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This guide was made possible by support from The Summit Foundation.
INTRODUCTION

In cities and towns across the U.S., momentum is building to provide more and better transportation options, including better bike networks. Although research suggests that Americans generally believe that bicycling relieves congestion, improves health, and is good for the environment, local businesses are often concerned about the potential for negative economic outcomes when street improvements are proposed—particularly if parking or travel lanes are removed.

Until recently, there was little research examining the economic effects of street improvements to guide this conversation. However, in 2013, the New York City Department of Transportation (NYC DOT) teamed up with Bennett Midland to evaluate the economic effects of bicycle and pedestrian street improvements. The study analyzed sales tax data and found street improvements did not impede economic vitality, and may have contributed to positive growth, with streets becoming more welcoming to bicyclists and pedestrians relative to those without improvements.

In 2017, Bennett Midland, Portland State University, and PeopleForBikes partnered on the National Study of the Economic Impact of Street Improvements (Street Improvements Study)—a project applying a similar approach while incorporating new research methods and data sources to study four other U.S. cities: Minneapolis, MN; Indianapolis, IN; Memphis, TN; and Seattle, WA. The results of that study are scheduled for release in the summer of 2020.

This guidebook is designed to provide elected officials, practitioners, and residents the tools for an evidence-based conversation about the impact of street improvements in their communities to inform future policy decisions, and dispel myths that may stand in the way of meaningful benefits for residents. The more we understand about how street improvements affect local economic outcomes, the stronger the case for more and bigger investments in better places to live, walk, and ride.

OVERVIEW STREET IMPROVEMENT STUDY

The primary goal of the Street Improvements Study was to examine the economic effects of bicycle-related street improvements on retail sales and employment. Participating cities selected improvement corridors where a relatively recent bicycle-related improvement was installed and comparison corridors that share characteristics of the project corridor but without a bicycle-related improvement.

The Portland State University team compared retail sales and employment metrics before and after the improvement was installed in each project corridor. They also compared retail sales and employment in the improvement corridors to the comparison corridors and the city as a whole to account for broader regional economic development.

In what follows we will provide details on how to select project and improvement corridors, how to collect retail sales tax and employment data, and how to analyze those data. We conclude with a section on how to share the results to make the case for continued investment.
Choosing appropriate improvement and comparison corridors for evaluation is critically important in demonstrating that controversial street improvements yield economic benefit to local business. We suggest choosing multiple comparison corridors in case any of the corridors turn out to be poor comparisons for reasons we didn’t anticipate.

**KEY CHARACTERISTICS OF GOOD IMPROVEMENT CORRIDORS INCLUDE:**

1. High level of commercial activity
   
   **A. Useful measures to assess include:**
   
   I. Large number of taxpayers and businesses in the study areas
   
   II. Large number of businesses characterized as Retail Trade (e.g., grocery stores, clothing stores, florists; NAICS Code 44-45)

   III. Large number of businesses characterized as Accommodation and Food Services (e.g., bars, restaurants, hotels; NAICS Code 72)

   **B. The following kinds of businesses may make an improvement corridor a less desirable candidate:**
   
   I. If there are a large number of businesses excluded from retail sales tax, it is more likely that study outcomes will vary across data sources, which will make it difficult to draw cross-cutting conclusions.

   II. Chain businesses within the corridor. Chain businesses may report retail sales tax information for their corporate office, not at the address in the study area, which would skew results.

2. A minimum of ten adjacent, or intersecting, census blocks

3. Consistent and high level of motor vehicle traffic (i.e., as opposed to a plaza)

4. Presence of a bike lane installation that required the removal of traffic lanes and/or parking

5. Presence of street improvements completed about five years prior to the current date (to allow a sufficient amount of pre- and post-improvement data, three years in each direction, to have been collected)

In addition to examining the economic results at the selected improvement sites, the study will also consider results at comparable locations that did not receive an improvement.

**KEY CHARACTERISTICS OF GOOD COMPARISON CORRIDORS:**

1. Geographically close to the improvement corridor

2. Similar level and type of commercial activity as the improvement corridor

3. Similar commercial employment or sales growth trend over years as improvement corridor before improvement has taken place

4. Comparable travel volume as the improvement corridor

5. Similar position within the road network

   **A. For example, do they both feed into highways, bridges, residential corridors, etc.?**
A sample table to capture information about your proposed improvement and comparison corridors is included below:

<table>
<thead>
<tr>
<th>IMPROVEMENT CORRIDORS</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of improvement site</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Start point (intersecting street)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>End point (intersecting street)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Site length</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nature of street improvements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Removal of parking? Y/N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Removal of travel lanes? Y/N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction start date</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction end date</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description of commercial activity</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CORRESPONDING COMPARISON CORRIDORS</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of corresponding control site</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Start point (intersecting street)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>End point (intersecting street)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Site length</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description of commercial activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional notes and details</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COMPARISON CATEGORY</th>
<th>INDICATORS</th>
<th>METHOD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation/Geography</td>
<td>Geography proximity, Street classification (travel volume), Role in road network</td>
<td>Researcher judgement</td>
</tr>
<tr>
<td>Business activity</td>
<td>Job percentile brackets to regional average, Business jobs share compared to overall jobs, Pre-construction employment growth rate</td>
<td>Statistical test (t-test)</td>
</tr>
</tbody>
</table>
Once you have selected your project and comparison corridors, you can get to work collecting the required data. There are three data sources you will need:

1. The Longitudinal Origin-Destination Employment Statistics (LODES) data set from the Longitudinal Employer-Household Dynamics Dataset (LEHD)
2. Sales tax data
3. Quarterly Census of Employment and Wages (QCEW) data

If the sales tax or QCEW data is not available, proprietary datasets such as the NETS (National Establishment Time Series) or the Reference USA dataset from Infogroup or credit card transaction data may be suitable alternatives. Note that these proprietary sources of data may be costly, and may or may not be comparable to the public data sources.

BELOW WE PROVIDE ADDITIONAL DETAIL ABOUT THE THREE RECOMMENDED DATA SOURCES.

LONGITUDINAL EMPLOYER-HOUSEHOLD DYNAMICS DATASET (LEHD)

The Longitudinal Origin-Destination Employment Statistics (LODES) data set from the Longitudinal Employer-Household Dynamics Dataset (LEHD) provides geographically granular detail about jobs, workers, and local economies, allowing us to examine employment by broad industry sector, wage, and educational attainment.

One disadvantage of the LODES data set is that in order to guarantee confidentiality, block-level data is “fuzzed,” so the numbers reflect estimates instead of the exact number of jobs. Additionally, though employment is disaggregated by industry, it is only provided at the most general level (the equivalent of two-digit NAICS codes) so we are unable to isolate restaurant workers from hotel service workers, for example. That said, the LODES data set is comprehensive, offers unprecedented geographic detail, and is longitudinal, allowing for consistent comparisons over time.

Who has the data?
The LEHD data is publicly available at United States Census Bureau¹. The data files are available for each state at the census block geographic level, and available for most states from 2002 to 2015. In particular, our methodology uses the Workplace Area Characteristics (WAC) data within LEHD for our analysis. An example of LEHD data extraction for city of Minneapolis is available at: https://github.com/shiweipsu/Street-Improvement-Impact/blob/master/Code/7-24_grab_minneapolis_lehd.R.

What do I need?
We utilized open source R packages—“tigris”² and “lehdr”³—to download the citywide annual LEHD employment at block level from the Census website⁴. Corridor level employment, on blocks directly abutting the street corridor or comparison corridors, were selected using geographical (GIS) techniques by intersecting street corridor geography with downloaded block data for your state. If geographical software is not available, the blocks can also be selected using block ID in Excel (or another spreadsheet software).

¹https://lehd.ces.census.gov/data/
²Package description is available at https://github.com/walkerke/tigris.
³Package description is available at https://github.com/jamgreen/lehdr.
⁴An example of LEHD data extraction for city of Minneapolis is available at https://github.com/shiweipsu/Street-Improvement-Impact/blob/master/Code/7-24_grab_minneapolis_lehd.R.
1. Data from three years before and after street improvement employment data is necessary.
2. Two particular business industry sectors are of interest: CNS 07 (NAICS sector 44-45 - Retail Trade) and CNS 18 (NAICS sector 72 - Accommodation and Food Service), along with the total employment, which is designated as C000.
3. Data should be filtered such that only blocks directly abutting the street improvement corridors and comparison corridors are chosen.

Example Dataset

<table>
<thead>
<tr>
<th>CENSUS BLOCK ID</th>
<th>YEAR</th>
<th>C000</th>
<th>CNS 07</th>
<th>CNS18</th>
</tr>
</thead>
<tbody>
<tr>
<td>999999999999999</td>
<td>2004</td>
<td>101</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>999999999999999</td>
<td>2005</td>
<td>108</td>
<td>12</td>
<td>18</td>
</tr>
<tr>
<td>999999999999999</td>
<td>2006</td>
<td>122</td>
<td>15</td>
<td>21</td>
</tr>
<tr>
<td>999999999999999</td>
<td>2007</td>
<td>128</td>
<td>16</td>
<td>25</td>
</tr>
</tbody>
</table>

SALES TAX DATA

Sales tax data allows us to estimate a more sensitive measure of economic activity than employment as measured by the LEHD. Some drawbacks of sales tax data are that some states do not have a sales tax or, in states or cities that do have one, the sales tax data is not broken down by specific industry, creating problems when some goods or services are taxed at different rates. For example, in Minneapolis, general clothing, legal drugs, and unprepared food are exempted from tax collection.

In order to interpret the results of the analysis, it is important to understand the general structure of the sales tax in the jurisdiction that is being analyzed. This may also allow you to understand whether there may be anomalies or misreported data.

The following are key things to note:
1. State level sales tax rate
2. County level taxes that are included in estimates
3. Whether city sales/use tax is included
4. In some places, there are products excluded from sales tax collection that can hamper the ability of sales tax data to accurately reflect all retail business vitality. If this is the case, clearly note this in the analysis so anyone interpreting the results can take this into consideration.
5. Sometimes, the reported amounts in the sales tax data are the sales tax collected instead of the sales revenue that it is charged on. If this is the case, the sales tax can be converted into the sales revenue by applying the sales tax rates.

Who has the data?

Sales tax data is typically housed at the state level in the Department of Revenue, Department of Finance, Department of Economic Development, or Office of Innovation Delivery and Performance.

What do I need?

Request total sales over time for each establishment within each improvement and comparison site and at the neighborhood and city level.

---

For the North American Industry Classification System (NAICS), please visit https://www.census.gov/eos/www/naics/.
1. Include business types by North American Industry Classification System (NAICS) code:
   A. Retail Trade (NAICS Code 44-45): grocery stores, clothing stores, florists
   B. Accommodation and Food Services (NAICS Code 72): bars, restaurants, hotels
2. All data at least three years pre- and post-construction, by quarter if possible.
3. Understand the data owner’s parameters for confidentiality. For sales tax data, this likely means that data must be aggregated to the block level and anonymized to protect taxpayer confidentiality. If this is a barrier to obtaining sales tax data, you can request it at the site level, but block level is preferable.

**DIFFERENT CITIES AND DEPARTMENTS MAY PROVIDE DATA IN DIFFERENT FORMATS, BUT IN GENERAL THE DATASET SHOULD INCLUDE THE FOLLOWING:**

1. Sales tax collected or taxable sales (these data points are typically available quarterly or annually)
2. NAICS code or industry sector
3. Business address or XY coordinates (for establishment-level data only).

**NEIGHBORHOOD LEVEL DATA:**

*Example Sales Tax Data (Short format)*

<table>
<thead>
<tr>
<th>CENSUS BLOCK</th>
<th>TIME PERIOD</th>
<th>RETAIL TRADE: TAXABLE SALES</th>
<th>RETAIL TRADE: # OF BUSINESSES</th>
<th>FOOD + ACCOMMODATION: TAXABLE SALES</th>
<th>FOOD + ACCOMMODATION: # OF BUSINESSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>999999999999999</td>
<td>Y06Q1</td>
<td>$1,641,661</td>
<td>14</td>
<td>9,433,660</td>
<td>14</td>
</tr>
<tr>
<td>999999999999999</td>
<td>Y06Q2</td>
<td>$1,442,547</td>
<td>13</td>
<td>7,548,748</td>
<td>13</td>
</tr>
<tr>
<td>999999999999999</td>
<td>Y06Q3</td>
<td>$1,627,308</td>
<td>13</td>
<td>6,310,272</td>
<td>13</td>
</tr>
<tr>
<td>999999999999999</td>
<td>Y06Q4</td>
<td>$1,739,384</td>
<td>14</td>
<td>5,252,954</td>
<td>14</td>
</tr>
</tbody>
</table>

*Example Sales Tax Data (Long format)*

<table>
<thead>
<tr>
<th>CENSUS BLOCK</th>
<th>TIME PERIOD</th>
<th>INDUSTRY SECTOR</th>
<th># OF ESTABLISHMENTS</th>
<th>TAXABLE SALES</th>
</tr>
</thead>
<tbody>
<tr>
<td>999999999999999</td>
<td>Y06Q1</td>
<td>Retail</td>
<td>14</td>
<td>$1,641,661</td>
</tr>
<tr>
<td>999999999999999</td>
<td>Y06Q1</td>
<td>Food</td>
<td>14</td>
<td>$9,433,660</td>
</tr>
<tr>
<td>999999999999999</td>
<td>Y06Q2</td>
<td>Retail</td>
<td>13</td>
<td>$1,442,547</td>
</tr>
<tr>
<td>999999999999999</td>
<td>Y06Q2</td>
<td>Food</td>
<td>13</td>
<td>$7,548,748</td>
</tr>
<tr>
<td>999999999999999</td>
<td>Y06Q3</td>
<td>Retail</td>
<td>13</td>
<td>$1,627,308</td>
</tr>
<tr>
<td>999999999999999</td>
<td>Y06Q3</td>
<td>Food</td>
<td>13</td>
<td>$6,310,272</td>
</tr>
<tr>
<td>999999999999999</td>
<td>Y06Q4</td>
<td>Retail</td>
<td>14</td>
<td>$1,739,384</td>
</tr>
<tr>
<td>999999999999999</td>
<td>Y06Q4</td>
<td>Food</td>
<td>14</td>
<td>$5,252,954</td>
</tr>
</tbody>
</table>
**CORRIDOR LEVEL DATA:**

*Example Sales Tax Data (Aggregated long format)*

<table>
<thead>
<tr>
<th>CORRIDOR NAME</th>
<th>TIME PERIOD</th>
<th>INDUSTRY SECTOR</th>
<th># OF ESTABLISHMENTS</th>
<th>TAXABLE SALES</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABC Avenue</td>
<td>Y06Q1</td>
<td>Retail</td>
<td>34</td>
<td>$3,641,661</td>
</tr>
<tr>
<td>ABC Avenue</td>
<td>Y06Q1</td>
<td>Food</td>
<td>24</td>
<td>$19,433,660</td>
</tr>
<tr>
<td>ABC Avenue</td>
<td>Y06Q2</td>
<td>Retail</td>
<td>33</td>
<td>$3,442,547</td>
</tr>
<tr>
<td>ABC Avenue</td>
<td>Y06Q2</td>
<td>Food</td>
<td>23</td>
<td>$17,548,748</td>
</tr>
<tr>
<td>ABC Avenue</td>
<td>Y06Q3</td>
<td>Retail</td>
<td>33</td>
<td>$3,627,308</td>
</tr>
<tr>
<td>ABC Avenue</td>
<td>Y06Q3</td>
<td>Food</td>
<td>23</td>
<td>$16,310,272</td>
</tr>
<tr>
<td>ABC Avenue</td>
<td>Y06Q4</td>
<td>Retail</td>
<td>34</td>
<td>$3,739,384</td>
</tr>
<tr>
<td>ABC Avenue</td>
<td>Y06Q4</td>
<td>Food</td>
<td>24</td>
<td>$15,252,954</td>
</tr>
</tbody>
</table>

**QUARTERLY CENSUS OF EMPLOYMENT AND WAGES (QCEW) DATA**

The QCEW gives us address-level data on individual establishments as well as detailed employment information. QCEW data includes total wages paid and average employment, available quarterly back to the year 2000.

However, the individual QCEW data is confidential and requires special permission from the state in order to use it and has additional data use restrictions. For example, in Minnesota, we were unable to get disaggregated individual three-digit NAICS employment figures for the Minneapolis corridors. As a compromise, Minnesota’s Department of Employment and Economic Development (DEED) aggregated all of the three-digit NAICS retail codes (NAICS 442-453). These aggregated numbers correspond closely to the LEHD codes used in the report.

### Who has the data?

QCEW is typically housed at that state’s Employment Department, Employment Security Department, Department of Labor & Workforce Development, Bureau of Planning and Sustainability, or Department of Economic Development. The Bureau of Labor Statistics\(^6\) lists each state’s agency or office (typically the State Department of Labor) that hosts QCEW data.

### What do I need?

The study requires QCEW microdata in city on an establishment/business basis for each improvement and comparison site and at the neighborhood and city level. Disaggregated data at the business level is preferred to disaggregated data at the corridor level. Request total sales over time for each establishment within each improvement and comparison site and at the neighborhood and city level.

\(^6\)https://www.bls.gov/bls/ofulist.htm
1. Include business types by North American Industry Classification System (NAICS) code:
   A. Retail Trade (NAICS Code 44-45): grocery stores, clothing stores, florists
   B. Accommodation and Food Services (NAICS Code 72): bars, restaurants, hotels
2. All data at least three years pre- and post-construction, by quarter if possible.
3. Understand the data owner’s parameters for confidentiality. For sales tax data, this likely means that data must be aggregated to the block level and anonymized to protect taxpayer confidentiality. If this is a barrier to obtaining sales tax data, you can request it at the site level, but block level is preferable.

**SIMILAR TO SALES TAX DATA, THE QCEW DATA MAY BE PROVIDED IN DIFFERENT FORMATS FOR DIFFERENT CITIES AND DEPARTMENTS. THE DATASET SHOULD INCLUDE THE FOLLOWING VARIABLES:**

1. Employment (jobs) and wages (typically available monthly, quarterly or annually)
2. NAICS code or industry sector
3. Business address or XY coordinates (for establishment-level data only).

**BUSINESS LEVEL DATA:**

*Example QCEW Data (Disaggregated format)*

<table>
<thead>
<tr>
<th>CASEID</th>
<th>NAICS</th>
<th>BUSINESS NAME</th>
<th>ADDRESS</th>
<th>CITY</th>
<th>STATE</th>
<th>ZIP</th>
<th>YEAR</th>
<th>AVG EMPLOYMENT</th>
<th>TOTAL WAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1098</td>
<td>586901</td>
<td>Coffee Galore</td>
<td>123 Fairfield</td>
<td>Anywhere TX</td>
<td>99999</td>
<td>2006</td>
<td>12</td>
<td>$641,661</td>
<td></td>
</tr>
<tr>
<td>2304</td>
<td>586901</td>
<td>Doughnuts Now</td>
<td>346 Broadway</td>
<td>Anywhere TX</td>
<td>99999</td>
<td>2006</td>
<td>4</td>
<td>$433,660</td>
<td></td>
</tr>
<tr>
<td>3704</td>
<td>586901</td>
<td>Bar</td>
<td>769 Burnside</td>
<td>Anywhere TX</td>
<td>99999</td>
<td>2006</td>
<td>12</td>
<td>$442,547</td>
<td></td>
</tr>
</tbody>
</table>

**CORRIDOR LEVEL DATA:**

*Example QCEW Data (Aggregated format)*

<table>
<thead>
<tr>
<th>CORRIDOR NAME</th>
<th>INDUSTRY SECTOR</th>
<th>YEAR</th>
<th># OF ESTABLISHMENTS</th>
<th>AVERAGE EMPLOYMENT</th>
<th>TOTAL WAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABC Avenue</td>
<td>Retail</td>
<td>2006</td>
<td>34</td>
<td>112</td>
<td>$641,661</td>
</tr>
<tr>
<td>ABC Avenue</td>
<td>Retail</td>
<td>2007</td>
<td>24</td>
<td>4</td>
<td>$433,660</td>
</tr>
<tr>
<td>ABC Avenue</td>
<td>Retail</td>
<td>2008</td>
<td>33</td>
<td>122</td>
<td>$842,547</td>
</tr>
</tbody>
</table>
Obtaining data may be a multi-month process, so it is important to start forming relationships with those with access to the raw data as soon as possible. When reaching out to data owners, it helps to structure the conversation around the following topics:

1. **Align study objectives with city priorities:** Investing in resident mobility, parks, and streets is a top priority in City Hall. Recent street improvements enhance the experience of bicyclists and pedestrians in the city’s downtown commercial corridors. The Street Improvements Study will analyze the economic impact on retail properties adjacent to these recently implemented street improvements and assist leadership in making evidence-based decisions about pressing mobility and business issues.

2. **Precedent:** In 2012, Bennett Midland—the study organizers—partnered with the New York City Department of Transportation (NYCDOT) to develop and conduct a first-of-its-kind study on street improvements and economic vitality that was anchored in sales tax data for small geographic areas. Building on this study, Bennett Midland has since partnered with PeopleForBikes, Portland State University, and a cohort of local governments including Minneapolis, Indianapolis, and Memphis to advance and share this methodology.

3. **Minimum data set requirements:** Sales tax data is required to pursue the study. The 2012 NYCDOT study identified sales tax as the most accurate measurement of changes in ground floor retail activity.
   - **A. Time period:** The study requires three years of pre-construction data and three years of post-construction data for each data set that will be analyzed. The more pre-construction data that can be shared, the better, as it will improve our ability to understand general economic trends along the study corridors. Typically, this data is shared based on a quarterly reporting schedule.
   - **B. Data standards:** The study requires that the data is anonymized to the block-level, thereby protecting the confidentiality of tax remitters.

**FOR SAMPLE CONFIDENTIALITY AGREEMENTS, PLEASE SEE APPENDIX A AND B.**

Once there is an agreement in place with the data owner, it may be helpful to provide them with an example data request spreadsheet that demonstrates the different levels at which the data is being requested (i.e., corridor-, neighborhood-, and city-level). You can use the tables included above as a guide. Furthermore, sharing any spatial or geographical files you may have on the study corridors can help data owners match their information with the exact locations requested. Be sure to share the following types of spatial files:

1. **City infrastructure**
   - a. City boundaries and overall road network
   - b. Bike network, including bike segment types and/or construction dates.

2. **Buildings and neighborhood**
   - a. Building outline and parcel data: this data helps match business locations (either addresses or geocode) to the appropriate geography
   - b. Neighborhood or zip code boundary files for the city; this data allows for a localized comparison for street improvement sites and can be useful for future map visualizations.
TIPS AND TRICKS FROM PARTICIPATING CITIES

1. Set aside a couple of weeks and make data collection the top priority – it is more efficient than dedicating one hour a week for a long period of time.

2. Find out if anyone else has experience with the data – someone else in your city, another city in your region, or an experienced research partner; they can help you navigate the waters and may already have data sharing agreements in place.

3. Reach out to the highest leadership level when requesting data (e.g., senior staff to the mayor, departmental heads), and keep in mind that when the state house is in session can be a particularly busy time. Consider asking for in-person briefings to make the case, since it is amass all the necessary data without leadership support.
ANALYZING THE DATA

With the required data in hand, there are three primary analytic approaches that can be applied to isolate the impact of street improvements while controlling for other economic and regional factors. Select the appropriate methods based on the data available, weighing such factors as the number of years of pre- and post-construction data. If there are no data limitations, use all the methods.

THIS GUIDE FOCUSES ON THE FOLLOWING METHODS:

AGGREGATED TREND ANALYSIS (FOLLOWING THE NYC DOT 2012 STUDY)
Multiple years of pre- and post-construction data are not required for this method.

DIFFERENCE-IN-DIFFERENCE APPROACH
The outcome of this analysis can be distorted if appropriate comparison corridors are not identified.

INTERRUPTED TIME SERIES ANALYSIS
This approach does not control for confounding variables that may affect economic indicators. Some distortions or biases may occur when fewer years of data are available.

THIS SECTION FIRST WALKS THROUGH HOW TO CREATE THE APPROPRIATE DATASETS—WHICH DOES NOT VARY ACROSS ANALYTIC METHODS—AND THEN DESCRIBES EACH OF THE THREE ANALYTIC APPROACHES.

As described in the section of this guidebook on corridor selection, be sure you have identified:

Improvement corridors – where new bike or pedestrian related improvements were installed, ideally made up of a minimum of 10 adjacent, or intersecting, census blocks with a minimal number of retail and food service related jobs

Comparison corridors – similar to improvement corridors only without any kind of bike or pedestrian related improvements

All analyses can be carried out in most statistical software packages including R, SAS, Stata, and ArcGIS.

Across all of these, it is important to consider any large-scale economic trends (e.g., recession) that might influence results. This section of the guidebook notes how to take these considerations into account for each method.
CREATING DATA SETS

The first step is to create the datasets that contain the retail establishments that will be evaluated. Each corridor should be analyzed on its own, so there will be one dataset per improvement corridor, per data type. Since most cities are only able to obtain data aggregated at a city block or street improvement corridor level, the dataset should include only relevant business establishments that are located on the abutting blocks of the treatment and comparison corridors. Our approach includes all retail and food service establishments on the abutting blocks of the corridors using the following steps:

1. Load the raw data (e.g. LEHD, Sales tax data, QCEW)
2. Select the establishments belonging to each corridor’s abutting blocks
3. Add the corridor name to each establishment
4. City-level data – The majority of cities were also able to provide aggregated data (e.g., sales tax or QCEW) for the city as a whole, which can be used as a control for overall economic conditions later in the analysis.

EXAMPLE
The aggregated trend analysis is the approach used in the NYC DOT study (NYCDOT, 2012), designed to examine whether the improvement corridors tend to have better business performance than comparison corridors after street improvements. This approach allows a clear visual comparison of the business activity trends in the treatment corridor, comparison corridors, and at the city level as a whole.

At a high level, this approach compares the economic trends of improvement and comparison corridors and city-wide trends over the full time period of interest. Greater increases in employment or sales tax receipts among businesses located on the improvement corridor than the comparison corridors or the city as a whole suggest a positive impact of street improvement on business activities.

The aggregated trend comparison is easy to understand and the results lend themselves to simple graphics that clearly communicate trends. Specifically, you can make various kinds of trend plots and trend tables for each improvement corridor. The trend plots and tables are based on the following criteria:

1. Industry types: retail, food service, business (sum of retail and food service).
2. Economic indicators such as employment, employment index, employment per establishment, wage, wage index, sales tax, sales index, sales per establishment, the number of establishments.
   A. Index of economic activity = (Indicator of economic activity / mean of indicators of economic activity during three years pre-construction)*100
3. Establishments on the abutting blocks of the corridors and establishments facing the corridors.

1. How to calculate the index of the economic indicator
   A. Calculate the average of economic indicators of the three years prior to the construction
   B. Divide the economic indicator of each establishment by the value obtained from “a”
   C. Multiply 100 by the value obtained from “b”

2. How to make the trend table
   A. Calculate the growth rate
      i. Baseline: the average of the growth rates of the three years prior to the construction year
      ii. 1st year: (1st year’s economic indicator / baseline’s economic indicator) -1
      iii. 2nd, 3rd year: (2nd(or 3rd) year’s economic indicator / 1st(or 2nd) year’s economic indicator) -1
      iv. Average the three years’ growth rates
   B. Calculate the growth rates for the following subcategories:
      i. Industry types: retail, food services
      ii. Year: baseline (the average of the three years prior to the construction year), post-implementation (1st year, 2nd year, 3rd year, average of the three year)
      iii. Data: LEHD, Sales tax, QCEW
      iv. Economic indicators: employment, wage, sales
      v. Corridors
CONTINUED...

C. Fill the tables

<table>
<thead>
<tr>
<th>CORRIDOR</th>
<th>BASELINE</th>
<th>POST-IMPLEMENTATION</th>
<th>BASELINE</th>
<th>POST-IMPLEMENTATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BASE</td>
<td>GROWTH 1ST 2ND 3RD AVG</td>
<td>BASE</td>
<td>GROWTH 1ST 2ND 3RD AVG</td>
</tr>
<tr>
<td>LEHD [EMPLOYMENT]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CORRIDOR 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CORRIDOR 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. How to make the trend plot

A. Aggregate each economic indicator by year, corridors, and industry types

<table>
<thead>
<tr>
<th>CORRIDOR</th>
<th>YEAR</th>
<th>EMP RETAIL</th>
<th>EMP FOOD</th>
<th>EMP BUSINESS</th>
<th>WAGE RETAIL</th>
<th>WAGE FOOD</th>
<th>WAGE BUSINESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>2000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment</td>
<td>2001</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control 1</td>
<td>2000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

B. Set the X-axis to year and the Y-axis to economic indicator
C. Mark the construction period and baseline years (3 years pre-construction)
D. Draw trend plots for each corridor and city

4. Checklist for aggregated trend comparison

A. Trend based on economic indicators and indexed economic indicator should be similar
B. For indexed economic indicator trend plots, be sure to check that the average of the values of the 3 years pre-construction is 100
C. For the trend plots of total economic indicators (e.g. total employment, total wages, total sales tax), be sure to exclude trend for the city as a whole because this makes it difficult to discern the trends of other corridors (due to the differences in magnitude)

Despite the advantages, an aggregated trend comparison only evaluates whether economic outcomes are more positive on improvement than comparison corridors. This approach doesn’t statistically control for any other variables so it cannot determine whether the street improvement project directly caused any differences in economic outcomes between the improvement and comparison corridors.
The second method aims to estimate the difference in business vitality of pre- and post-improvement periods between treatment and comparison corridors within the same time period. This is known as a difference-in-difference (DID) approach. The approach looks at the change in employment levels or sales revenues in the improvement corridor before and after the street improvement occurs.

The difference in growth trajectories between the two periods for comparison corridors provide us with an unbiased estimate of the effect of the street improvement because there were no improvements to these corridors. For DID, you will modify the dataset and run regression models using the dataset created previously.

1. Filter data by street group
2. Aggregated each economic indicator by year, corridors, and industry types

<table>
<thead>
<tr>
<th>CORRIDOR</th>
<th>YEAR</th>
<th>EMP RETAIL</th>
<th>EMP FOOD</th>
<th>EMP BUSINESS</th>
<th>WAGE RETAIL</th>
<th>WAGE FOOD</th>
<th>WAGE BUSINESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>2000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment</td>
<td>2001</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control1</td>
<td>2000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Code for variables and run regression model
   A. Dependent variable: Economic indicator for each corridor, each year
      i. You may want to run the same regression model on different dependent variables, such as employment for retail, wage for retail or sales for retail, to examine the impact of the street improvements separately
   B. Independent variables:
      i. Type: Dummy variable which has:
            1 if the observation is from the control corridor  
            0 if the observation is from the treatment corridor
            » If you have two or more comparison corridors, you must create Type variables for each corridor such as Type_control1, Type_control2
      ii. Prepost: Dummy variable which has:
           1 if the observation is from the post-treatment period  
           0 if the observation is from the pre-treatment period
           » If you have two or more comparison corridors, you must create Type variables for each corridor such as Type_control1, Type_control2
      iii. DID estimator: Interaction term multiplied by Type and Prepost
           » If you have two or more comparison corridors, you must create DID estimator for each corridor

---

4. Interpret the result of DID

**A. Independent variable: DID estimator**

<table>
<thead>
<tr>
<th>DID ESTIMATOR</th>
<th>Significant</th>
<th>Positive (+)</th>
<th>Negative (-)</th>
<th>Non-Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Positive (+)</td>
<td>Positive (+)</td>
<td>Positive (+)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Positive (+)</td>
<td>Negative (-)</td>
<td>Non-Significant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Negative (-)</td>
<td>Negative (-)</td>
<td>Non-Significant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-Significant</td>
<td>Non-Significant</td>
<td>Non-Significant</td>
</tr>
</tbody>
</table>

- Negative casual effect of the street improvement on the economic indicator.
- Positive casual effect of the street improvement on the economic indicator.
- The street improvement had no statistically discernible effect.

**B. Control variables: Type, Prepost**

<table>
<thead>
<tr>
<th>TYPE</th>
<th>Significant</th>
<th>Positive (+)</th>
<th>Negative (-)</th>
<th>Non-Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Positive (+)</td>
<td>Negative (-)</td>
<td>Non-Significant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-Significant</td>
<td>Non-Significant</td>
<td>Non-Significant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-Significant</td>
<td>Non-Significant</td>
<td>Non-Significant</td>
</tr>
</tbody>
</table>

- Economic indicator of control corridor is higher than that of treatment corridor before street improvement.
- Economic indicator of control corridor is higher than that of control corridor before street improvement.
- There is no difference of the economic indicator between treatment and control corridor before street improvement.
- Economic indicator of post-treatment period is higher than that or pre-treatment period.
- Economic indicator of pre-treatment period is higher than that or post-treatment period.
- There is no difference of the economic indicator between pre and post-treatment period.

**C. Note on interpretation**

i. DID approach requires a parallel trend assumption that if there is no intervention, the differences between improvement corridor and each comparison corridor are constant over time. Abadie, A. 2005. Semiparametric difference-in-differences estimators. The Review of Economic Studies, 72(1), 1-19.

ii. Since the sign and the interpretation of the DID estimator are reversed, be careful of interpreting them.

iii. If there are two or more comparison corridors and the results of both corridors are inconsistent, the comparability of each comparison corridor should be reconsidered.

The DID approach is a more rigorous than the aggregated trend comparison because it can statistically control for variables that may contribute to the economic change in improvement corridors. Despite this advantage, because the DID approach assumes a prior parallel trend between the street improvement corridor and its corresponding comparison corridor(s), the results of analysis may vary depending on whether an appropriate comparison corridor was chosen (or available).
The third method, interrupted time series, is an econometric technique that estimates how street improvements impact corridor economic vitality from a longitudinal perspective\(^{9}\). This approach treats the street improvement as the “interruption” and estimates the change in the level and the growth trend of business activities in the corridor after the street improvement construction\(^{10}\). If the street improvement treatment has a causal impact, the post-intervention sales revenue or employment will show a different level or slope compared to the pre-intervention data. For ITS, you will modify data and run regression models using the dataset created previously.

1. Select the establishments on the improvement corridor
2. Aggregate each economic indicator by year and industry type

<table>
<thead>
<tr>
<th>YEAR</th>
<th>EMP RETAIL</th>
<th>EMP FOOD</th>
<th>EMP BUSINESS</th>
<th>WAGE RETAIL</th>
<th>WAGE FOOD</th>
<th>WAGE BUSINESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2001</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Code variables and run regression model
   A. **Dependent variable:** Economic indicator for each year
      i. Using the same method, run the regression models by changing the dependent variable such as employment for retail, wage for retail, sales for retail
   B. **Independent variables:**
      i. **Yearly trend:** Year of the observation - The oldest year to include in the model
         » [Example] If you want to include the observation after 2000, Yearly trend variable for the year 2005 is calculated as 4 (=2005-2001)
      
      ii. **Level change:** Dummy variable which has:

         ![1 if the observation is from the post-treatment period](image)
         ![0 if the observation is from the pre-treatment period](image)

      iii. **Slope change:** Interaction term multiplied by yearly trend and level change

---


4. Interpret the result of ITS

**A. Independent variable: Level change, Slope change**

<table>
<thead>
<tr>
<th>Level Change</th>
<th>Significant</th>
<th>Positive (+)</th>
<th>There is a jump in the level of economic indicator of the treatment corridor right after the street improvement.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Negative (-)</td>
<td>There is a drop in the level of economic indicator of the treatment corridor right after the street improvement.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non-Significant</td>
<td>There is no difference in the level of economic indicator of the treatment corridor right after the street improvement.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Slope Change</th>
<th>Significant</th>
<th>Positive (+)</th>
<th>Street improvement has a positive impact on the growth of the economic indicator.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Negative (-)</td>
<td>Street improvement has a negative impact on the growth of the economic indicator.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non-Significant</td>
<td>Street improvement has no impact on the growth of the economic indicator.</td>
<td></td>
</tr>
</tbody>
</table>

**B. Control variable: Yearly trend**

<table>
<thead>
<tr>
<th>Yearly Trend</th>
<th>Significant</th>
<th>Positive (+)</th>
<th>Over time, the economic indicator of the treatment corridor increases regardless of street improvement.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Negative (-)</td>
<td>Over time, the economic indicator of the treatment corridor decreases regardless of street improvement.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non-Significant</td>
<td>There is no significant trend of the economic indicator of the treatment corridor over time.</td>
<td></td>
</tr>
</tbody>
</table>

**C. Note on interpretation**

i. Even if the Level change coefficient is significant and negative, the actual trend may not show a drop in the level of the economic indicator of the improvement corridor.

[Diagram showing economic indicator over time with street improvement event]
ii. The results of analysis may vary depending on how many years of data are included in the analysis.

![Graph showing economic indicators over years]

iii. To avoid these problems, results should be interpreted in combination with aggregated trend comparison.

The right side of the figure above (i.e. ITS results table) shows that the prepost of the wage for the food service is a statistically significant negative. Although this result may indicate that there is a drop in the level of wage of the treatment corridor right after street improvement, if we look at the data for 2009, 2010, and 2011, we see that the wages of the treatment corridor are steadily increasing (see the left figure). Since the ITS approach estimates the wage trend of the treatment corridor like the purple line in the left figure, the sign of the level change may not accurately reflect the actual trend. As a result, it is important to compare ITS results against those of the aggregate trend approach.

ITS is a more rigorous method than the aggregated trend approach because it compares levels of change before/after the street improvement on a single corridor (treatment corridor). It avoids issues related to the selection of appropriate comparison corridors which can impact the results of the other approaches. The basic ITS approach presented doesn’t control for variables outside the model that may affect economic indicators.

---

As mentioned in the introduction, the goal of this guidebook is to provide elected officials, practitioners, and residents the tools for an evidence-based conversation about the impact of street improvements in their communities to inform future policy decisions.

To achieve this goal and gain support for future projects, collecting and analyzing data is not enough – we need to clearly communicate the results in a way that resonates with policymakers, business owners, and residents.

In our experience it works best to have at least two reports – a one-page executive summary designed to provide the key findings for decision-makers and a second report that contains the detailed findings, methodologies, and conclusions for those who want to dig deeper. In this section, we will focus on the executive summary.

1. Work carefully with the primary researchers to determine the strongest, plain-language claims the research supports about the economic impact of street improvements. Looping in communications colleagues may be helpful to find clear language.

2. The one-page executive summary should contain project goals, a short overview of methodology, and the top findings. For example the top findings from the National Streets Improvement Study are as follows. Even when parking and/or travel lanes are removed…
   
   **A.** Bicycle-related street improvements are associated with increases in wages and employment across all types of businesses
   
   **B.** Bicycle-related street improvements are also associated with an increase in sales tax revenues among retail businesses

3. It is helpful if results can be presented graphically. The table below is from the New York Department of Transportation report titled The Economic Benefits of Sustainable Streets. It quickly communicates that quarterly sales improved substantially more among businesses near the improvement site than among those at comparison sites or the borough overall.

<table>
<thead>
<tr>
<th>IMPROVEMENT SITE</th>
<th>COMPARISON SITE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ninth Avenue</td>
<td>Seventh Avenue (W. 16th Street to W. 23rd Street)</td>
</tr>
<tr>
<td>(W. 23rd Street to W. 31st Street)</td>
<td>Tenth Avenue (W. 16th Street to W. 26th Street)</td>
</tr>
<tr>
<td>Hudson Street (Jane Street to W. 14th Street)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AREA</th>
<th>IMPROVEMENT SITE</th>
<th>BASELINE QUARTERLY SALES</th>
<th>SALES POST-IMPROVEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9th (23-31)</td>
<td>$3,284,342</td>
<td>17% 47% 49%</td>
</tr>
<tr>
<td>BOROUGH</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manhattan</td>
<td></td>
<td>$5,215,280,268</td>
<td>5%  -7%  3%</td>
</tr>
<tr>
<td>NEIGHBORHOOD COMPARISONS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td>$4,748,430</td>
<td>25% 27% 26%</td>
</tr>
<tr>
<td>8th (24-28)</td>
<td></td>
<td>$1,217,927</td>
<td>15% 15% 13%</td>
</tr>
<tr>
<td>7th (16-23)</td>
<td></td>
<td>$8,719,988</td>
<td>23% 23% 20%</td>
</tr>
<tr>
<td>10th (16-26)</td>
<td></td>
<td>$4,307,375</td>
<td>37% 43% 44%</td>
</tr>
</tbody>
</table>
4. Make the executive summary available online and send out a press release to local media to share the findings. It is a good idea to also share the press release with media outlets that focus on improving bicycle networks such as Streetsblog, Smart Cities Dive, Citilabs, etc. In the press release, be sure to include quotes from local businesses and/or leaders that support the findings. Appendix C contains an example press release created by the Walton Family Foundation and PeopleForBikes upon release of a study examining the benefits of bicycling in Northwest Arkansas. You can also use the one-page executive summary in public meetings and community outreach efforts.

5. A link to the executive summary can also be shared via social media but also consider creating an infographic that tells the story. Below is an infographic designed to show how proximity to shared used paved trails increases residential property values created for the Benefits of Bicycling in Northwest Arkansas report.

6. Consider supplementing the report’s findings with testimonials from residents and supportive business owners who can explain their firsthand experience of the positive impact of street improvements.
WARNING: Redisclosure of Information. Recipient is prohibited from redisclosing any information obtained pursuant to this agreement to any parties not listed or provided for in this agreement.

STATE OF TENNESSEE
DEPARTMENT OF LABOR and WORKFORCE DEVELOPMENT
EMPLOYMENT SECURITY DIVISION

DISCLOSURE OF CONFIDENTIAL INFORMATION TO A PUBLIC OFFICIAL AGREEMENT

______________________________a _________________________ with the

(Name of Recipient) (Job Title)

______________________________, “Recipient,” with this signed Agreement,

(Agency or Department)

“Agreement,” expressly agrees that:

1) Recipient is a public official. Recipient confirms that he or she is aware that those who request or receive information under this agreement will be limited to those with a need to access it for the purposes listed in the agreement.

2) Recipient is requesting otherwise confidential information relating to ______________________ (Employer)

The Recipient requests the following information:

Quarterly Census of Employment and Wages (QCEW) datasets for 2004 – 2018 which includes establishment ID, longitude/latitude, quarterly employment, quarterly payroll, and NAICS identifier. Employer names, addresses and EIN will not be provided. No personally identifiable information will be provided. All PII if otherwise shared shall be masked so individual employers and individuals shall not be identifiable.

3) The Recipient agrees to use this information solely for the following purpose(s), which is/are necessary in the performance of Recipient’s official duties as a public official and is/are authorized by law:

The City of Memphis is one of a handful of cities participating in a national study measuring the economic impact of street improvement projects. Among other areas, the study is looking at the increase of businesses, business revenue, and employment along corridors that receive street improvements. The study is being led through a collaboration of Portland State University, Bennett Midland, People-ForBikes, and the various municipal participants. The City of Memphis is a municipal participant in this study.

4) Safeguards of information. Recipient agrees to safeguard the information disclosed pursuant to this agreement in accordance with the requirements listed in 20 C.F.R. 603.9(b), which are as follows.
a) Recipient must store the disclosed information in a place physically secure from access by unauthorized persons.

b) Recipient must store and process disclosed information maintained in electronic format, such as magnetic tapes or discs, in such a way that unauthorized persons cannot obtain the information by any means.

c) Recipient must undertake precautions to ensure that only authorized personnel are given access to disclosed information stored in computer systems.

d) Recipient must instruct all personnel having access to the disclosed information about confidentiality requirements, the requirements of 20 C.F.R. 603.9(b), which are contained within this agreement and the sanctions specified in the State law for unauthorized disclosure of information.

e) Recipient acknowledges that all personnel having access to the disclosed information have been instructed in accordance with the last paragraph and will adhere to the Department’s confidentiality requirements and procedures which are consistent with 20 C.F.R. 603.9(b), and the agreement required by 20 C.F.R. § 603.10, and agrees to report any infraction of these rules to the Department fully and promptly.

(Initial of Recipient)

f) Recipient agrees to dispose of information disclosed or obtained, and any copies thereof made by the Recipient after the purpose for which the information is disclosed is served, except for disclosed information possessed by any court. Disposal means return of the information to the Department or destruction of the information, as directed by the Department. Disposal includes deletion of personal identifiers by the Department in lieu of destruction. In any case, the information disclosed must not be retained with personal identifiers for longer than such period of time as the Department deems appropriate on a case-by-case basis.

g) Recipient agrees to maintain a system sufficient to allow an audit of compliance with the requirements of this part.

5) On-Site Inspections. Recipient agrees to allow the Department to perform escorted on-site inspections of the Recipient’s place of work to assure that the requirements of the State’s law and the Agreement or contract are being met.

6) Redisclosure of Information. Recipient is prohibited from redisclosing any information obtained pursuant to this agreement to any parties not listed or provided for in this agreement.

7) Costs. Recipient specifically agrees to pay the Department for any reasonable costs associated with the Department’s furnishing of this information.
APPENDIX A: CONFIDENTIALITY AGREEMENT FOR THE STATE OF TENNESSEE

8) Breach of Agreement.

a) In general. If an agency, entity, or contractor, or any official, employee, or agent thereof, fails to comply with any provision of this Agreement, including timely payment of the Department's costs billed to the agency, entity, or contractor, the agreement must be suspended, and further disclosure of information (including any disclosure being processed) to such agency, entity, or contractor is prohibited, until the Department is satisfied that corrective action has been taken and there will be no further breach. In the absence of prompt and satisfactory corrective action, the agreement must be canceled, and the agency, entity, or contractor must be required to surrender to the Department all confidential UC information (and copies thereof) obtained under the agreement which has not previously been returned to the Department, and any other information relevant to the agreement.

b) Enforcement. In addition to the actions required to be taken by the previous paragraph, the Department must undertake any other action under the agreement, or under any law of Tennessee or of the United States, to enforce the agreement and secure satisfactory corrective action or surrender of the information, and must take other remedial actions permitted under Tennessee or Federal law to effect adherence to the requirements of this agreement and 20 C.F.R. 603.10(b), including seeking damages, penalties, and restitution as permitted under such law for any charges to granted funds and all costs incurred by the Department in pursuing the breach of the agreement and enforcement as required by law or this agreement.

c) Enforcement Continued. Pursuant to T.C.A. § 50-7-701(a)(1)(C), any employee of the Department or Commissioner’s Designee of the Department or any employee of the Commissioner of the Department or any public employee or contractor of a public employee in the performance of the public employee’s or contractor’s public duties or any employee, official or agent of a state or local child support agency, or employees of duly authorized agents of, or contractors with, the bureau of TennCare or the office of inspector general, who has received the disclosed information who violates this agreement commits a Class C misdemeanor.

9) Term: This agreement shall be in effect from 01/23/2019 and shall terminate on 06/30/2019.

This agreement is hereby entered into this the twenty-third day of January, 2019 by the following parties:

RECIPIENT

___________________________________  ___________________
Signature      Phone

___________________________________  ___________________
Printed Name      Fax

___________________________________  ___________________
Title       Email

___________________________________  ___________________
Address                   Date
TENNESSEE DEPARTMENT OF LABOR & WORKFORCE DEVELOPMENT

Signature

Phone

Printed Name

Fax

Title

Email
APPENDIX B: CONFIDENTIALITY AGREEMENT FOR THE STATE OF OREGON

Oregon Employment Department
Commitment to Confidentiality - Level 1 (No SSN)

FEDERAL LAW

The U.S. Department of Labor holds that under Sections 303(a)(1) and 303(a)(8) of the Social Security Act, information collected and maintained for the administration of the unemployment compensation program is confidential and, with certain exceptions, not subject to disclosure. This confidentiality requirement pertains to information required from individuals and employers or employing units for the purposes of administration of the state’s unemployment compensation laws. This includes, among other items, the customer’s name, address, social security number, earnings/wages, and employer BIN number.

STATE LAW

Oregon Revised Statute 657.665 provides “all information in the records of the Employment Department pertaining to the administration of the unemployment insurance, employment service and labor market information programs is confidential and for the exclusive use and information of the Director of the Employment Department.” ORS 657.665 also specifies certain circumstances under which confidential information may be shared with specified entities for specified purposes.

DEPARTMENT RULES (OARs)

OAR 471-010-0080 through 0125 provide additional authority and direction regarding access to, use, and disclosure of customer information provided to the Oregon Employment Department (OED). The administrative rules detail the allowances for sharing customer information with partners in the one-stop system, law enforcement officials, agents, legislators, and attorneys. The rules also provide the sanctions for unauthorized disclosure, the need for interagency agreements to share the information, and a description of additional concepts discussed in both rule and statute.

UNDER PENALTY OF DISQUALIFICATION

ORS 657.665(6) Any person or any officer or employee of an entity to whom information is disclosed by the Employment Department under this section who divulges or uses the information for any purpose other than that specified in the provision of law or agreement authorizing the use or disclosure may be disqualified from performing any service under contract or disqualified from holding any appointment or employment with the state agency that engaged or employed that person, officer or employee. The Employment Department may immediately cancel or modify any information sharing agreement with an entity when a person or an officer or employee of that entity discloses confidential information, other than as specified in law or agreement.

UNDERLYING GUIDELINES

1. Only use the information obtained under this agreement for the purposes for which this confidential information sharing was approved.
2. Never publish, share, or discuss information relating to an individual person (Unemployment Insurance (UI) claimant, Employment Service job applicant, UI wage file record, performance measures record, etc.).
3. Never publish, share, or discuss aggregate information relating to individual persons if there are fewer than three individuals in a particular aggregation.
4. Never publish, share, or discuss employment or other data for a specific employer.
5. Never publish, share, or discuss aggregate employment or other data for an industry or industry group if:
   a) there are fewer than three firms in the industry, or
   b) one firm makes up more than 80% of total employment in the industry.

Guidelines one, two, and three apply in all cases. Guidelines four and five apply to all data from the private sector and tribal government. Federal, state, and local government data at the agency or industry or occupational level may be released to the public without regard for the above confidentiality rules.

Any unauthorized use constitutes a breach of confidentiality and is not within the scope of duties of any officer, agent, or employee. Unauthorized publication of the information is absolutely prohibited. Such unauthorized use is to be reported immediately to your supervisor. The supervisor will immediately call the OED help desk and ask to speak the security manager or the security incident responder on duty. The supervisor will then report the details to the security personnel.

I understand that all information and data contained in OED records is confidential and not for release except under certain defined circumstances. I also understand that, as a non-OED employee, if I access and/or disclose any information not authorized by law, rule or policy, action up to and including revocation of access to agency information assets and termination of contract will be taken.

Should I have questions regarding the confidentiality of OED records I will refer and discuss them with the appropriate OED Manager contact prior to releasing any information.

Signature: ___________________________ Printed Name: ______________________ Date: _______________________

Organization: ___________________________ Location: ___________________________

Manager Signature: ___________________________ Printed Manager Name: ______________________ Date: _______________________

Oregon Employment Department • Employment.Oregon.gov • FORM 2592 (1113)
## Form 104#: Application For Confidential Information

For Governmental Planning, Performance Measurement, Program Analysis, Socio-Economic Analysis, or Policy Analysis

### 1. Government Agency:

<table>
<thead>
<tr>
<th>Name of Official:</th>
<th>Position:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone Number:</td>
<td>Fax Number:</td>
</tr>
<tr>
<td>Email Address:</td>
<td></td>
</tr>
</tbody>
</table>

### 2. Law authorizing applicant to carry out:

- [ ] program analysis
- [ ] planning
- [ ] socio-economic analysis
- [ ] performance measurement
- [ ] policy analysis

### 3. If being carried out in concert with another governmental agency:

<table>
<thead>
<tr>
<th>Name (Agency and contact person):</th>
<th>Address:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statutory Authority:</td>
<td></td>
</tr>
<tr>
<td>Name (Agency and contact person):</td>
<td>Address:</td>
</tr>
<tr>
<td>Statutory Authority:</td>
<td></td>
</tr>
</tbody>
</table>

### 4. Confidential information being requested (include data series, data types, geographic areas, time periods, etc.):

### 5. General category under which confidential information is being requested (check one or more):

- [ ] Planning
- [ ] Performance Measurement
- [ ] Program Analysis
- [ ] Socio-economic analysis
- [ ] Policy Analysis

### 6. Specific purpose for which confidential information will be used:

### 7. Information needed by (date):

### 8. When request is completed, send data to:

### 9. If possible, send data in the following format:

### 10. In addition, the requestor affirms that (Check to agree to comply):

- [ ] The signer(s) has/have appropriate signature authority for the applying organization(s).
- [ ] Information furnished by the Oregon Employment Department pursuant to this application shall be used only by those entities identified in Sections 1, 3, and/or 11 of this Application and shall be used only for the purpose(s) described in Section 6.
- [ ] Every entity identified as a user of the information shall agree to safeguard the confidentiality of the furnished information.
- [ ] Information furnished by the Oregon Employment Department pursuant to this application will be kept confidential and will not be released without the express written consent of the Oregon Employment Department. There is no expiration time associated with this responsibility. The information must always be kept confidential.

*Continued on next page...*
APPENDIX B: CONFIDENTIALITY AGREEMENT FOR THE STATE OF OREGON

☐ Information furnished by the Oregon Employment Department pursuant to this application will be destroyed by all recipients once the specific project for which the information is being requested has been completed. Any exceptions to this requirement require express written authorization from the Employment Department.

☐ Costs associated with preparing and providing the requested information shall be borne by the agency requesting the information. Such costs will be identified by the Employment Department and approved by the requestor before work on this request begins.

☐ If a publication or report is produced using the information provided pursuant to this Application, one copy of the publication or report shall be provided to the Employment Department. The publication or report shall cite the Oregon Employment Department as the source of some of the data on which the publication or report was based. The publication may include only aggregate information, not confidential information.

☐ The signer(s) and all individuals who will have access to the confidential information provided under this application have reviewed the Rules and Guidelines Regarding Confidentiality of Oregon Employment Department Data (Appendix A).

Signature of Authorized Representative: Date:

Name and Title (Print or typed):

11. Will any work on any project(s) related to this Application be performed by one or more consultants or other individuals who are not employees of the agency or agencies identified in Sections 1 or 3?  

☐ Yes  ☐ No

If “Yes”, will the individual(s) have access to confidential information?  

☐ Yes  ☐ No

If the Applicant responds Yes to both of these questions, the individual(s) and/or consultant(s) must be identified below and must agree to comply with all items identified in Section 10. By signing below, the individual(s) and/or consultant(s) agree to comply with all items identified in Section 10.

Name of Company:

Signature of Authorized Representative: Name and Title (Printed or typed):

Phone Number: Date:

Name of Company:

Signature of Authorized Representative: Name and Title (Printed or typed):

Phone Number: Date:

MAIL OR FAX ORIGINAL APPLICATION TO:
David Yamaka, Interim Division Director • Workforce and Economic Research
Oregon Employment Department • 875 Union St. NE • Salem, OR 97311 • Fax: (503) 947-1210

REPLY FROM THE ADMINISTRATOR FOR WORKFORCE AND ECONOMIC RESEARCH:
This Application submitted under ORS 657.665(3) is hereby: ☐ APPROVED  ☐ DENIED
Explanation/comments:

Signature: Date:

David Yamaka, Interim Division Director • Workforce and Economic Research • Oregon Employment Department
Data-driven tools empower advocates to calculate local economic contribution of bikes.

What’s the economic effect when a bicycle race comes to town? How many dollars are locals pumping into the economy when they purchase bikes and bike-related gear? The answers to these kinds of questions help communities understand the dollars-and-cents value of bicycling — and now the Walton Family Foundation, PeopleForBikes, and BikeNWA are making it easier for advocates to calculate those answers.

This week, the three organizations released a series of Economic Benefit Model Templates: free, user-friendly tools designed to calculate the economic contribution of bicycling across six categories. The templates calculate economic benefits from tourism, events, retail sales tax, resident spending, bicycle business and health. Each template walks bicycling advocates, event planners, urban planners, or volunteers through the best practices for executing and analyzing a survey to determine these economic effects.

“These tools give communities across the country a chance to better understand the economic role that bicycles play in their own backyards,” said Jennifer Boldry, PeopleForBikes director of research. “We’re excited to empower advocates to better make the case that investing in bicycles and bike infrastructure will reap significant social and economic returns.”

“The results revealed that bicycling was contributed $137 million worth of benefits to the Northwest Arkansas regional economy in 2017, including $86 million in health benefits and $51 million in business benefits.”
The templates grew out of a study that the Walton Family Foundation, PeopleForBikes, and BikeNWA commissioned BBC Research and Consulting to conduct in Northwest Arkansas. The results revealed that bicycling was contributed $137 million worth of benefits to the Northwest Arkansas regional economy in 2017, including $86 million in health benefits and $51 million in business benefits.

“Northwest Arkansas is a shining example of the positive impact cycling can have on a community,” said Steuart Walton. “We hope to inspire other towns and cities by sharing the lessons and impact we’ve observed, such as the importance of quality miles over quantity of miles, the proximity of trails to downtowns and advocating for female and youth cyclists.

The Walton Family Foundation, PeopleForBikes, and BikeNWA created the economic impact model templates from that study to give communities across the nation access to the tools to calculate their own figures.

This fall, the National Interscholastic Cycling Association (NICA) will use the events template to calculate the economic impact of all of its interscholastic mountain bike races.

“We’ve seen mountain biking transform individuals and communities, and being able to calculate the economic impact of races and other events will allow us to build even stronger partnerships in communities,” said NICA President Austin McInerny.

The templates are available at PeopleForBikes.org. PeopleForBikes and BBC Research and Consulting will host three webinars on Tuesday, October 30, to walk participants through the process of using the templates in their own communities. To register for the webinars, or download the templates, head to [shortlink].

“In addition to our Bike Network Analysis and our City Ratings system,” said Boldry, “these templates add another important tool to our suite of options available to make a strong case for bikes in communities all over the country.”