My Economic Impact Tool
How to Use It

Prepared for American Public Transportation Association

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Introduction

Calculator Purpose

Understanding how public transportation makes communities grow is vital to every advocate of our industry. Calculating that growth and its value can be a daunting task. APTA has addressed this challenge by creating "My Economic Impact Tool." This user guide is designed to very simply enable your public transit agency staff to generate public information regarding the role of agency operations and capital projects within the local economy of your service area. Specifically, the tool shows the breadth and depth of local jobs and income that are generated directly or subsequently (the *local* multiplier effects) from your agency's annual spending on operations and capital improvements.

This web-based application is designed around simple data entry of agency annual budget information that is compatible with what agencies provide to the National Transit Database (NTD) for annual reporting summaries. The results from this calculator portray, in both tabular and graphic form, the economic impacts from your agency's expenditures, including exploration of the following perspectives:

- Jobs, wages, sales and value-added supported by both agency operations and capital expenditures
- Understanding both direct and subsequent (multiplier) effects as agency activities ripple through the local economy
- Understanding the diverse occupational mix of jobs supported by agency operations and capital activities

A range of results-related reports provides multiple options for how to message your agency's contribution to the economy with various audiences. The analysis can be used to communicate two key messages:

- The public transit agency plays an important role in its service area. It directly or indirectly supports a broad set of local jobs and economic activity across a spectrum of businesses and occupations.
- Public money invested in public transit returns to the community to generate more jobs and income.

Impact v. Benefit: It is important to use the word "impact" rather than "benefit" to describe the effects calculated by this tool. This avoids criticism by technical economists who may argue that the real objective and hence true "benefit" of public transit is providing mobility services and not creating jobs through expenditures on service provision. Nevertheless, the result of this type of analysis can be an important first step in describing the role of transit operations in contributing to the local economy.

Calculator Overview

The application follows a three-step process as shown on the sequential tabs of the calculator screen:

1. Settings – Define your geographic study region and build an economic model
2. Inputs – Enter the annual operating and capital budget information
3. Results – Calculate and view the impacts of your public transit system on your local economy

Your study region typically will encompass your service area and your agency's labor market area. Inputs can be easily derived either from internal budget documents, or directly from the NTD.[1] Results can be viewed within the online interface or downloaded in Excel format.

Subsequent sections of this document provide detailed step-by-step instructions regarding the usage of the tool. While these instructions are intentionally in-depth, actual preparation of data for the tool and interpretation of results should take only a few hours.

Behind-the-Scenes

This section provides a description of what the calculator does "behind-the-scenes" with the information you enter to derive results. The calculator uses regional economic data for your specific impact area (obtained from IMPLAN[2]) to translate agency activities into supported economic activity, tracking from expenditures, to direct effects, to subsequent multiplier effects within the broader economy.

You will be asked to input information about the scale of your agency's operational and construction activities. Apart from reporting the number of staff on payroll at your agency, the majority of inputs correspond directly to budget expenditures, expressed in millions of dollars. These budget expenditures are then adjusted within the tool to account for the type of spending and the proportion of your agency's demand that can be met locally. Your agency's activities affect the local economy only to the extent that agency spending on goods or labor remains within the local region, as opposed to being spent on goods or services imported from elsewhere.

For example, if your agency requires $1 million for cement, this demand may or may not be met by local production. Within the calculator, your value of $1 million will be considered against your region's economic data regarding the *local purchase coefficient* (lpc) for the industry sector that makes cement. This coefficient ranges between 0 and 1, with 0 indicating none of the local demand for cement is supplied by a local cement manufacturer (hence it is imported), and a value of 1 meaning that all cement purchases will be fulfilled locally. Because of this adjustment process, your dollar entries (*demands*) do not become *local sales* until the embedded regional information on the relevant lpc is applied.

[1] Full reporter agencies to NTD will be able to map directly from NTD cost categories to the tool's inputs, while other smaller agencies may require additional information from their internal accounting system.
[2] For more information, visit implan.com

There are three exceptions to this basic process on the Capital Project Amounts input form:

1. For certain categories of specialty equipment expenditures, the user is given the opportunity to provide a "Fraction manufactured within region" based on the premise that your agency may have specific knowledge of "place of manufacture" for specialty and large expense items. This will most often be a value of either 0 or 1 and not something in between. The user-provided "Fraction" then over-writes what the IMPLAN regional data would have assumed through its Ipc.[3]
2. Entries for expenditures on guideway, stations, administrative buildings, and maintenance buildings are automatically treated as 100% locally delivered construction activity.
3. Right-of-way expenditures will not advance in the calculation of results because such asset transfers do not generate increases in economic activity.

There are two exceptions on the Operating Budget input form:

1. The three components of agency annual payroll are not *final demands;* they are payments to labor and as such are treated differently in the estimation of economic impacts.
2. Annual tax payments will not advance in the calculation of results since a user would have to specify how the governmental body will put the tax revenue to use.

Once the tool has mapped budgetary expenditures (*demands*) to direct local economic activity, it then further calculates regional multiplier effects based on industry supply chain relationships and consumer purchasing patterns of local labor. The result is a reporting of direct and multiplier (indirect and induced) effects associated with your agency's annual activities.

Note the following impact reporting conventions applied in this tool:

- Direct Effects reported under "Transit Operations & Maintenance" represent in-agency activities associated with the general provision of public transit services. Reported *Employment* and *Labor Income* will correspond to your reported agency employment and payroll, respectively.[4] *Output* will equate to the value of your total operations and maintenance budget, as input to the tool. *Value added* by definition is composed of wages paid to workers and retained business income (profit or loss). However, in the case of transit agencies, there is no profit and so value added is set to be the same as your reported agency payroll.
- Direct Effects reported under "Transit Capital Investment" represent the local economic activity associated with the building of dedicated public transit facilities and equipment. These are considered first stage (indirect) impacts but are categorized here in order to convey their direct role in transit provision. Numbers reported represent the magnitude of spending and supported jobs, labor income, and value added *after* the application of local purchase coefficients. For this reason, the direct output associated with capital investment is likely to be smaller than the dollar value of the total capital budget you input to the tool.
- Non-labor operations and maintenance budget expenditures input by the user are interpreted by the tool as "1st round indirect" effects. Jobs, wages and industry activity associated with these material and service requirements of the public transit agency appear under indirect effects.

[3] Note that users cannot overwrite the fraction manufactured locally if the underlying economic data from IMPLAN shows no activity in that sector within your selected region, designated by a "-1" in the field.
[4] Note: if you enter either employment or payroll, but not both, the tool will attempt to infer the appropriate value for the missing variable, but this is not recommended.

Using the Transit Expenditure Impact Calculator

This section provides the user with detailed instructions for operating the calculator.

Accessing the Calculator Application

The Transit Impact Tool is a web-based application hosted on APTA's member portal. You will need to log into this portal to see the button for launching the calculator.

Please contact APTA if you need your member portal login instructions and for details on opening the calculator.

Once you have opened the interactive calculator, you will be able to create your economic model for your region, enter your expenditure inputs, and view your results. The system will associate your inputs with your APTA login information to automatically save your work from session to session.

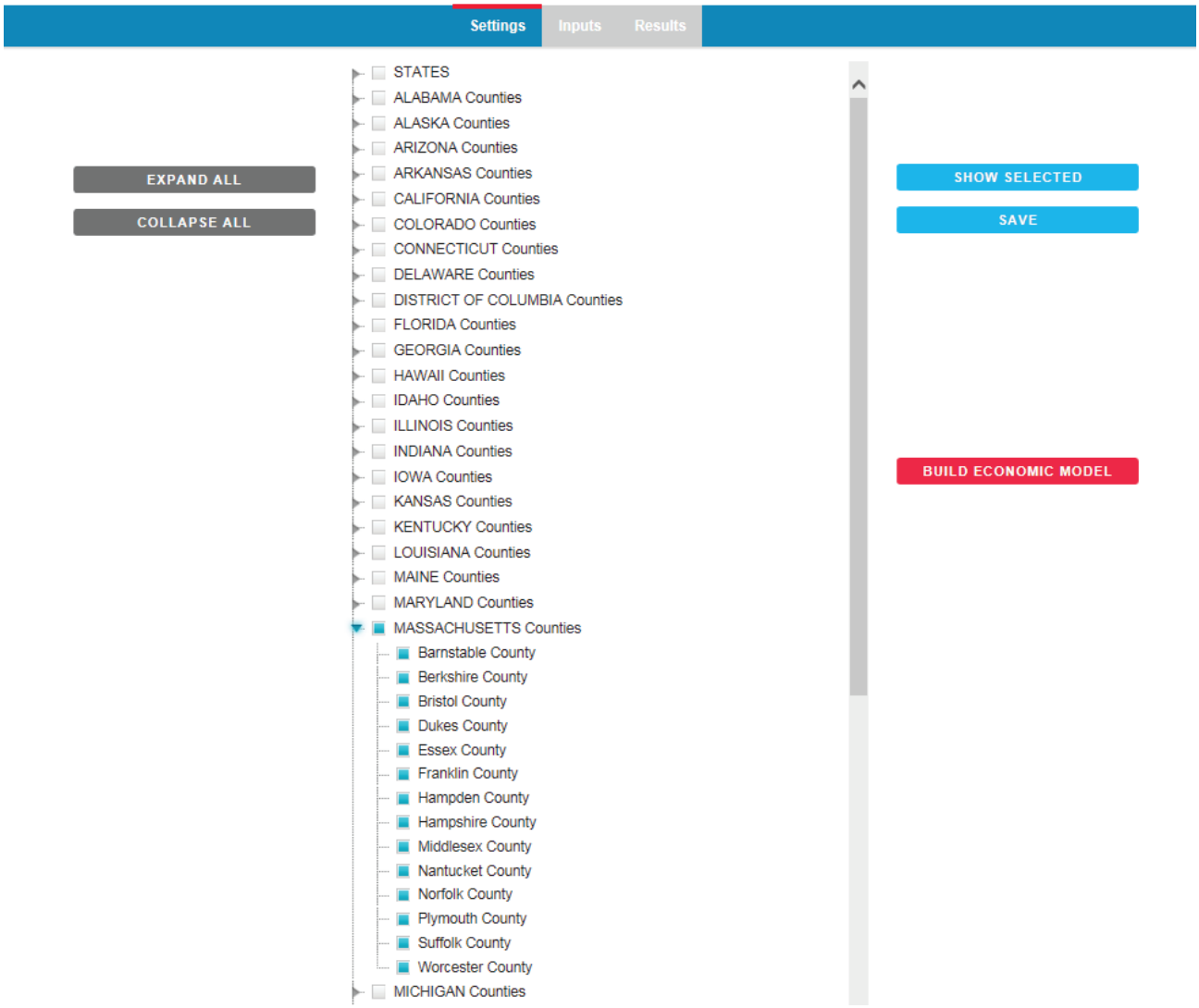
Settings

On this tab you will define your regional economy as the basis for your impact analysis. Once defined, the underlying *economic multiplier* responses for this geography are assembled, and this will serve as the basis for *interpreting* all results. All reported impacts will represent increases in economic activity in the defined geography.

Clicking on an arrow to the left of the state expands the list to show the counties within that state. You have the option of selecting one or more counties and/or states to form your study region. When all have been selected, press the Save button (which turns Yellow when a change is made). Clicking on the "Build Economic Model" button will create a single-region economy of those aggregated counties (and/or states), as shown in Figure 1. This will initiate a process that will take a few moments to complete, depending on how many counties were selected. When the model build process is completed, the yellow button changes to blue with the name "Economic Model Built." The resulting economic model of your region is based upon IMPLAN-derived regional data for economic multipliers using geography selected as the 'building blocks'.

The county or counties you select should **at a minimum** contain not only your service area **but** also describe your effective labor market. If the labor market from which you draw employees is broader than your service area, select the larger region. This typically involves all counties that comprise your metro area. If the region-of-impact is too small (e.g. you select something smaller than your market area), you will underestimate the multiplier impacts of your agency, because you will not capture some of your agency's effects on area businesses. Consideration should also be given to stakeholder perspectives to ensure the selected geography matches the desired "messaging" of results. Most stakeholders are accustomed to thinking "at the metro area" level as the functional marketplace for labor and suppliers. In some cases, you may wish to assess impacts of your agency on an entire state's economy.

Figure 1. Settings Tab within the Impact Calculator



Inputs

The Inputs tab contains two forms for entering Annual Operations Budget expenditures, and for entering Annual Capital Expenditures. Most entries are expressed in $ millions but there are a few exceptions. The basis for requesting the specific items in this calculator reflects categories reported by your agency to the National Transit Database using its on-line annual reporting tool.

You may choose to use your own in-house budgetary data or you can simply go to the NTD web-site (https://www.transit.dot.gov/ntd/ntd-data) and download Excel files that contain the latest fiscal year data for your agency (and all others too), and use that data for this analysis.[5] Three annual database

[5] If your agency is not included in the detailed NTD database and you do not have the in-house data required, see information in the box below about "Easy Mode."

spreadsheets are available: Operating Expenses, Capital Expenses and Employees. Tables that follow provide specific details on how to derive tool inputs from these files.

Also, note that each form provides for mode-specific data entry. There are six explicit mode types and a remaining column for "*Other*" mode. These mode types represent aggregations of the more detailed modes used in NTD reporting. If you are deriving data directly from NTD datasets, you will need to prepare aggregate data before entering your values, as shown in Table 1.

Table 1 Aggregation from NTD detailed modes to simplified modes in the calculator[6]

NTD Code	NTD Mode Name	Calculator Mode
AR	Alaska Railroad	Other
TR	Aerial Tramway	Other
MB	Bus	Bus
RB	Bus Rapid Transit	BRT
CC	Cable Car	Other
CB	Commuter Bus	Bus
CR	Commuter Rail	Heavy Rail
DR	Demand Response	Para-Transit
DT	Demand Response - Taxi	Para-Transit
FB	Ferryboat	Ferry
HR	Heavy Rail	Heavy Rail
YR	Hybrid Rail	Other
IP	Inclined Plane	Other
JT	Jitney	Other
LR	Light Rail	Light Rail
MG	Monorail and Automated Guideway	Other
PB	Público	Other
SR	Streetcar Rail	Other
TB	Trolleybus	Other
VP	Vanpool	Other

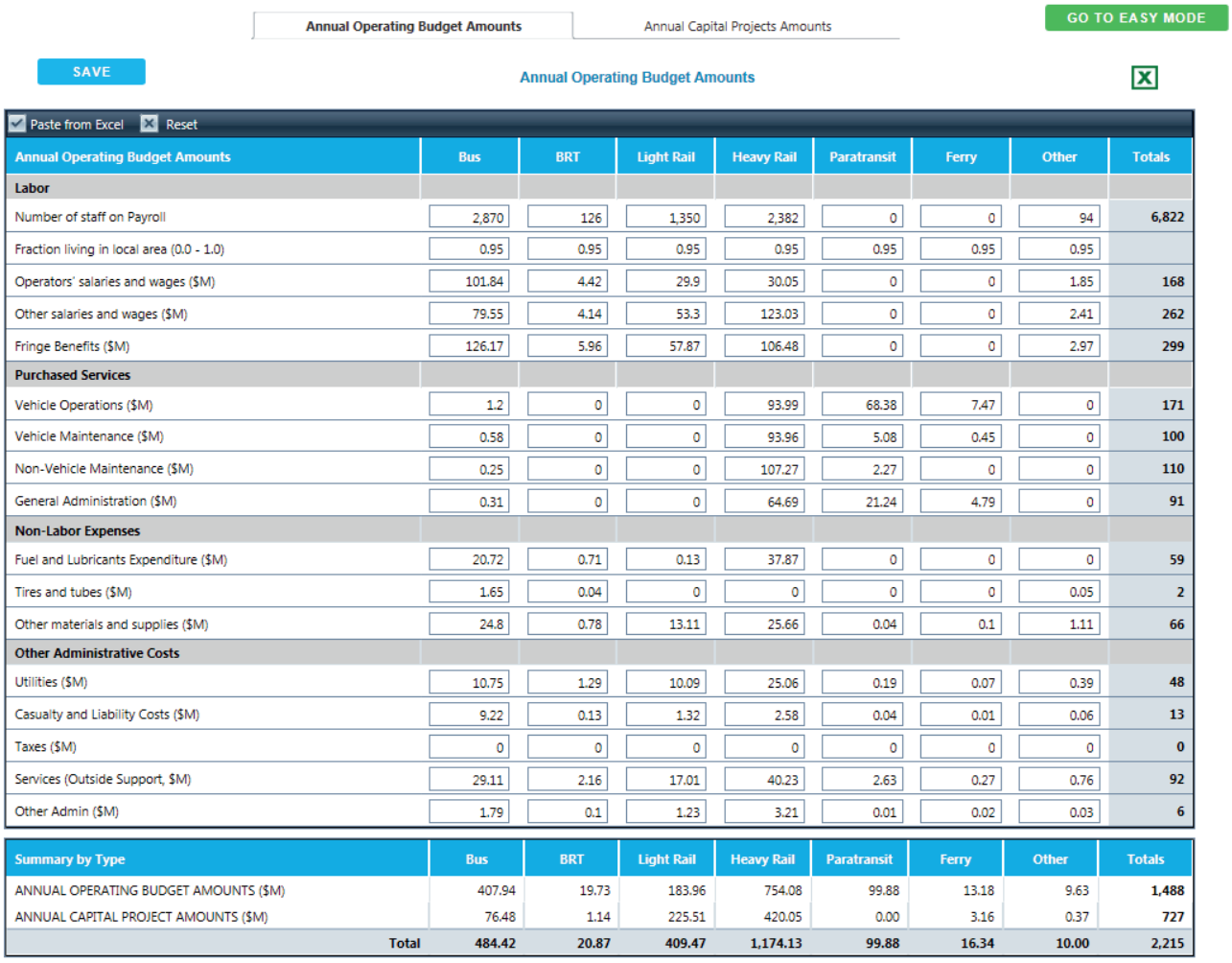
Easy Mode: If you do not have sufficiently detailed data for the standard input tables, you may choose to switch to the "Easy Mode" by clicking the button in the upper right-hand corner of the screen. Easy mode uses information from the NTD to allocate high-level budget information into individual spending categories, based on nationally observed distributions of spending for each mode. Using the standard mode will more accurately reflect the impacts of your operating and capital budgets, but the easy mode is an alternative for those with less readily available data.

Annual Operations Inputs

The first tab in the Inputs Screen (Figure 2) is for entering Annual Operating Budget data. All entries requested are mode-specific. Those interested in developing operations tool inputs directly from the NTD databases can follow the instructions in Table 2.

[6] Additional information regarding NTD modal classifications can be found at: https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/Report%20Year%202016%20Policy%20Manual_1.pdf (Exhibit 15)

Figure 2: Inputs - Annual Operating Budget



Annual Operating Budget Amounts | Annual Capital Projects Amounts

GO TO EASY MODE

SAVE

Annual Operating Budget Amounts

Paste from Excel | Reset

Annual Operating Budget Amounts	Bus	BRT	Light Rail	Heavy Rail	Paratransit	Ferry	Other	Totals
Labor								
Number of staff on Payroll	2,870	126	1,350	2,382	0	0	94	**6,822**
Fraction living in local area (0.0 - 1.0)	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Operators' salaries and wages ($M)	101.84	4.42	29.9	30.05	0	0	1.85	**168**
Other salaries and wages ($M)	79.55	4.14	53.3	123.03	0	0	2.41	**262**
Fringe Benefits ($M)	126.17	5.96	57.87	106.48	0	0	2.97	**299**
Purchased Services								
Vehicle Operations ($M)	1.2	0	0	93.99	68.38	7.47	0	**171**
Vehicle Maintenance ($M)	0.58	0	0	93.96	5.08	0.45	0	**100**
Non-Vehicle Maintenance ($M)	0.25	0	0	107.27	2.27	0	0	**110**
General Administration ($M)	0.31	0	0	64.69	21.24	4.79	0	**91**
Non-Labor Expenses								
Fuel and Lubricants Expenditure ($M)	20.72	0.71	0.13	37.87	0	0	0	**59**
Tires and tubes ($M)	1.65	0.04	0	0	0	0	0.05	**2**
Other materials and supplies ($M)	24.8	0.78	13.11	25.66	0.04	0.1	1.11	**66**
Other Administrative Costs								
Utilities ($M)	10.75	1.29	10.09	25.06	0.19	0.07	0.39	**48**
Casualty and Liability Costs ($M)	9.22	0.13	1.32	2.58	0.04	0.01	0.06	**13**
Taxes ($M)	0	0	0	0	0	0	0	**0**
Services (Outside Support, $M)	29.11	2.16	17.01	40.23	2.63	0.27	0.76	**92**
Other Admin ($M)	1.79	0.1	1.23	3.21	0.01	0.02	0.03	**6**

Summary by Type	Bus	BRT	Light Rail	Heavy Rail	Paratransit	Ferry	Other	Totals
ANNUAL OPERATING BUDGET AMOUNTS ($M)	407.94	19.73	183.96	754.08	99.88	13.18	9.63	**1,488**
ANNUAL CAPITAL PROJECT AMOUNTS ($M)	76.48	1.14	225.51	420.05	0.00	3.16	0.37	**727**
Total	**484.42**	**20.87**	**409.47**	**1,174.13**	**99.88**	**16.34**	**10.00**	**2,215**

The first entry, Number of staff on Payroll, represents the total number of jobs, both full time and part time (not full time equivalents). For example, if there are 3 people each working half time, that would represent 3 staff on the payroll.

The next entry is to identify what fraction of the staff lives in the local area (as you previously defined in setting the study region in the Settings tab). Note – this value should be entered as a decimal number in the range from 0 to 1.0. It is unlikely that *none* or that *all* your staff reside within the region. This entry is defaulted to 0.95, but may be changed as necessary.

The remaining entries are in terms of millions of nominal dollars, consistent with the year for which currency values are entered.

The form is organized using four categories across any number of transit modes that describe your agency's services:

- Labor (expenses related to your staff)
- Purchased Services (includes contract workers)
- Non-labor expenditures
- Other Administrative Costs

The category "Labor" is the only part of this input form where you describe two metrics – staff count and the associated annual payroll – which are direct effects of transit agency operations. All remaining information you enter represents supplier requirements from 'outside of the agency.' These 'demand' values will become what is referred to as 1st-round indirect effects after local purchase coefficients are applied (excluding tax payments). Note: a summation of the dollar entries down and across all mode-specific columns serves as a rough proxy (before capital expenditures) for the agency's annual Sales (or Output) post-subsidy.

Once you complete filling the input table, click *SAVE*.

Note on Pasting Data from Excel: You have the option to paste data into the form from an Excel spreadsheet. Copy the cells in Excel onto your clipboard (ctrl-c) and then click into the first cell in the form to highlight it, and then click the Paste from Excel button at the top left of the form. Note: It is best to select a section of the table at a time. Also, due to limitations in browsers, please use Internet Explorer for this functionality.

Note: The system performs a check of average salaries to highlight extreme values. If average salaries are greater than $250,000 or below $5,000 a warning appears. Press OK to close the warning and update your inputs if desired.

Table 2 Using NTD data to develop operational budget inputs

Annual Operating Budget Amounts	Data Source	Field[7]	Notes
Labor			
Number of staff on Payroll	NTD: Employees	(Column U) Total Full Time Employee Count + (Column AI) Total Part Time Employee Count	
Fraction living in local area (0.0 - 1.0)	User	Default set at 0.95	
Operators' salaries and wages ($M)	Operating Expenses	(Column I) Operators' salaries and wages	(A)
Other salaries and wages ($M)		(Column J) Other Salaries and Wages	
Fringe Benefits ($M)		(Column K) Fringe Benefits	
Purchased Services			
Vehicle Operations ($M)	NTD: Operating Expenses	Sum of PT Funds in Report (Column S), for Operating Expense Type: Vehicle Operations	
Vehicle Maintenance ($M)		Sum of PT Funds in Report (Column S), for Operating Expense Type: Vehicle Maintenance	
Non-Vehicle Maintenance ($M)		Sum of PT Funds in Report (Column S), for Operating Expense Type: Non-Vehicle Maintenance	
General Administration ($M)		Sum of PT Funds in Report (Column S), for Operating Expense Type: General Administration	
Non-Labor Expenses			
Fuel and Lubricants Expenditure ($M)	NTD: Operating Expenses	(Column M) Fuel and Lubricants	(A)
Tires and tubes ($M)		(Column N) Tires and Tubes	
Other materials and supplies ($M)		(Column O) Other Materials and Supplies	
Other Administrative Costs			
Utilities ($M)	NTD: Operating Expenses	(Column P) Utilities	(A)
Casualty and Liability Costs ($M)		(Column Q) Casualty and Liability Costs	
Taxes ($M)		(Column R) Taxes	
Services (Outside Support, $M)	NTD: Operating Expenses	(Column L) Service Costs	
Other Admin ($M)	User	User knowledge, or calculated as the difference between Total Operating Expenses and the sum of all other costs already entered	(A)
Note (A): Be careful to only sum across "Total" as the Operating Expense Type so as to not double count. Sum for all Types of Service (TOS), i.e. both Direct Operated (DO) and Purchased Transportation (PT), as this will include activities within a transit agency that are associated with PT, but still performed within a public transit agency. The expenditures under Purchased Services cover the actual payments by an agency to an outside provider.			

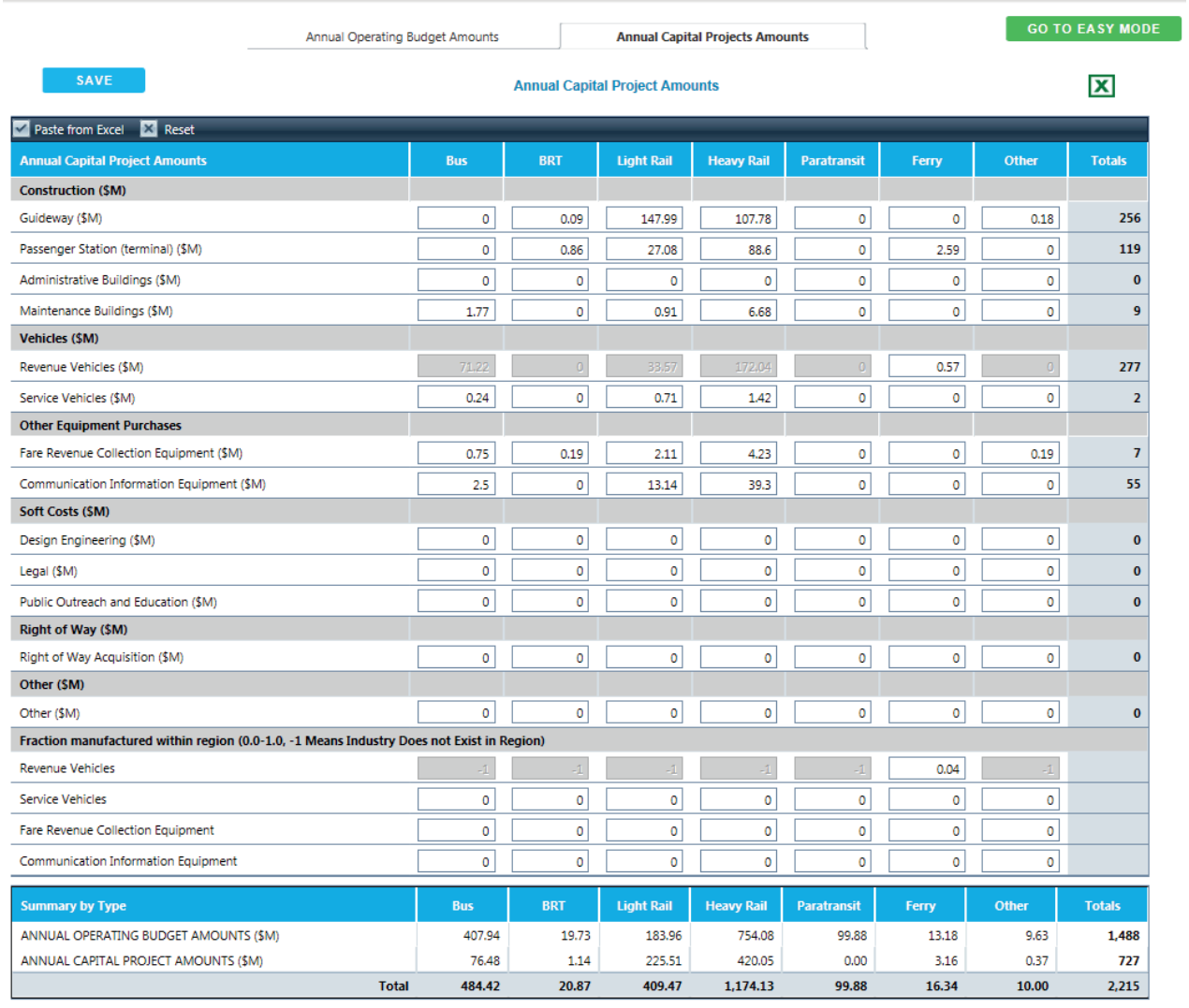
[7] Column designations based on 2015 files

Annual Capital Activities Inputs

Similar to the Annual Operating Budget tab, this tab allows entry of your agency's Annual Capital Project expenditures, using the budget categories shown in Figure 3. **Note:** The last four (4) rows contain measures for the fraction manufactured within the study region, expressed as a number between 0 and 1. These will be populated by default using local regional economic data, but can be adjusted by the user, provided the industry is present in your region.

Those interested in developing capital activities tool inputs directly from the NTD databases can follow the instructions in Table 3. Alternately, data may be available from project pro formas.

Figure 3: Inputs - Annual Capital Budget



Annual Capital Project Amounts	Bus	BRT	Light Rail	Heavy Rail	Paratransit	Ferry	Other	Totals
Construction ($M)								
Guideway ($M)	0	0.09	147.99	107.78	0	0	0.18	**256**
Passenger Station (terminal) ($M)	0	0.86	27.08	88.6	0	2.59	0	**119**
Administrative Buildings ($M)	0	0	0	0	0	0	0	**0**
Maintenance Buildings ($M)	1.77	0	0.91	6.68	0	0	0	**9**
Vehicles ($M)								
Revenue Vehicles ($M)	71.22	0	33.57	172.04	0	0.57	0	**277**
Service Vehicles ($M)	0.24	0	0.71	1.42	0	0	0	**2**
Other Equipment Purchases								
Fare Revenue Collection Equipment ($M)	0.75	0.19	2.11	4.23	0	0	0.19	**7**
Communication Information Equipment ($M)	2.5	0	13.14	39.3	0	0	0	**55**
Soft Costs ($M)								
Design Engineering ($M)	0	0	0	0	0	0	0	**0**
Legal ($M)	0	0	0	0	0	0	0	**0**
Public Outreach and Education ($M)	0	0	0	0	0	0	0	**0**
Right of Way ($M)								
Right of Way Acquisition ($M)	0	0	0	0	0	0	0	**0**
Other ($M)								
Other ($M)	0	0	0	0	0	0	0	**0**
Fraction manufactured within region (0.0-1.0, -1 Means Industry Does not Exist in Region)								
Revenue Vehicles	-1	-1	-1	-1	-1	0.04	-1	
Service Vehicles	0	0	0	0	0	0	0	
Fare Revenue Collection Equipment	0	0	0	0	0	0	0	
Communication Information Equipment	0	0	0	0	0	0	0	

Summary by Type	Bus	BRT	Light Rail	Heavy Rail	Paratransit	Ferry	Other	Totals
ANNUAL OPERATING BUDGET AMOUNTS ($M)	407.94	19.73	183.96	754.08	99.88	13.18	9.63	**1,488**
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Total	**484.42**	**20.87**	**409.47**	**1,174.13**	**99.88**	**16.34**	**10.00**	**2,215**

The form is organized using six categories of capital related expenditures (again across any number of transit modes that describe your agency's services):

- Construction $M (contract values)
- Vehicles $M (rolling stock purchases)
- Other Equipment $M
- Soft Costs $M
- Right-of-Way Acquisition $M
- Other $M (for remaining dollars that haven't been assigned to one of the prior sub-categories)

At the bottom of the form you can adjust the "Fraction" indicating extent of "within region manufacturing." For instance, if the heavy rail car order will be fulfilled in Vermont, which is not your region, your entry would be "0.0." The system will set default fractional values based on your study region.

After you complete the input form, click *SAVE.*

Clicking on the *RESULTS* tab will calculate and present the results.

Table 3 Using NTD data to develop capital budget inputs

Annual Capital Project Amounts	Data Source	Field[8]
Construction ($M)		
Guideway ($M)	NTD: Capital Expenses	(Column I) Guideway
Passenger Station (terminal) ($M)		(Column J) Passenger Stations
Administrative Buildings ($M)		(Column K) Administrative Buildings
Maintenance Buildings ($M)		(Column L) Maintenance Buildings
Vehicles ($M)		
Revenue Vehicles ($M)	NTD: Capital Expenses	(Column M) Revenue Vehicles
Service Vehicles ($M)		(Column N) Service Vehicles
Other Equipment Purchases		
Fare Revenue Collection Equipment ($M)	NTD: Capital Expenses	(Column O) Fare Revenue Collection Equipment
Communication Information Equipment ($M)		(Column P) Communication Information Systems
Soft Costs ($M)		
Design Engineering ($M)	User	
Legal ($M)	User	
Public Outreach and Education ($M)	User	
Right of Way ($M)		
Right of Way Acquisition ($M)	User	
Other ($M)		
Other ($M)	User	User knowledge, or calculated as the difference between Total Capital Funds and the sum of all other costs already entered
Fraction manufactured within region (0.0-1.0)		
Revenue Vehicles	User	Default set within tool using regional economic data, but can be adjusted
Service Vehicles		
Fare Revenue Collection Equipment		

[8] Column designations based on 2015 files

Results

The results screen is divided into five (5) report tabs: Local Economic Impact Summary, Jobs by Sector O&M, Jobs by Sector Capital, Jobs by Occupation O&M, and Jobs by Occupation Capital. The data tables generated may be exported to an Excel spreadsheet by clicking on the appropriate icon next to the report title. The graphics may be saved as an image file by clicking the camera icon.

Note: The Economic Impact Summary Report is only available as a data table, while the remaining reports may be viewed as a data table, pie chart, or vertical stacked bar chart by using the drop-down menu at the upper left side of your screen.

Economic Impact Summary

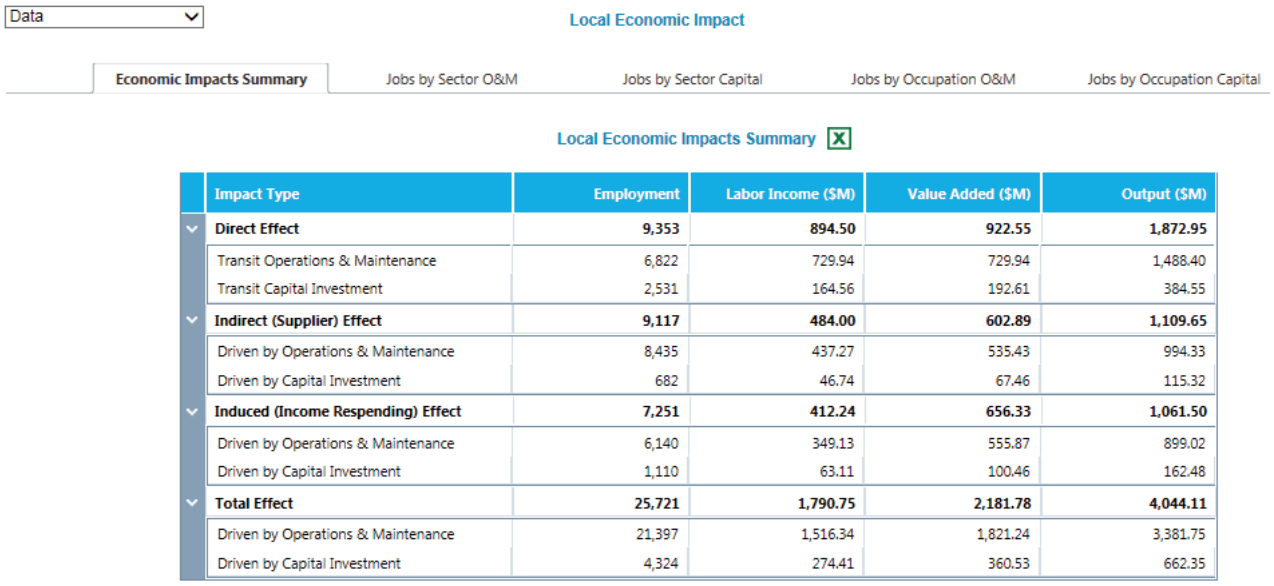
The Results tab contains a Summary report with four (4) macroeconomic indicators:

- Employment (# Jobs, not Full Time Equivalents)
- Labor Income (total wages plus fringe benefits)
- Value Added
- Output (production)

These are presented by Direct, Indirect (Supplier), and Induced (Income Respending) effects for Operations and for Capital activities, both separately and in total, followed by a dedicated report (one for Operations, one for Capital) of Jobs Impacts by Sector and by Occupation. An interpretation of the type of information contained on each report is provided next.

The Summary report is shown in Figure 4. The four key metrics reported on are *jobs, labor* income (wages and fringe benefits), *output* (sales), and the *value*-added portion of "sales."

Figure 4: Economic Impact by Industry Summary



Impact Type	Employment	Labor Income ($M)	Value Added ($M)	Output ($M)
Direct Effect	**9,353**	**894.50**	**922.55**	**1,872.95**
Transit Operations & Maintenance	6,822	729.94	729.94	1,488.40
Transit Capital Investment	2,531	164.56	192.61	384.55
Indirect (Supplier) Effect	**9,117**	**484.00**	**602.89**	**1,109.65**
Driven by Operations & Maintenance	8,435	437.27	535.43	994.33
Driven by Capital Investment	682	46.74	67.46	115.32
Induced (Income Respending) Effect	**7,251**	**412.24**	**656.33**	**1,061.50**
Driven by Operations & Maintenance	6,140	349.13	555.87	899.02
Driven by Capital Investment	1,110	63.11	100.46	162.48
Total Effect	**25,721**	**1,790.75**	**2,181.78**	**4,044.11**
Driven by Operations & Maintenance	21,397	1,516.34	1,821.24	3,381.75
Driven by Capital Investment	4,324	274.41	360.53	662.35

DIRECT EFFECTS: For the Operations (O&M) line, the Direct Effect would indicate your agency has 6,822 staff; your annual payroll for those staff is $730M; the agency produces $1,488M in transit services; and the value-added on those services is $730M.[9] For Direct Effects under the Capital context, the report indicates some 2,531 jobs from among construction firms, jobs related to soft costs, and perhaps some manufacturing jobs to the extent you indicated Vehicle and Equipment purchases would be sourced from your local economy.

INDIRECT EFFECTS: For the Operations (O&M) line, the indirect effect reflects your 'outside of agency' purchases that are adjusted for "local" procurement (using the lpc concept)[10] and other cycles of business-to-business transactions that were catalyzed by locally fulfilled agency requirements. This amounts to 8,435 jobs (across various sectors that provide goods & services); with annual labor income of $437M; local indirect transactions represent $994M in local sales; and the value-added on those sales is $535M. For Indirect Effects under the Capital context, these responses come from the regional indirect multiplier response solely (i.e. there is no implied 1st round indirect transactions on your Capital Input form). You can read the reported values across the row as just done for Operations.

INDUCED EFFECTS: These are the influences on the local economy from changes in household spending whenever income (here earned income) changes. When consumer spending increases and some portion of that is with local businesses, jobs are created, and those jobs are paid wages and benefits. For the Operations (O&M) line, the induced effect reflects (i) how many of your staff also live in the region (from your Input form value) and whether that is more or less than what the IMPLAN regional data indicate for a general commuter rate, and (ii) effects from other instances of wage creation (from other cycles of indirect activity). The increase in local (resident) consumer spending which determines the size of the induced effect is therefore based on the portion of the labor income impact (a place-of-work concept) that remains in the region "after the work day." For O&M then, some

[9] Remember: Value added is set to be the same as wages as there is not profit in the case of a transit agency.
[10] Referred to as 1st round indirect transactions.

6,140 local jobs are associated with increase in local household spending, those jobs are paid $349M in wages and benefits, those jobs are associated with $899M in sales and $556M in value-added on those sales. A similar narrative holds for the Capital phase induced effects.

TOTAL EFFECTS: At the bottom of the Summary table values, impacts on the 4 metrics are shown inclusive of all stages of impact. You can also see the annual result across the four metrics for O&M and Capital Activities combined.

Jobs by Sector O&M

This report identifies the number of jobs attributed to major industry sectors, broken out by direct, indirect, and induced (and 'total') due to the annual O&M budget. Using the drop-down menu, you may view the results as a data table (with complete detail), pie chart (showing total jobs created by industry sector), or stacked bar chart (showing complete detail on stage of impact). Note that jobs reported under "Other Services" for Direct Effects are primarily in maintenance and repair services, while those reported as "Other Services" under Induced Effects correspond to industries supported by consumer spending, such as restaurants.

Figure 5: Jobs by Sector O&M Data Table

Data

Local Economic Impact

Economic Impacts Summary | **Jobs by Sector O&M** | Jobs by Sector Capital | Jobs by Occupation O&M | Jobs by Occupation Capital

Jobs by Sector (Annual O&M)

NAICS	Sector	Jobs			
		Direct	Indirect	Induced	Total
111-115, 211-213	Agriculture & Extraction	0	9	17	26
221	Utilities	0	58	19	77
230	Construction	0	694	62	756
311-339	Manufacturing	0	30	71	100
420	Wholesale Trade	0	91	178	269
441-454	Retail Trade	0	599	915	1,514
481-488	Transportation	6,822	2,223	106	9,152
491-493	Postal & Warehousing	0	52	54	105
511-519	Media and Information	0	42	110	152
521-525, 531-533	Financial Activities	0	307	677	985
541,551,561-562	Professional & Business Services	0	3,067	608	3,675
611, 621-624	Education & Health Services	0	2	1,801	1,802
711-713, 721-722,811-814	Other Services	0	1,219	1,505	2,725
920	Government	0	42	17	59
	Total	**6,822**	**8,435**	**6,140**	**21,397**

Figure 5 presents as a data table the Jobs by Sector for the Annual Operating Budget impacts. The total line for the direct jobs matches the Employment for the Direct Effect for Operations & Maintenance on the Economic Impact summary report as expected. Figure 6 and Figure 7 show the graphical presentations of this data.

Figure 6: Total Job Impact by Sector O&M - Pie Chart

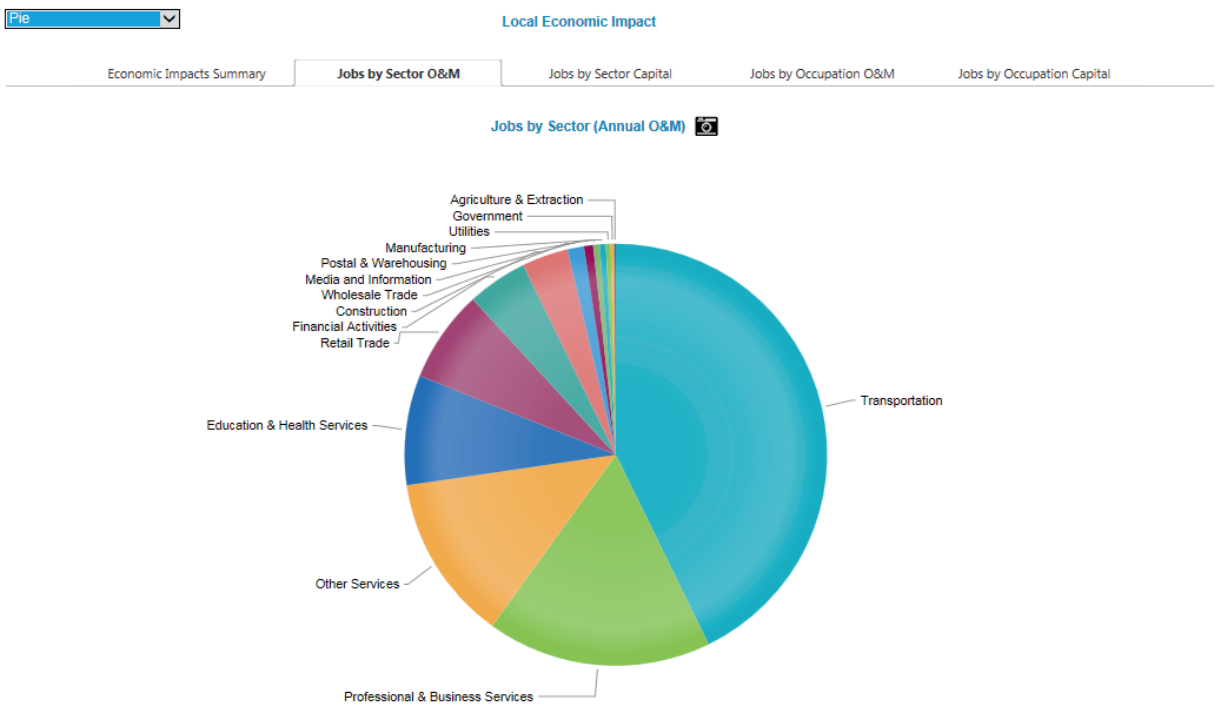
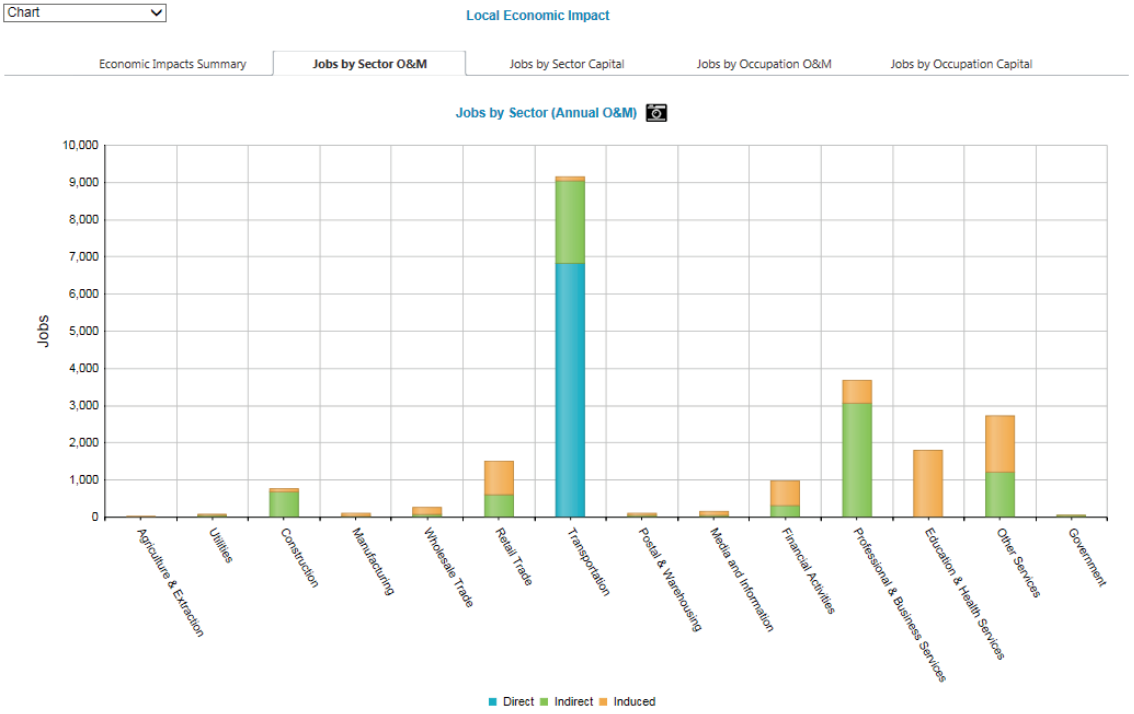


Figure 7: Job Impact by Sector & Stage for O&M - Bar Chart



Jobs by Sector Capital

In a similar manner to the Jobs by Sector O&M report, this report shows the jobs created by sector due to the Annual Capital Budget provided.[11]

Figure 8: Job Impacts by Sector Capital

Data

Local Economic Impact

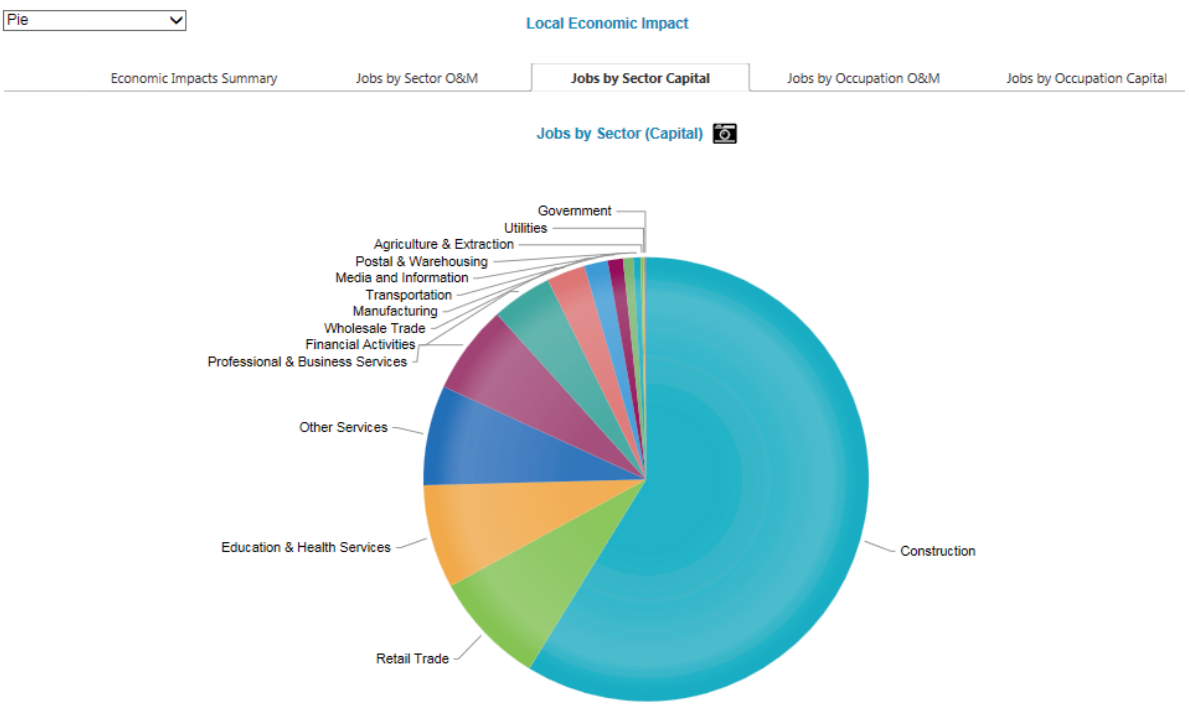
Economic Impacts Summary | Jobs by Sector O&M | **Jobs by Sector Capital** | Jobs by Occupation O&M | Jobs by Occupation Capital

Jobs by Sector (Capital)

NAICS	Sector	Jobs			
		Direct	Indirect	Induced	Total
111-115, 211-213	Agriculture & Extraction	0	4	3	7
221	Utilities	0	2	3	6
230	Construction	2,531	5	11	2,547
311-339	Manufacturing	0	61	13	74
420	Wholesale Trade	0	88	32	121
441-454	Retail Trade	0	191	166	357
481-488	Transportation	0	29	19	48
491-493	Postal & Warehousing	0	14	10	23
511-519	Media and Information	0	12	20	32
521-525, 531-533	Financial Activities	0	63	122	185
541,551,561-562	Professional & Business Services	0	170	110	280
611, 621-624	Education & Health Services	0	1	326	326
711-713, 721-722,811-814	Other Services	0	42	272	314
920	Government	0	1	3	4
	Total	**2,531**	**682**	**1,110**	**4,324**

[11] Note that "Financial Activities" is a large sector that includes equipment rentals, such as the rental of service vehicles.

Figure 9: Total Job Impact by Sector for Capital - Pie Chart



Also available is a stacked bar chart similar to Figure 7.

Note: The distribution of job changes over industries will be different by stage of impact, but a comparison of the direct stage job impact allocation across industries will also differ depending on whether it is O&M or Capital Activities that are making requirements on the local economy.

Jobs by Occupation O&M, Capital

The Transit Expenditure Impact Calculator also provides similar reports for Jobs by Occupation for both operations & maintenance and capital expenditures, depending on the tab selected. A sample of a data table is shown in Figure 10.

Figure 10: Jobs by Occupation O&M - Data Table

Data

Local Economic Impact

Economic Impacts Summary | Jobs by Sector O&M | Jobs by Sector Capital | **Jobs by Occupation O&M** | Jobs by Occupation Capital

Jobs by Occupation (Annual O&M)

Code	Description	Occupation			
		Direct	Indirect	Induced	Total
11-0000	Management Occupations	105	433	261	799
13-0000	Business and Financial Operations Occupations	55	394	249	698
15-0000	Computer and Mathematical Occupations	3	159	100	261
17-0000	Architecture and Engineering Occupations	4	68	31	103
19-0000	Life, Physical, and Social Science Occupations	0	30	33	63
21-0000	Community and Social Service Occupations	0	13	131	144
23-0000	Legal Occupations	0	35	39	74
25-0000	Education, Training, and Library Occupations	0	6	232	238
27-0000	Arts, Design, Entertainment, Sports, and Media Occupations	1	72	112	186
29-0000	Healthcare Practitioners and Technical Occupations	20	68	503	592
31-0000	Healthcare Support Occupations	0	47	311	358
33-0000	Protective Service Occupations	25	37	59	121
35-0000	Food Preparation and Serving Related Occupations	7	73	794	873
37-0000	Building and Grounds Cleaning and Maintenance Occupations	22	117	231	369
39-0000	Personal Care and Service Occupations	222	106	334	662
41-0000	Sales and Related Occupations	46	1,011	771	1,829
43-0000	Office and Administrative Support Occupations	743	2,153	1,062	3,958
45-0000	Farming, Fishing, and Forestry Occupations	0	4	16	20
47-0000	Construction and Extraction Occupations	0	470	69	539
49-0000	Installation, Maintenance, and Repair Occupations	282	801	222	1,305
51-0000	Production Occupations	0	176	146	322
53-0000	Transportation and Material Moving Occupations	5,286	2,161	347	7,794
99-9999	Unknown Occupations	0	0	87	87
	Total	**6,822**	**8,435**	**6,140**	**21,395**

Acknowledgements

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Notes

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