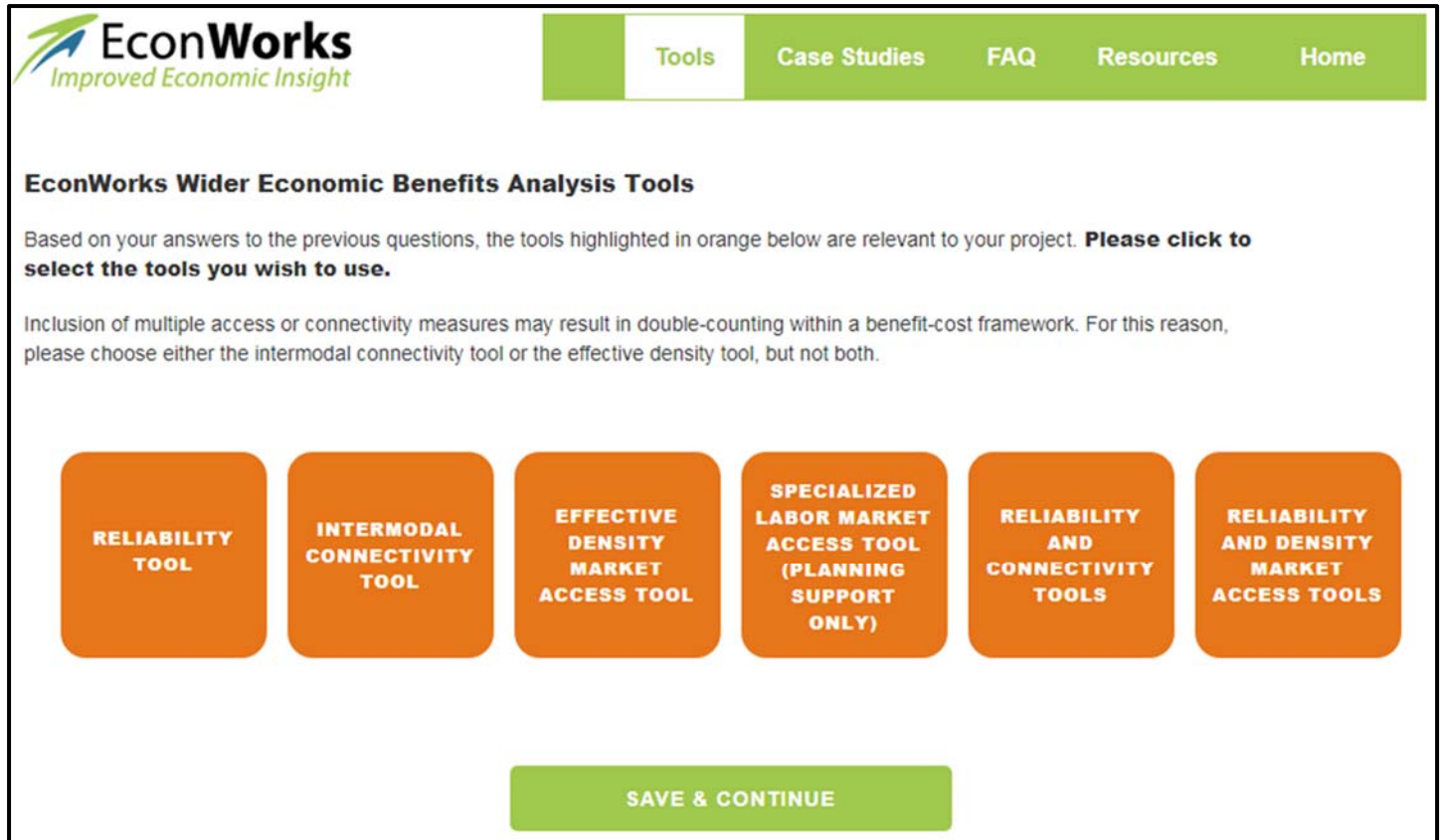
Password:

[USER LOGIN](#)

[Forgot password?](#) [Reset password](#)

Figure 12: Analysis Tools Page

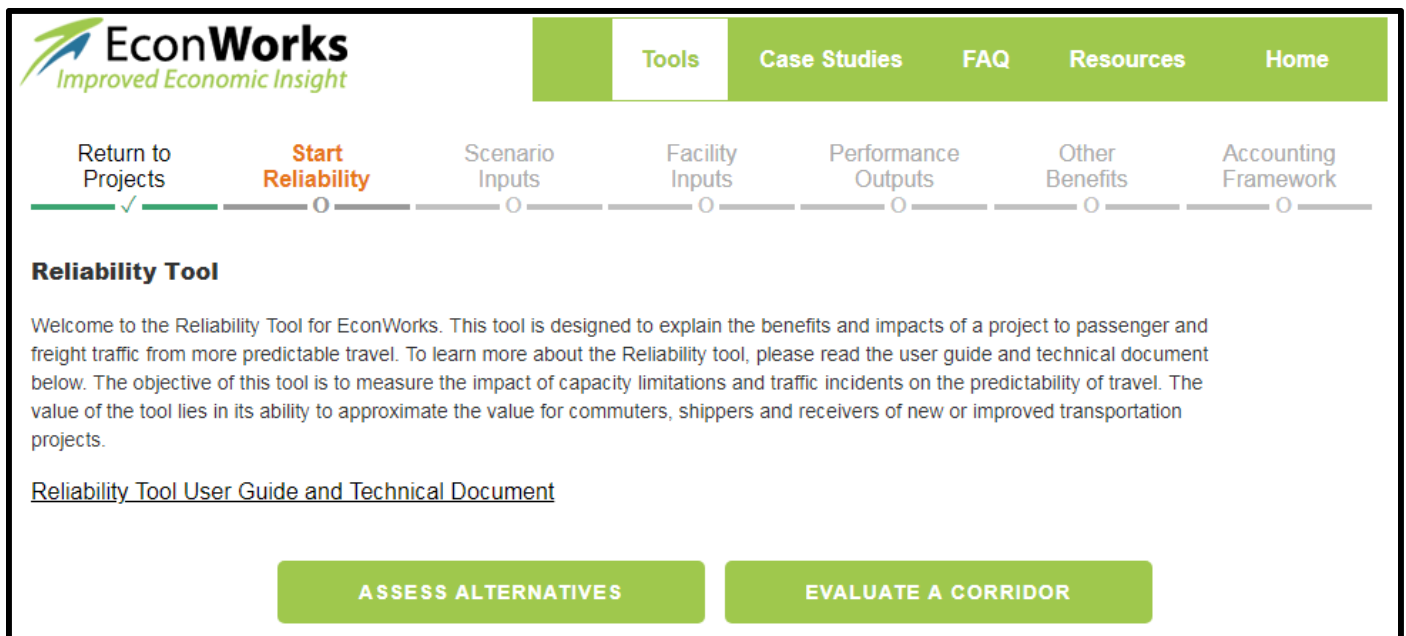
Next, create a project and then click on the button “Access Project” in the upper right hand of the screen. You will then be presented with a series of questions. Your responses will help determine which tool should be used based on your objectives and the expected impacts your project addresses. The tools that are highlighted in orange will be relevant to your project while those greyed out should not be applied to your analysis. A list of all the tools available depending on your responses to the diagnostic questions) are shown in Figure 13. Click on the tool you wish to use.



The screenshot shows the 'EconWorks Wider Economic Benefits Analysis Tools' selection page. At the top is the EconWorks logo and a navigation bar with links to Tools, Case Studies, FAQ, Resources, and Home. The main heading is 'EconWorks Wider Economic Benefits Analysis Tools'. Below it, a paragraph states: 'Based on your answers to the previous questions, the tools highlighted in orange below are relevant to your project. Please click to select the tools you wish to use.' Another paragraph explains: 'Inclusion of multiple access or connectivity measures may result in double-counting within a benefit-cost framework. For this reason, please choose either the intermodal connectivity tool or the effective density tool, but not both.' There are six orange buttons arranged horizontally: 'RELIABILITY TOOL', 'INTERMODAL CONNECTIVITY TOOL', 'EFFECTIVE DENSITY MARKET ACCESS TOOL', 'SPECIALIZED LABOR MARKET ACCESS TOOL (PLANNING SUPPORT ONLY)', 'RELIABILITY AND CONNECTIVITY TOOLS', and 'RELIABILITY AND DENSITY MARKET ACCESS TOOLS'. At the bottom center is a green 'SAVE & CONTINUE' button.

Figure 13: Analysis Tools Page

Once the desired tool has been selected, the user is provided with a brief introduction, objective, and a link to access the user guide and technical documentation (Figure 14).



The screenshot shows the 'EconWorks Reliability Tool' page. At the top is the EconWorks logo and a navigation bar with links to Tools, Case Studies, FAQ, Resources, and Home. Below the navigation bar is a progress bar with seven steps: 'Return to Projects' (checked), 'Start Reliability' (active), 'Scenario Inputs', 'Facility Inputs', 'Performance Outputs', 'Other Benefits', and 'Accounting Framework'. The main heading is 'Reliability Tool'. Below it, a paragraph introduces the tool: 'Welcome to the Reliability Tool for EconWorks. This tool is designed to explain the benefits and impacts of a project to passenger and freight traffic from more predictable travel. To learn more about the Reliability tool, please read the user guide and technical document below. The objective of this tool is to measure the impact of capacity limitations and traffic incidents on the predictability of travel. The value of the tool lies in its ability to approximate the value for commuters, shippers and receivers of new or improved transportation projects.' Below this paragraph is a link: 'Reliability Tool User Guide and Technical Document'. At the bottom are two green buttons: 'ASSESS ALTERNATIVES' and 'EVALUATE A CORRIDOR'.

Figure 14: Reliability Tool Page

2.3 Case Studies

By clicking on the “Case Studies” tab, EconWorks users can access the case study submission page (Figure 15) after registering by filling in an on-line form (including a password) with contact and organizational information. Once complete, the user will have access to submit a case study.

Submit a Case Study

You may log in to submit a new case study or register now to begin the process:

Your Details Your Cases Case Details Case Narrative Case Specifics Review Finish

When completing this form online, you will create a password that will safeguard your information. As an added measure of security, all information submitted is encrypted.

Create an account for your case study below. If you already have registered, [please login](#) instead.

Contact Information

First Name Last Name

Email Phone Number

Password Confirm Password

A password protects your information that is stored securely here. Your password must have at least:

- 8 characters
- one uppercase character (A through Z)
- one lowercase character (a through z)
- one digit (0 through 9)

Organization Information

Street Address

Apt, Unit, Suite City

State Zip Code

NEXT STEP

Figure 15: EconWorks Registration Form to Submit a Case Study


The case study submission home page is show below in Figure 16. To initiate the process of submitting a new case study, the user clicks on the link “Add New Case”. A case study status bar provides a tracking profile of the stages of completion. Once all data or text is entered within the stage and submitted, the line section underneath the title of the stage turns green indicating completion.

Figure 16: EconWorks Case Study Status Bar

Once all stages are completed, the user submits the case study for final review. An AASHTO or other designated contact will review the case study and follow up with the research for any outstanding questions or issues. Once approved, the case study will be added to the database and available for review on EconWorks.

2.4 FAQ (Frequently Asked Questions)

Based on user inquiries and feedback, many frequently asked questions and corresponding answers have been posted under the FAQ section (Figure 17) to provide support and clarification to interested users. Clicking on any question will expand the view to provide the response. A search term box is also provided to filter the results.



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Frequently Asked Questions

Click on any question below to expand to view the response, or search on a term in the box below to filter results:

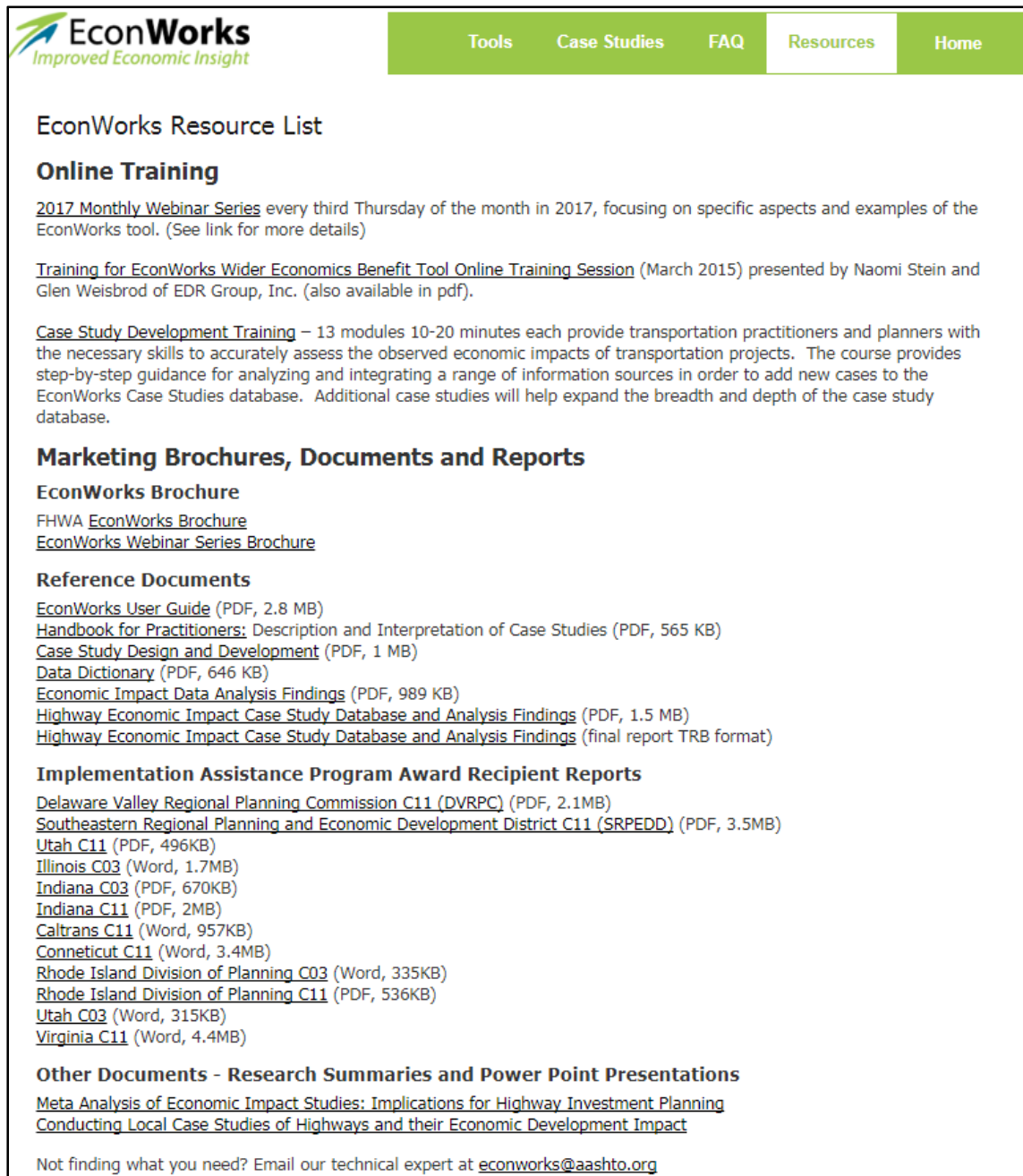
- + [What is the best use of the EconWorks Case Studies search?](#)
- + [How can the EconWorks Case Studies database be expanded to enable an in-depth evaluation within my state or study region?](#)
- + [The outputs in the Assess My Project \(AMP\) feature in EconWorks Case Studies are very different from other planning evaluations that I have reviewed. How accurate are the results expected to be?](#)
- + [The economic impact results of AMP include various sliding scales to adjust the results which include Land Use Policies, Infrastructure, and Business Climate. Since the scale sliders are not quantifiable, how can a user adequately gauge results?](#)
- + [Why are the case studies in the database often much larger than the projects I am considering?](#)
- + [Why does Assessing My Project \(AMP\) not have intermodal projects types \(e.g. freight and passenger\)?](#)
- + [Why is it difficult to identify case study selection criteria for a group of useful projects? Most project characteristic criteria results in a very high or very low number of case studies.](#)
- + [How can the EconWorks Case Studies output be copied into other documents?](#)
- + [What is the difference between the EconWorks case studies and the Wider Economic Benefits \(W.E.B.\) Analysis Tools?](#)
- + [Is it worth using the Wider Economic Benefits \(W.E.B.\) Analysis Tools when more sophisticated economic impact models \(such as REMI or TREDIS\) will be available to our agency?](#)
- + [Is it necessary to hire an economist in order to deploy, use, and interpret the results of the W.E.B. Analysis Tools?](#)
- + [Is there an email address where I can ask a technical expert a specific question regarding EconWorks?](#)

Figure 17: EconWorks FAQ page

2.5 Resources

A Resource tab provides access to a list of available supporting material including:

- **Online Training:** webinars & training modules
- **Marketing Brochures, Documents and Reports:** Including reference documents, award recipient reports, and other research documents and presentations



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EconWorks Resource List

Online Training

[2017 Monthly Webinar Series](#) every third Thursday of the month in 2017, focusing on specific aspects and examples of the EconWorks tool. (See link for more details)

[Training for EconWorks Wider Economics Benefit Tool Online Training Session](#) (March 2015) presented by Naomi Stein and Glen Weisbrod of EDR Group, Inc. (also available in pdf).

[Case Study Development Training](#) – 13 modules 10-20 minutes each provide transportation practitioners and planners with the necessary skills to accurately assess the observed economic impacts of transportation projects. The course provides step-by-step guidance for analyzing and integrating a range of information sources in order to add new cases to the EconWorks Case Studies database. Additional case studies will help expand the breadth and depth of the case study database.

Marketing Brochures, Documents and Reports

EconWorks Brochure

[FHWA EconWorks Brochure](#)
[EconWorks Webinar Series Brochure](#)

Reference Documents

[EconWorks User Guide](#) (PDF, 2.8 MB)
[Handbook for Practitioners: Description and Interpretation of Case Studies](#) (PDF, 565 KB)
[Case Study Design and Development](#) (PDF, 1 MB)
[Data Dictionary](#) (PDF, 646 KB)
[Economic Impact Data Analysis Findings](#) (PDF, 989 KB)
[Highway Economic Impact Case Study Database and Analysis Findings](#) (PDF, 1.5 MB)
[Highway Economic Impact Case Study Database and Analysis Findings](#) (final report TRB format)

Implementation Assistance Program Award Recipient Reports

[Delaware Valley Regional Planning Commission C11 \(DVRPC\)](#) (PDF, 2.1MB)
[Southeastern Regional Planning and Economic Development District C11 \(SRPEDD\)](#) (PDF, 3.5MB)
[Utah C11](#) (PDF, 496KB)
[Illinois C03](#) (Word, 1.7MB)
[Indiana C03](#) (PDF, 670KB)
[Indiana C11](#) (PDF, 2MB)
[Caltrans C11](#) (Word, 957KB)
[Connecticut C11](#) (Word, 3.4MB)
[Rhode Island Division of Planning C03](#) (Word, 335KB)
[Rhode Island Division of Planning C11](#) (PDF, 536KB)
[Utah C03](#) (Word, 315KB)
[Virginia C11](#) (Word, 4.4MB)

Other Documents - Research Summaries and Power Point Presentations

[Meta Analysis of Economic Impact Studies: Implications for Highway Investment Planning](#)
[Conducting Local Case Studies of Highways and their Economic Development Impact](#)

Not finding what you need? Email our technical expert at econworks@aathto.org

Figure 18: EconWorks Resource page

Inquiries for any additional material not found can be emailed to: econworks@aathto.org