

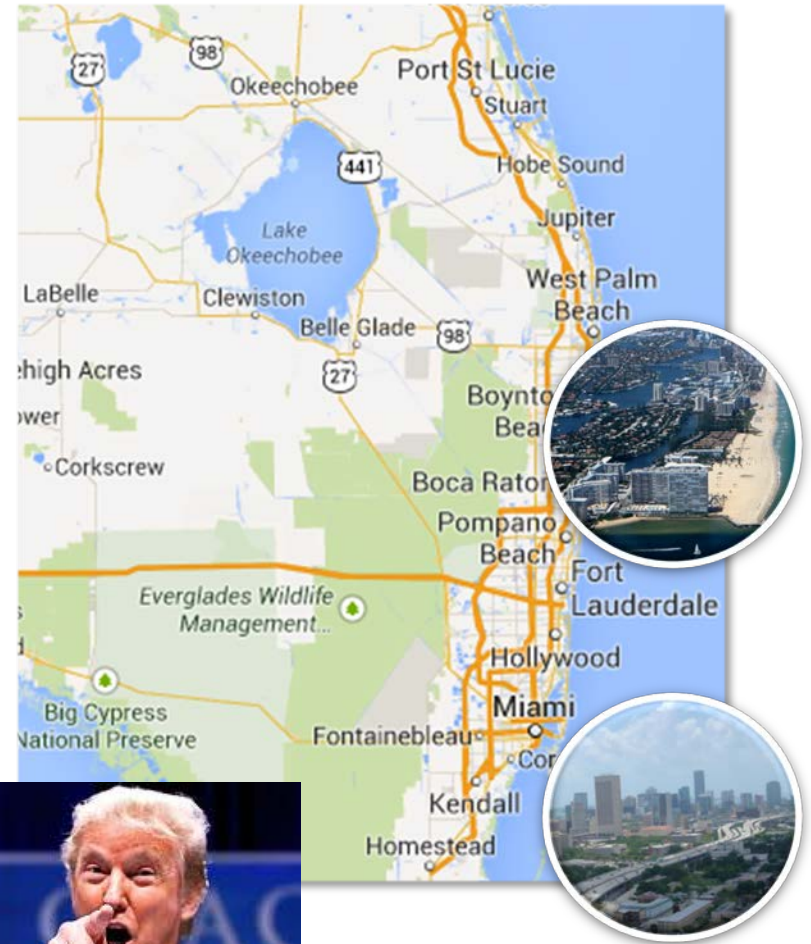
The South Florida Resident Job Linkage (SFRJL) Reporting Tool

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Yongqiang Wu, P.E., Gannett Fleming, Inc.

2014 Local Employment Dynamics Partnership Annual Workshop
US Census Bureau and the LED Partnership Steering Committee
Washington, D.C., September 9, 2014

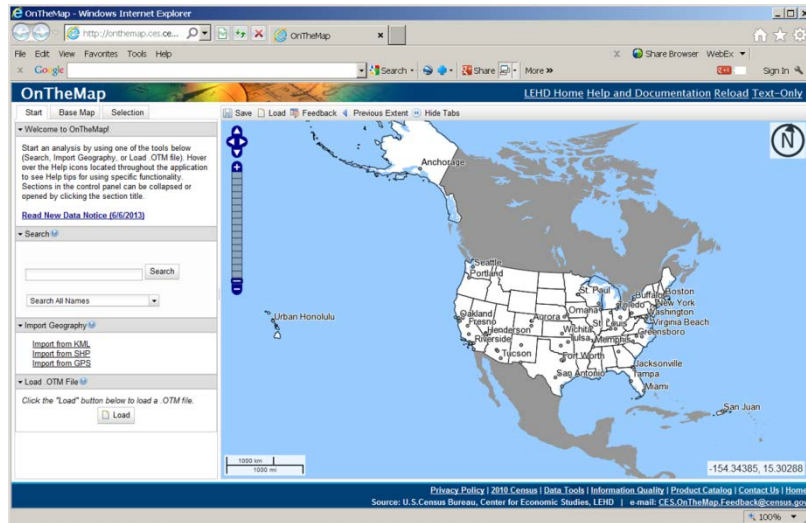
Questions from Transportation Executives:

- ▶ *How many people live in Fort Lauderdale but work in Miami?*
- ▶ *How many people drive to work and how many people use transit?*
- ▶ *How soon can you give me the answers?*

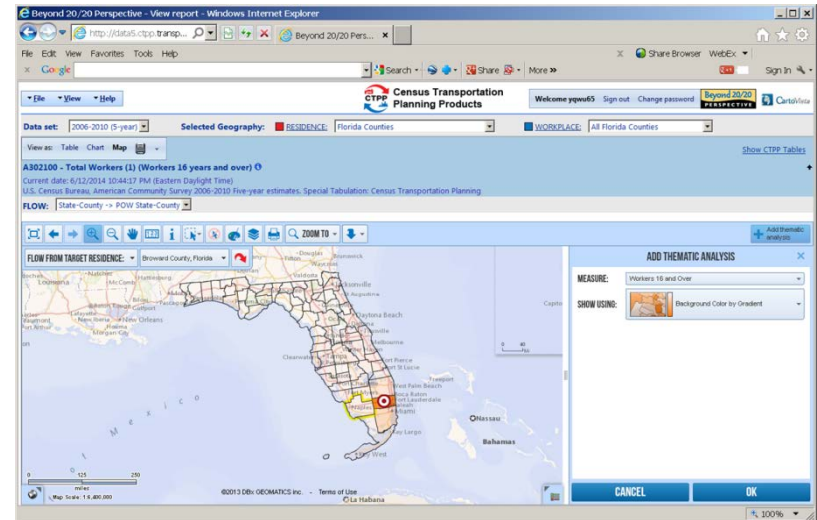


To Get the Answers?

► OnTheMap Online Tool



► ACS/CTPP Online Tool



- Both have robust functionalities and national perspective
- South Florida needs a quick one-stop tool for less sophisticated users

South Florida Users Needs:

- ▶ Regional perspective/Regionalized datasets
- ▶ Agile: Looks simple and very easy to use: make executives knowledgeable and like to find the answers themselves
- ▶ Versatile, but not omnipotence: not to replicate the functionalities of OnTheMap and ACS/CTPP online tools

Four Simple Selections to Answer the Question of

“How many people live in Fort Lauderdale but work in Miami?”

Step 1. Select a LEHD Data Year

Step 2. Select a Report Type

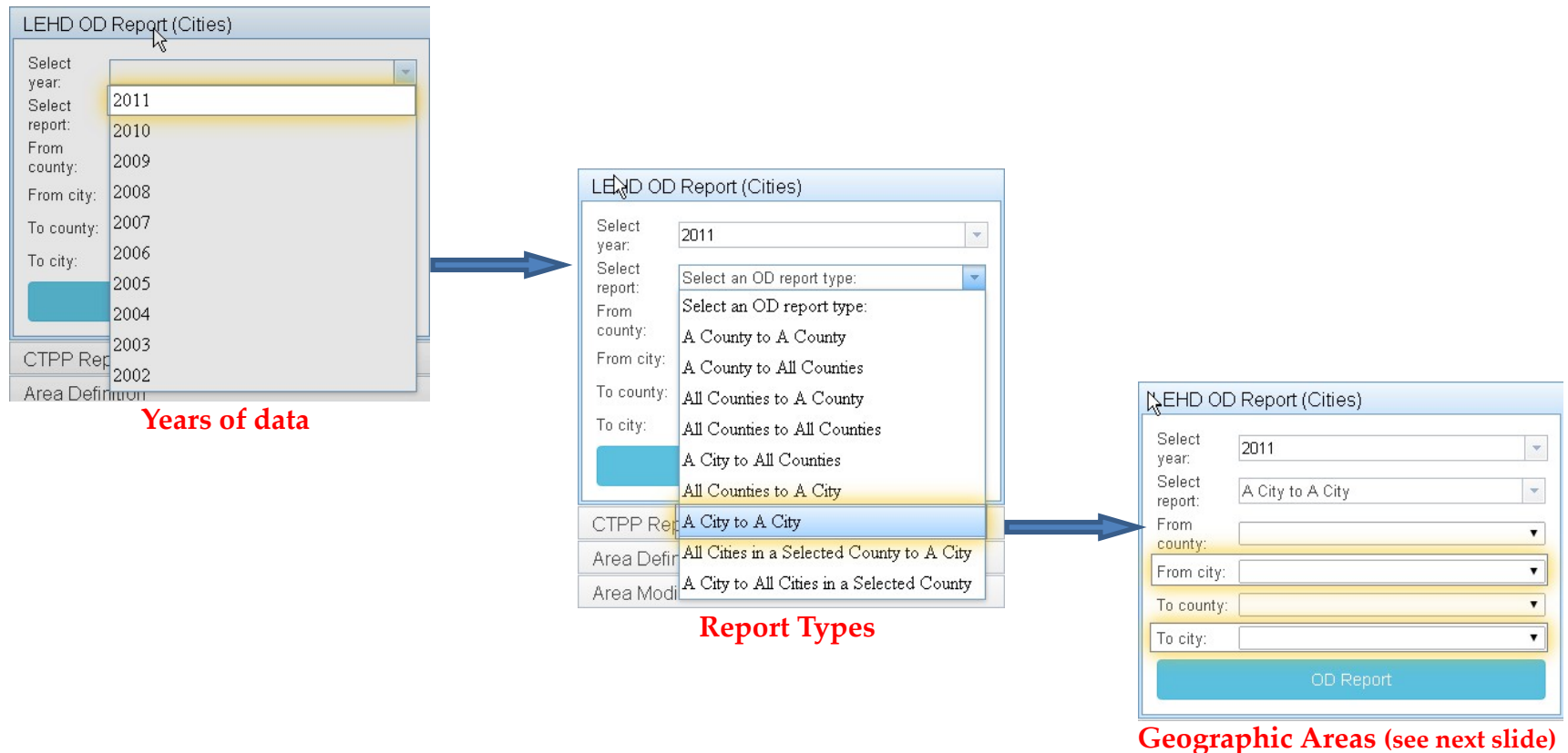
Step 3. Select an Origin

Step 4. Select a Destination

Click for Report

The screenshot shows a web form titled "LEHD OD Report (Cities)". It contains five input fields, each highlighted with a red rectangular box. Red arrows point from the text labels on the left to these boxes. The fields are: "Select year:" (a dropdown menu), "Select report:" (a dropdown menu with the text "Select an OD report type:" inside), "From county:" (a dropdown menu), "From city:" (a dropdown menu), and "To city:" (a dropdown menu). Below these fields is a large blue button labeled "OD Report".

Selection Sets (1)



Selection Sets (2)

LEHD OD Report (Cities)

Select year: 2011

Select report: A City to A City

From county: [dropdown]

From city: [dropdown]

To county: [dropdown]

To city: [dropdown]

CTPP Rep [dropdown]

Area Defin [dropdown]

Area Modi [dropdown]

OD Report [dropdown]

Map Layer [dropdown]

User Sign In

Delray Beach city, Palm Beach

Doral city, Miami-Dade

Duck Key CDP, Monroe

El Portal village, Miami-Dade

Fellsmere city, Indian River

Fisher Island CDP, Miami-Dade

Florida City city, Miami-Dade

Florida Ridge CDP, Indian River

Fort Lauderdale city, Broward

Fort Pierce city, St. Lucie

Fort Pierce North CDP, St. Lucie

Fort Pierce South CDP, St. Lucie

Fountainebleau CDP, Miami-Dade

Franklin Park CDP, Broward

Gifford CDP, Indian River

Gladeview CDP, Miami-Dade

Glen Ridge town, Palm Beach

Glenvar Heights CDP, Miami-Dade

Golden Beach town, Miami-Dade

Golden Glades CDP, Miami-Dade

"From City"

LEHD OD Report (Cities)

Select year: 2011

Select report: A City to A City

From county: [dropdown]

From city: Fort Lauderdale city, Broward

To county: [dropdown]

To city: [dropdown]

CTPP Rep [dropdown]

Area Defin [dropdown]

Area Modi [dropdown]

OD Report [dropdown]

Map Layer [dropdown]

Miami Beach city, Miami-Dade

Miami city, Miami-Dade

Miami Gardens city, Miami-Dade

Miami Lakes town, Miami-Dade

Miami Shores village, Miami-Dade

Miami Springs city, Miami-Dade

Miramar city, Broward

Naranja CDP, Miami-Dade

North Bay Village city, Miami-Dade

North Key Largo CDP, Monroe

North Lauderdale city, Broward

North Miami Beach city, Miami-Dade

North Miami city, Miami-Dade

North Palm Beach village, Palm Beach

North River Shores CDP, Martin

Oakland Park city, Broward

Ocean Breeze Park town, Martin

Ocean Ridge town, Palm Beach

Ojus CDP, Miami-Dade

Olympia Heights CDP, Miami-Dade

"To City"

The Answer of “Number of people living in Fort Lauderdale and earning paychecks in Miami” is:

From Year: 2011 To Year: 2011 View Report

From City: Fort Lauderdale city, Broward To City: Miami city, Miami-Dade

1 of 1 100% Select a format Export

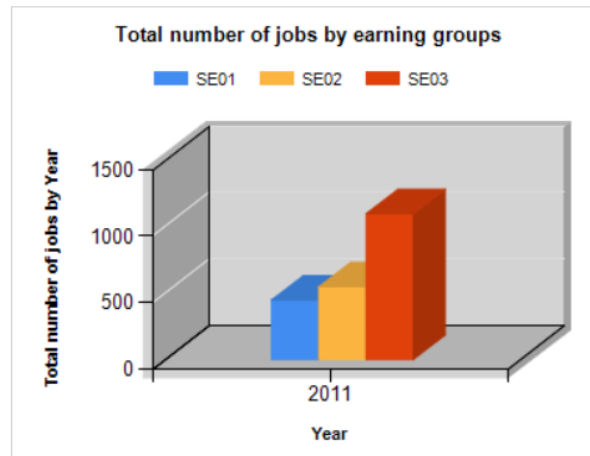
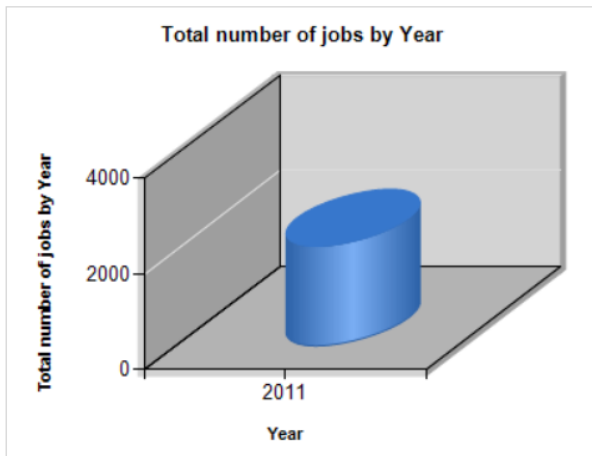
From City: Fort Lauderdale city, Broward

To City: Miami city, Miami-Dade

Year	Total number of jobs	Number of jobs of workers age 29 or younger (SA01)	Number of jobs of workers age 30 to 54 (SA02)	Number of jobs of workers age 55 or older (SA03)	Number of jobs with earnings <= \$1250/month (SE01)	Number of jobs with earnings \$1251/month to \$3333 (SE02)	Number of jobs with earnings > \$3333 (SE03)	Number of jobs in Goods Producing industry sectors (SI01)	Number of jobs in Trade, Transportation, and Utilities industry sectors (SI02)	Number of jobs in All Other services industry sectors (SI03)
2011	2,092	361	1,322	409	447	547	1,098	57	611	1,424

Answer

Descriptive column title



Versatile – Sorting & Exporting Outputs

- ▶ To report *the top 10 cities where people coming from and working in Miami*
 - ▶ Select report type: “All Cities to A City”
 - ▶ Sort the output in descending order
 - ▶ Export to Excel (or other) formats
 - ▶ Delete all but the top 10 cities



OD Report Query

Select year: 2011

Select report: All Cities to A City

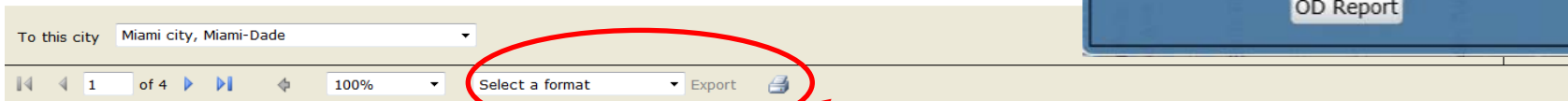
From county:

From city:

To county:

To city: Miami city, Miami-Dade

OD Report



To this city: Miami city, Miami-Dade

1 of 4 100%

Select a format Export

Note: Click up/down indicator for sorting, hold SHIFT key for multiple column sorting

Exporting the report

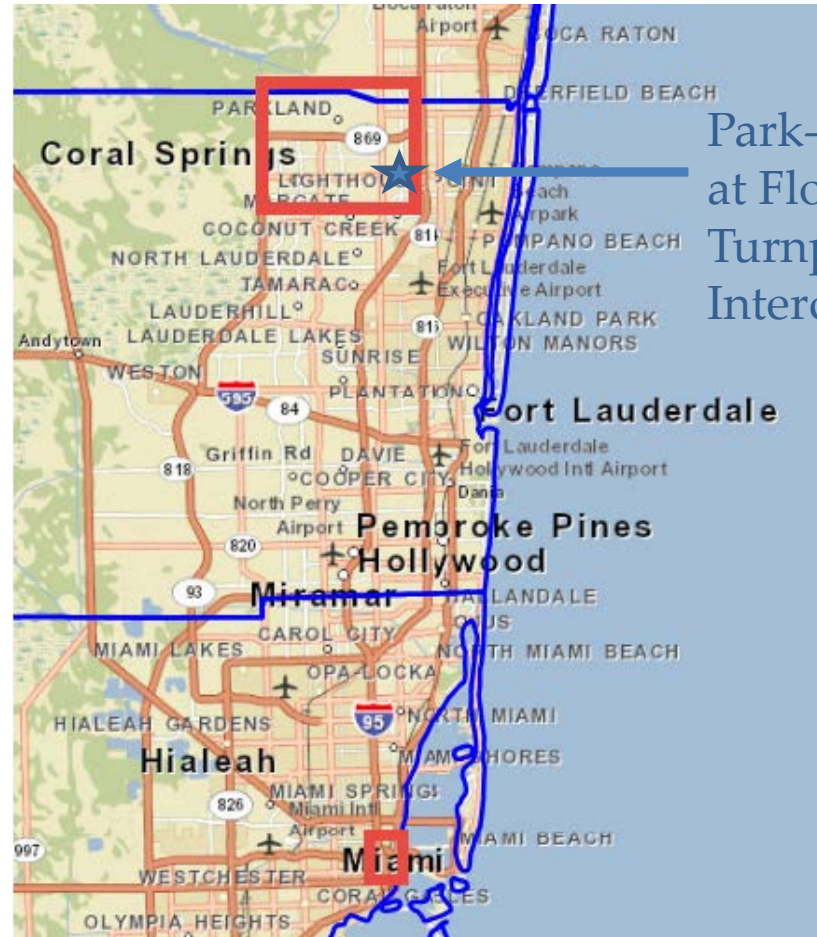
Sorting

From City	Year	Total number of jobs	# of jobs of workers age 29 or younger	# of jobs of workers age 30 to 54	# of jobs of workers age 55 or older	# of jobs with earnings <= \$1250/month	# of jobs with earnings \$1251/month to \$3333	# of jobs with earnings > \$3333	# of jobs in Goods Producing industry sectors	# of jobs in Trade, Transportation, and Utilities industry sectors	# of jobs in All Other services industry sectors
Sort	Sort	Sort	Sort	Sort	Sort	Sort	Sort	Sort	Sort	Sort	Sort
Miami city, Miami-Dade	2011	44343	8,783	25,955	9,605	10,751	18,135	15,457	1,217	7,066	36,060
Others	2011	25639	4,941	15,138	5,560	5,627	8,139	11,873	699	4,811	20,129
Hialeah city, Miami-Dade	2011	12187	2,486	6,970	2,731	3,132	5,634	3,421	385	1,908	9,894
Miami Gardens city, Miami-Dade	2011	10158	1,392	6,578	2,188	1,728	3,659	4,771	113	818	9,227
Miramar city, Broward	2011	7488	923	5,170	1,395	854	1,800	4,834	92	1,047	6,349

Reporting O/D with User Defined Areas

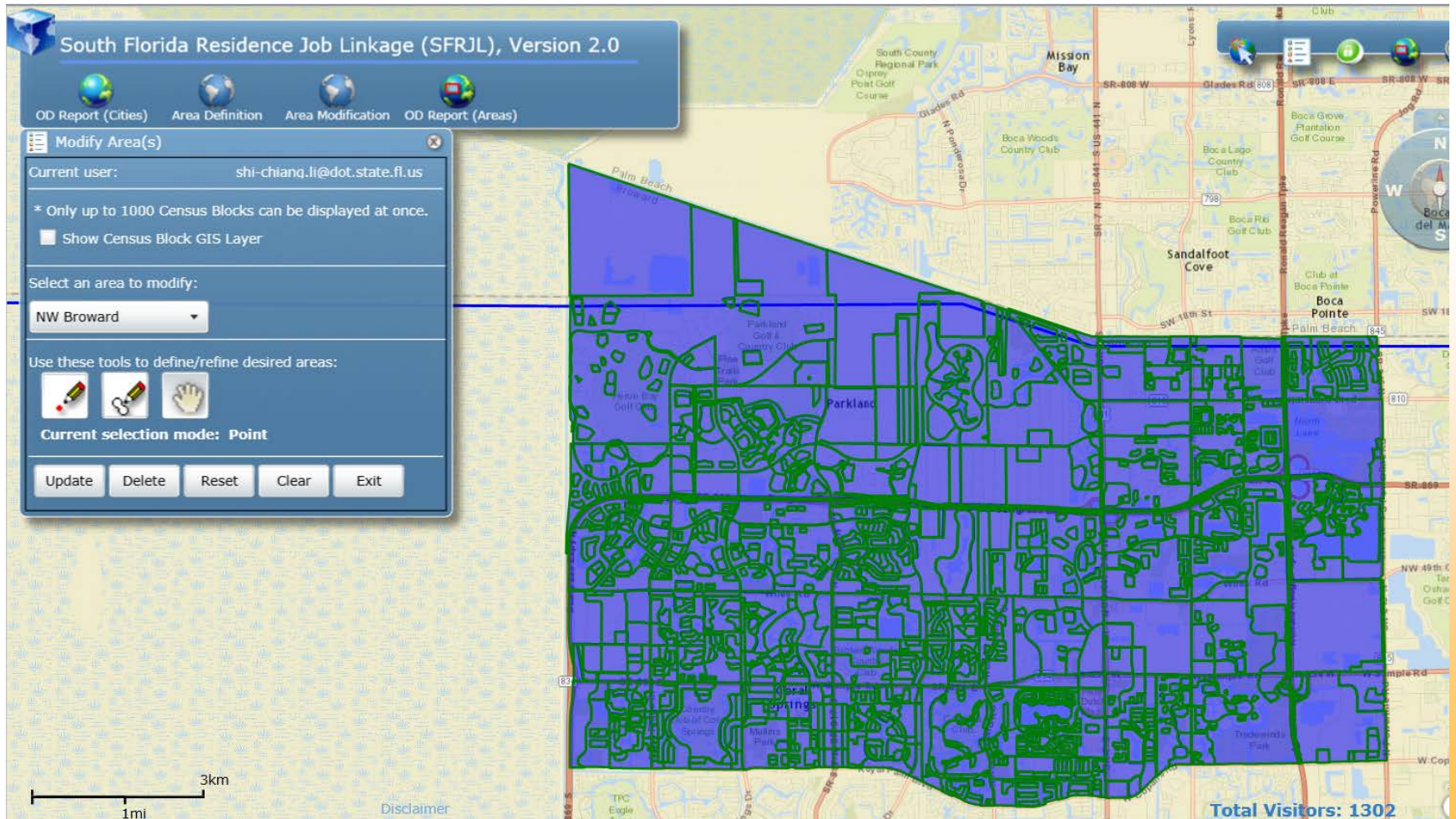
► Question:

“Is there a market for running express buses from NW Broward County to downtown Miami?”
(35+ miles apart)

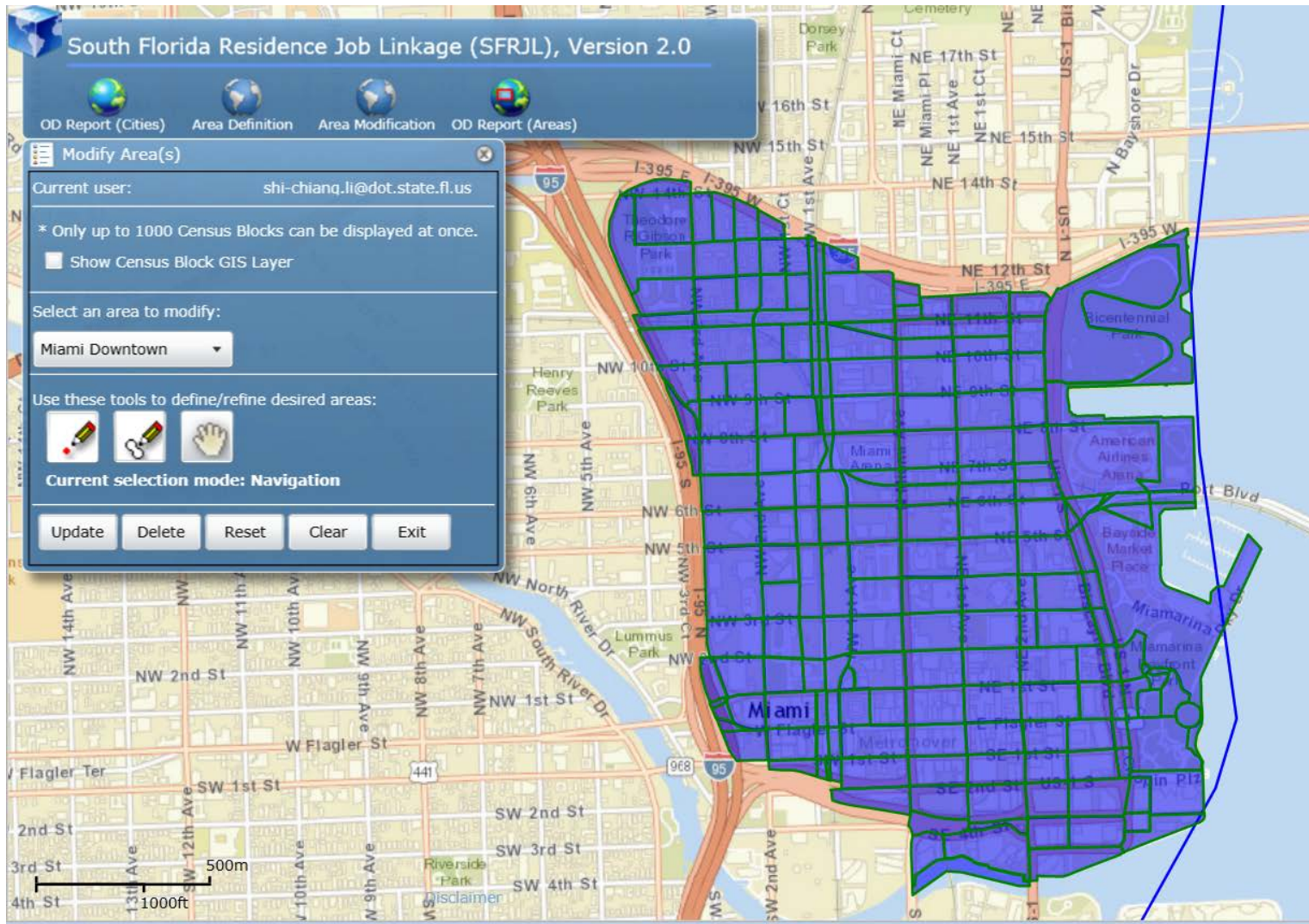


Park-n-Ride
at Florida's
Turnpike
Interchange

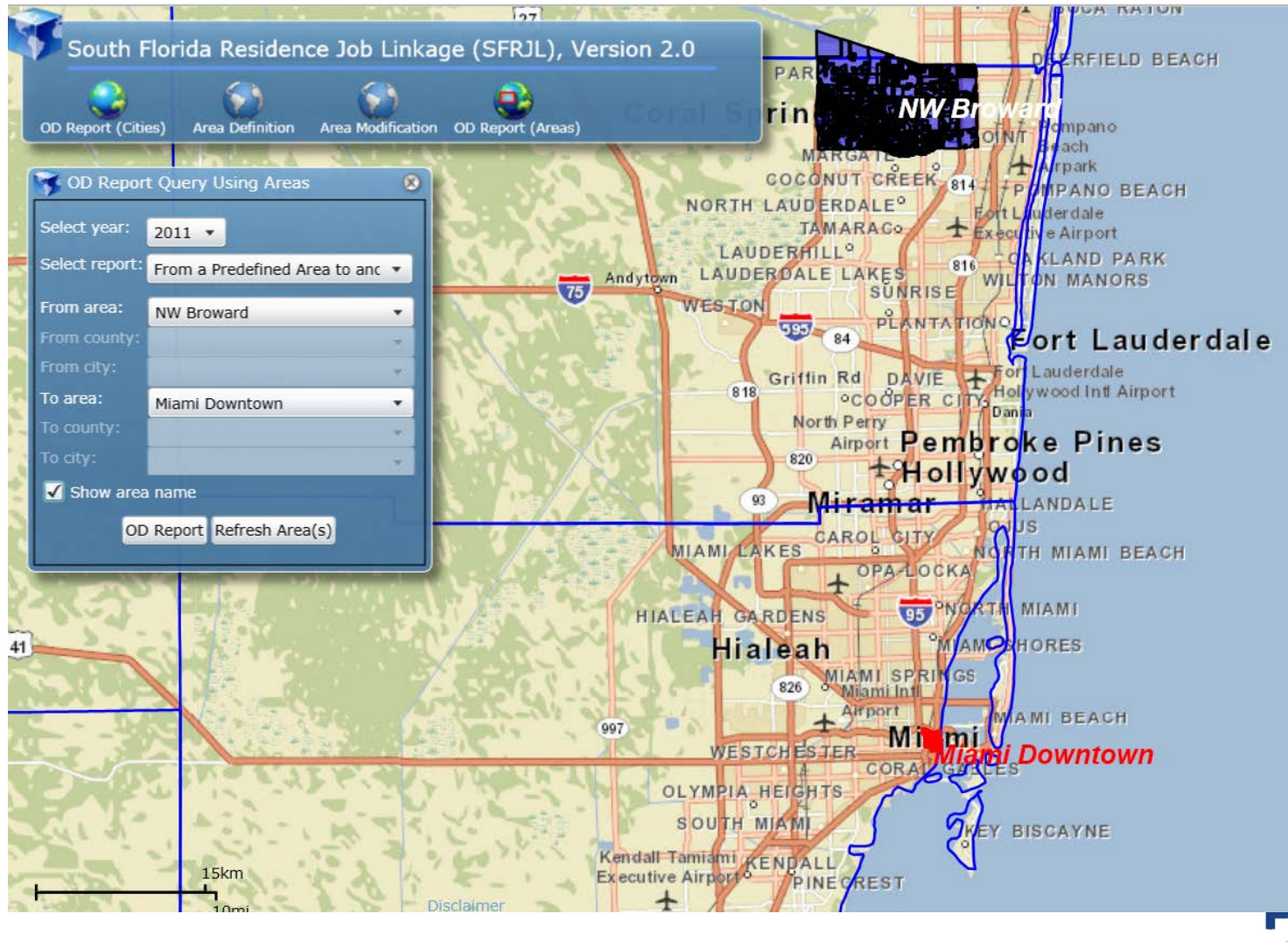
User Defined Residents' Area (NW Broward)



User Defined Job Area (Downtown Miami)



Reporting O/D with User Defined Areas



Answer to the Question: “Is there a market for running express buses from NW Broward County to downtown Miami?”

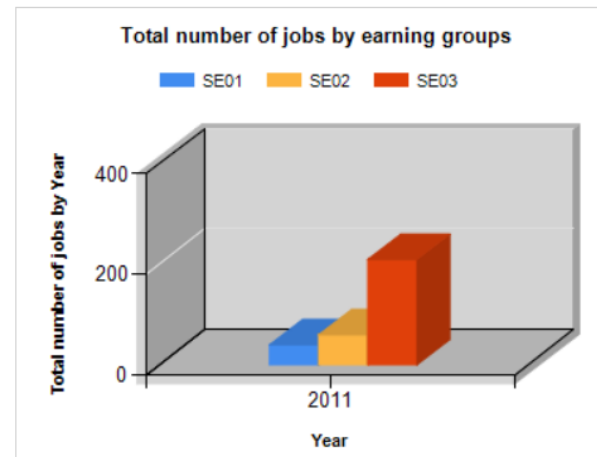
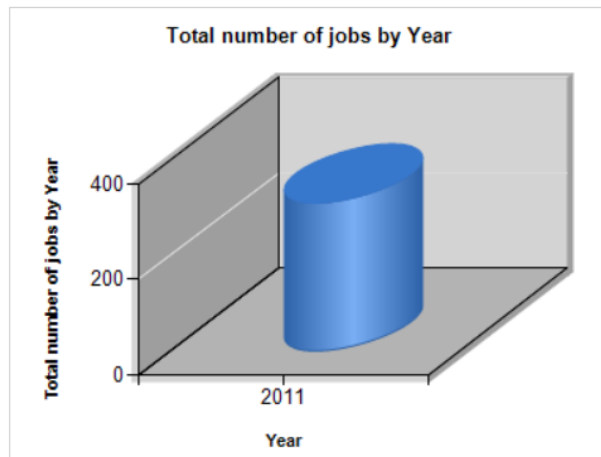
From Year To Year

1 of 1 100% Select a format Export

From Predefined Area: *NW Broward*

To Predefined Area: *Miami Downtown*

Year	Total number of jobs	Number of jobs of workers age 29 or younger (SA01)	Number of jobs of workers age 30 to 54 (SA02)	Number of jobs of workers age 55 or older (SA03)	Number of jobs with earnings <= \$1250/month (SE01)	Number of jobs with earnings \$1251/month to \$3333 (SE02)	Number of jobs with earnings > \$3333 (SE03)	Number of jobs in Goods Producing industry sectors (SI01)	Number of jobs in Trade, Transportation, and Utilities industry sectors (SI02)	Number of jobs in All Other services industry sectors (SI03)
2011	310	57	192	61	40	60	210	2	27	281



Motivation

- ▶ Importance of Commuting Data
 - ▶ Travel demand management programs
 - ▶ Transit service planning
 - ▶ Travel demand forecasting
- ▶ Census Data Products
 - ▶ Longitudinal Employer-Household Dynamics (LEHD)
 - ▶ Years 2002 - 2011
 - ▶ Census Transportation Planning Product (CTPP) from American Community Survey (ACS)
 - ▶ Five-Year (2006-2010)

Objectives of the SFRJL Reporting Tool

- ▶ Make LEHD/CTPP Simple and Easy-to-Use
- ▶ Focus on Cities/Census Designated Places (CDP) in Seven South Florida Counties
 - ▶ Indian River, St. Lucie, Martin
 - Treasure Coast Regional Planning Model (TCRPM) Area
 - ▶ Palm Beach, Broward, Miami-Dade
 - Southeast Florida Regional Planning Model (SERPM) Area
 - ▶ Monroe
- ▶ Display Data in Tabular and Graphic Format
- ▶ Export Reports in Different Formats
- ▶ Can be used on Computers and Mobile Devices

LEHD Data Used in SFRJL

- ▶ Flow Data Only

- ▶ Residence Place

- ▶ Workplace

- ▶ Total Number of Jobs

- ▶ Number of Jobs by Age Groups

- 29 or younger; 30-54; 55 or older

- ▶ Number of Jobs by Monthly Earning Groups

- \$1250 or less; \$1250 to \$3333; \$3333 or more

- ▶ Number of Jobs by Industry Sectors

- Goods producing; Trade/Transportation/Utilities; Other Services

2006-2010 ACS/CTPP Data Used in SFRJL

- ▶ Flow Data Only
- ▶ Selected Tables
 - ▶ Means of Transportation
 - ▶ Age Groups
 - ▶ Industry Sectors
 - ▶ Race
 - ▶ Time left for work
 - ▶ Travel time to work

The SFRJL Reporting Tool Development

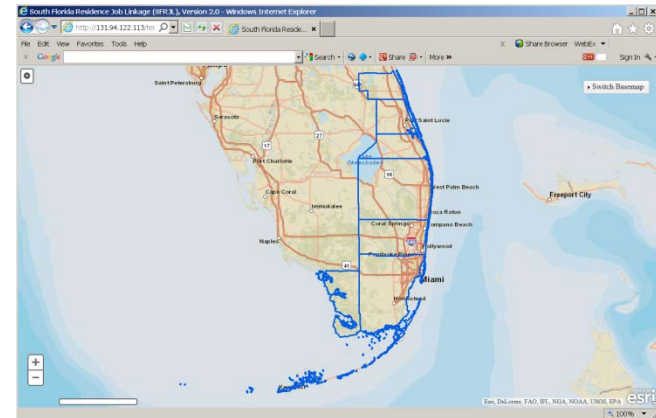
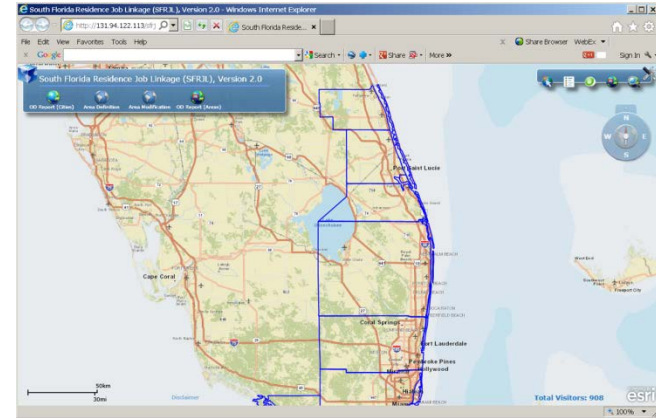
▶ Two Versions

▶ PC version

- ▶ Microsoft Silverlight
- ▶ Fast and Stable
- ▶ Only works on Windows PCs

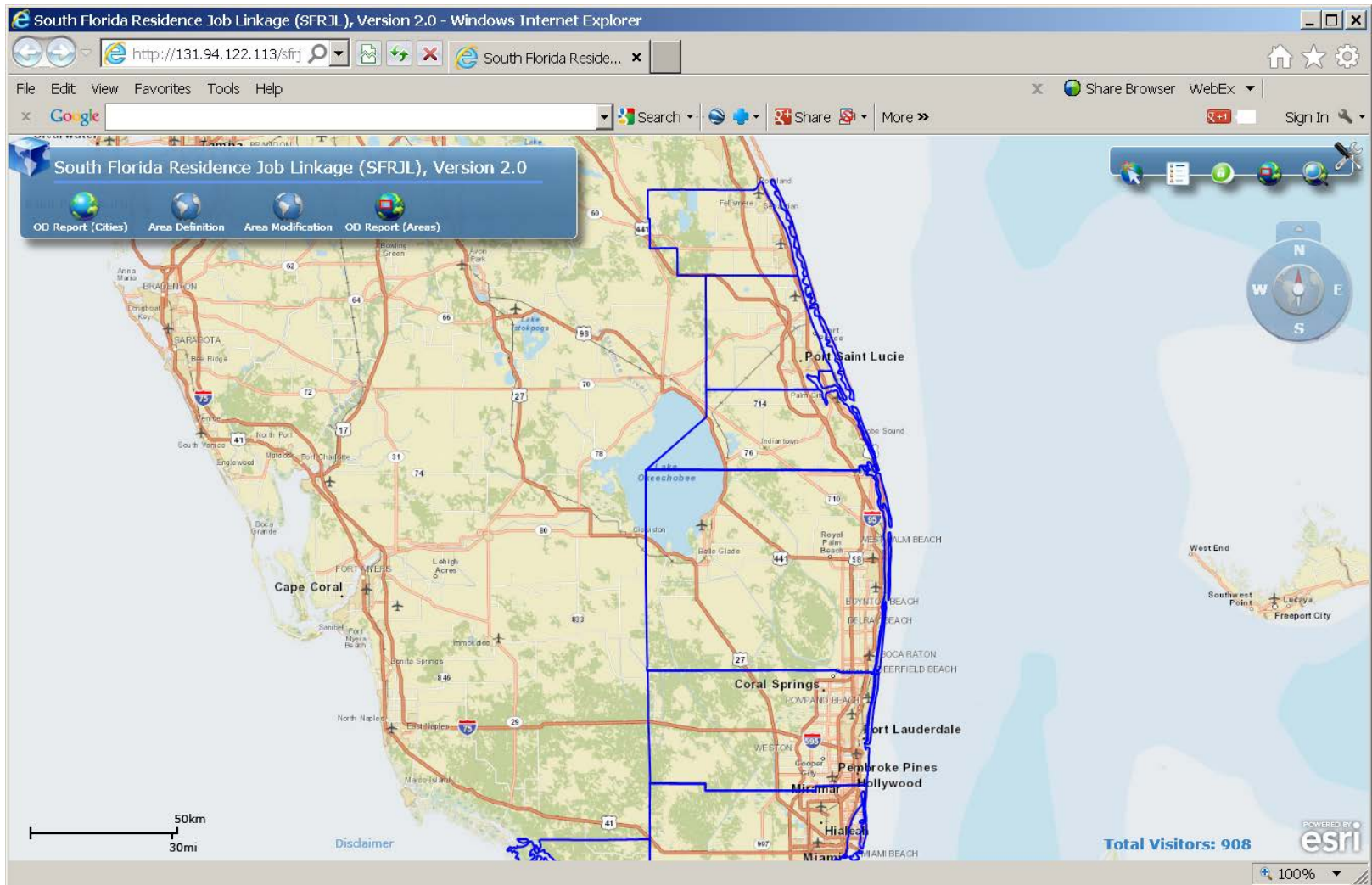
▶ Mobile compatible version

- ▶ Include all PC functions
- ▶ Accessible across platforms
- ▶ ACS/CTPP data integrated
- ▶ Slower



SFRJL – PC Version

<http://sfrjl1.visualdatacenter.net/>



SFRJL – Mobile Compatible Version

<http://sfrjl2.visualdatacenter.net/>

SFRJL Version 2.0

LEHD OD Report (Cities)

Select year:

Select report:

From county:

From city:

To county:

To city:

OD Report

CTPP Report (Cities)

Area Definition

Area Modification

OD Report (Areas)

Map Layers

User Sign In

User Information

Already Registered? Please sign in

user ID

Sign In

New user and want to create a new account?

user ID

First Name

Last Name

Company

Create

Guest Only?

Warning: all selected area information will be lost after exiting!

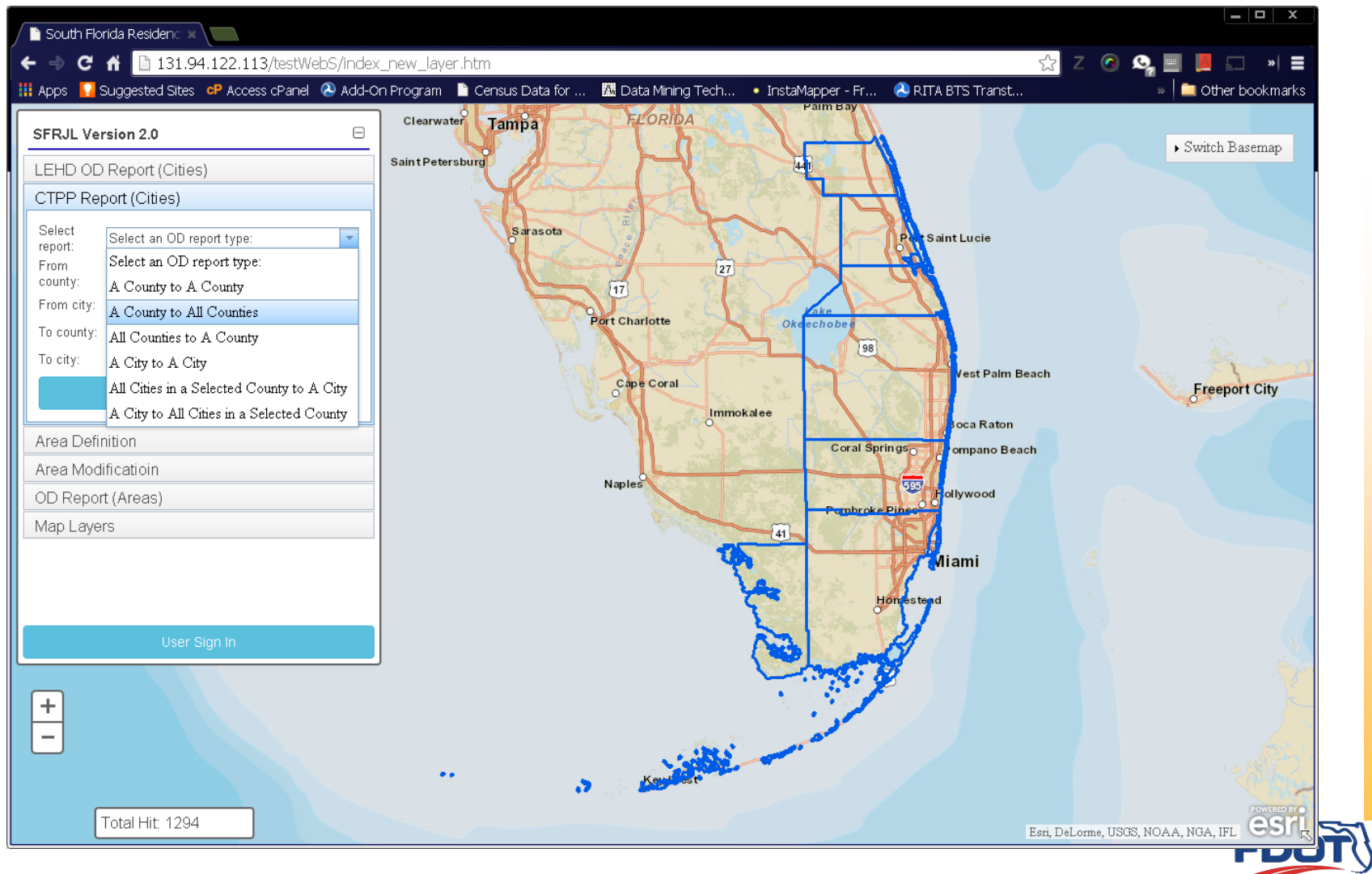
Continue

Total Hit: 1294

Powered by Esri

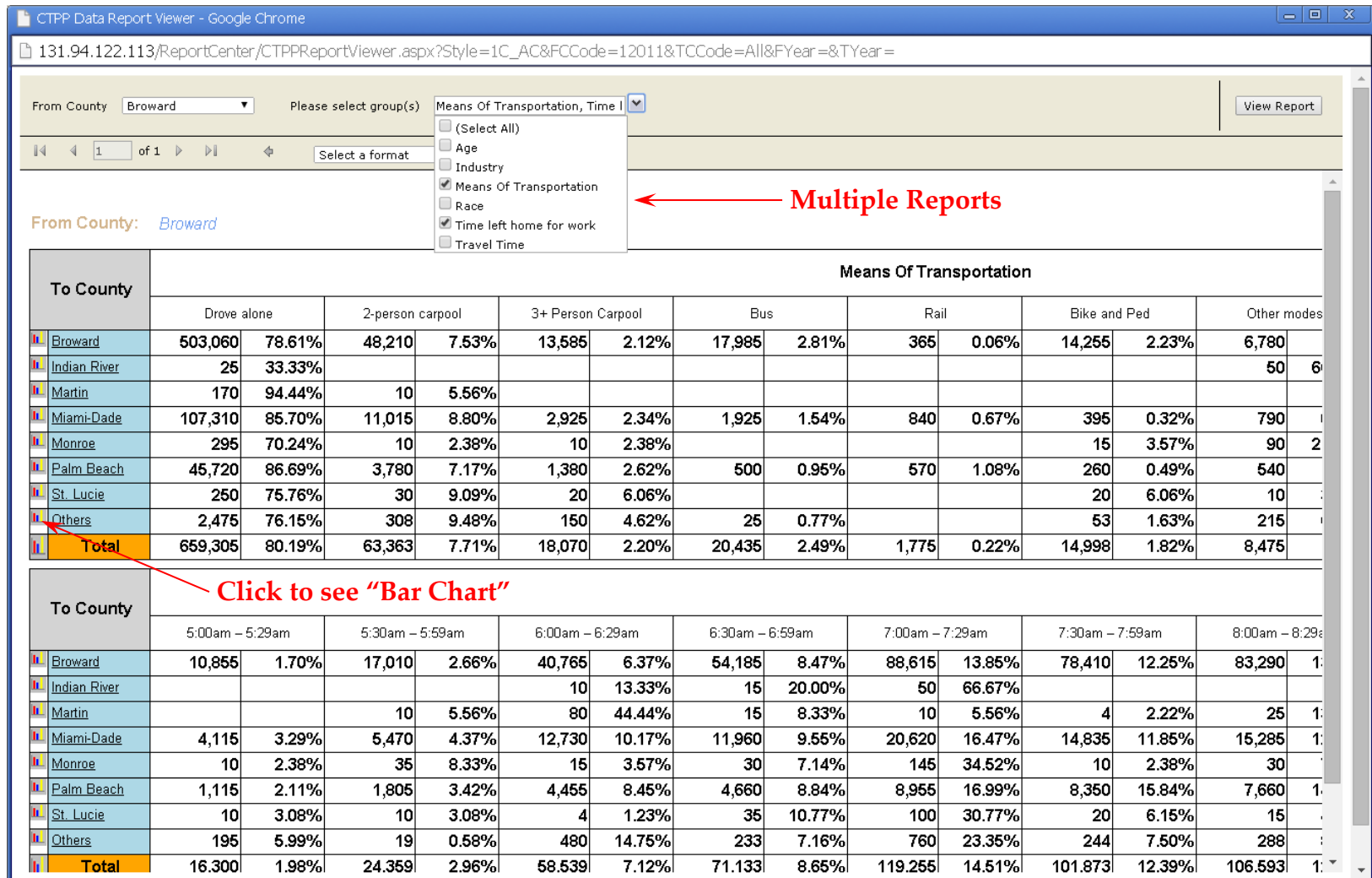
SFRJL – Mobile Compatible Version

(ACS/CTPP City/CDP/County Based Predefined Reports)



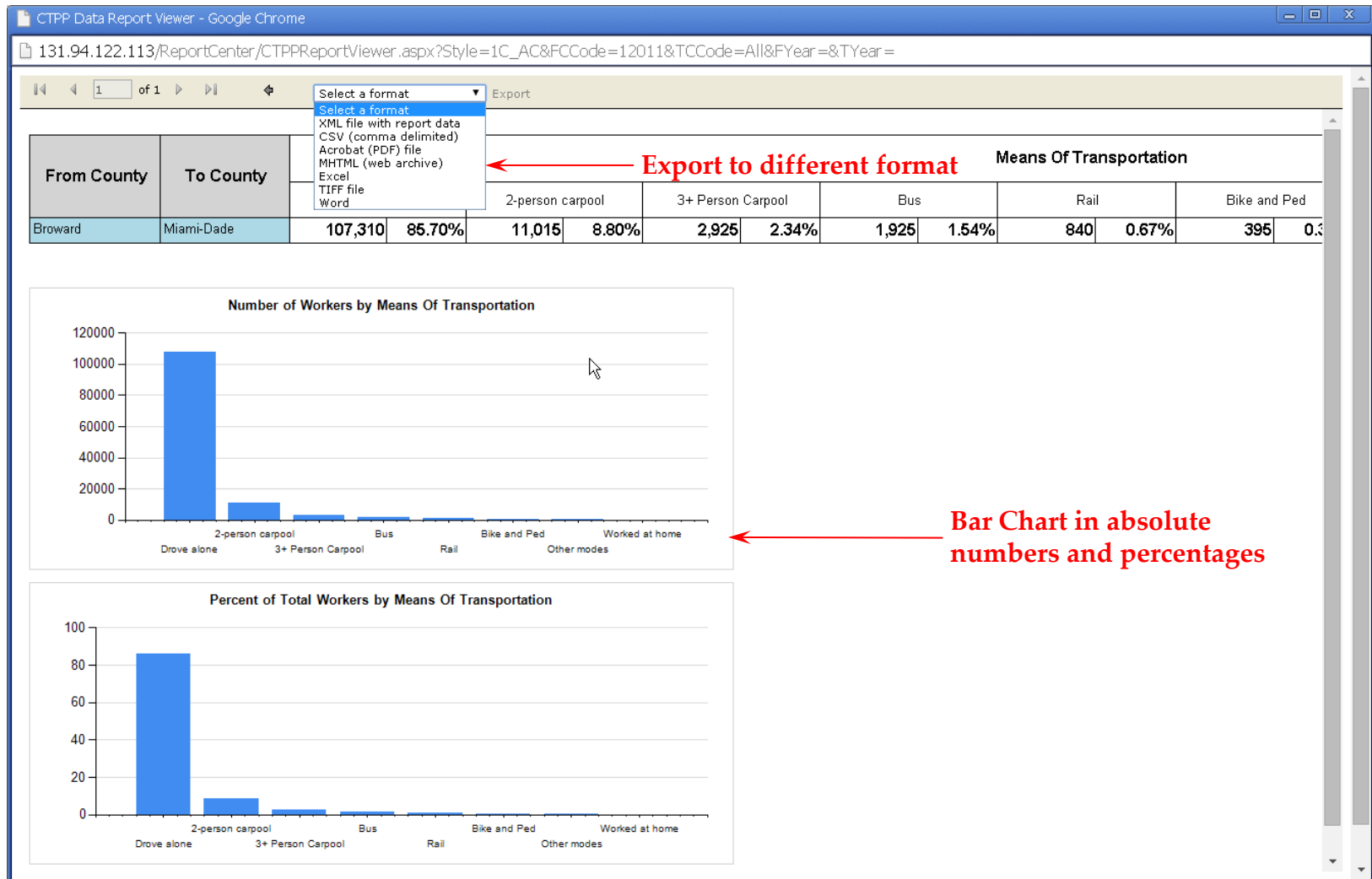
SFRJL – Mobile Compatible Version

ACS/CTPP Predefined Report Categories



SFRJL – Mobile Compatible Version

ACS/CTPP Predefined Report Categories



SFRJL – Mobile Compatible Version (ACS/CTPP User Defined Areas (TAZs))

The screenshot displays the SFRJL Version 2.0 web application. The browser address bar shows the URL `131.94.122.113/testWebS/index_new_layer.htm`. The sidebar on the left contains the following sections:

- SFRJL Version 2.0**
- LEHD OD Report (Cities)
- CTPP Report (Cities)
- Area Definition**
 - Current User: **G_2014951262047**
 - *Only up to **1000** map objects can be Displayed
 - ☒ Show TAZs GIS Layer
 - Please select a GIS layer:
 - Census TAZ layer for CTPP
 - Census block layer for LEHD
 - Census TAZ layer for CTPP** (highlighted with a red arrow)
 - Current Selection: **Navigation**
 - New Area Name:
 -
- Area Modification**
- OD Report (Areas)
- Map Layers
-

The main map area shows a street map of Coral Springs, Florida, with various street names and landmarks. A red arrow points to the "Census TAZ layer for CTPP" option in the sidebar, with the text "Two layers" written next to it. The bottom left of the map shows a "Total Hit: 1294" box. The bottom right corner features the Esri logo and the text "Esri, HERE, DeLorme, USGS, METI/NASA".

SFRJL – Mobile Compatible Version

ACS/CTPP Modify User Defined Area (TAZs)

The screenshot displays the SFRJL Version 2.0 web application. The interface is divided into a sidebar on the left and a main map area on the right. The sidebar contains the following sections:

- SFRJL Version 2.0**
- LEHD OD Report (Cities)**
- CTPP Report (Cities)**
- Area Definition**
- Area Modification**
 - ☐ Area based on Census Blocks
 - ☒ Area based on TAZs
- Current User: G_2014951262047**
- *Only up to 1000 map objects can be Displayed**
- ☒ Show TAZs GIS Layer
- Select an area to modify:** Central Broward
- Use these tools to define/refine desired areas**
 - Navigation (selected)
 - Update
 - Delete
 - Clear
- OD Report (Areas)**
- Map Layers**
- User Sign In**

The main map area shows a street map of Central Broward and Coral Springs. A purple-shaded area is highlighted, representing the user-defined area. A red arrow points to the 'Area based on TAZs' option in the sidebar, with the text 'Two layers' next to it. Another red arrow points to the 'Central Broward' selection in the 'Select an area to modify' dropdown, with the text 'Predefined Area' next to it. The map includes a 'Switch Basemap' button in the top right corner. The bottom left of the map shows a 'Total Hit: 1294' box. The bottom right corner features the Esri logo and the text 'Esri, HERE, DeLorme, USGS, METI/NASA'.

SFRJL – Mobile Compatible Version

ACS/CTPP Modify User Defined Area (TAZs)

SFRJL Version 2.0

- LEHD OD Report (Cities)
- CTPP Report (Cities)
- Area Definition
- Area Modification
- OD Report (Areas)

☐ LEHD Report: Areas based on Census Blocks

☒ CTPP Report: Areas based on TAZs

Select year: [Dropdown]

Select report: [Dropdown]

From area: Select an OD report type:

From county: From a Predefined Area to All Counties

From city: From a Predefined Area to a City

To area: From a Predefined Area to All Cities

To county: From a County to Predefined Area

To city: From All Counties to a Predefined Area

From a City to a Predefined Area

From All Cities to a Predefined Area

From a Predefined Area to another Predefined Area

Total Hit: 1295

Two Data Sources

Central-Broward

Predefined Area-Based Report Types

Esri, HERE, DeLorme, USGS, METI/NASA

SFRJL – Mobile Compatible Version

ACS/CTPP Predefined Report – from an Area to All Counties

CTPP Data Report Viewer - Google Chrome

131.94.122.113/ReportCenter/CTPPReportViewer.aspx?Style=1P_AC&layerid=1&FAreaId=293&TCCode=All&FYear=2011&TYear=2011

Please select group(s)

Means Of Transportation, Time I

☐ (Select All)
☐ Age
☐ Industry
☒ Means Of Transportation
☐ Race
☒ Time left home for work
☒ Travel Time

format Export

View Report

From Predefined Area

To County	Means Of Transportation												
	Drove alone		2-person carpool		3+ Person Carpool		Bus		Rail		Bike and Ped		Other modes
Broward	12,107	76.49%	1,376	8.69%	455	2.87%	424	2.68%			344	2.17%	175
Miami-Dade	574	88.44%			45	6.93%			30	4.62%			
Monroe	20	100.00%											
Palm Beach	1,969	86.02%	95	4.15%	145	6.33%	25	1.09%			15	0.66%	40
Others	53	29.78%			35	19.66%							90
Total	14,723	77.64%	1,471	7.76%	680	3.59%	449	2.37%	30	0.16%	359	1.89%	305

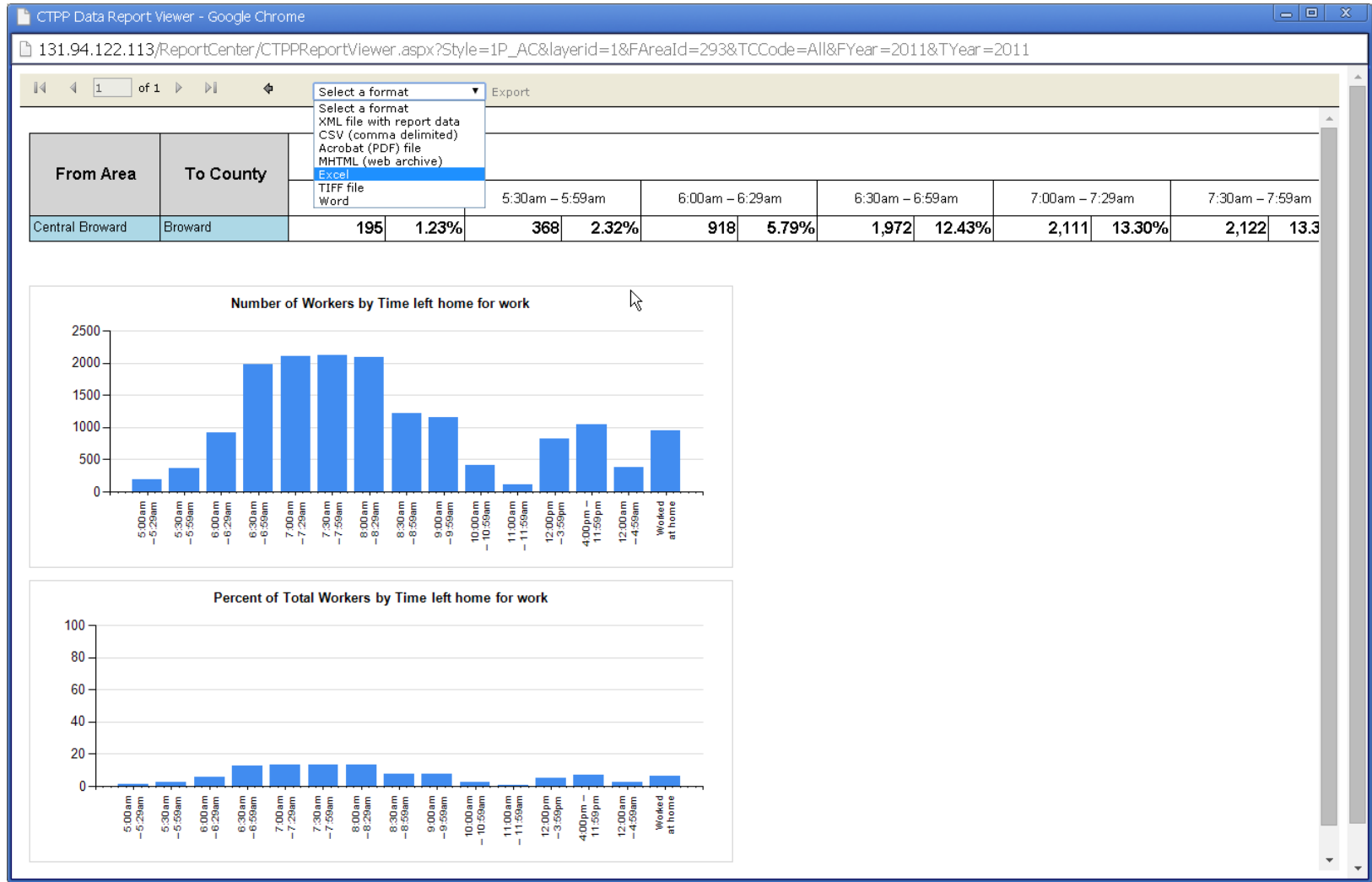
To County													
	5:00am – 5:29am		5:30am – 5:59am		6:00am – 6:29am		6:30am – 6:59am		7:00am – 7:29am		7:30am – 7:59am		8:00am – 8:29am
Broward	195	1.23%	368	2.32%	918	5.79%	1,972	12.43%	2,111	13.30%	2,122	13.37%	2,087
Miami-Dade	15	2.29%	35	5.35%	125	19.11%	90	13.76%	50	7.65%	60	9.17%	100
Monroe							20	100.00%					
Palm Beach			75	3.26%	193	8.38%	268	11.63%	320	13.89%	374	16.23%	494
Others			4	2.25%	40	22.47%			90	50.56%			24
Total	210	1.10%	482	2.53%	1,276	6.71%	2,350	12.35%	2,571	13.51%	2,556	13.44%	2,705

To County	Travel Time												
	Less than 5 minutes		5 to 14 minutes		15 to 19 minutes		20 to 29 minutes		30 to 44 minutes		45 to 59 minutes		60 to 74 minutes
Broward	459	2.89%	3,426	21.59%	2,569	16.19%	2,705	17.05%	3,992	25.16%	991	6.25%	584
Miami-Dade	30	4.59%	110	16.82%	45	6.88%	70	10.70%	80	12.23%	145	22.17%	65



SFRJL – Mobile Compatible Version

Multiple Reports and File Export



Highlights of the SFRJL Reporting Tool

- ▶ Integrated data sources
- ▶ Accessible across platforms
- ▶ Simple and easy user interface
- ▶ Versatile reporting functions
 - ▶ Predefined reports at city/GDP/county level
 - ▶ User defined areas and reporting
 - ▶ Reporting flows between origin(s) and destination(s)
 - ▶ One to one, one to many, many to one, and many to many
 - ▶ Can be sorted by any column in any order
 - ▶ Can be exported to multiple formats

Outcomes

- ▶ Has been used for:
 - ▶ Demand forecast model estimation, calibration, and validation
 - ▶ Transit market assessment
 - ▶ Transit Development Plan (TDP) Update
- ▶ Being used frequently
 - ▶ More than 1,300 hits since July 2013
- ▶ Saved purchases of cellphone-based O/D datasets

Questions and Comments

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Thank You!