

Sustainable Communities Calculator

Presentation

by

Harry Reed

to

**13th Annual New Partners for Smart Growth
Session**

Emerging Fiscal Impact Tool Highlight

the

Economic Consequences of Development Decisions

February 14, 2014

Presentation Topics



- 1. History & Background**
- 2. Phase II Calculator Development**
- 3. Significant Factors Affecting Costs**
- 4. Tool (Computational Engine)**
- 5. Example Calculations**

RMP Development Scenarios

**“Quality Growth Plus”
(Compact / Infill)**



**Business-as-Usual
(Scattered / Linear)**



**Quality Growth
(Contiguous / USA fringe)**

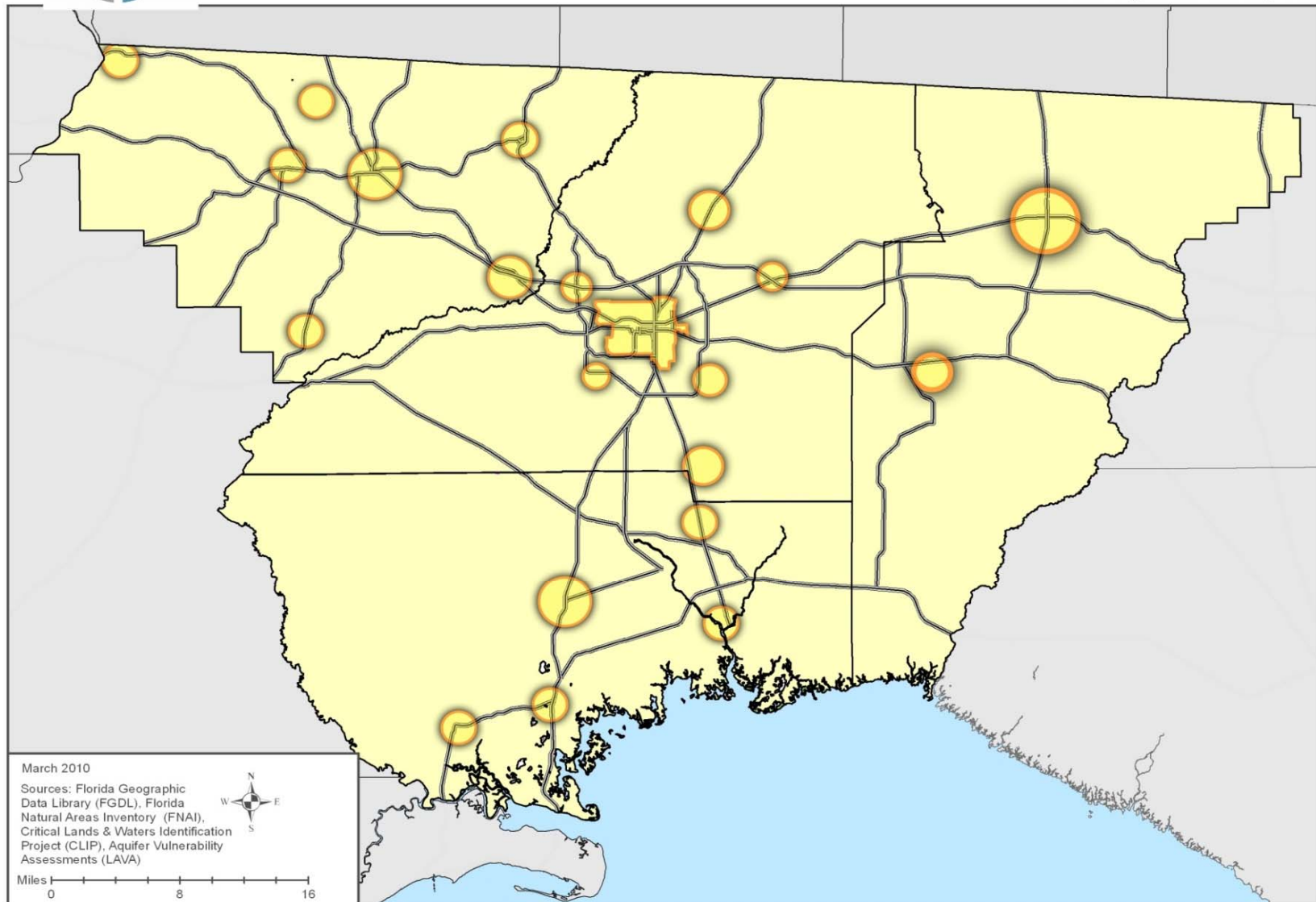


Quality Growth Plus Scenario



(CRTPA)

CRTPA Regional Mobility Plan



Cost to Repair and Maintain



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The Gainesville Sun
Gainesville

How did we get a backlog?

By [Morgan Watkins](#)
Staff writer
Published: Sunday, January 13, 2012

With a total road repair backlog of \$1.2 billion, which is for county roads.

County commissioners hope they will win a big battle in 2012, officials know it's a growing problem.

The frustration, especially in the north...

The Seattle Times | Local News
Winner of Nine Pulitzer Prizes

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Repair Priorities Map | Smart Growth America

www.smartgrowthamerica.org/repair-priorities-map

get its roads into good condition and keep them that way. Click on the pop-up boxes' "Read more" links to view more information about each state.

State	Percentage of Roads out of Good Condition	Estimated Annual Cost to Repair and Maintain
Florida	21%	\$950,112,203

Florida

21% of Florida's roads have fallen out of good condition, and it would take approximately \$950,112,203 per year over the next twenty years to bring all of the state's roads into good repair and keep them that way. Despite this need, between 2004 and 2008 Florida spent 48% of its highway capital funds on road expansion - \$2,226,175,911 - but only 25% on road repair and maintenance - \$1,149,835,045.

[Read More](#)

9:53 AM 1/29/2014



The Calculator's Role & Capability



Assist the selection of the preferred growth scenario through the calculation of associated costs to local governments

CRTPA Sustainable Communities Calculator v0.3

Capital Region Transportation Planning Agency
Tallahassee, FL MSA

1-888-462-3514
www.sprinkleconsulting.com

Planned Development & Surrounding Infrastructure Characteristics

Characteristics of Proposed Development & Surrounding Area
Metro Area Typical

Generated Traffic's Avg. Trip Length (mi)...	5.4	8.8	11.2	8

Proposed Number of Residential Dwelling Units..... 100

Planned Internal (Development) Connectivity..... input

LEED ND Certification
 Platinum Gold Silver Bronze None

Proposed Development's Land Use Mix:

% Residential	100
% Office	0
% Retail	0
% Industrial	0
% Institutional	0

Resulting External Trip Generation Rate (daily/unit)..... 9.57 trip ends

Population Density of Surrounding (2-mile radius) Area..... input people/mi

Average Household Income

Within Planned Development.....	input
Within Surrounding Area.....	input

"Livability" Infrastructure of Surrounding Area
Public Transit Service (select the quality of service provided to your development)

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Walking Infrastructure: Subarea Walking Conditions (via Pedestrian LOS) input

Bicycling Infrastructure: Subarea Bicycling Conditions (via Bicycle LOS) input

Americans with Disabilities Act (ADA) Infrastructure Compliance (% Network Coverage)..... input

Regional Roadway Network O&M Costs
(excluding costs for through facilities)

Cities	\$14,200,000
County	\$5,800,000
State	\$8,500,000
Total.....	\$28,500,000

Total Metro Area's Annual Vehicle Miles Traveled (excluding external VMT) 2,439,235,870

O&M Costs per VMT for Network \$0.0117

Costs of Development Location



Development Form/Location	Annual VMT	Network Maintenance per VMT	Annual Cost	35-yr Cost	Present Cost
Business as Usual (Scattered)	3,886,355	\$0.0117	\$45,408	\$1,589,284	\$975,693
Quality Growth (Contiguous)	3,053,565	\$0.0117	\$35,678	\$1,248,723	\$766,616
"Quality Growth Plus" (Compact/Infill)	1,873,778	\$0.0117	\$21,893	\$766,262	\$470,424

(P/A, 3%, 35)



Phase I Output



Fiscal Impacts

Capital Region Transportation Planning Agency

Municipalities' & Taxpayers' Fiscal Impacts & Comparative Costs

O&M Costs by Development Type & Location

P/A	Compact or Infill	Contiguous/ Urban Service Area Fringe	Scattered/ Suburban Corridor	Proposed Community Development
3% rate				
35 years				
Impact to Affected Jurisdictions' Roadway Network Operating & Maintenance Costs				
Annual	\$21,893	\$35,678	\$45,408	\$32,434
35-year Total	\$766,262	\$1,248,723	\$1,589,284	\$1,135,203
Present Costs	\$470,424	\$766,617	\$975,694	\$696,925
Impact to Public Schools' Student Bus Transportation Costs				
Annual	\$3,135	\$5,109	\$6,503	\$4,645
35-year Total	\$109,736	\$178,830	\$227,602	\$162,573
Present Costs	\$67,369	\$109,787	\$139,729	\$99,807
Impact to Other Public Infrastructure and O&M Costs (e.g., Public Safety, Wastewater, Fire/Rescue, Water, Parks, Solid Waste)				
Annual	\$19,704	\$32,110	\$40,867	\$29,191
35-year Total	\$689,636	\$1,123,851	\$1,430,356	\$1,021,683
Present Costs	\$423,382	\$689,955	\$878,125	\$627,232
Total O&M Costs (Roads, School Transportation, and Other Public Infrastructure)				
Annual	\$44,732	\$72,897	\$92,778	\$66,270
35-year Total	\$1,565,634	\$2,551,404	\$3,247,242	\$2,319,458
Present Costs	\$961,175	\$1,566,360	\$1,993,549	\$1,423,963

RMP Implementation Tools



- Build Quality School Communities in the Population Growth Nodes
- Focus Civic Activity and Services Investment into the Quality Growth Node
- Foster Aggregation of Parcels and Common Infrastructure
- Recruit Essential Private Sector Components of Life Long Communities
- Hyper-streamline (re-)Development Approvals in the Quality Growth Nodes
- **Employ Long-Term Benefit-Cost Assessment for Development Decisions**
- Employ Simple, Clear Mobility Fee-type Approach

Presentation Topics



- 1. History & Background**
- 2. Calculator Phase II Development**
- 3. Significant Factors Affecting Costs**
- 4. Tool (Computational Engine)**
- 5. Example Calculations**

Phase II Calculator's Ability to Evaluate Effects of...



- **Location of Development**
- **Nature of Development**
- **Land Use Mix of Development**
- **Internal Characteristics of Development**
- **Development's Integration with Transit**
- **Development's Active Transportation Accommodation**

- **Enable Leadership to Guide Development into Nodal Focus Areas**
- **Plan Transportation System**
- **Evaluate Development Requests**
- **Shape the Character of Growth**

The Sustainable Communities Calculator:

“Bringing reliable studies, methods,
and equations to your fingertips”

Presentation Topics



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Factors Affecting Development Costs



- **Destination (access to jobs)**
- **Design (street network characteristics)**
- **Diversity (land use mix – entropy index)**
- **Density (residential)**
- **Distance to Transit Service**

Source: Ewing and Cervero, 2010 (Federal Highway Administration metastudy)

Presentation Topics



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Development Setting & Pattern



CRTPA Sustainable Communities Ca
 Capital Region Transportation Planning
 Tallahassee, FL MSA

Development Name:

Planned Development & Surrounding Infrastructure Char

Characteristics of Proposed Development & Surrounding Area

Metro Area Typicals



	Heavy CBD	Multi Modal District	Scattered/Suburban Corridor	Rural	
Existing Development Setting	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Proposed Development Pattern	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Generated Traffic Avg. Trip Length	3.6	5.4	5.9	7.3	5.5
Proposed Number of Residential Dwelling Units					500
Proposed Development Size (acres)	% Single Fam <input checked="" type="checkbox"/>		% Multi Fam <input type="checkbox"/>		64
VMT per Household per Year (from CNT website)					19,100
Proposed Development Location					Tallahassee
Proposed Development's Land Use Mix (Area):					
% Residential Area					100
% other Developed Area					0
% open space					40
Existing Fuel Costs	\$3.60 \$/gallon				
Resulting External Trip Generation Rate (daily)					9.53 trip ends reserved
Population Density of Surrounding (2-mile radius) Area					



Development Setting & Pattern



CRTPA Sustainable Communities Ca
 Capital Region Transportation Planning
 Tallahassee, FL MSA

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Development Setting & Pattern



CRTPA Sustainable Communities Ca
 Capital Region Transportation Planning Agency
 Tallahassee, FL MSA

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Example Calculations

Example Calculations



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Apps Suggested Sites Imported From IE

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CRTPA
Florida's capital area transportation planning agency

Tallahassee
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AccuWeather.com
Weather Forecast

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Interactive TIP

Welcome

Welcome to the CRTPA!

The Capital Region Transportation Planning Agency (CRTPA) is the region's metropolitan planning organization (MPO). As such, the CRTPA is responsible for coordinating transportation planning within Florida's Capital Region. The CRTPA includes all of Gadsden, Jefferson, Leon and Wakulla counties. Our agency's mission statement:

"The mission of the CRTPA is to act as the principal forum for collective transportation policy discussions that results in the development of a long range transportation plan which creates an integrated regional multimodal transportation network that supports sustainable development patterns and promotes economic growth."

Spotlight

Capital City to the Sea Trails

The Capital City to the Sea Trails (CC2ST) is a CRTPA project envisioned to be a series of trails that will connect various regions of Leon and Wakulla counties and the future Franklin, Gadsden, and Jefferson counties. These trails are not defined for specific users but instead will provide transportation options to allow the movement of citizens in these counties by means other than motorized vehicle. Some of the existing Trails that make up this system include the Tallahassee-St. Marks Historic Railroad State Trail (Leon and Wakulla counties) and the Ochlockonee Bay Bike Trail (Wakulla County). [More...](#)

News

- CRTPA Transportation Alternatives Program (TAP) Gears Up! [Learn More](#)
- FY 2014 - FY 2016 Transportation Improvement Program Adopted on June 17, 2013: [Document](#)
- CRTPA Sustainability Calculator [Learn More](#)
- **2012 Listing of Federally Obligated Projects in CRTPA Region: [Learn More](#)**
- Regional Mobility Plan [Final Report](#)

Meetings

- NEXT CRTPA Board Meeting: Monday, March 10, 2014 @ 1 PM

[More meetings...](#)

Events

Today | January 2014 | Print

Sun	Mon	Tue	Wed	Thu	Fri	Sat
29	30	31	Jan 1	2	3	4

5:15 PM
1/30/2014

Example Calculations



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Calculator v0.3
Capital Region Transportation Planning Agency - Tallahassee, FL MSA


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Planned Development & Surrounding Infrastructure Characteristics

Development Name:

[User Guide](#)

Characteristics of Proposed Development & Surrounding Area

Metro Area Typicals	Dense CBD	Multi Modal District	Scattered / Suburban Corridor	Rural
				
Existing Development Setting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proposed Development Pattern	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Generated Traffic Avg. Trip Length	3.6	4.3	5.2	6.9
Proposed Number of Residential Dwelling Units	<input type="text"/>			
	Single Family <input type="checkbox"/>		Multi Family <input type="checkbox"/>	
Proposed Development Size (acres)	<input type="text"/>			
VMT per Household per Year (from CNT website)	<input type="text"/>			
Proposed Development Location	- Select Location <input type="text"/>			
Proposed Development's Land Use Mix (Area):				
% Residential Area	<input type="text"/>			
% other Developed Area	<input type="text"/>			
Existing Fuel Costs <input type="text"/> \$/gallon				

[Next](#)



[Home](#)

[Fiscal Impacts](#)

[Regional Economy](#)

[Energy & Environment](#)

[Output Summary](#)

Example Calculations



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Calculator v0.3
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Planned Development & Surrounding Infrastructure Characteristics

Development Name:

User Guide

Characteristics of Proposed Development & Surrounding Area

	Dense CBD	Multi Modal District	Scattered / Suburban Corridor	Rural	
Metro Area Typicals					
					
Existing Development Setting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Proposed Development Pattern	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Generated Traffic Avg. Trip Length	3.6	4.3	5.2	6.9	0
Proposed Number of Residential Dwelling Units					<input type="text"/>
	Single Family <input type="checkbox"/>		Multi Family <input type="checkbox"/>		
Proposed Development Size (acres)					<input type="text"/>
VMT per Household per Year (from CNT website)					<input type="text"/>
Proposed Development Location					- Select Location <input type="text"/>
Proposed Development's Land Use Mix (Area):					
% Residential Area					<input type="text"/>
% other Developed Area					<input type="text"/>
Existing Fuel Costs <input type="text"/> \$/gallon					

Next



Home

Fiscal Impacts

Regional Economy

Energy & Environment

Output Summary

Example Calculations



calc_user_guide.pdf - Adobe Reader

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1 / 9 50%

Tools Sign Comment

CRTPA Sustainable Communities Calculator User Guide Page 1 of 9

CRTPA Sustainable Communities Calculator

The CRTPA Sustainable Communities Calculator is a web-based tool that helps agencies identify the impacts of potential developments and development patterns that may occur in the CRTPA region. This document provides an overview of the inputs and outputs of the CRTPA Sustainable Communities Calculator.

The "Home" Tab

CRTPA Sustainable Communities Calculator v0.3
Capital Region Transportation Planning Agency - Tallahassee, FL, USA

Sprinkle Consulting
1-888-462-3514
www.sprinkleconsulting.com

1 Username Password Login

Planned Development & Surrounding Infrastructure Characteristics

2 Development Name:

Characteristics of Proposed Development & Surrounding Area

	Metro Area Typical	Dense CBD	Multi-Modal District	Scattered / Suburban Corridor	Rural
3 Existing Development Setting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4 Proposed Development Pattern	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5 Generated Traffic Avg. Trip Length		3.5	4.3	5.2	6.9
6 Proposed Number of Residential Dwelling Units					<input type="text"/>
7		Single Family <input type="checkbox"/>			Multi Family <input type="checkbox"/>
8 Proposed Development Size (acres)					<input type="text"/>
9 VMT per Household per Year (from CNT website)					<input type="text"/>
10 Proposed Development Location					Select Location
11 Proposed Development's Land Use Mix (Acres)					
% Residential Area					<input type="text"/>
% other Developed Area					<input type="text"/>

Desktop 3:23 PM 1/30/2014

Example Calculations

Planned Development & Surrounding Infrastructure Characteristics

Development Name:

[User Guide](#)

Characteristics of Proposed Development & Surrounding Area

Metro Area Typicals

Dense CBD

Multi Modal District

Scattered / Suburban
Corridor

Rural



Existing Development Setting	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Proposed Development Pattern	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Generated Traffic Avg. Trip Length	5.3	6.3	7.6	10.1	5.5
Proposed Number of Residential Dwelling Units					<input type="text" value="300"/>
	Single Family <input type="checkbox"/>		Multi Family <input checked="" type="checkbox"/>		
Proposed Development Size (acres)					<input type="text" value="10"/>
VMT per Household per Year (from CNT website)					<input type="text" value="13061"/>
Proposed Development Location					<input type="text" value="Tallahassee"/>
Proposed Development's Land Use Mix (Area):					
% Residential Area					<input type="text" value="100"/>
% other Developed Area					<input type="text" value="0"/>
Existing Fuel Costs	<input type="text" value="3.35"/>	\$/gallon			

[Next](#)

Example Calculations



Planned Development & Surrounding Infrastructure Characteristics

Development Name:

[User Guide](#)

Characteristics of Proposed Development & Surrounding Area

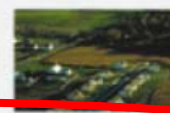
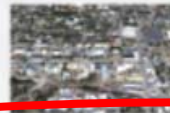
Metro Area Typicals

Dense CBD

Multi Modal District

Scattered / Suburban Corridor

Rural



Existing Development Setting	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proposed Development Pattern	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Generated Traffic Avg. Trip Length	5.3	6.5	7.6	10.1

Proposed Number of Residential Dwelling Units

Single Family

Multi Family

Proposed Development Size (acres)

VMT per Household per Year (from CNT website)

Proposed Development Location

Proposed Development's Land Use Mix (Area):

% Residential Area

% other Developed Area

Existing Fuel Costs \$/gallon

[Next](#)

Example Calculations



Planned Development & Surrounding Infrastructure Characteristics

Development Name:

[User Guide](#)

Characteristics of Proposed Development & Surrounding Area

Metro Area Typicals



	Dense CBD	Multi Modal District	Scattered / Suburban Corridor	Rural
Existing Development Setting	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Generated Traffic Avg. Trip Length	5.3	6.3	7.6	10.1

Proposed Number of Residential Dwelling Units

Single Family Multi Family

Proposed Development Size (acres)

VMT per Household per Year (from CNT website)

Proposed Development Location

Proposed Development's Land Use Mix (Area):

% Residential Area
% other Developed Area

Existing Fuel Costs \$/gallon

[Next](#)

Example Calculations



Planned Development & Surrounding Infrastructure Characteristics

Development Name:

[User Guide](#)

Characteristics of Proposed Development & Surrounding Area

Metro Area Typicals

Dense CBD

Multi Modal District

Scattered / Suburban Corridor

Rural



Existing Development Setting	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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Generated Traffic Avg. Trip Length	5.3	6.3	7.6	10.1	5.5
Proposed Number of Residential Dwelling Units					<input type="text" value="300"/>
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Existing Fuel Costs	<input type="text" value="3.35"/>	\$/gallon			

[Next](#)

Example Calculations



Planned Development & Surrounding Infrastructure Characteristics

Development Name:

[User Guide](#)

Characteristics of Proposed Development & Surrounding Area

Metro Area Typicals

Dense CBD

Multi Modal District

Scattered / Suburban Corridor

Rural



Existing Development Setting	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Proposed Development Pattern	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Generated Traffic Avg. Trip Length	5.3	6.3	7.6	10.1	5.5

Proposed Number of Residential Dwelling Units

Single Family

Multi Family

Proposed Development Size (acres)

VMT per Household per Year (from CNT website)

Proposed Development Location

Proposed Development's Land Use Mix (Area):

% Residential Area

% other Developed Area

Existing Fuel Costs \$/gallon

[Next](#)

Example Calculations

Planned Development & Surrounding Infrastructure Characteristics

Development Name:

[User Guide](#)

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Example Calculations



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htaindex.cnt.org/map/

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TRUE AFFORDABILITY AND LOCATION EFFICIENCY
H+T Affordability Index

Enter a city, county or region... **FIND**

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Housing Costs % Income
Regional Typical Household in the U.S.
Income: HH Size: Commuters:

Housing + Transportation Costs % Income
Regional Typical Household in the U.S.
Income: HH Size: Commuters:

Insufficient Data | < 30 % | 30 + %

Insufficient Data | < 45 % | 45 + %

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Example Calculations



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htaindex.cnt.org/map/

Apps | Suggested Sites | Imported From IE

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TRUE AFFORDABILITY AND LOCATION EFFICIENCY

H+T Affordability Index

Share this Map

Tallahassee, FL

MAP VIEW

Vehicle Miles Traveled (VMT) per Household

Regional Typical Household in Tallahassee, FL

Income: \$27,717
HH Size: 2.37 People
Commuters: 1.1 Workers

Legend

- Insufficient Data
- < 16000 Annual Miles
- 16000 to 18500 Annual Miles
- 18500 to 21000 Annual Miles
- 21000 to 26000 Annual Miles
- 26000 + Annual Miles

Description

Vehicle Miles Traveled represents the average annual auto travel as modeled for the typical household. This includes commute travel, but also all other daily auto trips.

Focus:

20 km
10 mi

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Example Calculations



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TRUE AFFORDABILITY AND LOCATION EFFICIENCY
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Tallahassee, FL [FIND] [Lock]

MAP VIEW [Satellite] [Street]

Vehicle Miles Traveled (VMT) per Household

Regional Typical Household in Tallahassee, FL

Income: \$42,727
HH Size: 2.37 People
Commuters: 1.1 Workers

Legend

- Insufficient Data
- < 16000 Annual Miles
- 16000 to 18500 Annual Miles
- 18500 to 21000 Annual Miles
- 21000 to 26000 Annual Miles
- 26000 + Annual Miles

Description

Vehicle Miles Traveled represents the average annual auto travel as modeled for the typical household. This includes commute travel, but also all other daily auto trips.

Focus: Region

Vehicle Miles Traveled (VMT) per Household	Annual Miles
Block Group 120730006004:	13061.44 Annual Miles
Tallahassee, FL:	19798.4 Annual Miles
Leon:	18908.61 Annual Miles
Tallahassee:	17058.41 Annual Miles

Zoom to Blockgroup

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Example Calculations



Planned Development & Surrounding Infrastructure Characteristics

Development Name:

[User Guide](#)

Characteristics of Proposed Development & Surrounding Area

Metro Area Typicals

Dense CBD

Multi Modal District

Scattered / Suburban Corridor

Rural



Existing Development Setting	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Proposed Development Pattern	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Generated Traffic Avg. Trip Length	5.3	6.3	7.6	10.1	5.5
Proposed Number of Residential Dwelling Units					<input type="text" value="300"/>
	Single Family <input type="checkbox"/>		Multi Family <input checked="" type="checkbox"/>		
Proposed Development Size (acres)					<input type="text" value="10"/>
VMT per Household per Year (from CNT website)					<input type="text" value="13061"/>
Proposed Development Location					<input type="text" value="Tallahassee"/>
Proposed Development's Land Use Mix (Area):					
% Residential Area					<input type="text" value="100"/>
% other Developed Area					<input type="text" value="0"/>
Existing Fuel Costs	<input type="text" value="3.35"/>	\$/gallon			

[Next](#)

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Characteristics of Proposed Development & Surrounding Area

Metro Area Typicals

Dense CBD

Multi Modal District

Scattered / Suburban Corridor

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[Next](#)

Example Calculations



Planned Development & Surrounding Infrastructure Characteristics

Development Name:

[User Guide](#)

Characteristics of Proposed Development & Surrounding Area

Metro Area Typicals



	Dense CBD	Multi Modal District	Scattered / Suburban Corridor	Rural
Existing Development Setting	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proposed Development Pattern	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Generated Traffic Avg. Trip Length	5.3	6.3	7.6	10.1

Proposed Number of Residential Dwelling Units

Single Family Multi Family

Proposed Development Size (acres)

VMT per Household per Year (from CNT website)

Proposed Development Location

Proposed Development's Land Use Mix (Area):

% Residential Area
% other Developed Area

Existing Fuel Costs \$/gallon

[Next](#)

Example Calculations



Municipalities' & Taxpayers' Fiscal Impacts & Comparative Costs

O&M Costs by Development Type & Location

P/A 3% rate 35 years	Development Pattern		
	MMD ↓	Base Proposed Multi Modal District ↓	Proposed Community Development ↓
Impact to Affected Jurisdictions' Roadway Network Operating & Maintenance Costs			
Annual	\$52,199	\$52,199	\$49,831
35-Year Total	\$1,826,975	\$1,826,975	\$1,744,092
Present Costs	\$1,121,618	\$1,121,618	\$1,070,734
Impact to Public Schools' Student Bus Transportation Costs			
Annual	\$4,646	\$4,646	\$4,045
35-Year Total	\$162,595	\$162,595	\$141,577
Present Costs	\$99,820	\$99,820	\$86,917
Impact to Other Public Infrastructure and O&M Costs (e.g., Public Safety, Wastewater, Fire/Rescue, Water, Trash, Solid Waste)			
Annual	\$171,169	\$171,169	\$171,169
35-Year Total	\$5,990,928	\$5,990,928	\$5,990,928
Present Costs	\$3,677,954	\$3,677,954	\$3,677,954
Total O&M Costs (Roads, School Transportation, and Other Public Infrastructure)			
Annual	\$228,014	\$228,014	\$225,046
35-Year Total	\$7,980,498	\$7,980,498	\$7,876,596
Present Costs	\$4,899,392	\$4,899,392	\$4,835,604

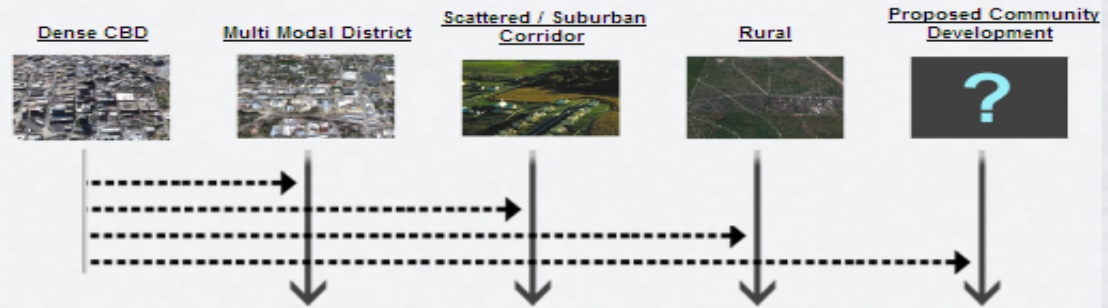
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Example Calculations



Effects on the Regional Economy

Comparative Costs



Lost Disposable Income

	Dense CBD	Multi Modal District	Scattered / Suburban Corridor	Rural	Proposed Community Development
Commute Time Costs					
Annual		\$98,402	\$223,490	\$473,665	\$17,554
10-Year Total		\$984,022	\$2,234,897	\$4,736,647	\$175,539
Auto Ownership Costs					
Annual		\$195,433	\$443,865	\$940,728	\$34,863
10-Year Total		\$1,954,330	\$4,438,648	\$9,407,283	\$348,633
Auto Operations & Maintenance Costs					
Annual		\$135,454	\$307,642	\$652,018	\$24,164
10-Year Total		\$1,354,544	\$3,076,422	\$6,520,179	\$241,637
Fuel Costs					
Annual		\$114,266	\$259,519	\$550,025	\$82,345
10-Year Total		\$1,142,658	\$2,595,189	\$5,500,252	\$823,449
Health Care Costs					
Annual		\$923	\$10,131	\$34,860	\$917
10-Year Total		\$9,231	\$101,314	\$348,597	\$9,169
Total					
Annual		\$430,213	\$985,128	\$2,101,271	\$159,843
10-Year Total		\$4,302,127	\$9,851,280	\$21,012,706	\$1,598,427

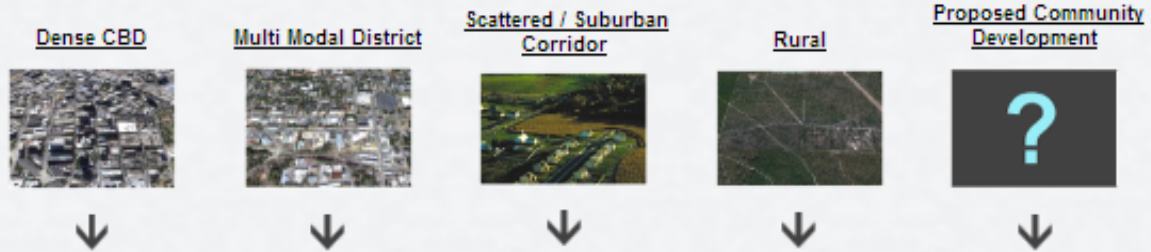
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Example Calculations



Community-Wide Energy & Environmental Impacts & Costs

Average Auto Fuel Cost \$3.35 / gallon
 Average Auto Fuel Efficiency 20.7 mpg
 Base Annual VMT/Household 13,061 miles per <http://htaindex.cnt.org/map/>



Fuel Consumed (gallons)

	Dense CBD	Multi Modal District	Scattered / Suburban Corridor	Rural	Proposed Community Development
Annual	182,687	216,796	260,155	346,873	207,267
35-Year Total	6,394,028	7,587,850	9,105,420	12,140,560	7,254,348

Fuel Consumption Costs

	Dense CBD	Multi Modal District	Scattered / Suburban Corridor	Rural	Proposed Community Development
Annual	\$612,000	\$726,266	\$871,519	\$1,162,025	694,345
35-Year Total	\$21,419,994	\$25,419,297	\$30,503,157	\$40,670,876	24,302,067

Emissions Impact (lbs/year)

	Dense CBD	Multi Modal District	Scattered / Suburban Corridor	Rural	Proposed Community Development
VOC	6,670	7,915	9,498	12,664	7,567
NOx	5,627	6,678	8,014	10,685	6,385
Particulates	667	791	950	1,266	757
Greenhouse (CO ₂)	3,518,225	4,175,108	5,010,130	6,680,173	3,991,604

Next

Example Calculations

Output Summary

Development Name:	Summit
Proposed Development Location:	Tallahassee
Existing Development Pattern:	Multi Modal District
Proposed Development Pattern:	Multi Modal District
Proposed Number of Residential Dwelling Units	300
Development Area (square miles)	0.015625
Base VMT per Household per Year	13,061
Base Development MVMT per Year	3,9183
VMT per Household per Year	14,301
Proposed Development MVMT per Year	4,290
% change	13 %
Annual fuel cost per household	\$2,314
Fiscal Impact of Development	
Annual	\$227,000
35-year Total	\$7,945,000
Present Costs	\$4,878,000
Emissions Impact (lbs / year)	
VOC	7,567
NOx	6,385
Particulates	757
Greenhouse (CO ₂)	3,991,604

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Example Calculations



Planned Development & Surrounding Infrastructure Characteristics

Development Name:

[User Guide](#)

Characteristics of Proposed Development & Surrounding Area

Metro Area Typicals

Dense CBD

Multi Modal District

Scattered / Suburban Corridor

Rural



Existing Development Setting	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Proposed Development Pattern	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Generated Traffic Avg. Trip Length	3.6	4.3	5.2	6.9

Proposed Number of Residential Dwelling Units

Single Family

Multi Family

Proposed Development Size (acres)

VMT per Household per Year (from CNT website)

Proposed Development Location

Proposed Development's Land Use Mix (Area):

% Residential Area
% other Developed Area

Existing Fuel Costs \$/gallon

[Next](#)

Example Calculations



Planned Development & Surrounding Infrastructure Characteristics

Development Name:

[User Guide](#)

Characteristics of Proposed Development & Surrounding Area

Metro Area Typicals

Dense CBD

Multi Modal District

Scattered / Suburban Corridor

Rural



Existing Development Setting	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Proposed Development Pattern	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Generated Traffic Avg. Trip Length	3.6	4.3	5.2	6.9

Proposed Number of Residential Dwelling Units

Single Family

Multi Family

Proposed Development Size (acres)

VMT per Household per Year (from CNT website)

Proposed Development Location

Proposed Development's Land Use Mix (Area):

% Residential Area
% other Developed Area

Existing Fuel Costs \$/gallon

[Next](#)

Example Calculations



Output Summary

Development Name:	Summit Lake
Proposed Development Location:	Tallahassee
Existing Development Pattern:	Scattered / Suburban Corridor
Proposed Development Pattern:	Scattered / Suburban Corridor
Proposed Number of Residential Dwelling Units	300
Development Area (square miles)	0.015625
Base VMT per Household per Year	20,576
Base Development MVMT per Year	6.1728
VMT per Household per Year	21,473
Proposed Development MVMT per Year	6.442
% change	20 %
Annual fuel cost per household	\$3,475
Fiscal Impact of Development	
Annual	\$252,000
35-year Total	\$8,836,000
Present Costs	\$5,425,000
Emissions Impact (lbs / year)	
VOC	11,361
NOx	9,586
Particulates	1,136
Greenhouse (CO ₂)	5,993,100

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Output Summary

Development Name:	Summit	Summit Lake
Proposed Development Location:	Tallahassee	Tallahassee
Existing Development Pattern:	Multi Modal District	Scattered / Suburban Corridor
Proposed Development Pattern:	Multi Modal District	Scattered / Suburban Corridor
Proposed Number of Residential Dwelling Units	300	300
Development Area (square miles)	0.015625	0.15625
Base VMT per Household per Year	13,061	20,576
Base Development MVMT per Year	3,9183	6,1728
VMT per Household per Year	14,301	21,473
Proposed Development MVMT per Year	4,290	6,442
% change	13 %	20 %
Annual fuel cost per household	\$2,314	\$3,475
Fiscal Impact of Development		
Annual	\$227,000	\$252,000
35-year Total	\$7,945,000	\$8,836,000
Present Costs	\$4,878,000	\$5,425,000
Emissions Impact (lbs / year)		
VOC	7,567	11,361
NOx	6,385	9,586
Particulates	757	1,136
Greenhouse (CO ₂)	3,991,604	5,993,100

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Sustainable Communities Calculator

Presentation

by

Harry Reed

to

**13th Annual New Partners for Smart Growth
Session**

Emerging Fiscal Impact Tool Highlight

the

Economic Consequences of Development Decisions

February 14, 2014