



The Smart Location Calculator

Interagency Sustainability Working Group

May 19, 2016

Overview

- EPA's Smart Location Database
- Smart Location Calculator introduction and demo
- SLC application for GSA
- Q&A



Introduction to the Smart Location Database



- Density
- Diversity
- Design of Street Network
- Destination Accessibility
- Distance to Transit



Image sources: Lincoln Land Institute's "Visualizing Density" and Victor Dover

Introduction to the Smart Location Database

- **EPA's Smart Location Database (SLD)**
 - Nationwide geographic data resource including more than 90 attributes summarizing characteristics such as diversity of land use, neighborhood design, destination accessibility, employment, and demographics.
 - Data sources include American Community Survey, NAVTEQ streets, Longitudinal Employment Household Dataset
 - Find more information about the SLD, including interactive mapping, data downloads and user guide at <http://www2.epa.gov/smartgrowth/smart-location-mapping#SLD>

SLD Application

- **Federal government application**
 - EPA Walkability Index
 - Smart Location Calculator
 - Access to Jobs via Transit
- **External research**
 - Housing affordability, access to jobs and services, transportation analysis
 - AARP Livability Index
 - Plus more...

Background to the Smart Location Calculator

- Much like energy efficiency, location efficiency reduces resource demands while fostering a healthier, more sustainable built environment and providing equitable access to government jobs and services.
- Location-efficient commercial facilities are generally:
 - Accessible via multiple transportation options, including public transit and active transportation;
 - Centrally-located within their “commute shed” or region so as to maximize accessibility and minimize travel distances for employees and other users; and
 - Integrated within a mixed-use environment that offers easy access to services and destinations.

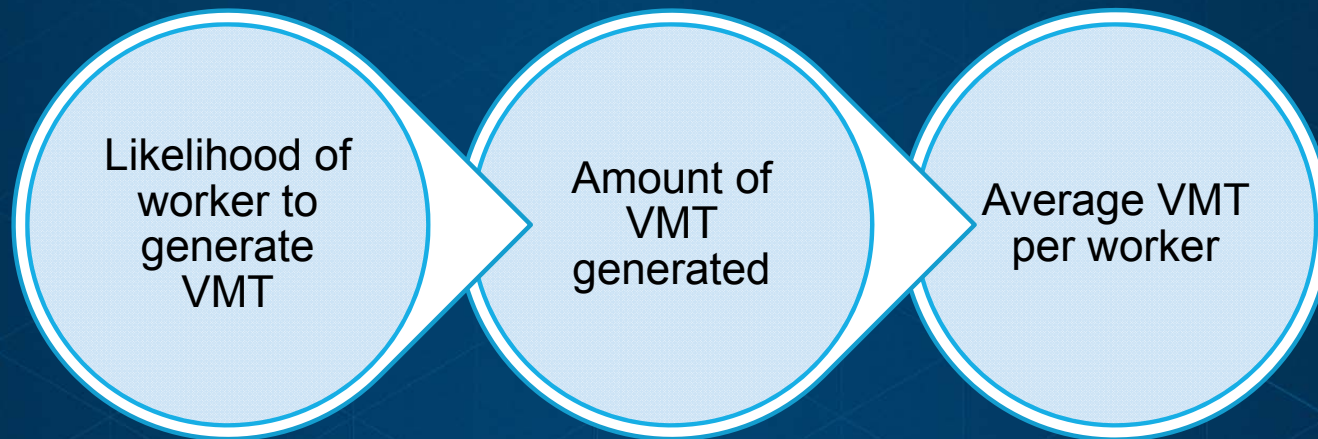
SLC Research Questions

- **What measures of location efficiency would enable us to compare facility locations relative to each other – ie put numbers to the policy?**
- **How can we fill the gap where there has been little research into the effect of the built environment around workplace locations?**
- **How can we estimate worker vehicle miles traveled (VMT) and greenhouse gas emissions (GHG) associated with that travel?**

SLC Model: Data Source

- **Model estimates how urban form characteristics of workplace block groups (from SLD) impact worker VMT generation when traveling to/from workplace block groups**
- **Worker commute data comes from 2009 National Household Travel Survey**
 - **Worker characteristics (income, gender, etc.)**
 - **Whether a trip generated VMT, and if so, how much**

SLC Model: Modelling Process



SLC Results

- The block group scores are categorized using the following scale:

90-100 = Excellent 

80-89 = Very good 

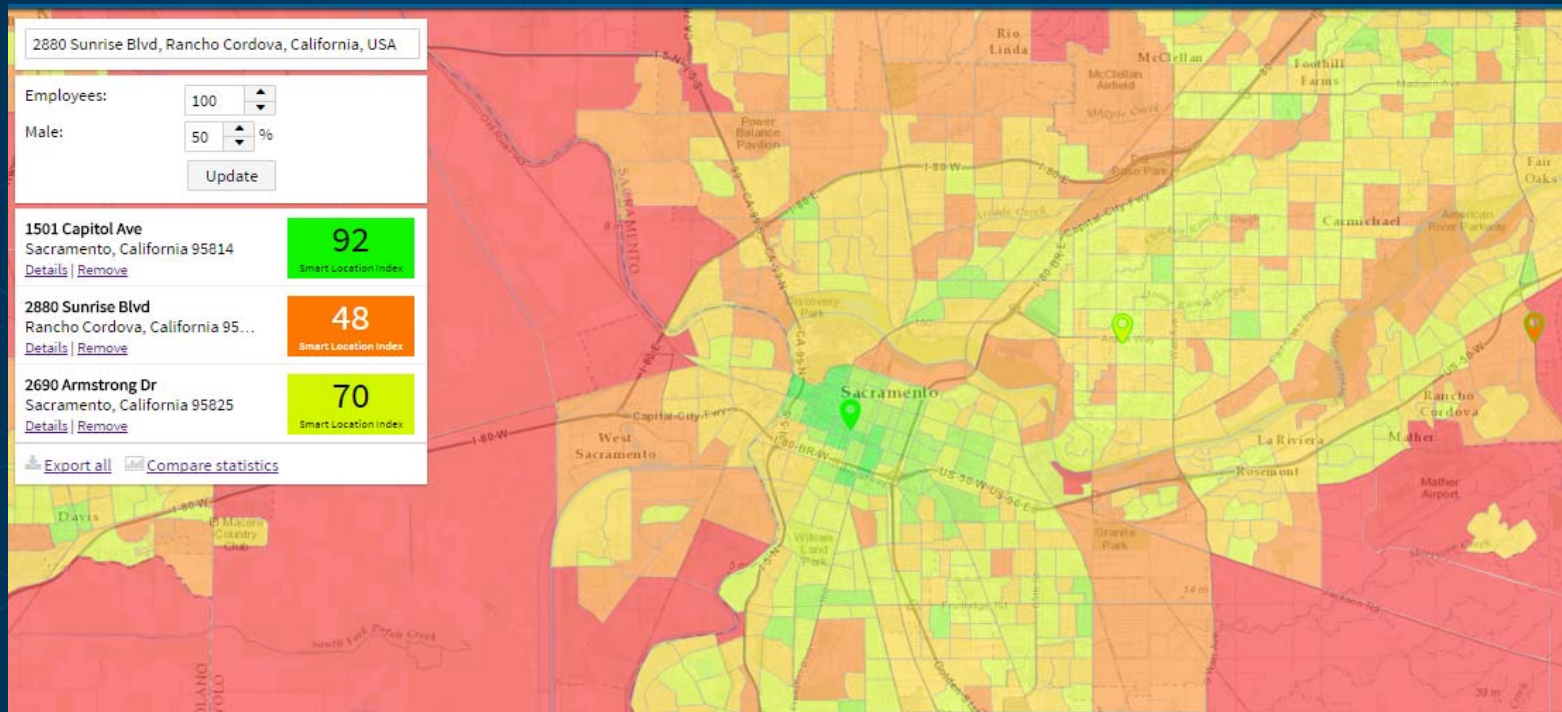
70-79 = Good 

60-69 = Fair 

40-59 = Low 

<40 = Very low 

SLC Demonstration

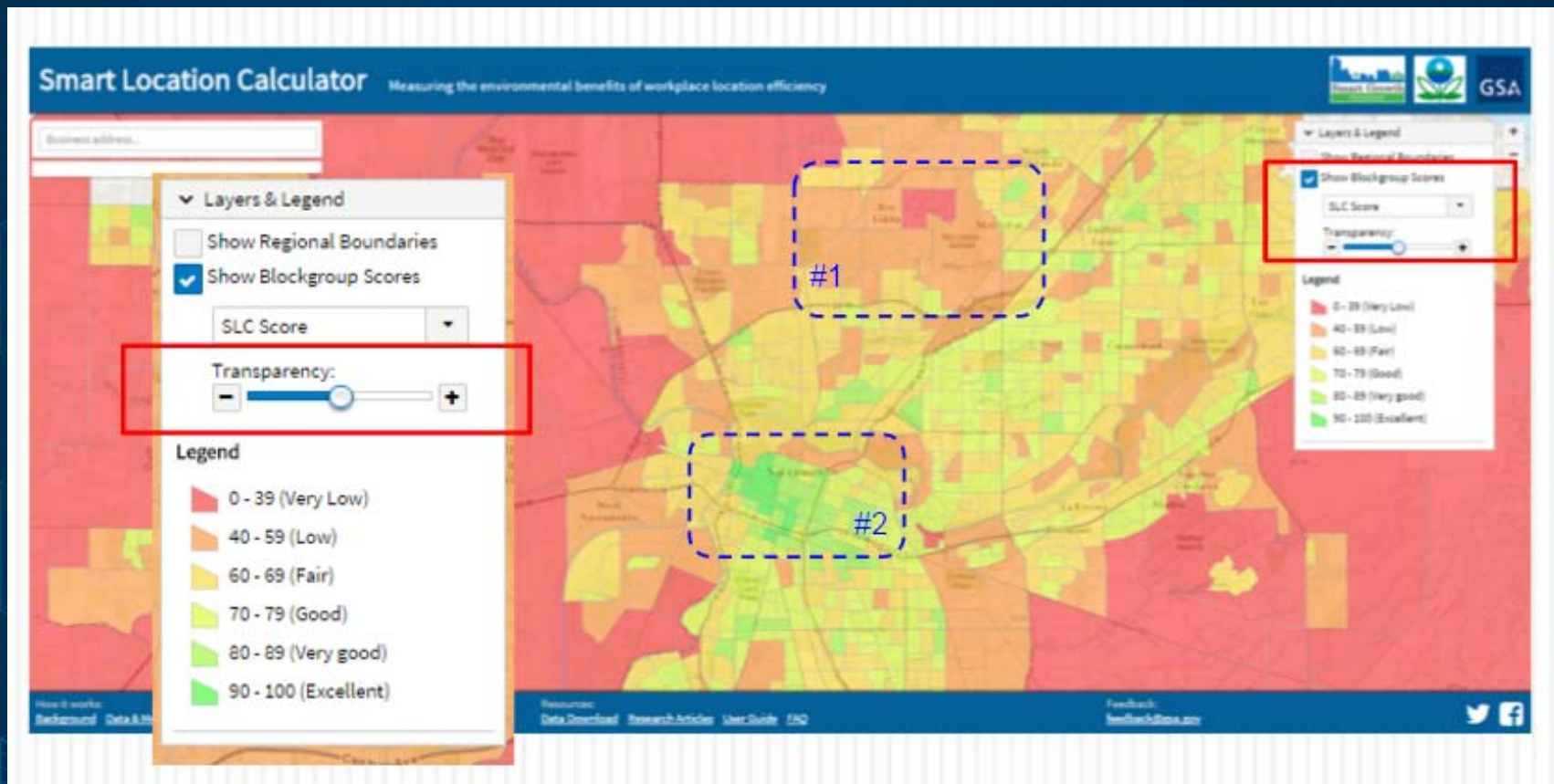


<https://www.slc.gsa.gov/slc>

SLC Demonstration

The screenshot displays the Smart Location Calculator web application. At the top, the title "Smart Location Calculator" is followed by the tagline "Measuring the environmental benefits of workplace location efficiency". Logos for "Smart Climate" and "GSA" are visible in the top right corner. The main area features a map of Washington, D.C. and surrounding regions. A dark blue overlay box is centered on the map, containing the text "Where do you work?". Below this text is a white input field labeled "Business address...". A red arrow points from the text "Enter facility address" to this input field. At the bottom of the overlay box is a button labeled "Take me to the application", which is highlighted with a red rectangular box. A red arrow points from the text "Navigate to the application" to this button. The bottom of the page contains a footer with navigation links: "How it works", "Background", "Data & Methodology", "Resources", "Data Download", "Research Articles", "User Guide", "FAQ", "Feedback", and "feedBack@gsa.gov". Social media icons for Twitter and Facebook are also present.

SLC Demonstration



SLC Demonstration

The screenshot displays the Smart Location Calculator web application. The interface includes a header with the title "Smart Location Calculator" and the subtitle "Measuring the environmental benefits of workplace location efficiency". The GSA logo is visible in the top right corner. The main content area is divided into a left sidebar and a central map. The sidebar contains input fields for "Employees" (set to 100) and "Male" (set to 50%), with a red box highlighting the "Male" field. Below these are buttons for "Update" and "Export". A summary section shows a "Smart Location Index" of 93 (highlighted in green) and a "Block Group Score" of 100 (highlighted in green), with a red box around both. Other sidebar elements include checkboxes for "Existed in 2010" and "Occupied in 2010", and a "Re-calculate Score" button. The central map shows a street grid with a green location pin. A "Layers & Legend" panel on the right offers options to "Show Regional Boundaries" and "Show Blockgroup Scores". The bottom of the page features a footer with "Download", "Research Articles", "User Guide", "FAQ", "Feedback" (with email address feedback@gsa.gov), and social media icons for Twitter and Facebook.

SLC Demonstration

Smart Location Calculator

Measuring the environmental benefits of workplace location efficiency

4011 Berrendo Dr, Sacramento, California, USA

4011 Berrendo Dr, Sacramento, California, USA

Employees:

Male: %

801 I St
Sacramento, California 95814

93

Smart Location Index

[Details](#) | [Remove](#)

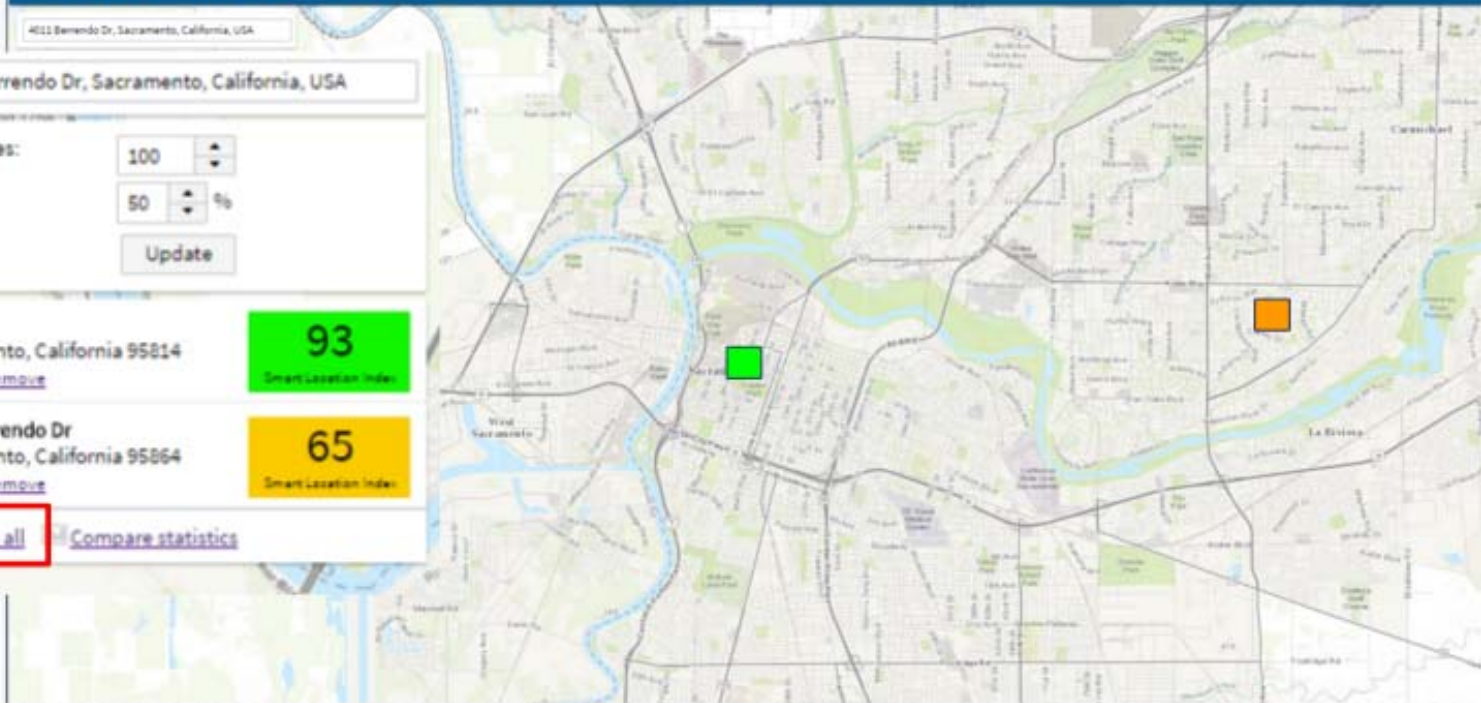
4011 Berrendo Dr
Sacramento, California 95864

65

Smart Location Index

[Details](#) | [Remove](#)

[Compare statistics](#)



SLC Demonstration

Smart Location Calculator

Location: 8011 St, Sacramento, California, USA

Employees: 100
Male: 50 %
[Update](#)

3832 Winters St
Sacramento, California 95838
64 Smart Location Index
[Details](#) [Remove](#)
[Export all](#) [Hide Compare statistics](#)

VMT Emissions Access to transit Low wage access Mode Split

Location: 3832 Winters St, Sacramento, California, 95838
Average daily vehicle miles travelled generated by each employee commuting to and working at a given facility (miles per person per day)

Category	VMT (miles per person per day)
Metro low	17.5
Metro Avg.	23.4
Metro high	34.6
Block Group	22.3
This location	23.7

Layers & Legend
 Show Regional Boundaries
 Show Blockgroup Scores
No legend


How it works: [Background](#) [Data & Methodology](#)
Resources: [Data Download](#) [Research Articles](#) [User Guide](#) [FAQ](#)
Feedback: slc@gsa.gov

SLC Block Group vs Facility Scores

- User-entered data
- Distance to transit
- 1/4 mile buffer
 - Tool adjusts for edge effects
 - Variables impacted: residential and employment densities, network variables (links), transit density, access, land use mix

Employees:

Male: %

1800 F St NW 
Washington, District of Columbia 20006

85 Smart Location Index **75** Block Group SLI [More scores](#)

Distance to nearest transit stop: miles

Distance to rail transit: miles

or move pointers on the map

Use average block group distance to transit values

Existed in 2010

Occupied in 2010

SLC Application for GSA

- **GSA National Blueprint Measure**
- **Lease Acquisiton Planning**
- **Local Portfolio Planning**

Testing and Feedback

- Questions
- Use case scenarios
- Enhancements
- Methodology critique

<https://www.slc.gsa.gov/slc>

Email slc@gsa.gov

Smart Location Calculator
--Initial feedback form--

Smart Location Calculator link: <https://www.slc.gsa.gov/slc>

Please send this form to Lori Zeller with the subject line "SLC Feedback" to Zeller.Lori@epa.gov

As you explore the Smart Location Calculator, please jot down any notes or questions you have. We want to know what users are thinking as they use the tool and any questions that arise while using the tool. Below are a few guiding questions (feel free to answer any, all or none), plus additional space at the bottom for miscellaneous comments. Thank you!

- 1) As you view the block group data, what questions do you have about how the data was created?
- 2) As you view the results for a location, what questions do you have about how that score was created?
- 3) What main questions do you have about how the scores were calculated?
- 4) How much detail are you interested in knowing about how the scores were calculated?

Questions

Ruth E. Kroeger

GSA Urban Development Program

ruth.kroeger@gsa.gov

(202) 208-3288

