MOVING FORWARD

Capital Region Transportation Planning Agency
CRTPA

CRTPA Board Retreat

"Connecting People and Places"

April 16, 2012

RETREAT SUMMARY REPORT

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"Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has. "

- Margaret Mead

I. CRTPA Mission Statement and Meeting Objectives

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."

MEETING OBJECTIVES

- Provide the CRTPA Board with information about Complete Streets and Roundabouts for potential policy development
- Introduce the Sustainable Communities Calculator and its use in land use and transportation planning
- Demonstrate and discuss GIS applications that can enhance CRTPA effectiveness in development of long range and strategic transportation plans for the Capital Region.

"Plan for the future because that's where you are going to spend the rest of your life."
-Mark Twain

II. Retreat Agenda

1. Bagels and Coffee…….8:45 – 9:00

2. Welcome and Introduction……..9:00 – 9:10

3. Complete Streets…….9:10 – 10:00

4. Roundabouts…….10:00 – 11:00

BREAK……...11:00 – 11:15

5. Sustainable Communities Calculator…….11:15 – 12:10

6. GIS Applications for Long Range and Strategic Transportation Planning…….12:10 – 12:50

7. Wrap-Up and Adjourn……..12:50 – 1:00

III. Retreat Summary

Welcome and Introductions

Harry Reed, Executive Director of the CRTPA opened the meeting by welcoming all participants. Mr. Reed spoke briefly on the importance of each agenda item and the impacts each on the overall approach by CRTPA and its members in planning for multimodal mobility, integrated with land use, in the region. Mr. Reed introduced Beverly Davis, AICP, with Reynolds Smith and Hills as the moderator for the retreat. Ms. Davis provided some overall "housekeeping" items and asked all in attendance to introduce themselves.

Participating Board members included:

- Douglas Croley, Gadsden County
- Delores Madison, City of Midway/Gadsden County
- Betsy Barfield, Jefferson County
- Hines Boyd, Jefferson County
- Akin Akinyemi, Leon County
- John Dailey, Leon County
- Kristin Dozier, Leon County
- Bryan Desloge, Leon County
- Nick Maddox, Leon County
- Jane Sauls, Leon County
- John Marks, City of Tallahassee
- Nancy Miller, City of Tallahassee

CRTPA staff present included:

- Harry Reed
- Jack Kostrzewa
- Greg Burke
- Lynn Barr
- Colleen Roland
- Yulonda Mitchell

After the introductions, the first agenda item was introduced.

Complete Streets

Mr. Greg Burke, Transportation Planner for the CRTPA introduced the Complete Streets agenda item and gave a brief overview of the Complete Streets approach. He also introduced the presenter, Mr. Roger Henderson, PE, AICP, a representative of the

National Complete Streets Coalition, and a nationally recognized leader in the integration of land use planning and street design.

The presentation focused on the need for a Complete Streets policy and why such a policy is important. In the presentation, Mr. Henderson noted that the presence of a Complete Streets policy ensures:

- The need for adequate, connected and accessible multimodal facilities are assumed to be a given, not an addition from the beginning of the process or an add-on.
- Coordinating implementation with other activities, such as maintenance or other projects, to maximize cost-effectiveness.
- Economic enhancement through revitalized retail and increased home values
- Provision of a foundation for a multimodal transportation system or network
- Safety
- A reduction in the need for additional vehicle capacity
- Provision for innovative approaches for active, healthy living
- Support for planners and designers to implement Complete Streets
- Policies can be adopted on different levels from statewide to local

Mr. Henderson also emphasized that Complete Streets is not a "one size fits all" approach. He reviewed the different types of Complete Streets which range from slow speed shared streets to busy multimodal facilities. In addition, the presentation also emphasized the coordination and inclusion of context sensitive designs.

Board Discussion

- *Statewide Complete Streets Policy*

Examples of statewide policies were discussed, with North Carolina being used as one example. In answer to the question of what agency was involved, the adoption of the policy was done by North Carolina Department of Transportation.

- *Specific Implementation Examples and Follow-Up*

Hillsborough Street in Raleigh, North Carolina was converted from a 4-lane facility to 2-lanes with a median and bike lanes. The question was asked if any studies have been completed after implementation that show an increase in home values or retail revitalization. Mr. Henderson indicated that some research in the area has been done and is still underway, with a potential follow up study for the Hillsborough Street project.

In Raleigh, where a number of the examples shown in the presentation are from, the State Department of Health has conducted some studies to how active transportation can reduce obesity.

- *Funding*

A question was asked regarding the re-introduction of transit in the downtown area. Mr. Henderson indicated that it is very difficult to figure that piece out. Federal grant programs are available, but are extremely competitive. He also noted that college populations are hubs for transit usage and that element can be emphasized.

- *Rural and Small Towns*

The question was raised regarding viability of adopting a Complete Streets policy for small towns and rural roads. Mr. Henderson indicated that in rural areas, often a paved shoulder provides the functionality of a Complete Street.

- *Accomplishing the Paradigm Shift*

Board members discussed the need for crafting the correct message and educational component to accomplish the paradigm shift away from fast and efficient roads to multimodal, slower and safer roads. The discussion focused on bringing in potential speakers to share the experiences of other areas; forming a coalition with the universities and health departments; and undertaking post-implementation studies to see how well the project has worked, such as on Gaines Street.

The discussion also focused on the two universities in Tallahassee and the efforts to ban freshman from having cars. The question was asked if there were any success stories of the freshman ban on cars. Mr. Henderson stated that the University of North Carolina at Chapel Hill bans freshman from bringing cars to school and also make it very expensive for upperclassmen to have cars. It was noted that Florida State University has built a number of parking structures over the past few years and university officials are concerned with losing the competitive edge with implementation of a freshman ban. It was noted that university representative need to participate in these discussions. Mr. Henderson recommended that a Complete Streets Task Force be created and include the universities along with all sectors of the City.

The consensus of the Board was that this paradigm shift needs to happen and that proactive messaging is critical to accomplishing the shift. A major element of that message is identifying and showing the financial sense of the approach.

Roundabouts

Harry Reed, Executive Director of the CRTPA, introduced the Roundabout agenda item. Mr. Reed noted that the Board has been interested in roundabouts, their functionality, application and advantages. Mr. Michael Wallwork, PE, of Alternate Street Design, and an internationally recognized expert in the design and implementation of roundabouts, was introduced as the presenter for this agenda item.

The presentation focused on what roundabouts are, why they are used, the advantages of roundabouts, and examples of good and bad roundabout design. Mr. Wallwork noted that roundabouts are used in place of signalized or stop controlled intersections and reduce the number of intersection conflict points. Roundabouts work particularly well at dysfunctional or skewed intersections and also at intersections with multiple legs. Roundabouts also provide the opportunity for community greenspace and focal points. Mr. Wallwork provided a number of images of various types of roundabouts used in a wide variety of traffic and community situations, including at freeway interchanges. The images also showed that there is no requirement for a roundabout to be round and a number of examples exist where roundabouts are a different shape.

Mr. Wallwork identified the most prevalent roundabout locations, which include two lane roads with high pedestrian activity, entrances to community attractions or subdivisions, high crash locations, gateway locations and at rural intersections. He also noted that with regard to safety, crashes typically decline due to fewer conflict points, but there are cases where the crashes actually increase. He also identified speed as the most critical control factor in the design of a roundabout, which is typically the reason for an increase in crashes. Mr. Wallwork noted that roundabouts must be designed with the appropriate control vehicle to be successful.

In the presentation, Mr. Wallwork addressed the intersection of Thomasville Road, 7th Avenue and Meridian Road and provided some conceptual roundabouts for that intersection, along with a concept for eliminating the one-way pairs on adjacent streets.

Board Discussion

- *Roundabout Design*

The discussion began with the thought that roundabouts can provide a gateway into the city or into a specific area of town. The question was raised if roundabouts could be designed to handle very large trucks, such as log trucks or tanker trucks. Mr. Wallwork noted that the design can accommodate very large trucks, as well as very large emergency vehicles. In addition, he noted that there are also mini-roundabouts that can be implemented with very minor improvements to existing signalized intersections.

Mr. Wallwork noted that speed is a critical issue with roundabouts and the appropriate design ensures speed controls. The proper design slows traffic down more effectively than the presence of stop or yield signs and the deflection of the roadway also forces drivers to slow. Landscaping can also be used to slow motorists.

- *Pedestrian Safety*

It was also noted that roundabouts eliminate the decision-making process for both drivers and pedestrians. Roundabouts also increase pedestrian safety for communities and areas that were not already pedestrian friendly. The question was raised with regard to typical driver behavior in Tallahassee and Florida, where generally drivers do not yield to pedestrians. Mr. Wallwork noted that enforcement is important for both drivers and pedestrians and that the two can work together. It was noted that driver behavior in other cities, such as Seattle, are more conducive to pedestrians and their safety.

- *Local Opportunities*

The concepts for Thomasville Road and 7th Avenue and Meridian Road were discussed by the Board. In answer to questions regarding the concept presented, Mr. Wallwork noted that the intersections could be retrofitted with two roundabouts with some right of way having to be taken. This right of way takes two parking spaces on the corner of Gadsden Street and 7th Avenue. The Board noted that the roundabout concept could provide the gateway into the midtown area.

Another location identified for potential roundabout treatments was the Thomasville Road/I-10 area with the Metropolitan Drive and Live Oak Plantation intersections, although it would require an oval shaped roundabout.

- *Messaging and Education*

As with the Complete Streets, the Board discussed the critical need for education and messaging. It was noted that many members of the public have a preconceived idea that roundabouts are unsafe, less efficient and more costly than a signalized intersection. Mr. Wallwork agreed that the public education on the benefits of roundabouts is a key element of the message. He suggested that any presentation to the public should begin with the educational aspects, such as reduced crashes, aesthetics, reduced life cycle costs and then move into the specific roundabout project. Mr. Wallwork stated that in his experience, it was very important to educate the public first, and get rid of misconceptions and misinformation before moving forward with a specific project.

- *Policies*

It was noted that some cities and states have adopted policies to first see why a roundabout will not work or why it is not superior to a signal. Vermont, Virginia, and New York have all adopted policies where the roundabout is the default and the policy requires the first step in considering intersection improvements is showing that the roundabout will not function efficiently and safely.

A motion was made and seconded that the CRTPA adopt a similar resolution to consider roundabouts first for new or improvement intersections. Because of the retreat format, no

official action could be taken; however, staff was encouraged to do additional research and bring the resolution back to the Board where a public hearing would be held before any adoption. It was also noted that any policy needs to include criteria and exceptions to where roundabouts should be considered.

- *Maintenance and Cost*

While roundabouts can provide a gateway and beautification for an area, a question was raised with regard to maintenance costs of landscaping and other features, such as fountains. Mr. Wallwork responded that there are a number of treatments that can be used, included hardscapes and native vegetation that requires minimal care and the major maintenance is litter removal. The use of plantings such as annual flowers drives up the costs for implementation and maintenance. Fountains can cost much more depending on the size and complexity. The fountain displayed in the presentation has since been removed due to maintenance costs, which ran about $230,000 annually.

Sustainable Communities Calculator

The Sustainable Communities Calculator began development as part of the Regional Mobility Plan, adopted in November, 2010. Beverly Davis, Project Manager for RS&H introduced the presentation and Bruce Landis of Sprinkle Consulting. Work has continued on the calculator to develop it in more detail since the Regional Mobility Plan effort. Mr. Landis has extensive experience as a traffic and transportation planner/engineer focused on multimodal accommodation and community planning tools.

Mr. Landis provided the background for the calculator and its capabilities as a tool for regional and local staff in the analysis and assessment of development and its impacts. He also was able to provide a live demonstration of the calculator and how different inputs affect the cost outcomes.

Board Discussion

- *Costs*

Mr. Landis was asked if the costs that are used in the calculator local costs or if they are average costs for the area. The costs utilized in the calculator are for the Leon County area and included maintenance on roadways funded by FDOT, Leon County and the City of Tallahassee. Mr. Landis indicated that the effort was underway to obtain costs for the four-county area and those costs will be included in the next update of the calculator.

- *Additional Factors*

The Board also noted that travel distance and travel time are significant inputs and also impact other areas such as pollution. These factors must be accounted for because the

two do not always correlate. Mr. Landis indicated that GIS tools are available that can provide the travel time for the existing network, and efforts are continuing in that area.

GIS Applications for Long Range and Strategic Transportation Planning

Harry Reed, Executive Director of the CRTPA introduced the final agenda item. With the adoption of the Regional Mobility Plan, the CRTPA staff have been working with the Tallahassee-Leon County GIS staff on ways to enhance the analysis capabilities as the plan is implemented, provide support for future planning efforts, and increase the GIS capabilities on a regional level. Lee Hartsfield, Tallahassee-Leon County GIS Coordinator, made the presentation which focused on the overall objectives, data collection, the development of a regional system, and the associated challenges. The project objective is:

"To provide a common operational overview of transportation projects for the four participating counties; Gadsden, Jefferson, Leon and Wakulla, which allows shared cost, access, and control of the GIS platform"

The approach is to allow for an interactive GIS database that builds on the data and information from each county, and where each county would have the capability of editing their data as needed. A focus of the effort is to develop a collective regional database that is linked to the CRTPA website. The associated challenges include the issues of bringing a massive amount of data together, developing common data formats and platforms, and developing common data standards. Mr. Hartsfield then gave a live demonstration of how the potential system would work.

Board Discussion

- *Accuracy*

One of the associated issues discussed was the limited accuracy in the more rural areas of the region due to lower quality aerial photography and LIDAR, which is often used for contour mapping; however the contours are spaced further apart in many rural areas. The Board noted that the highest degree of accuracy possible was important and discussed the potential to coordinate with other entities, such as utility companies and public works departments to enhance the amount of data as well as the accuracy.

- *Cost*

It was also noted that the level of accuracy can also affect the cost. The Board also asked about the cost of the approach and the preliminary cost estimates are $15,000 or less to initiate and maintain the system annually.

- *Internet Service*

The Board also inquired about internet speed affecting the use of the tool since many of the more rural areas have limited high speed access. The use of the Cloud will address some of the issues, although it was noted that the internet speed does have impacts, particularly with the downloading or transferring of files.

IV. Major Retreat Outcomes

With the Board discussions on each of the agenda items, there were several major themes or outcomes from the retreat. These major outcomes are identified below.

Messaging and Education

Developing the message on the planning approaches is one the critical element to the successful adoption and implementation of policies that continue to move the region forward. The message to stakeholders and the general public must be appropriately crafted in order to obtain buy-in. In addition to the message, education regarding various approaches and tools is just as critical. Community leaders and members of the public must be able to understand how transportation choices affect the future of the community and the region.

An important component of this messaging and education is data showing the advantages of the approach. Local case studies for different designs, such as roundabouts or the Complete Streets need to be completed and clearly depict the before project implementation and after project implementation with regard to safety, congestion and multimodal usage. The inclusion of performance measures as part of the implementation process can provide valuable data and information

The message and educational components must also show the financial advantages of the approach. In order to bring partners on board (such as the universities) and accomplish the paradigm shift, the financial bottom line is the key. In addition, it must be shown how the shifts to ensure multimodal mobility are positively impacting the overall quality of life throughout the region, whether in urban or rural communities.

Complete Streets Task Force

A potential Complete Streets Task Force was suggested. The broad based task force would include representatives from the various communities as well as from critical planning partners, such as the universities.

Roundabout Policy

The staff will conduct further exploration on roundabouts and their implementation. Also included will be the application of the roundabout approach at the discussed intersections of Thomasville Road, 7th Avenue, and Meridian Road, and at Thomasville Road and I-10 between the interchange and the intersections of Metropolitan Boulevard and Live Oak Plantation Road.

Staff will also bring back a roundabout policy motion for consideration at a regular Board meeting where action can be taken. The Board also expressed interest in exploring the conversion of one way pairs to two way operations; however additional work is required and will not be included in the motion.

Planning Tools

The planning tools discussed were considered by the Board to be very important in analyzing data, assessing impacts and increasing efficiency within the regional approach. The Board noted that it was also critical to look at the region as a whole and to understand how all of the components fit together and are interrelated. It was also noted that for tools, such as the regional GIS and the sustainability calculator to have the greatest impact, a strong level of accuracy is critical for these tools to be significant and useful.

VI. Appendices

- **Sign in Sheet**
- **Presentations**

Date: April 16, 2012

CRTPA Board ~~Meeting~~ Retreat

City of Tallahassee Commission Chambers, ~~City Hall~~ TCC

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Date: April 16, 2012

CRTPA Board ~~Meeting~~ Retreat

City of Tallahassee Commission Chambers, City Hall

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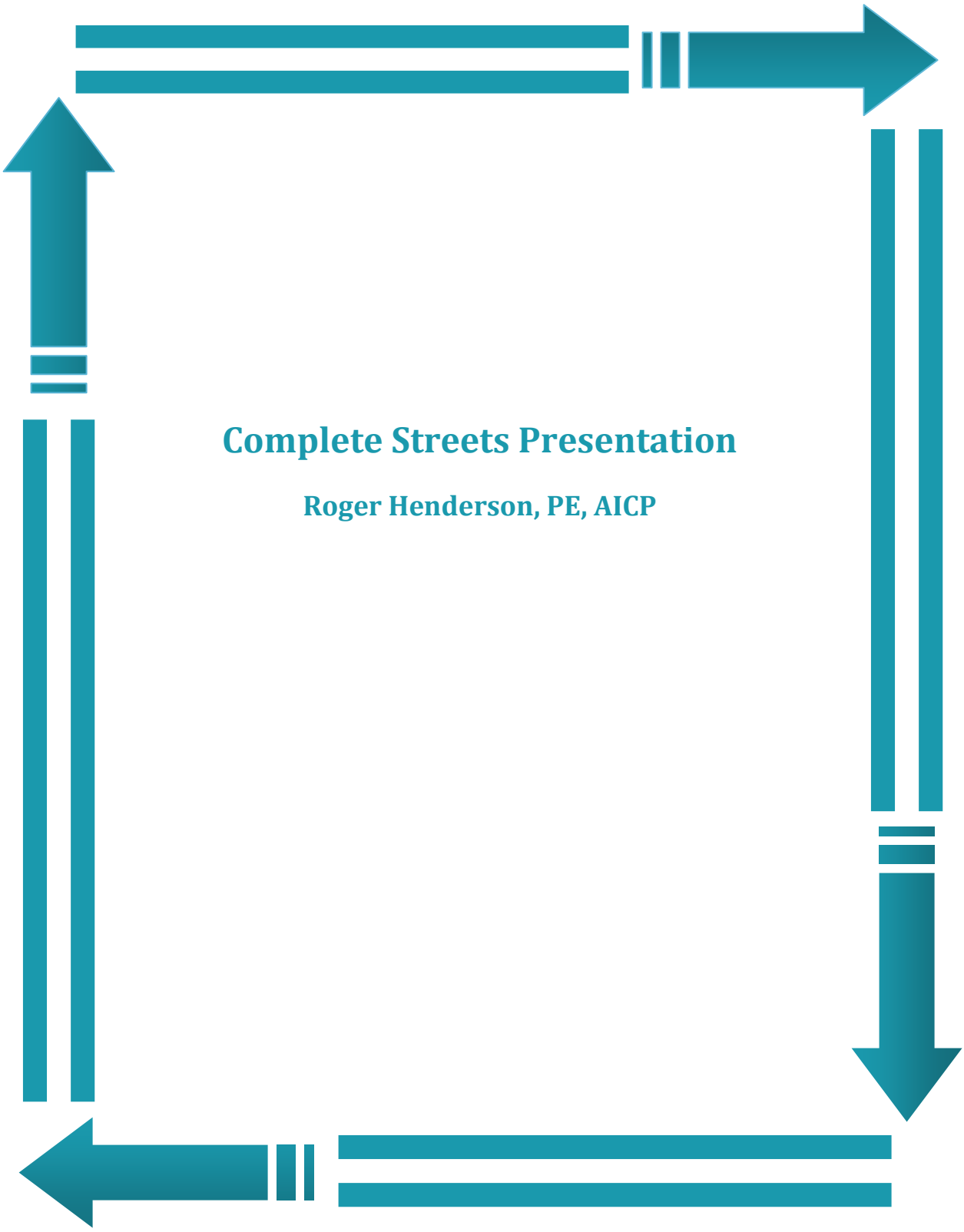


Complete Streets Presentation

Roger Henderson, PE, AICP

CRTPA Board Retreat: April 16, 2012

Capital Region Transportation Planning Agency

April 16, 2012

Roger Henderson, AICP, P.E.

Outline of Tomorrow's Implementation Workshop

1. Introduction
   - What does the complete streets policy do for Tallahassee/Leon County?
2. Implementation:
   - Working within existing street widths
   - Road diets – making room for complete streets
   - Performance Measures: Getting what you want our of your streets
   - Public engagement processes
3. Current policy: What works, what doesn't
4. Implementing YOUR CS policy: Are modifications needed?

Complete the Streets

Why have a complete streets policy?

- To make the needs of all users the **default** for **everyday** transportation planning practices:
  - No need to **prove** ped, bike and transit facilities are **needed**
  - Rather, it's **assumed** they're needed **unless proven otherwise**

Why have a complete streets policy?

- To shift transportation investments so they create better streets **opportunistically:**
  - Take advantage of all planning, construction, operations and maintenance activities

Why have a complete streets policy?

- To ensure existing funds are used differently:
  - Every project creates better streets *now.*

Complete the Streets

Why have a complete streets policy?

- **To generate revenue:**

Multi-modal streets:

- **Increase home values**
- **Revitalize retail**

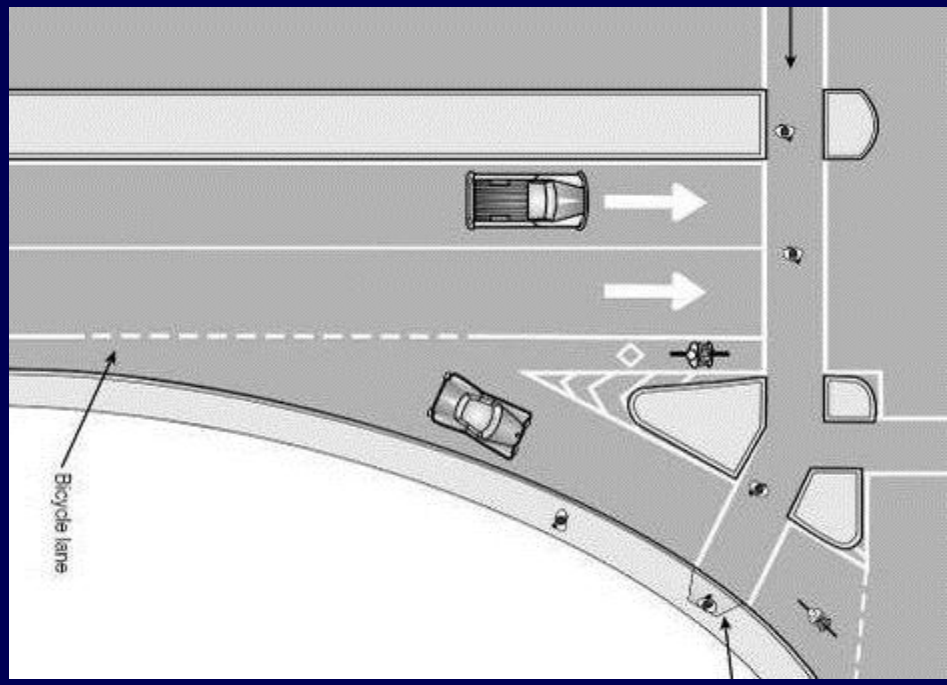
You won't satisfy every business owner or stakeholder, but don't ignore their needs and interests.

Why have a complete streets policy?

- To gradually create a complete network of roads that serve all users

Why have a complete streets policy?

- **For safety:**
  - Sidewalks reduce ped crash risk by 88%
  - Intersections designed for peds reduce crash risk 28%



Why have a complete streets policy?

- **To reduce the need to widen roads**

Trips in metro areas:

- **50%** - less than 3 miles
- **28%** - less than 1 mile:
  - **65%** of trips under 1 mile are now taken by car

Complete the Streets

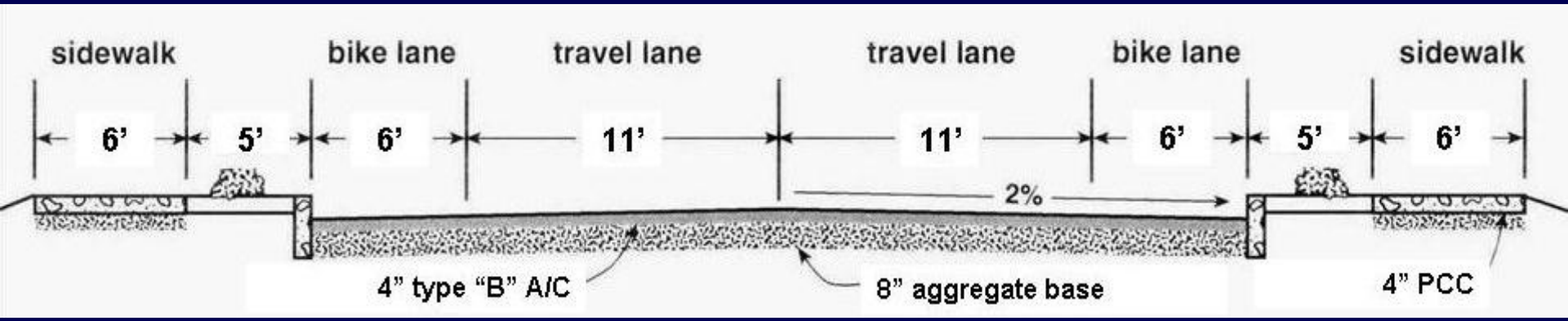
Why have a complete streets policy?

- To give transportation professionals political and community support for innovative solutions that help make active living possible

NYC DOT

Why have a complete streets policy?

- Many transportation engineers and planners know how to build good streets; they're seeking **permission** to do so



Complete the Streets

CS changes intersection design

CS changes intersection design

CS changes bicycling

CS changes bicycling

CS changes transit

CS changes transit

CS changes accessibility

CS changes accessibility

Complete streets and trails

- Streets provide **access** to trails
- CS + trails = **comprehensive** non-motorized network
- CS take pressure off **overcrowded** trails

Complete Streets is NOT:

- A design **prescription**
- A mandate for **immediate** retrofit
- A **silver bullet**; other initiatives must be addressed:
  - *Land use (proximity, mixed-use)*
  - *Parking*
  - *Environmental concerns*
  - *VMT reduction (i.e. pricing, gas taxes)*

✓ (but complete streets will help!)

What does a complete street look like?

- **One size doesn't fit all:**
  - **Complete Streets doesn't mean every street has sidewalks, bike lanes and transit**

There is no magic formula

The many types of Complete Streets

A slow-speed shared street

The many types of Complete Streets

One crossing completes a Safe Route to School

The many types of Complete Streets

Shoulder bikeways on rural roads

The many types of Complete Streets

Busy multi-modal thoroughfares

The many types of Complete Streets

Transit routes

The many types of Complete Streets

Suburban thoroughfares

The many types of Complete Streets

Residential skinny streets

The many types of Complete Streets

Low traffic shared streets

The many types of Complete Streets

Historic Main Street

Complete Streets & Context Sensitive Solutions

- Complete Streets doesn't mean every street has sidewalks, bike lanes, transit
- Context sensitivity:
  1. External context: land use
  2. Internal context: who is likely to use the street - bicyclists, pedestrians, transit users, drivers?

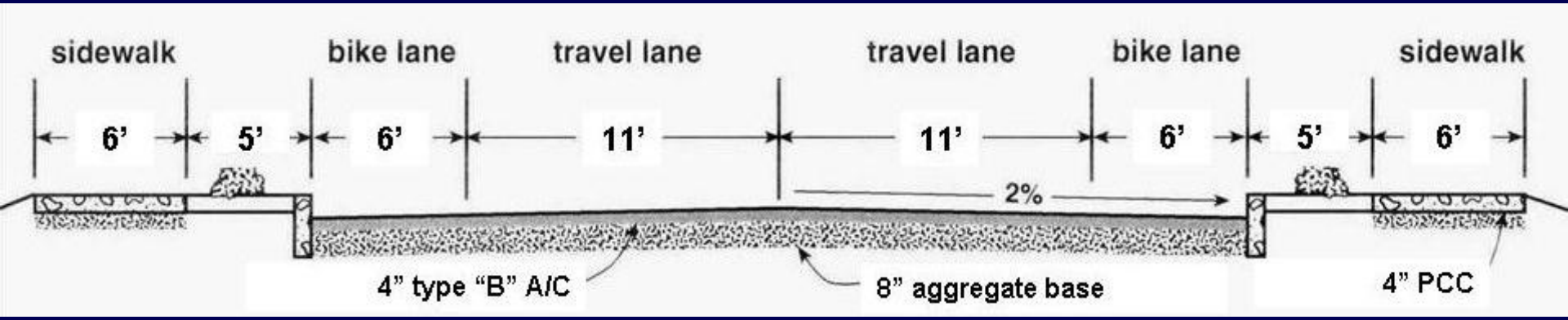
Illustration: AARP

What do the design guides tells us?

The AASHTO "Green Book" states:

"*Sidewalks are integral parts of city streets*"

Not added to – a part of!



"*Shoulders are desirable on <…> urban arterials*"

Bike lanes are shoulders reserved for bicycle use!

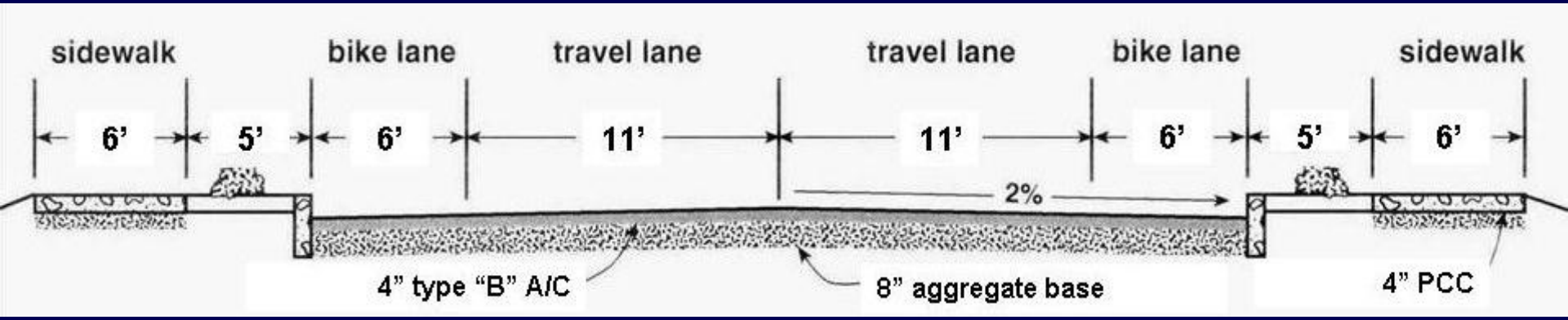
AASHTO: American Association of State Highway and Transportation Officials
Green Book: A Policy on Geometric Design of Highways and Streets

What about funding?

- Complete streets is about using existing resources differently:
  - STP, Equity Bonus, CMAQ, TE, State, Bond measures, gas tax, sales taxes, and now the stimulus $... the usual suspects
- While retrofit funding is important, it is not necessary to get started
- Additional funding is not needed

Does it cost more?

1. Avoid costly retrofits
2. Minimal additional funding
3. Save money with better design



Complete the Streets

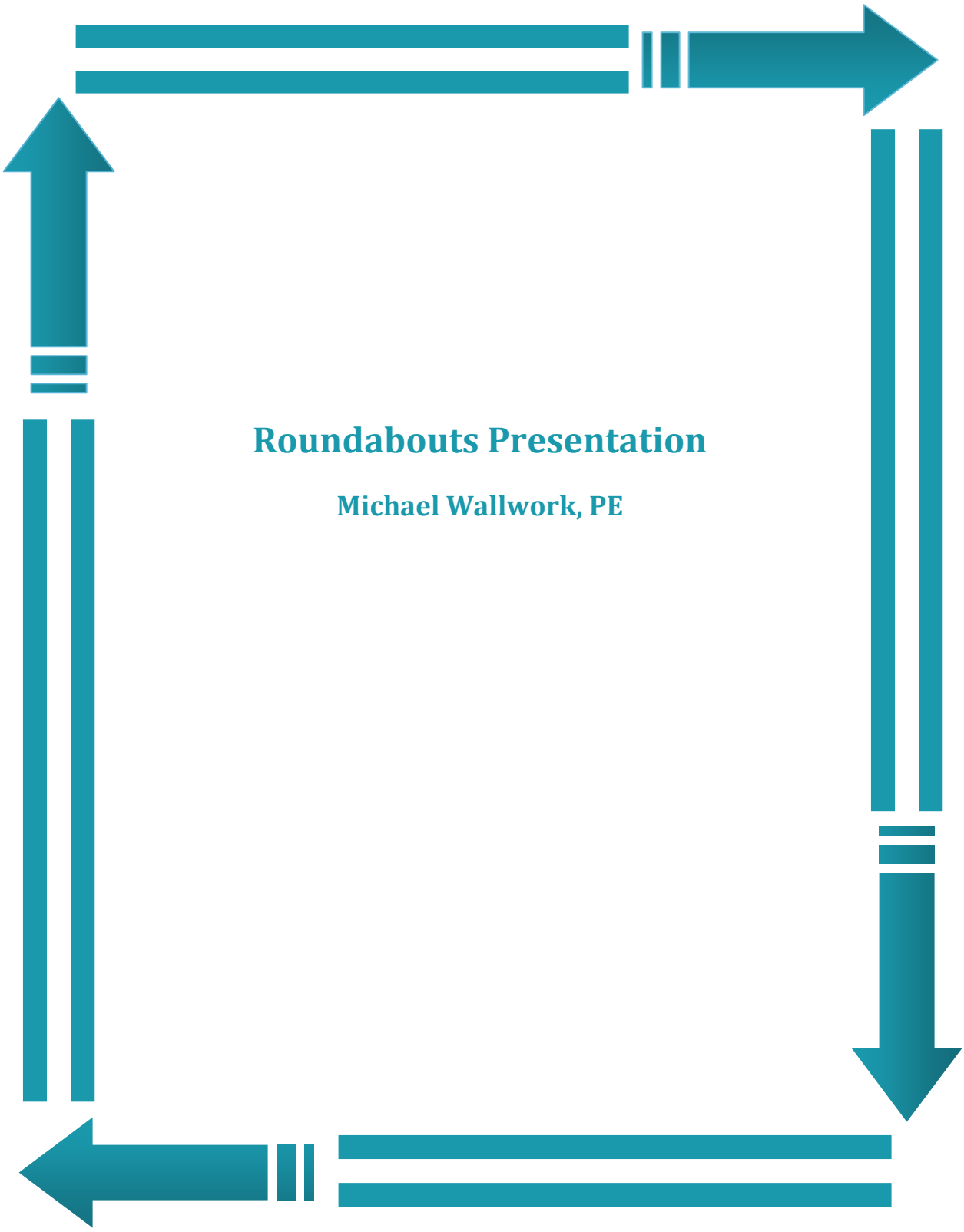
Transformative Moment

- Increasing **gas prices** (Plan B)
- **Obesity** epidemic: CDC now recommends CS to prevent obesity
- Growing awareness: **quality of life** an economic engine
- Climate change & **sustainability**

Complete the Streets

Your Complete Streets policy excerpt:

“The transportation system shall be designed and operated to provide safe, convenient and context-sensitive access for pedestrians, bicyclists, motorists, and public transportation users of all ages and abilities.”



Roundabouts Presentation

Michael Wallwork, PE

CRTPA Board Retreat: April 16, 2012

ROUNDABOUTS

Michael Wallwork, P.E.
Alternate Street Design, P.A.
(904) 269-1851

Killearn Estate

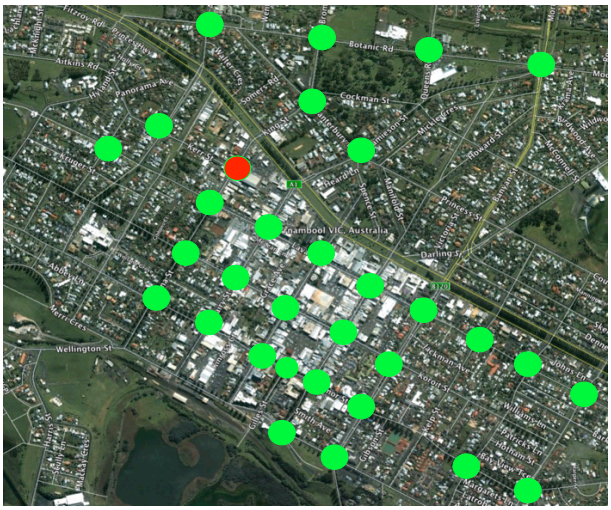
Topics

- Roundabouts what are they and why use them?
- Roundabout safety
- Pedestrians and bicyclists
- Roundabout design – the good, the bad and the ugly

Uses

- Replace signals and stop control
- Reduce the number of vehicle lanes
- Fix dysfunctional intersections, skewed, 5 or more leg intersections
- Create a focal point, a town center
- Provide transit priority
- Etc., all you need is imagination

Downtown Warnambool, Victoria, Australia, 38 roundabouts



Population 34,600

Clearwater Beach

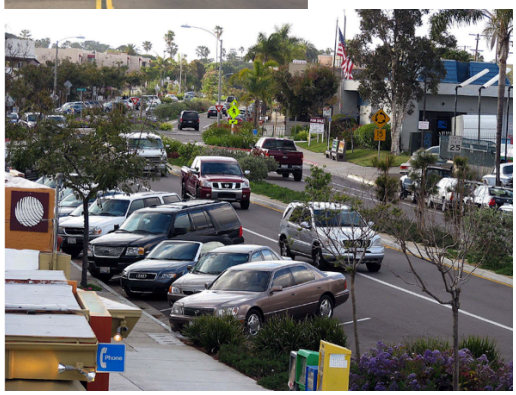
From 8 to 4 lanes, with three signalized intersections

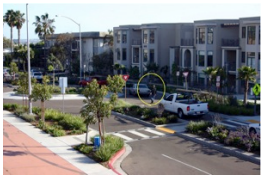
To a 6 leg, two lane roundabout

58,400 vehicles, 6,000 pedestrians, 350 bicyclists in one day

Road Diet - 5 to 2 lanes
La Jolla Boulevard San Diego, CA 22,000 vpd

Using 5 one lane roundabouts
Travel speed 15 to 20mph along corridor





Five-leg Signalized Intersection to a Six-leg Roundabout

LOS with signals - F

LOS after - B (Friday 5.15 PM)

Small

Outstanding

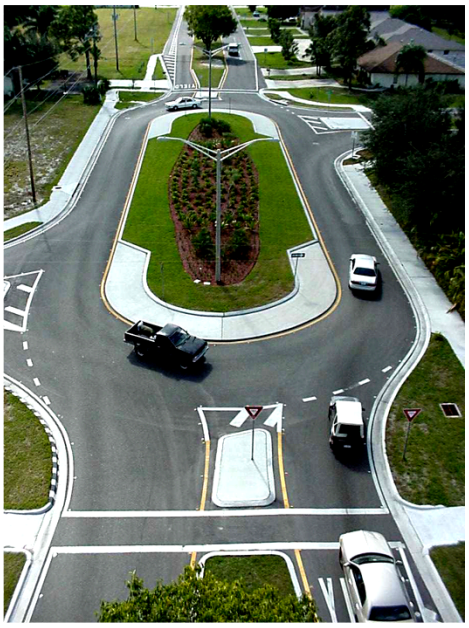
Freeway Interchanges

Phoenix, AZ

Morongo, CA

Kansas City, MO

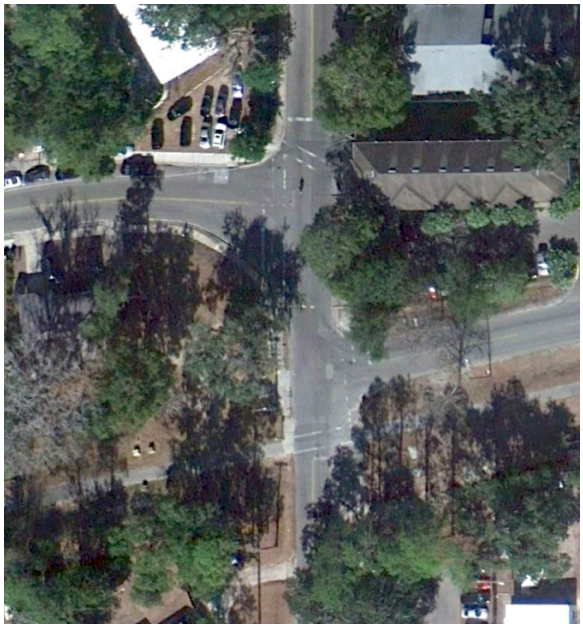
Topeka, AZ



Rectangular
Cape Coral

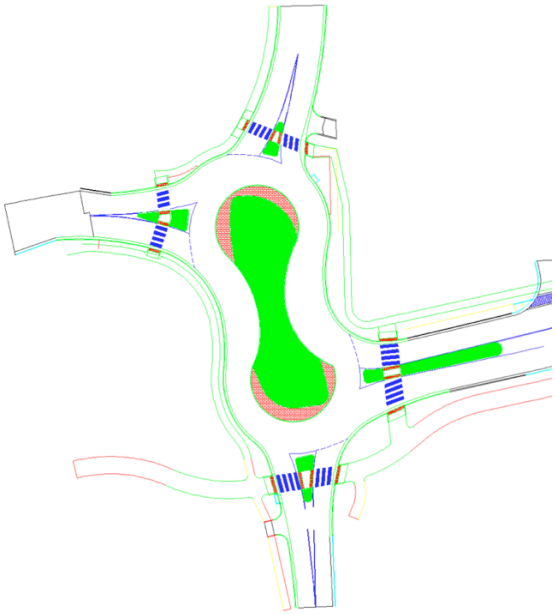
Closest - Twin Roundabouts

Peanut Roundabout



Depot Ave at SE 11th St.

Is a roundabout possible?



Yes, With Imagination

Sarasota - Three Lanes

Most Obvious Locations

- Two lane roads, especially near schools or high pedestrian areas
- Interchanges
- Entrances to and within subdivisions
- High crash locations
- In series to aid access management
- Rail crossings
- Approaches to towns to slow traffic and create gateways
- Rural intersections

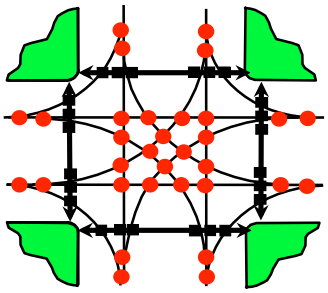
Safety

Insurance Institute for Highway Safety

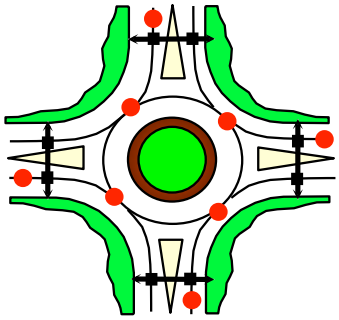
- 90% fewer fatal crashes,
- 75% fewer injury crashes
- 39 % overall crashes

- But crashes can also go up

Fewer Conflicts



- 32 Vehicle to vehicle conflicts
- 24 Vehicle to pedestrian conflicts



- 8 Vehicle to vehicle conflicts
- 8 Vehicle to pedestrian conflicts

Single Most Important Design Element
Speed Control

Daytona Beach East
Approach
Lots of deflection

North - no crashes

East - 3 minor crashes

Daytona Beach - West
Approach
No deflection

South - no crashes

West - 19 right angle crashes

But Crashes Can Go Up

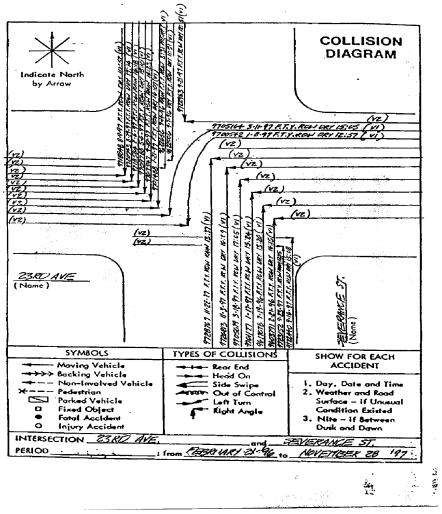
Table 1. Collisions before Roundabout Construction Started				
Year	1996	1997	1998	1999 (6 months)
PDO	4	4	1	1
Injury	3	1	1	2
Fatal	0	0	0	0
Total	7	5	2	3

Table 2. Collisions after Roundabout Opened				
Year	2000*	2001	2002	2003
PDO	8	4	2	8
Injury	4	2	5	5
Fatal	0	1	0	0
Total	12	7	7	13

Other Sites Crash Data

- 7.8 to 45.7 crashes a year
- 9.6 to 38.3 crashes a year.
- Police Chief – “All of the crashes are happening because drivers entering the roundabout too fast.”
- Common cause – lack of deflection – drivers entering too fast and not yielding

Before



After

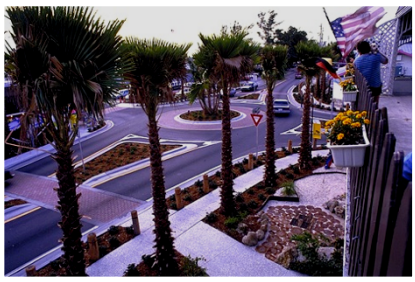
Hutchison, Kansas

19 crashes in one year before - one after

Bradenton Beach, FL – 17,000 vpd

Before

- 36 months
- 5 crashes
- 0 injury crashes



After

- 63 months
- 0 crashes
- 0 injury crashes

Hilton Head, SC

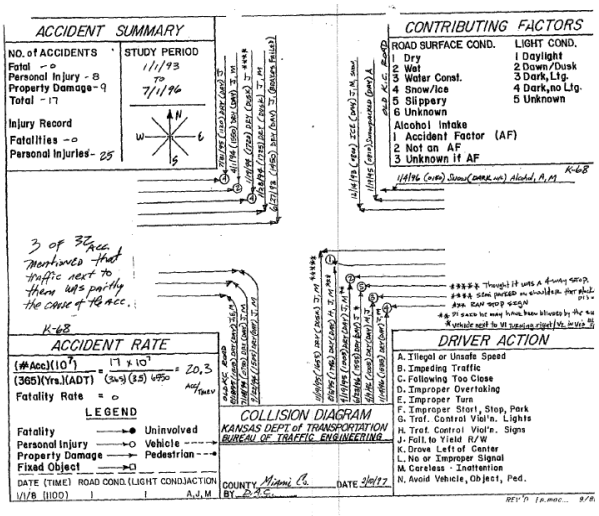
Before

- 36 months
- 48 crashes
- 15 injury crashes

After

- 46 months
- 9 crashes
- 0 injury crashes

Crash Data Rural Intersection



Rural Roundabouts - Same design criteria

K-68 & Old KC Road

(Before and After Crash Data)

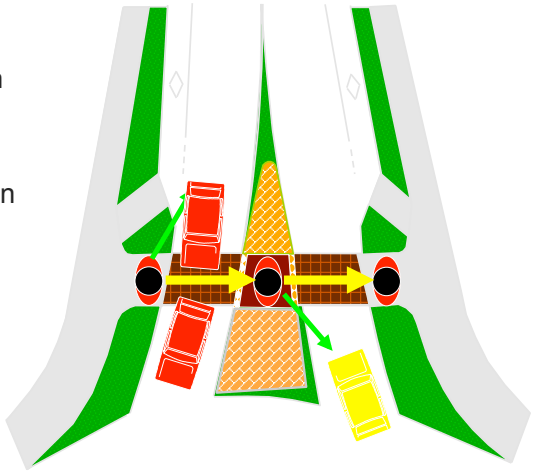
Years	Crashes	Injuries	Property Damage Only
1995-2000	33	42	17
2001-2006	9	0	9
% Change	-73%	-100%	-53%

Rural roundabouts may not have as many crashes per year but they are usually more severe

Pedestrian Safety

About 20-feet from yield line to pedestrian crossing

One physical vehicle length, measured when the vehicle is on an angle so that the crosswalk is open for pedestrians to use when a vehicle is stopped.



Pedestrian Safety

- Melbourne, Australia Study*
- Pedestrian crashes at all signalized intersections (about 2,500) Metro area for 2002 – 2006
  - Fatal: 27
  - Serious injury (hospital): 614
  - Other)Medical): 701
- Pedestrians at roundabouts (over 4,000) in Metro area for 1996 to 2000
  - Fatal: 0
  - Serious injury (hospital): 18
  - Other)Medical): 39

Pedestrian Safety

Roundabouts generally have few pedestrian crashes provided:

- Vehicle speeds are low – the lower the speed the higher the yield rate
- Adequate size splitter islands
- Move crossings back from yield line
- Define crossing areas
- Discourage crossings to central island – fence, tactile strip or planter strip – A.D.A Requirement

33

Highest Vehicle/Pedestrian Volume
Up to 58,500 Vehicles and
2,000 to 8,000 Pedestrians a Day
No pedestrian crashes in 13 years

Multi-lane Roundabouts and Pedestrians

- A.D.A. considers low-speed, one-lane roundabouts accessible
- Pedestrian assistance needed for two lane roundabouts – type of assistance being researched

Bicyclists

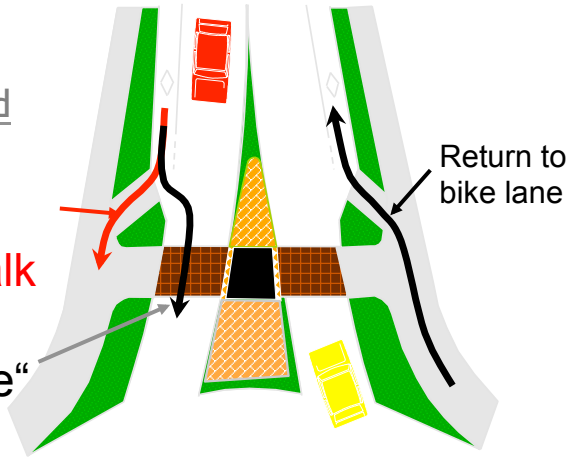
Bicyclists Are Given a Choice

Do not extend bike lane to yield line

Use the sidewalk

or

"Claim the Lane"



Grand Junction, CO

Jensen Beach, FL
Major Train Crossing

Geometric Design

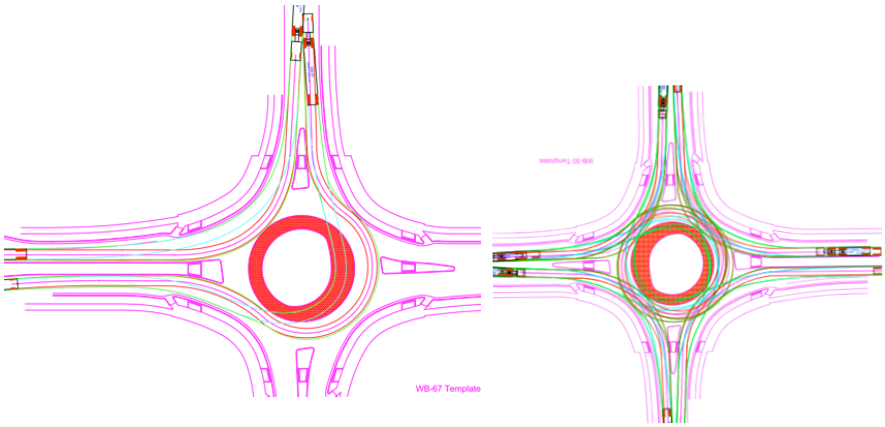
- Design philosophies
  - Radial
  - Offset Left
- Speed control
- Truck templates
- Pedestrian crosswalk locations
- Bike ramps
- Landscaping and Lighting
- Pavement markings
- Peer reviews

Speed Control

- Single most important design criteria
- FHWA Design speed recommendation - less than 25 all movements, I use 23 mph
- Entry and exit speeds the same or exit slightly faster - I to 2 mph
- Must also limit right turn speeds

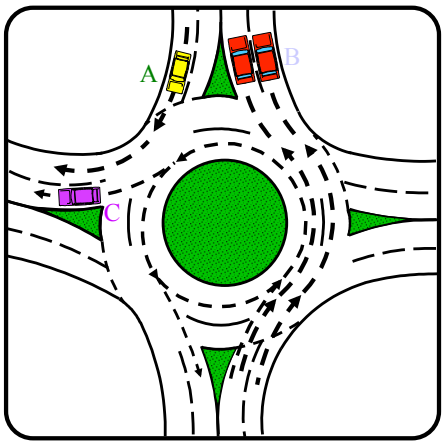
Different Design Speeds at Two, Two-lane Roundabouts

Truck Templates



A 143 foot truck roundabout - Canada

Driving Roundabouts



Vehicle A - Right Turn

Vehicle B - Through, either lane

Vehicle C - Left, U-turn or complete circle

No other movements are legally possible

Roundabout Capacity

Roundabout Capacity

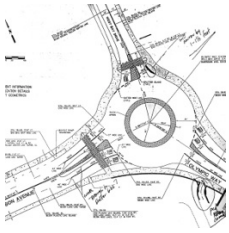
- Up to 30 percent higher capacity than signals even with fewer lanes – eliminate left turn lanes
- Reasons
  - No lost time
  - Drivers can use all available gaps
  - Low speed + small gaps = higher capacity

Signals Compared to Roundabouts

- Vehicle queues are typically twice as long
- Delays may be double
- Crashes about four times greater
- Crash severity is greater
- More expensive to maintain and can be more expensive to construct with roadwork
- Ugly
- However, in many cases they are the only option

Cautions

Common Problems



Almost straight through

Trucks run over curb

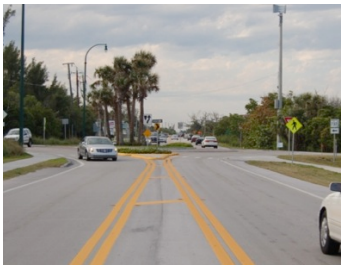
Almost straight through

Pedestrian crossing too close

Lack of deflection – Tee intersections

Trucks running over curb and gutter

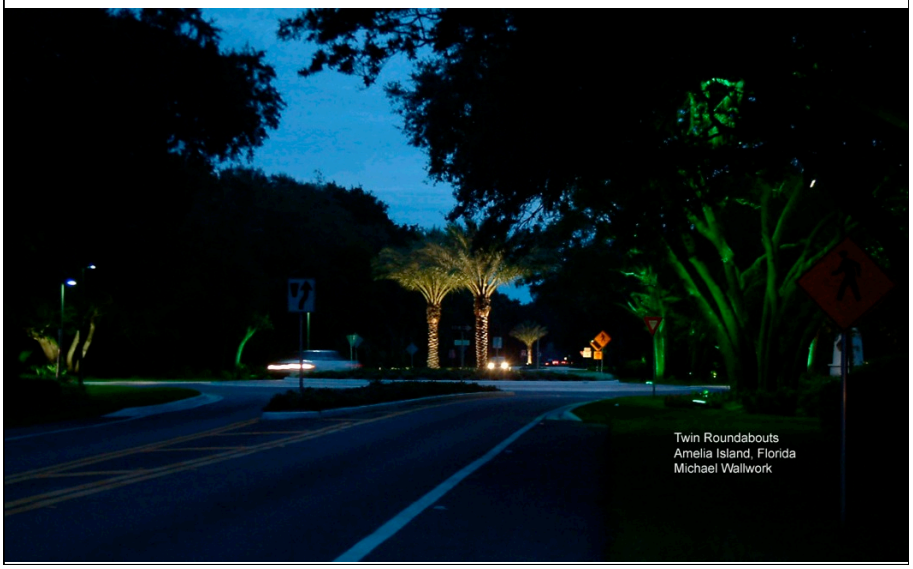
Lack of deflection



See through

Vehicles running over paint

Lighting - Amelia Island at night



Summary

- Roundabouts are the safest form of traffic control - if designed, lit and landscaped well
- Versatile
- Capacity typically higher than signals with fewer lanes
- Almost no maintenance cost and can last 100 year or more
- Pedestrians have priority over vehicles
- Can be beautiful

One-Way Streets

Introduced to increase capacity before two technological innovations

Introduced to:

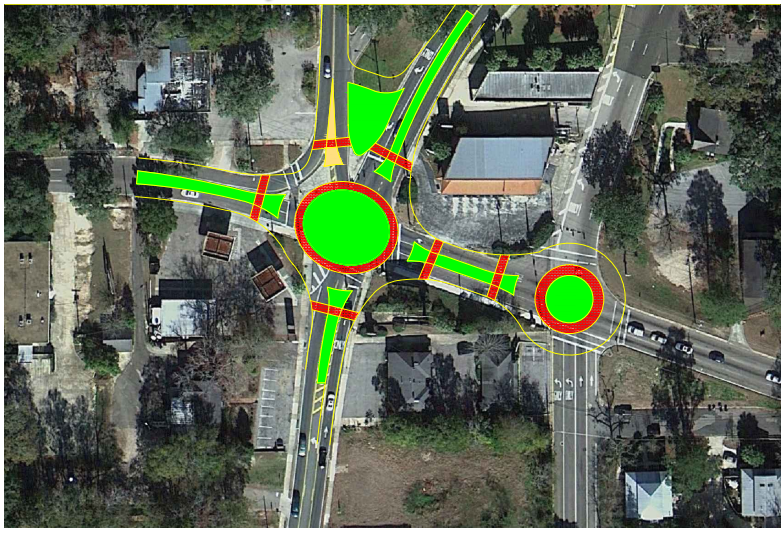
- Speed traffic through downtowns
- Increase road capacity

- Downside
  - Increased intersection congestion - increased turns
  - Higher speeds
  - Longer travel distances to destinations
  - Easier/harder for pedestrians to cross

Innovations

- Three and five lane treatments
- Roundabouts

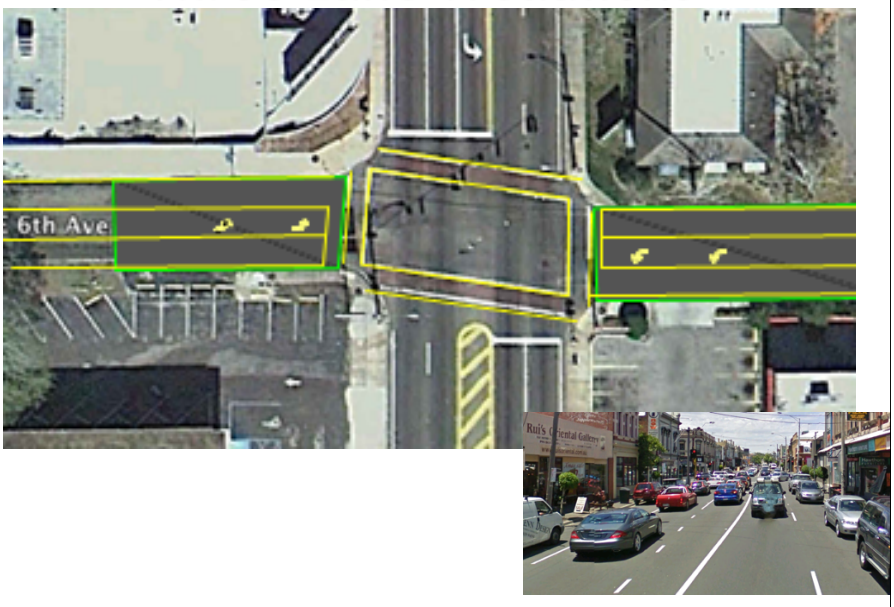
Tallahassee – Possibilities Meridian, Gadsden and 7th

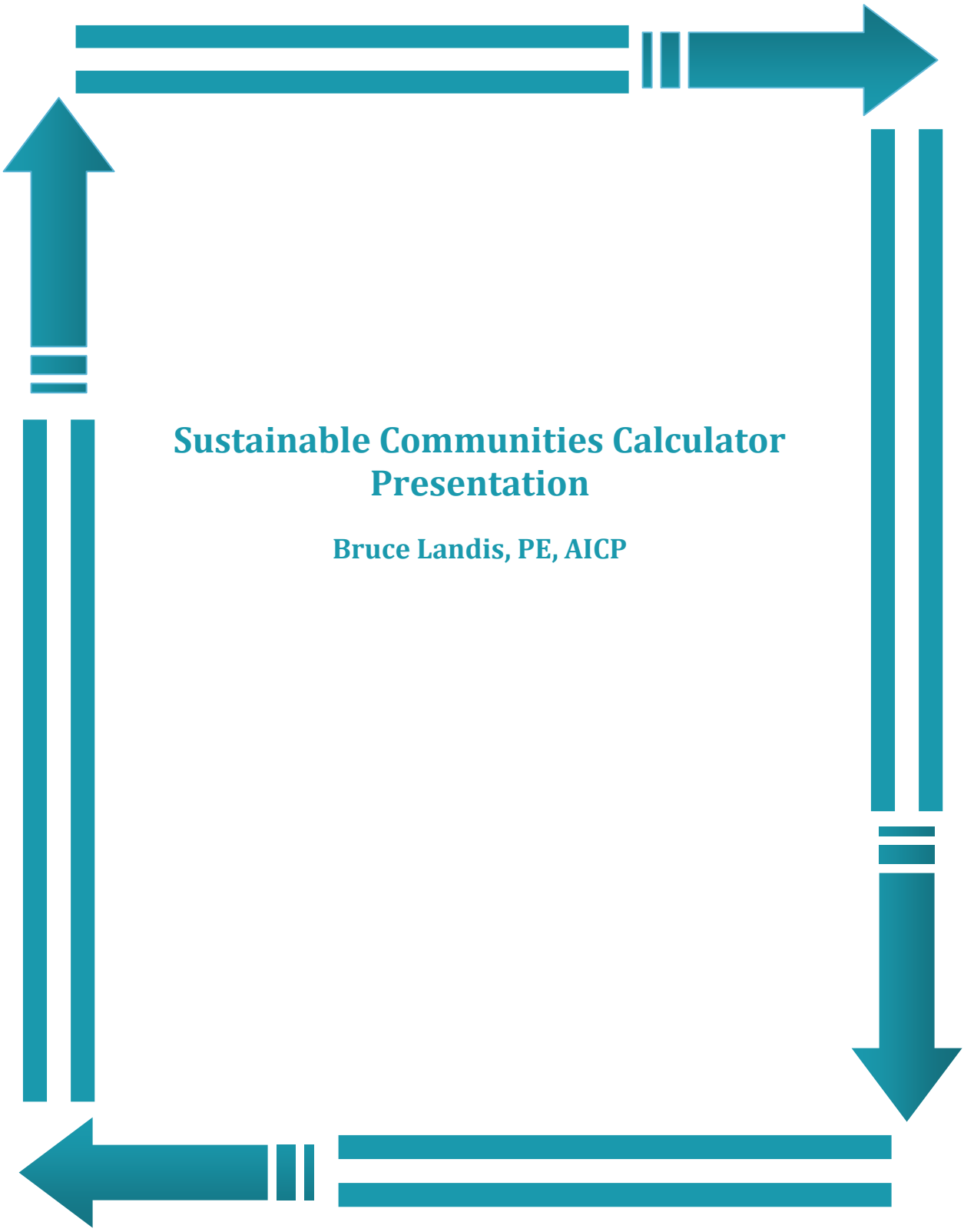


Another Possibility

Eliminate one-way pair of 65th and 7th Streets

Three Lane Treatment





Sustainable Communities Calculator Presentation

Bruce Landis, PE, AICP

CRTPA Board Retreat: April 16, 2012

Sustainable Communities Calculator

Status Presentation

April 16, 2012

Sprinkle Consulting

Sprinkle CONSULTING
Active Transportation Planners+Engineers

Presentation Topics

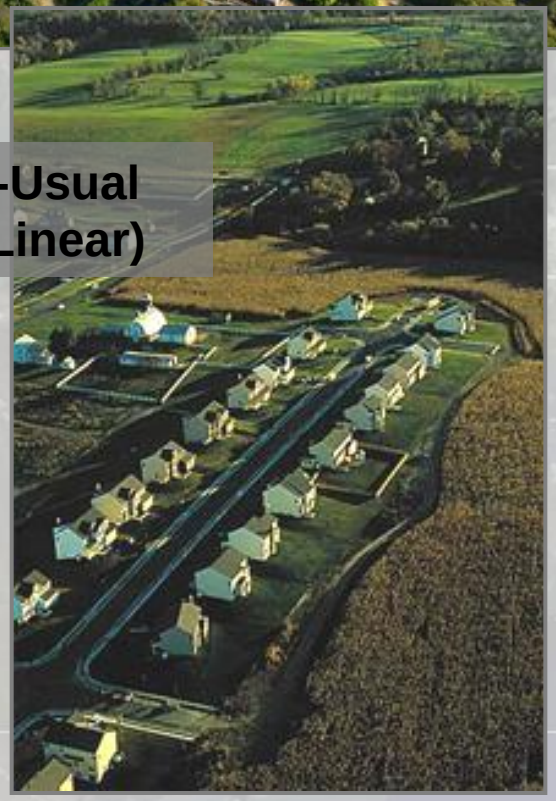
1. History & Background
2. Phase II Calculator Development
3. Significant Factors Affecting Costs
4. Tool (Computational Engine) Preview
5. Preliminary Examples
6. Status – Continued Development

Regional Mobility Plan

RMP focuses on:

- **Moving people and goods, not autos**
- **“Complete Streets” designed to provide Access and Mobility to all users**
- **Interconnectivity and Local Network**
- **Identifying needs by “Corridors”**
- **Initiate looking beyond the 20 year horizon (50+ year horizon)**

RMP Development Scenarios



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Phase I Calculator's Role & Capability

Inform 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 Typicals

	Compact or Infill	Contiguous/ Urban Service Area Fringe	Scattered/ Suburban Corridor	Proposed Community Development
Generated Traffic's Avg. Trip Length (mi)...	5.4	8.8	11.2	8

Proposed Number of Residential Dwelling Units..... 10,000

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^2

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)

No Transit Service	Bus Service (1-4 per hour)	Bus Service (4-10 per hour)	BRT Service or Light Rail
☐	☑	☐	☐

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

(exluding 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

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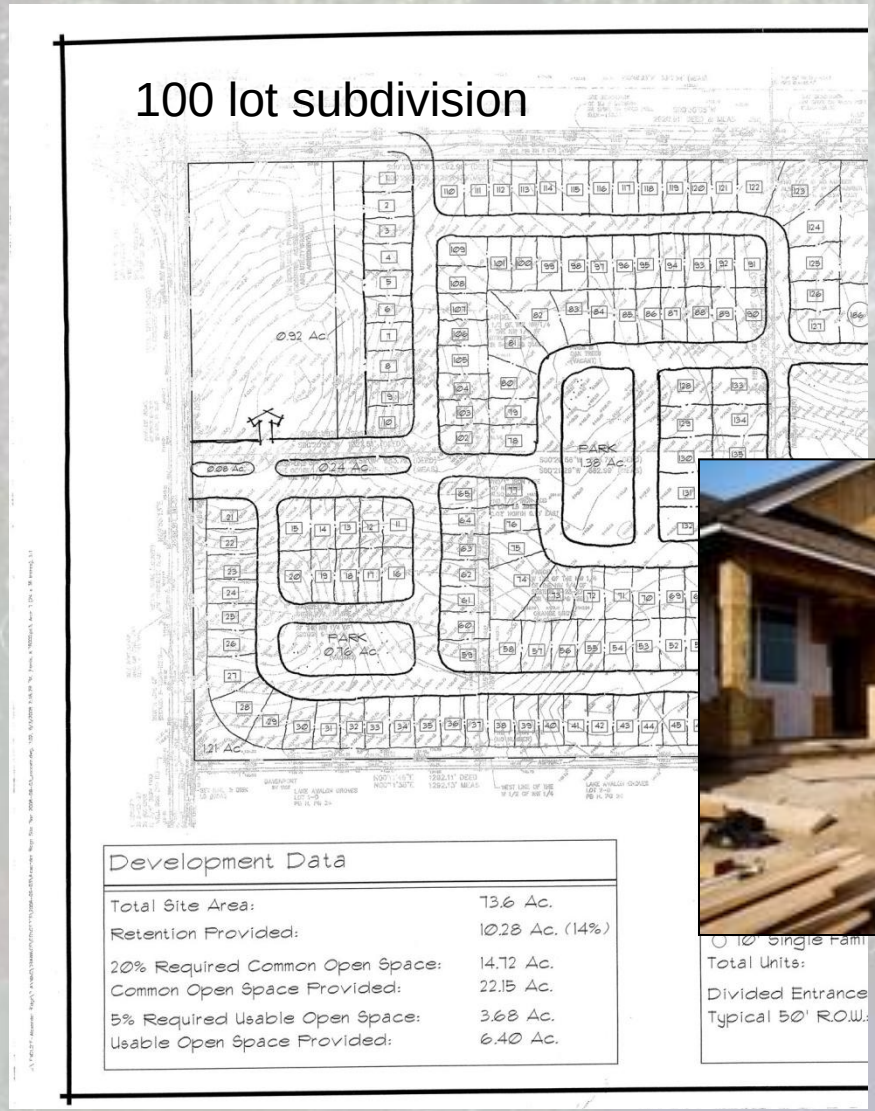
Impacts on Traffic Activity

Form / Location	Avg. Traffic Trip Length		
	Duncan'89	FDOT (335.067, F.S.)	Weighted Avg.
Business-as-Usual (Scattered / Linear)	8.3 mi	12.1mi	**11.2mi**
Quality Growth (Contiguous / USA fringe)	6.4mi	9.6mi	**8.8mi**
"Quality Growth Plus" (Compact / Infill)	6.8mi	4.9mi	**5.4mi**

100 lot subdivision



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Vehicle Miles Traveled (VMT)

Development Form/Location	Annual Trips	Trip Length	Annual VMT
Business-as-Usual (Scattered)	346,996	11.2	3,886,355
Quality Growth (Contiguous)	346,996	8.8	3,053,565
"Quality Growth Plus" (Compact/Infill)	346,996	5.4	1,873,778

Streets & Roadways Maintenance

Jurisdiction	Network Maintenance: Resurface, Repair, Replace, etc.
City	$14,200,000
County	$5,800,000
FDOT*	$8,500,000
Total	$28,500,000

$0.0117/VMT

2,439,235,870 VMT*

* Excluding I-10 Costs and Traffic

Data Sources: City of Tallahassee Annual Budget, Leon County Annual Budget, Leon County CIP, FDOT Historical Work Program, and FDOT Countywide VMT Estimate

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 Calculator's Output

Sustainable Communities Calculator v0.3

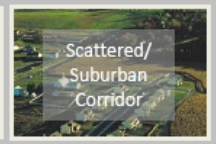
Fiscal Impacts

Capital Region Transportation Planning Agency

Municipalities' & Taxpayers' Fiscal Impacts & Comparative Costs

O&M Costs by Development Type & Location

P/A
3% rate
35 years



Proposed Community Development

Impact to Affected Jurisdictions' Roadway Network Operating & Maintenance Costs				
Annual	$2,189,320	$3,567,781	$4,540,812	**$3,243,437**
35-year Total	$76,626,208	$124,872,339	$158,928,432	**$113,520,308**
Present Costs	$47,042,406	$76,661,698	$97,569,434	**$69,692,453**
Impact to Public Schools' Student Bus Transportation Costs				
Annual	$313,533	$510,942	$650,290	**$464,493**
35-year Total	$10,973,650	$17,882,985	$22,760,163	**$16,257,259**
Present Costs	$6,736,949	$10,978,732	$13,972,932	**$9,980,666**
Impact to Other Public Infrastructure and O&M Costs (e.g., Public Safety, Wastewater, Fire/Rescue, Water, Parks, Solid Waste)				
Annual	$1,970,388	$3,211,003	$4,086,731	**$2,919,094**
35-year Total	$68,963,587	$112,385,105	$143,035,588	**$102,168,277**
Present Costs	$42,338,165	$68,995,528	$87,812,491	**$62,723,208**
Total O&M Costs (Roads, School Transportation, and Other Public Infrastructure)				
Annual	$4,473,241	$7,289,727	$9,277,834	**$6,627,024**
35-year Total	$156,563,445	$255,140,429	$324,724,183	**$231,945,845**
Present Costs	$96,117,520	$156,635,959	$199,354,857	**$142,396,326**

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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

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Presentation Topics

1. History & Background
2. **Phase II Calculator Development**
3. Significant Factors Affecting Costs
4. Tool (Computational Engine) Preview
5. Preliminary Examples
6. Status – Continued Development

Phase II Calculator's Ability to Evaluate Effects of…

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

Phase II Calculator Applications/Settings

- 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…"

Travel and the Built Environment

A Meta-Analysis

Reid Ewing and Robert Cervero

Problem: Localities and states are turning to land planning and urban design for help in reducing automobile use and related social and environmental costs. The effects of such strategies on travel demand have not been generalized in recent years from the multitude of available studies.

Purpose: We conducted a meta-analysis of the built environment-travel literature existing at the end of 2009 in order to draw generalizable conclusions for practice. We aimed to quantify effect sizes, update earlier work, include additional outcome measures, and address the methodological issue of self-selection.

Methods: We computed elasticities for individual studies and pooled them to produce weighted averages.

Results and conclusions: Travel variables are generally inelastic with respect to change in measures of the built environment. Of the environmental variables considered here, none has a weighted average travel elasticity of absolute magnitude greater than 0.39, and most are much less. Still, the combined effect of several such variables on travel could be quite large. Consistent with prior work, we find that vehicle miles traveled (VMT) is most strongly related to measures of accessibility to destinations and secondarily to street network design variables. Walking is most strongly related to measures of land use diversity, intersection density, and the number of destinations within walking distance. Bus and train use are equally related to proximity to transit and street network design variables, with land use diversity a secondary factor. Surprisingly, we find population and job densities to be only weakly associated with travel behavior once these other variables are controlled.

Takeaway for practice: The elasticities we derived in this meta-analysis may be used to adjust outputs of travel or activity models that are otherwise insensitive to variation in the built environment, or be used in sketch planning applications ranging from climate action plans to health impact assessments. However, because sample sizes are small, and very few studies control for residential preferences and attitudes, we cannot say that planners should generalize broadly from our results. While these elasticities are as accurate as currently possible, they should be understood to contain unknown error and have unknown confidence intervals. They provide a base, and as more built-environment/travel studies appear in the planning literature, these elasticities should be updated and refined.

Some of today's most vexing problems, including sprawl, congestion, oil dependence, and climate change, are prompting states and localities to turn to land planning and urban design to rein in automobile use. Many have concluded that roads cannot be built fast enough to keep up with rising travel demand induced by the road building itself and the sprawl it spawns.

The purpose of this meta-analysis is to summarize empirical results on associations between the built environment and travel, especially nonwork

Keywords: vehicle miles traveled (VMT), walking, transit, built environment, effect sizes

Research support: U.S. Environmental Protection Agency.

About the authors:

Reid Ewing (ewing@arch.utah.edu) is professor of city and metropolitan planning at the University of Utah, associate editor of the *Journal of the American Planning Association*, columnist for *Planning* magazine, and fellow of the Urban Land Institute.

Robert Cervero (robertc@berkeley.edu) is professor of city and regional planning at the University of California, Berkeley, director of the University of California Transportation Center, and interim director of the Institute of Urban and Regional Development.

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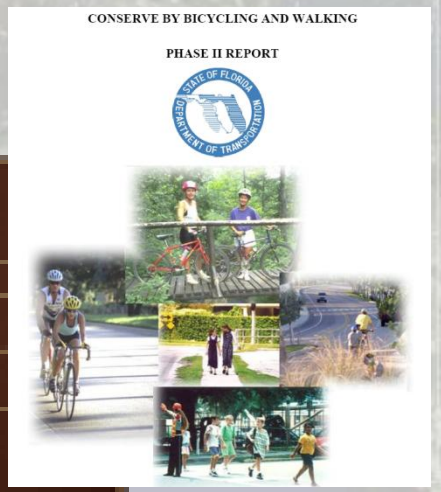
DOI 10.1080/01944361003766766



CONSERVE BY BICYCLING AND WALKING

PHASE II REPORT

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

Presentation Topics

1. History & Background
2. Phase II Calculator Development
3. **Significant Factors Affecting Costs**
4. Tool (Computational Engine) Preview
5. Preliminary Examples
6. Status – Continued Development

Factors Affecting Costs

- Destination or Location (proximity to jobs)
- Design (street network characteristics)
- Diversity (land use mix)
- Density or “Compactness” (of residential)
- Distance to (or Integration of) Public Transit

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

Presentation Topics

1. History & Background
2. Phase II Calculator Development
3. Significant Factors Affecting Costs
4. **Tool (Computational Engine) Preview**
5. Preliminary Examples
6. Status – Continued Development

Tool (Computational Engine) Preview

(example inputs and outputs)

Factors Affecting Costs

- **Destination or Location (proximity to jobs)**
- **Design (street network characteristics)**
- **Diversity (land use mix)**
- **Density or "Compactness" (of residential)**
- **Distance to (or Integration of) Public Transit**

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

Development Setting & Pattern

CRTPA Sustainable Communities Ca

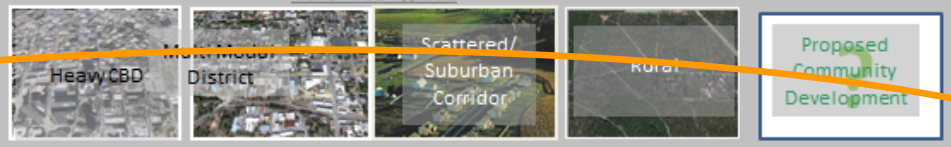
Capital Region Transportation Planning A

Tallahassee, FL MSA

Planned Development & Surrounding Infrastructure Ch

Characteristics of Proposed Development & Surrounding Area

Metro Area Typicals



Existing Development Setting	☐	☐	☐	☑	☐
Proposed Development Pattern	☐	☐	☐	☐	☑
Generated Traffic Avg. Trip Length	3.6	4.2	5.9	7.3	7.7

Proposed Number of Residential Dwelling Units	4,770
Development Area (acres)	1920
VMT per Household per Year (from CNT website)	26,671
Proposed Development Location	Leon County
Proposed Development's Land Use Mix (Area):	
% Residential Are a	80
% Office Area	10
% Retail Area	5
% Industrial Area	5
% Institutional Area	0
Population Density of Surrounding (2-mile radius) Area	reserved

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Factors Affecting Costs

- Destination or Location (proximity to jobs)
- **Design (street network characteristics)**
- Diversity (land use mix)
- Density or “Compactness” (of residential)
- Distance to (or Integration of) Public Transit

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

Internal Characteristics & Design

alculator v0.3

gency

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aracteristics

"Livability" Infrastructure of Surrounding Area

Public Transit Service (select the quality of service provided to your development)

No Transit Service	Bus Service (1-4 per hour)	Bus Service (4-10 per hour)	BRT Service or Light Rail
☐	☑ Reserved	☐	☐

Street Density (mi/mi)	Use Default	☐	Specify	10
Ped Infrastructure: Sidewalk Coverage, %		☐		100
Bike Infrastructure: Facility Coverage	Use Default	☐		20
Average Distance to Transit (mi)	Use Default	☐	Specify	0.25

Infrastructure Compliance (% Network Coverage)..... reserved

Regional Roadway Netw Americans with Disabilities Act (ADA)
(exluding 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) 2,450,198,280

O&M Costs per VMT for Network $0.0116

VMT of Base Condition	127,220,670
VMT of Proposed Development	84,485,379
% Change	-34%

Sprinkle CONSULTING
Active Transportation Planners+Engineers

Factors Affecting Costs

- Destination or Location (proximity to jobs)
- Design (street network characteristics)
- **Diversity (land use mix)**
- Density or “Compactness” (of residential)
- Distance to (or Integration of) Public Transit

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

Land Use Mix

CRTPA Sustainable Communities Ca

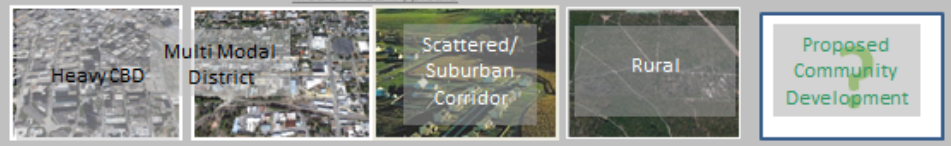
Capital Region Transportation Planning A

Tallahassee, FL MSA

Planned Development & Surrounding Infrastructure Ch

Characteristics of Proposed Development & Surrounding Area

Metro Area Typicals



Existing Development Setting	☐	☐	☐	☑	☐
Proposed Development Pattern	☐	☐	☐	☐	☑
Generated Traffic Avg. Trip Length	3.6	4.2	5.9	7.3	7.7

Proposed Number of Residential Dwelling Units	4,770
Development Area (acres)	1920
VMT per Household per Year (from CNT website)	26,671
Proposed Development Location	Leon County

Proposed Development's Land Use Mix (Area):

% Residential Area	80
% Office Area	10
% Retail Area	5
% Industrial Area	5
% Institutional Area	0

Population Density of Surrounding (2-mile radius) Area	reserved

Sprinkle CONSULTING
Active Transportation Planners+Engineers

Factors Affecting Costs

- Destination or Location (proximity to jobs)
- Design (street network characteristics)
- Diversity (land use mix)
- **Density or "Compactness" (of residential)**
- Distance to (or Integration of) Public Transit

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

Residential Density (units per area)

CRTPA Sustainable Communities Ca

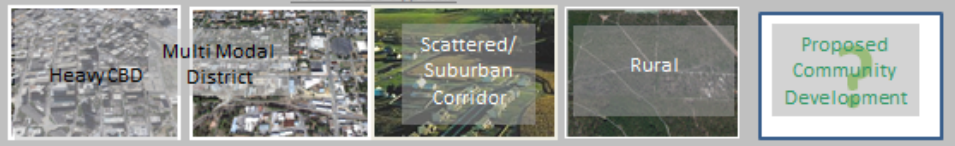
Capital Region Transportation Planning A

Tallahassee, FL MSA

Planned Development & Surrounding Infrastructure Ch

Characteristics of Proposed Development & Surrounding Area

Metro Area Typicals



Existing Development Setting	☐	☐	☐	☑	☐
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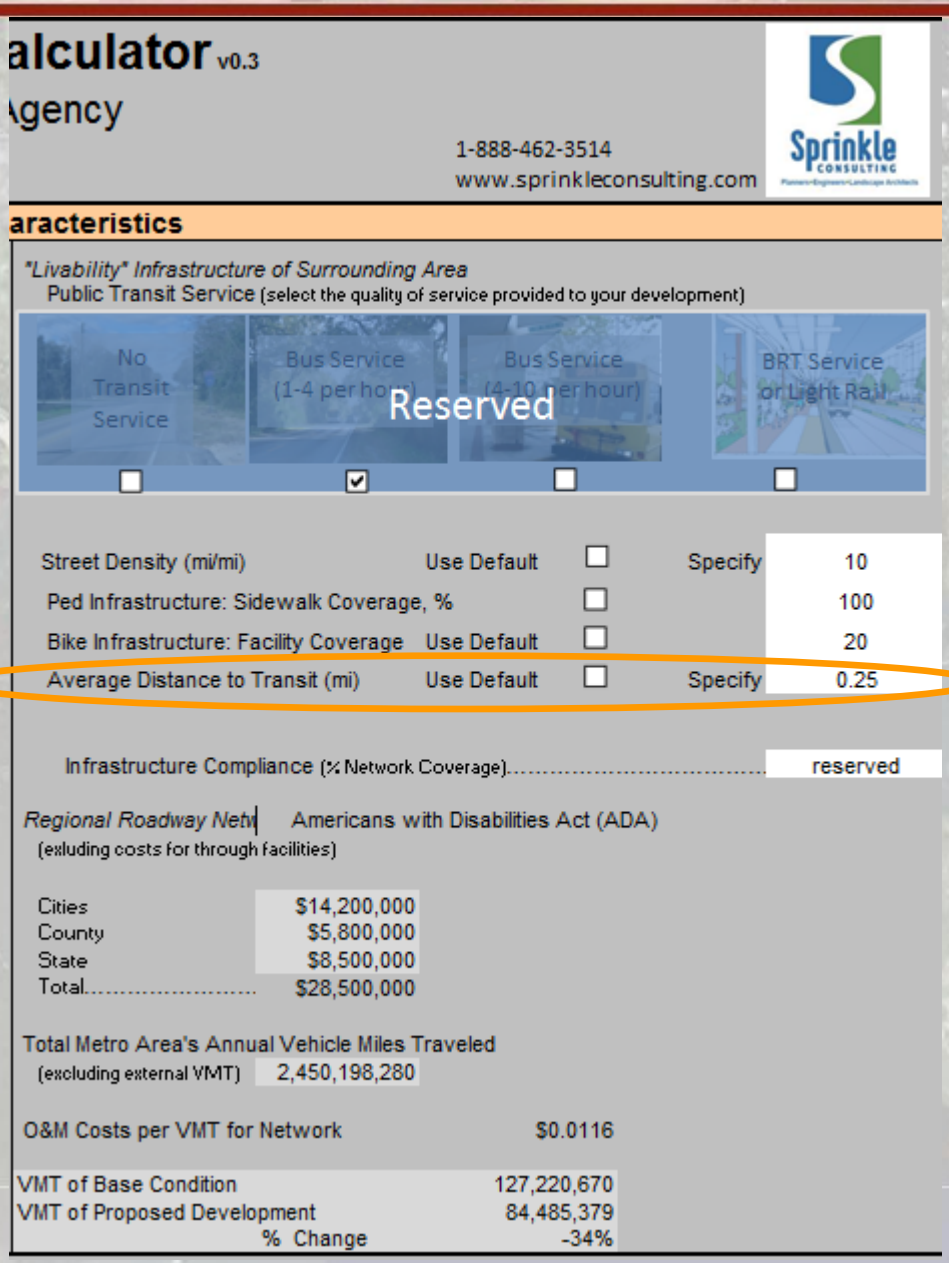
Factors Affecting Costs

- Destination or Location (proximity to jobs)
- Design (street network characteristics)
- Diversity (land use mix)
- Density or “Compactness” (of residential)
- **Distance to (or Integration of) Public Transit**

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

Distance to (Integration of) Transit



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Agency

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aracteristics

"Livability" Infrastructure of Surrounding Area

Public Transit Service (select the quality of service provided to your development)

No Transit Service	Bus Service (1-4 per hour)	Bus Service (4-10 per hour)	BRT Service or Light Rail
☐	☑ Reserved	☐	☐

Street Density (mi/mi)	Use Default	☐	Specify	10
Ped Infrastructure: Sidewalk Coverage, %		☐		100
Bike Infrastructure: Facility Coverage	Use Default	☐		20
Average Distance to Transit (mi)	Use Default	☐	Specify	0.25

Infrastructure Compliance (% Network Coverage)..... reserved

Regional Roadway Netw Americans with Disabilities Act (ADA)
(exluding costs for through facilities)

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State	$8,500,000
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VMT of Base Condition	127,220,670
VMT of Proposed Development	84,485,379
% Change	-34%

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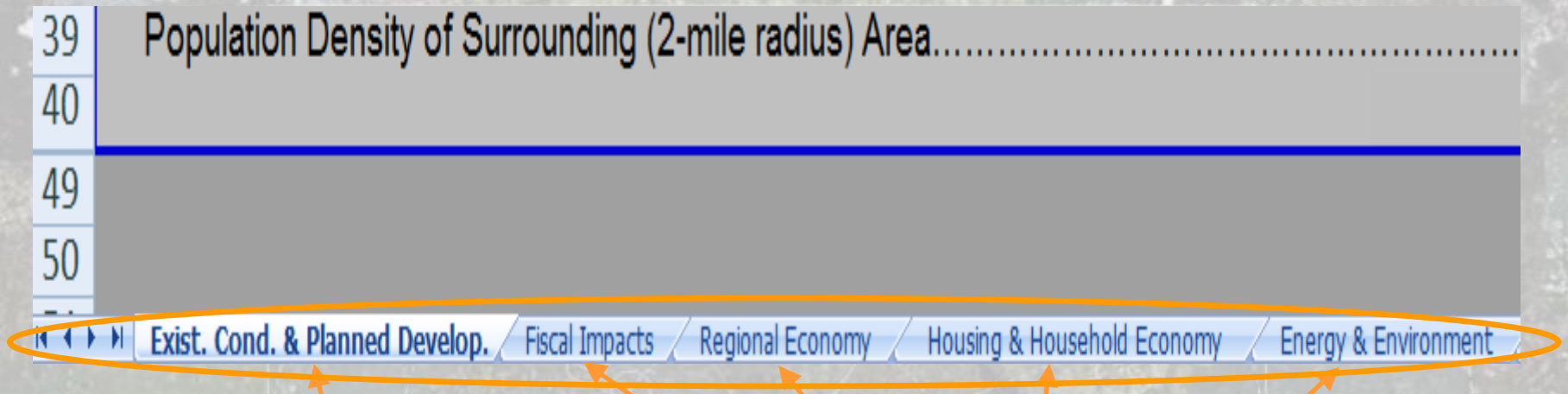
Calculator Output Tabs



Inputs (Scenario)

Outputs (Results)

Outputs - Fiscal Impacts Tab

Sustainable Communities Calculator v0.3

Fiscal Impacts

Capital Region Transportation Planning Agency

Municipalities' & Taxpayers' Fiscal Impacts & Comparative Costs

O&M Costs by Development Type & Location

P/A

3% rate

35 years

Proposed Community Development ?

Impact to Affected Jurisdictions' Roadway Network Operating & Maintenance Costs					
Annual	$699,387	805,402	1,138,496	1,407,074	982,710
35-year Total	$24,478,548	28,189,062	39,847,357	49,247,584	34,394,835
Present Costs	$15,027,884	17,305,845	24,463,112	30,234,105	21,115,697
Impact to Public Schools' Student Bus Transportation Costs					
Annual	$100,609	115,860	163,777	202,413	212,291
35 year Total	$3,521,331	4,055,102	5,732,192	7,084,450	7,430,176
Present Costs	$2,161,818	2,489,511	3,519,111	4,349,290	4,561,538
Impact to Other Public Infrastructure and O&M Costs (e.g., Public Safety, Wastewater, Fire/Rescue, Water, Trash, Solid Waste)					
Annual	$66,895,164	$66,895,164	$66,895,164	$66,895,164	69,086,095
35 year Total	$2,341,330,740	2,341,330,740	2,341,330,740	2,341,330,740	2,418,013,331
Present Costs	$1,437,391,111	1,437,391,111	1,437,391,111	1,437,391,111	1,484,468,131
Total O&M Costs (Roads, School Transportation, and Other Public Infrastructure)					
Annual	$67,695,161	67,816,426	68,197,437	68,504,651	70,281,095
35 year Total	$2,369,330,619	2,373,574,904	2,386,910,289	2,397,662,774	2,459,838,341
Present Costs	$1,454,580,812	$1,457,186,466	$1,465,373,334	$1,471,974,505	$1,510,145,365

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Outputs - Regional Economy Tab

Sustainable Communities Calculator v0.3

Regional Economy

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Effects on the Regional Economy

	Compact or Infill	Contiguous/ Urban Service Area Fringe	Scattered/ Suburban Corridor	Rural	Proposed Community Development
Comparative Costs					
Lost Disposable Income					
Commute Time Costs[1]					
Annual	$866,115	$3,587,416	$5,781,635	$3,235,907	
10-Year Total	$8,661,151	$35,874,161	$57,816,345	$32,359,072	
Auto Ownership Costs[2]					
Annual	$2,522,775	$10,449,239	$16,840,444	$15,185,605	
10-Year Total	$25,227,749	$104,492,390	$168,404,444	$151,856,048	
Auto Operations & Maintenance Costs[3]					
Annual	$1,748,533	$7,242,357	$11,672,096	$10,525,128	
10-Year Total	$17,485,329	$72,423,575	$116,720,958	$105,251,280	
Health Care Costs					
Annual	$751,005	$3,207,878	$4,339,587	$171,521	
10-Year Total	$7,510,046	$32,078,783	$43,395,867	$1,715,214	
Total	$5,888,428	$24,486,891	$38,633,761	$29,118,161	
10-Year Total	$58,884,275	$244,868,908	$386,337,614	$291,181,613	
Comparative Benefits					
Gained Disposable Income					
Commute Time Costs					
Annual	$5,781,635	$4,915,519	$2,194,218	$2,545,727	
10-Year Total	$57,816,345	$49,155,194	$21,942,184	$25,457,274	
Auto Ownership Costs					
Annual	$16,840,444	$14,317,669	$6,391,205	$1,654,840	
10-Year Total	$168,404,444	$143,176,695	$63,912,054	$16,548,396	
Auto Operations & Maintenance Costs					
Annual	$11,672,096	$9,923,563	$4,429,738	$1,146,968	
10-Year Total	$116,720,958	$99,235,629	$44,297,383	$11,469,677	
Health Care Costs					
Annual	$4,339,587	$3,588,582	$1,131,708	$4,168,065	
10-Year Total	$43,395,867	$35,885,821	$11,317,084	$41,680,653	
Regional Spending Multiplier (RIMS II - Modified)[5]					
Annual	**$57,216,601**	**$48,495,839**	**$20,951,515**	**$14,092,604**	
10-Year Total	**$572,166,006**	**$484,958,395**	**$209,515,153**	**$140,926,036**	

Outputs - Regional Economy (Health)

Sustainable Communities Calculator v0.3

Regional Economy

Capital Region Transportation Planning Agency

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Effects on the Regional Economy

Comparative Costs

	Compact or Infill	Contiguous/ Urban Service Area Fringe	Scattered/ Suburban Corridor	Rural	Proposed Community Development
Lost Disposable Income					
Commute Time Costs[1]					
Annual	$866,115	$3,587,416	$5,781,635	$3,235,907	
10-Year Total	$8,661,151	$35,874,161	$57,816,345	$32,359,072	
Auto Ownership Costs[2]					
Annual	$2,522,775	$10,449,239	$16,840,444	$15,185,605	
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Annual	$1,748,533	$7,242,357	$11,672,096	$10,525,128	
10-Year Total	[illegible]	$72,423,575	$116,720,958	$105,251,280	
Health Care Costs					
Annual	$751,005	$3,207,878	$4,339,587	$171,521	
10-Year Total	$7,510,046	$32,078,783	$43,395,867	$1,715,214	
Total	[illegible]	$24,486,891	$38,633,761	$29,118,161	
10-Year Total	$58,884,275	$244,868,908	$386,337,614	$291,181,613	

Comparative Benefits

	Compact or Infill	Contiguous/ Urban Service Area Fringe	Scattered/ Suburban Corridor	Rural	Proposed Community Development
Gained Disposable Income					
Commute Time Costs					
Annual	$5,781,635	$4,915,519	$2,194,218		$2,545,727
10-Year Total	$57,816,345	$49,155,194	$21,942,184		$25,457,274
Auto Ownership Costs					
Annual	$16,840,444	$14,317,669	$6,391,205		$1,654,840
10-Year Total	$168,404,444	$143,176,695	$63,912,054		$16,548,396
Auto Operations & Maintenance Costs					
Annual	$11,672,096	$9,923,563	$4,429,738		$1,146,968
10-Year Total	$116,720,958	[illegible]	$44,297,383		$11,469,677
Health Care Costs					
Annual	$4,339,587	$3,588,582	$1,131,708		$4,168,065
10-Year Total	$43,395,867	$35,885,821	$11,317,084		$41,680,653
Regional Spending Multiplier (RIMS II - Modified)[5]					
Annual	**$57,216,601**	**$48,495,839**	**$20,951,515**		**$14,092,604**
10-Year Total	**$572,166,006**	**$484,958,395**	**$209,515,153**		**$140,926,036**

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Housing & Household Economy Tab

Sustainable Communities Calculator v0.3

Housing & Household Economy

Capital Region Transportation Planning Agency

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Housing "Stock"

	heavy CBD	Contiguous/ Urban Service Area Fringe	Scattered/ Suburban Corridor	Proposed Community Development
Median Cost of Housing				
Multi-Family	$0	$0	$0	$0
Single Family	$0	$0	$0	$0

Individual Household Impacts & Costs

	Dense CBD	Multi Modal Area	Scattered/ Suburban Corridor	Undeveloped/ Rural	Proposed Community Development
Lost Commute Time Costs					
Annual	$1,992	$2,141	$2,609	$2,986	$2,548
10-Year Total	$19,924	$21,413	$26,089	$29,859	$25,485
Auto Ownership Costs					
Annual	$20,408,793	$20,408,793	$20,408,793	$20,408,793	$20,408,793
10-Year Total	$204,087,932	$204,087,932	$204,087,932	$204,087,932	$204,087,932
Fuel & Auto Maintenance Costs					
Annual	$11,535,206	$13,283,739	$18,777,564	$23,207,302	$22,060,334
10-Year Total	$115,352,064	$132,837,393	$187,775,639	$232,073,022	$220,603,345
Family Health Care Costs					
Annual	$910	$752	$237	$0	$866
10-Year Total	$9,098	$7,523	$2,373	$0	$8,658
Median Housing Costs	Rental ($/mo.)			Purchase $	

Community/Individual Components

Locational Efficiency Index	Reserved
Housing & Transportation Affordability Index	Reserved

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Outputs - Energy & Environment Tab

Sustainable Communities Calcu

Energy & Environment

Capital Region Transportation Planning Age

Community-Wide Energy & Environmental Impacts & Costs

Average Auto Fuel Cost	$3.85 /gallon
Average Auto Fuel Efficiency	20.7 mpg
Base Annual VMT/Household	19,798 miles per http://htaindex.cnt.org/map/

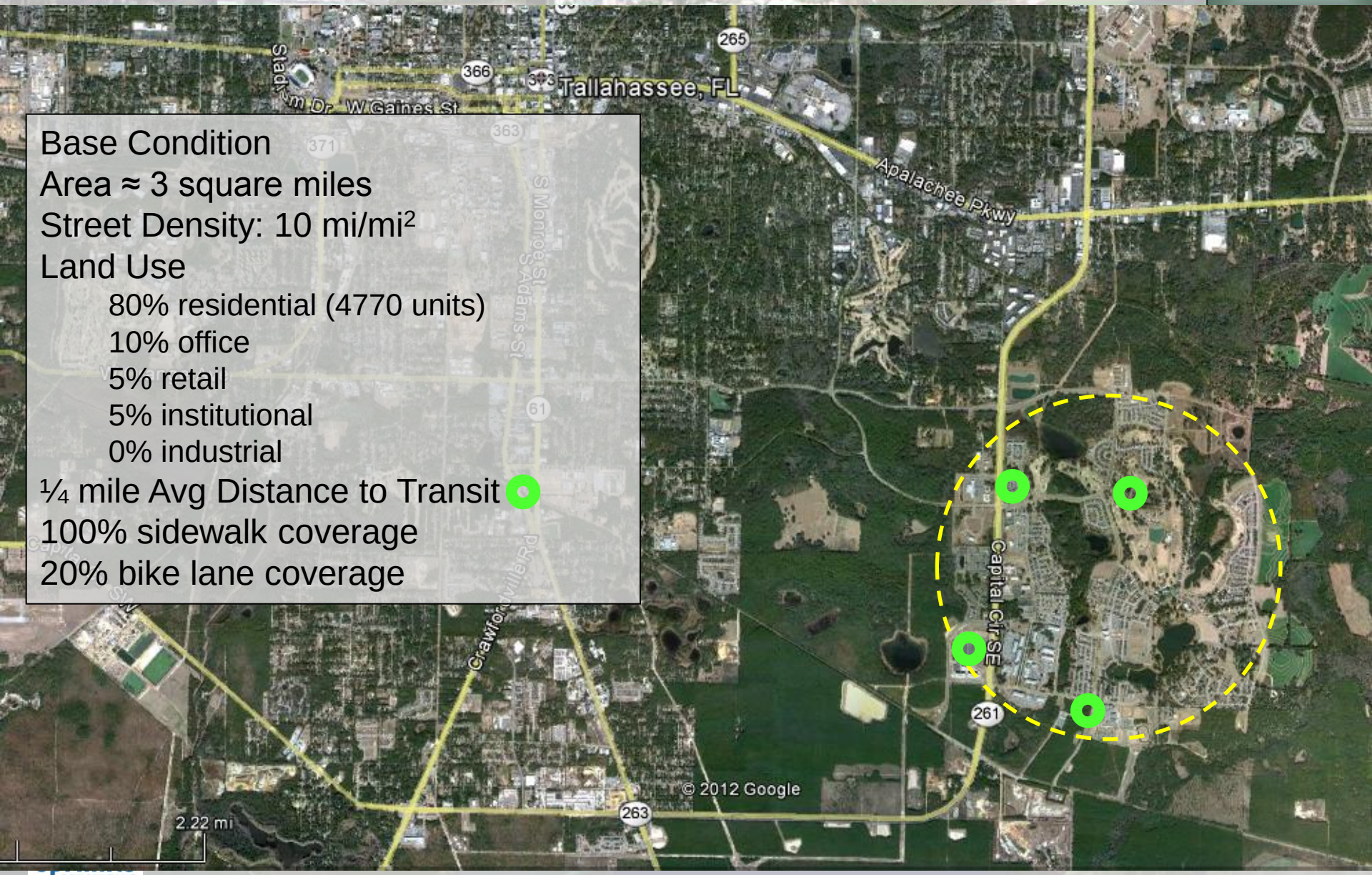
	Dense CBD	Muti-Modal District	Scattered/ Suburban Corridor	Undeveloped / Rural	Proposed Community Development
Fuel Consumed (gallons)					
Annual	2,904,716	3,345,019	4,728,436	5,843,902	3,029,565
35-Year Total	101,665,048	117,075,668	165,495,256	204,536,565	106,034,768
Fuel Consumption Costs					
Annual	$11,183,155	$12,878,323	$18,204,478	$22,499,022	$11,663,825
35-Year Total	$391,410,436	$450,741,321	$637,156,735	$787,465,774	$408,233,858
Emissions Impact (lbs/year)					
VOC[1]	106,047	122,122	172,628	213,352	110,605
NOx[2]	89,477	103,040	145,655	180,016	93,323
Particulates[3]	10,605	12,212	17,263	21,335	11,061
Greenhouse (CO_2)[3]	55,939,771	64,419,249	91,061,450	112,543,384	58,344,148

Presentation Topics

1. History & Background
2. Phase II Calculator Development
3. Significant Factors Affecting Costs
4. Tool (Computational Engine) Preview
5. **Preliminary Examples**
6. Status – Continued Development

Preliminary Example Calculations

Southwood – As Is



Base Condition
Area ≈ 3 square miles
Street Density: 10 mi/mi^2
Land Use
- 80% residential (4770 units)
- 10% office
- 5% retail
- 5% institutional
- 0% industrial

¼ mile Avg Distance to Transit
100% sidewalk coverage
20% bike lane coverage

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Southwood – As Is (Outputs)

Sustainable Communities Calculator v0.3

Fiscal Impacts

Capital Region Transportation Planning Agency

Municipalities' & Taxpayers' Fiscal Impacts & Comparative Costs

O&M Costs by Development Type & Location

PIA

3% rate

35 years

Proposed Community Development

Impact to Affected Jurisdictions' Roadway Network Operating & Maintenance Costs					
Annual	$699,387	805,402	1,138,496	1,407,074	982,710
35-year Total	$24,478,548	28,189,062	39,847,357	49,247,584	34,394,835
Present Costs	$15,027,884	17,305,845	24,463,112	30,234,105	21,115,697
Impact to Public Schools' Student Bus Transportation Costs					
Annual	$100,609	115,860	163,777	202,413	212,291
35 year Total	$3,521,331	4,055,102	5,732,192	7,084,450	7,430,176
Present Costs	$2,161,818	2,489,511	3,519,111	4,349,290	4,561,538
Impact to Other Public Infrastructure and O&M Costs					
(e.g., Public Safety, Wastewater, Fire/Rescue, Water, Trash, Solid Waste)					
Annual	$66,895,164	$66,895,164	$66,895,164	$66,895,164	69,086,095
35 year Total	$2,341,330,740	2,341,330,740	2,341,330,740	2,341,330,740	2,418,013,331
Present Costs	$1,437,391,111	1,437,391,111	1,437,391,111	1,437,391,111	1,484,468,131
Total O&M Costs (Roads, School Transportation, and Other Public Infrastructure)					
Annual	$67,695,161	67,816,426	68,197,437	68,504,651	70,281,095
35 year Total	$2,369,330,619	2,373,574,904	2,386,910,289	2,397,662,774	2,459,838,341
Present Costs	$1,454,580,812	$1,457,186,466	$1,465,373,334	$1,471,974,505	$1,510,145,365

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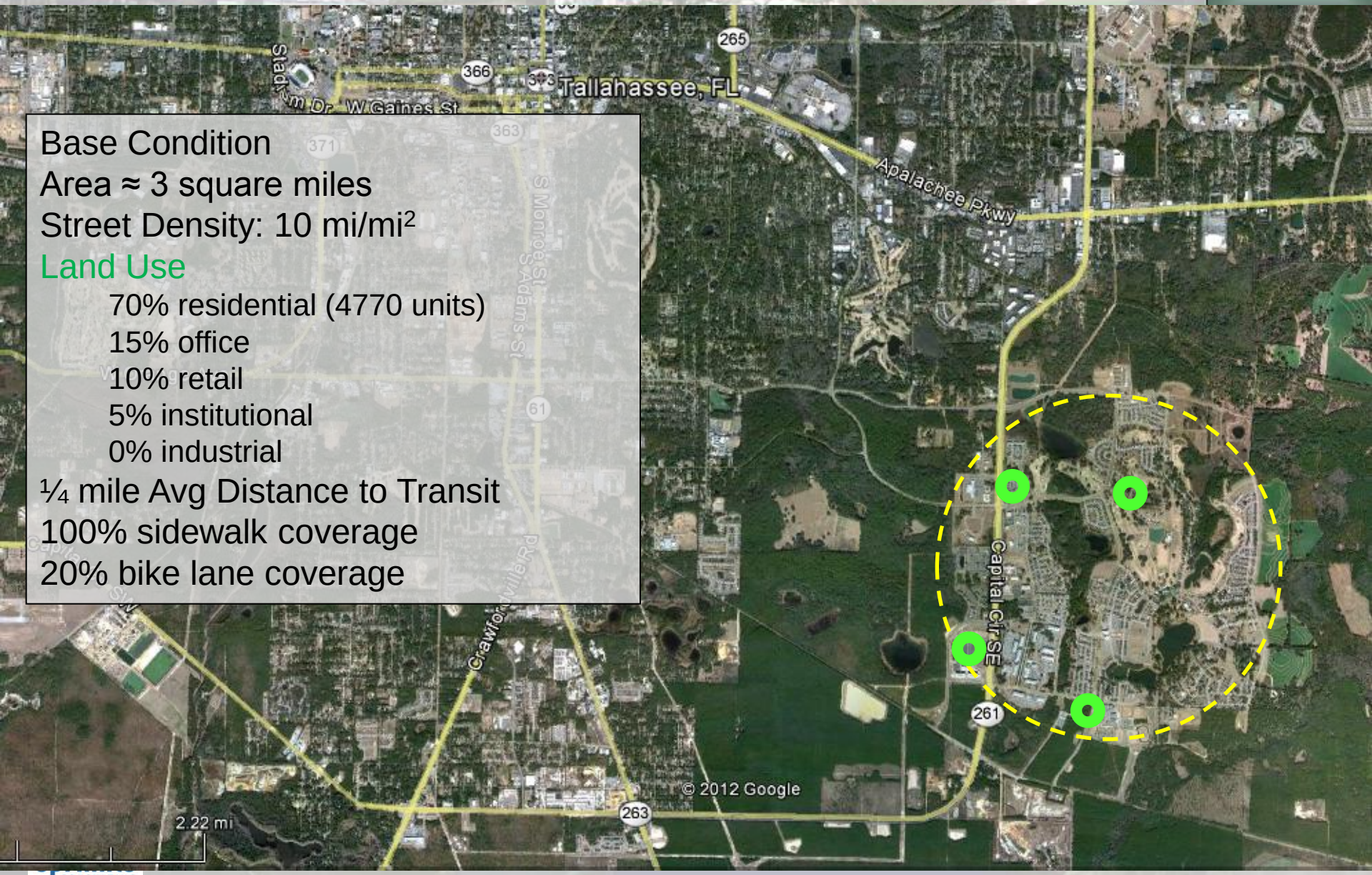
Southwood – Varied Mix



Base Condition
Area ≈ 3 square miles
Street Density: 10 mi/mi^2
Land Use
- 70% residential (4770 units)
- 15% office
- 10% retail
- 5% institutional
- 0% industrial

¼ mile Avg Distance to Transit
100% sidewalk coverage
20% bike lane coverage

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Southwood – Varied Mix (Outputs)

Sustainable Communities Calculator v0.3

Fiscal Impacts

Capital Region Transportation Planning Agency

Municipalities' & Taxpayers' Fiscal Impacts & Comparative Costs

O&M Costs by Development Type & Location

PIA

3% rate

35 years

Proposed Community Development

Impact to Affected Jurisdictions' Roadway Network Operating & Maintenance Costs					
Annual	$699,387	805,402	1,138,496	1,407,074	941,472
35-year Total	$24,478,548	28,189,062	39,847,357	49,247,584	32,951,533
Present Costs	$15,027,884	17,305,845	24,463,112	30,234,105	20,229,624
Impact to Public Schools' Student Bus Transportation Costs					
Annual	$100,609	115,860	163,777	202,413	212,291
35 year Total	$3,521,331	4,055,102	5,732,192	7,084,450	7,430,176
Present Costs	$2,161,818	2,489,511	3,519,111	4,349,290	4,561,538
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35 year Total	$2,341,330,740	2,341,330,740	2,341,330,740	2,341,330,740	2,418,013,331
Present Costs	$1,437,391,111	1,437,391,111	1,437,391,111	1,437,391,111	1,484,468,131
Total O&M Costs (Roads, School Transportation, and Other Public Infrastructure)					
Annual	$67,695,161	67,816,426	68,197,437	68,504,651	70,239,858
35 year Total	$2,369,330,619	2,373,574,904	2,386,910,289	2,397,662,774	2,458,395,039
Present Costs	$1,454,580,812	$1,457,186,466	$1,465,373,334	$1,471,974,505	$1,509,259,292

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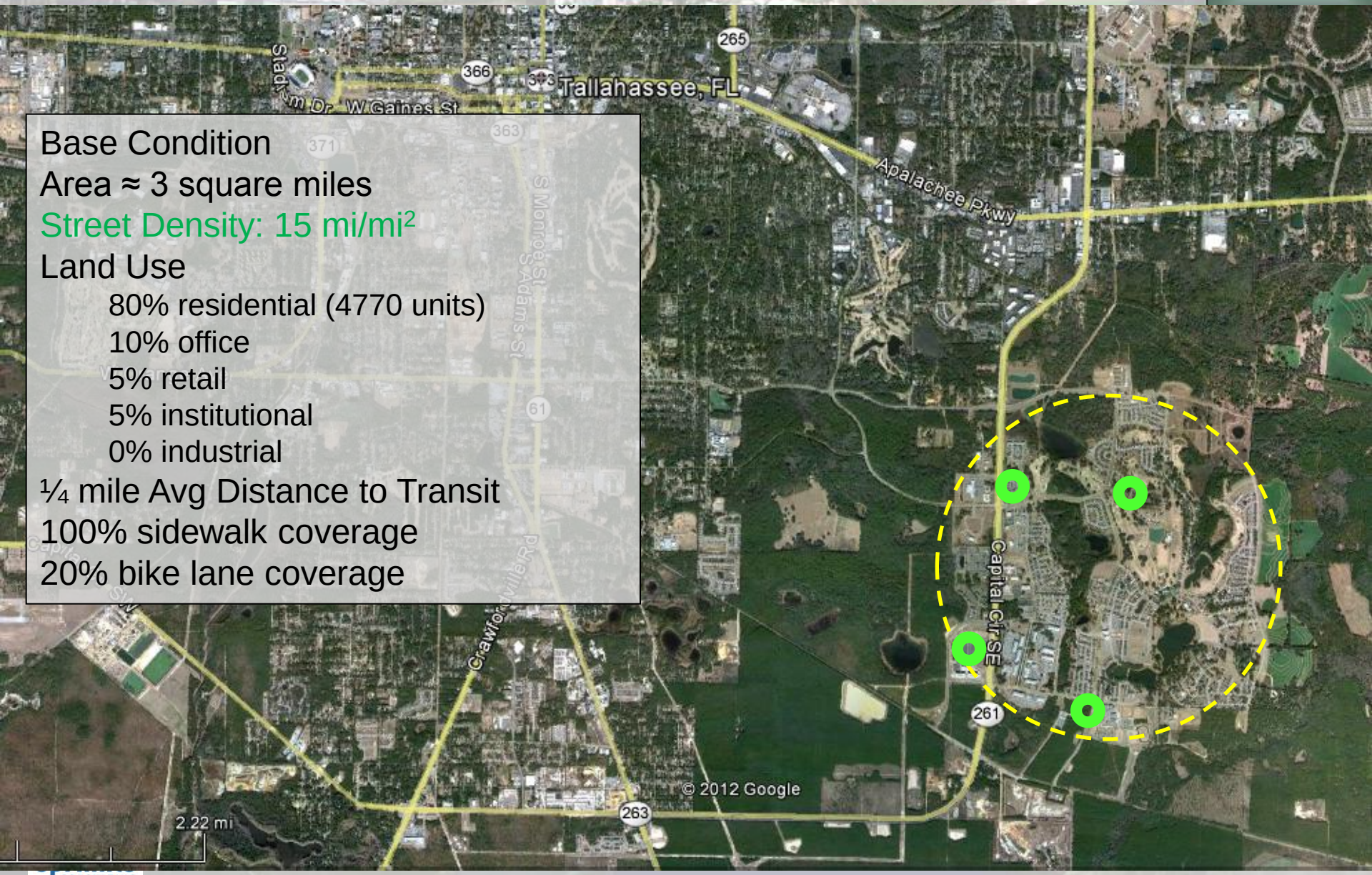
Southwood – Varied Street Density



Base Condition

Area ≈ 3 square miles

Street Density: 15 mi/mi^2

Land Use

- 80% residential (4770 units)
- 10% office
- 5% retail
- 5% institutional
- 0% industrial

¼ mile Avg Distance to Transit

100% sidewalk coverage

20% bike lane coverage

Southwood – Varied Street Density (Outputs)

Sustainable Communities Calculator v0.3

Fiscal Impacts

Capital Region Transportation Planning Agency

Municipalities' & Taxpayers' Fiscal Impacts & Comparative Costs

O&M Costs by Development Type & Location

					Proposed Community Development
PIA					
3%	rate				
35	years				
Impact to Affected Jurisdictions' Roadway Network Operating & Maintenance Costs					
Annual	$699,387	805,402	1,138,496	1,407,074	820,428
35-year Total	$24,478,548	28,189,062	39,847,357	49,247,584	28,714,994
Present Costs	$15,027,884	17,305,845	24,463,112	30,234,105	17,628,726
Impact to Public Schools' Student Bus Transportation Costs					
Annual	$100,609	115,860	163,777	202,413	212,291
35 year Total	$3,521,331	4,055,102	5,732,192	7,084,450	7,430,176
Present Costs	$2,161,818	2,489,511	3,519,111	4,349,290	4,561,538
Impact to Other Public Infrastructure and O&M Costs					
(e.g., Public Safety, Wastewater, Fire/Rescue, Water, Trash, Solid Waste)					
Annual	$66,895,164	$66,895,164	$66,895,164	$66,895,164	69,086,095
35 year Total	$2,341,330,740	2,341,330,740	2,341,330,740	2,341,330,740	2,418,013,331
Present Costs	$1,437,391,111	1,437,391,111	1,437,391,111	1,437,391,111	1,484,468,131
Total O&M Costs (Roads, School Transportation, and Other Public Infrastructure)					
Annual	$67,695,161	67,816,426	68,197,437	68,504,651	70,118,814
35 year Total	$2,369,330,619	2,373,574,904	2,386,910,289	2,397,662,774	2,454,158,501
Present Costs	$1,454,580,812	$1,457,186,466	$1,465,373,334	$1,471,974,505	$1,506,658,394

Sprinkle CONSULTING
Active Transportation Planners+Engineers

A 100 Unit Development Example

Example Development Pattern
100 Residential Units
Area ≈ 40 Acres
Land Use
- 80% residential (1500 units)
- 10% office
- 5% retail
- 5% institutional
- 0% industrial

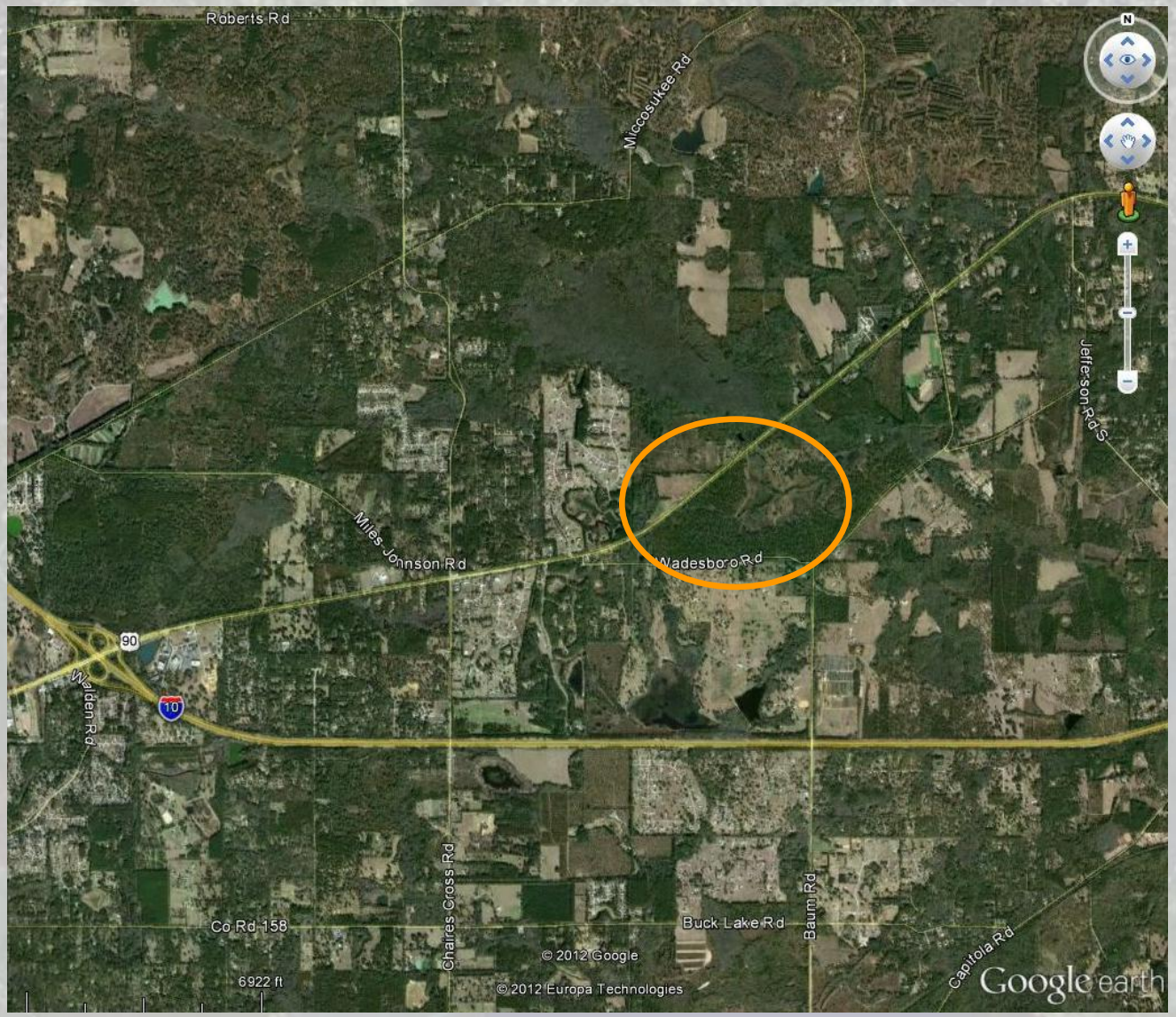
10 miles/square mile street density
1/4 mile Avg Distance to Transit
100% sidewalk coverage
20% bike lane coverage

Rural Setting
VMT 1,771,182
35 yr transportation impact $721,100

MMTD Setting
VMT 966,526
35 yr transportation impact $393,500

45% reduction in impacts

Rockaway Development



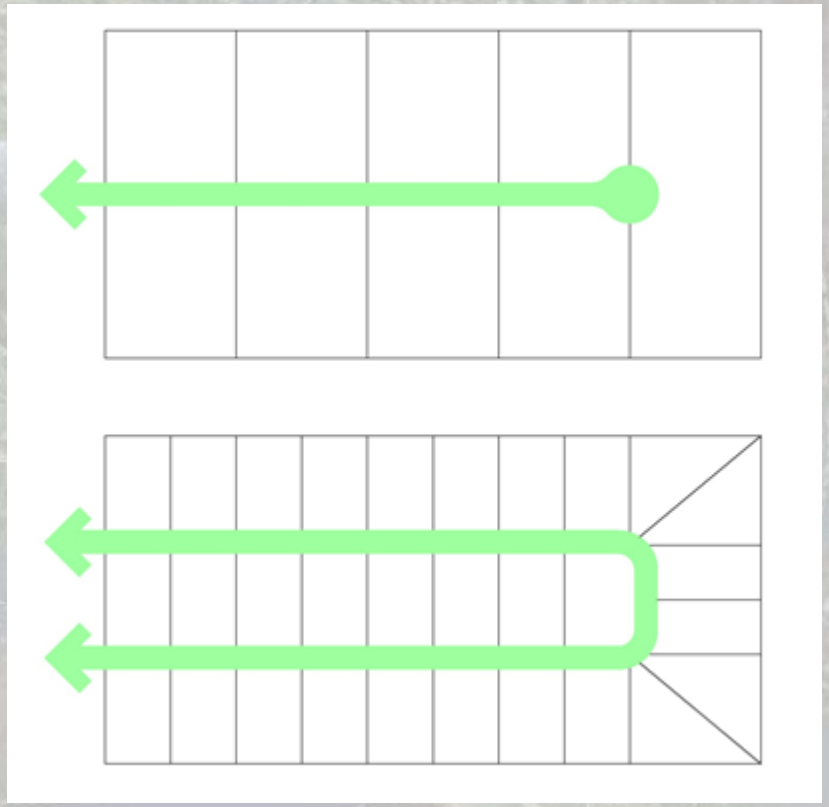
Rockaway Development Example

Two proposed residential densities, which has an effect on street density:

1. One unit per ten acres
   31,353 annual vmt/hh
   $12,764 35 yr cost/hh
   (transportation costs)

2. One unit per three acres
   27,589 annual vmt/hh
   $11,232 35 yr cost/hh

   12% reduction



Presentation Topics

1. History & Background
2. Phase II Calculator Development
3. Significant Factors Affecting Costs
4. Tool (Computational Engine) Preview
5. Preliminary Examples
6. **Status – Continued Development**

Status – Continued Development

Upcoming Activities:

- Refinement of Future Year Trip Length Data
- Development of Housing & Transportation Costs
- Transit Provision Characteristics & Impacts
- Development of Web-Based Interface
- Jurisdictional Training

Questions & Answers Session

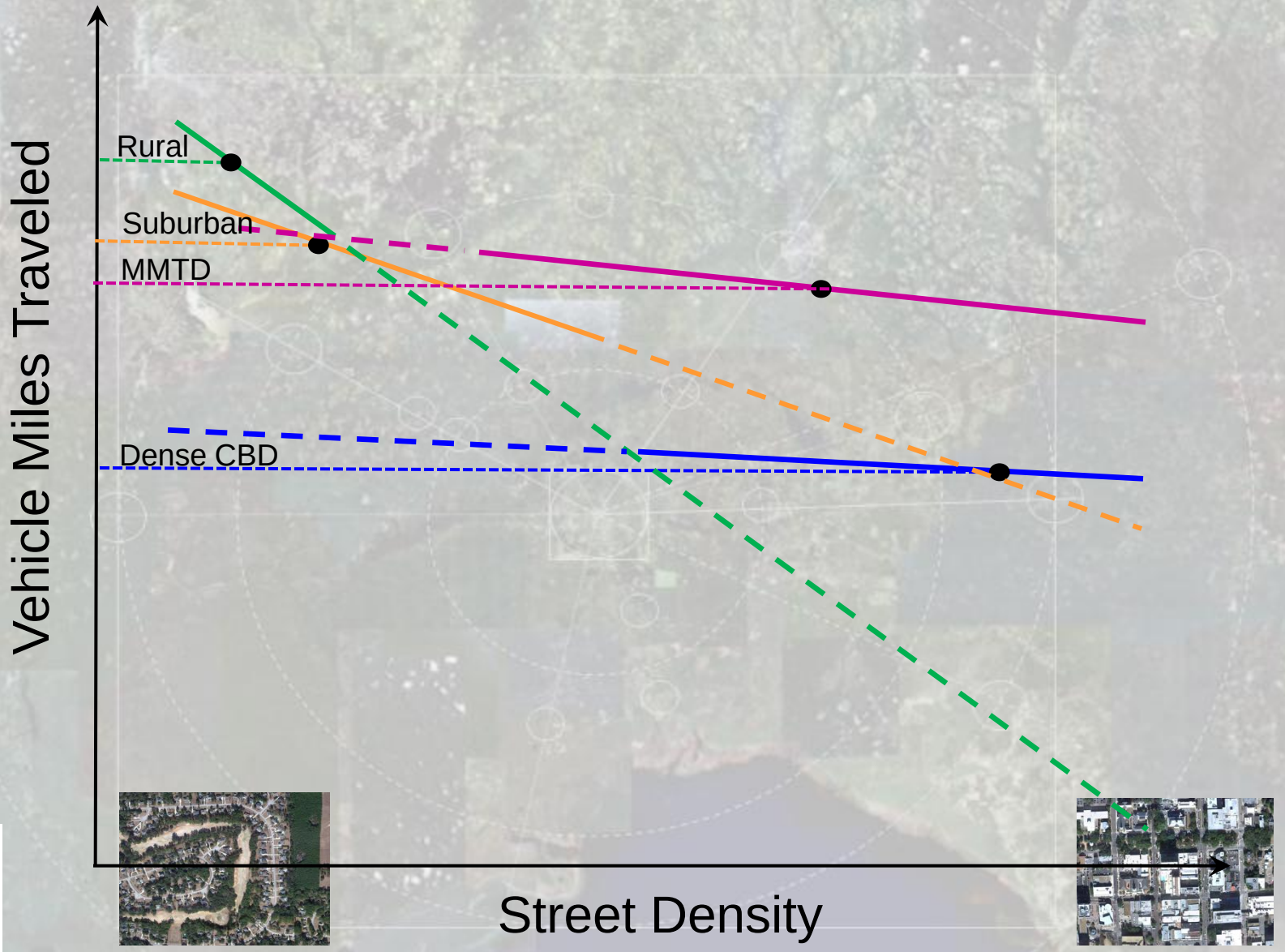
Sustainable Communities Calculator

Research Findings & Status Presentation

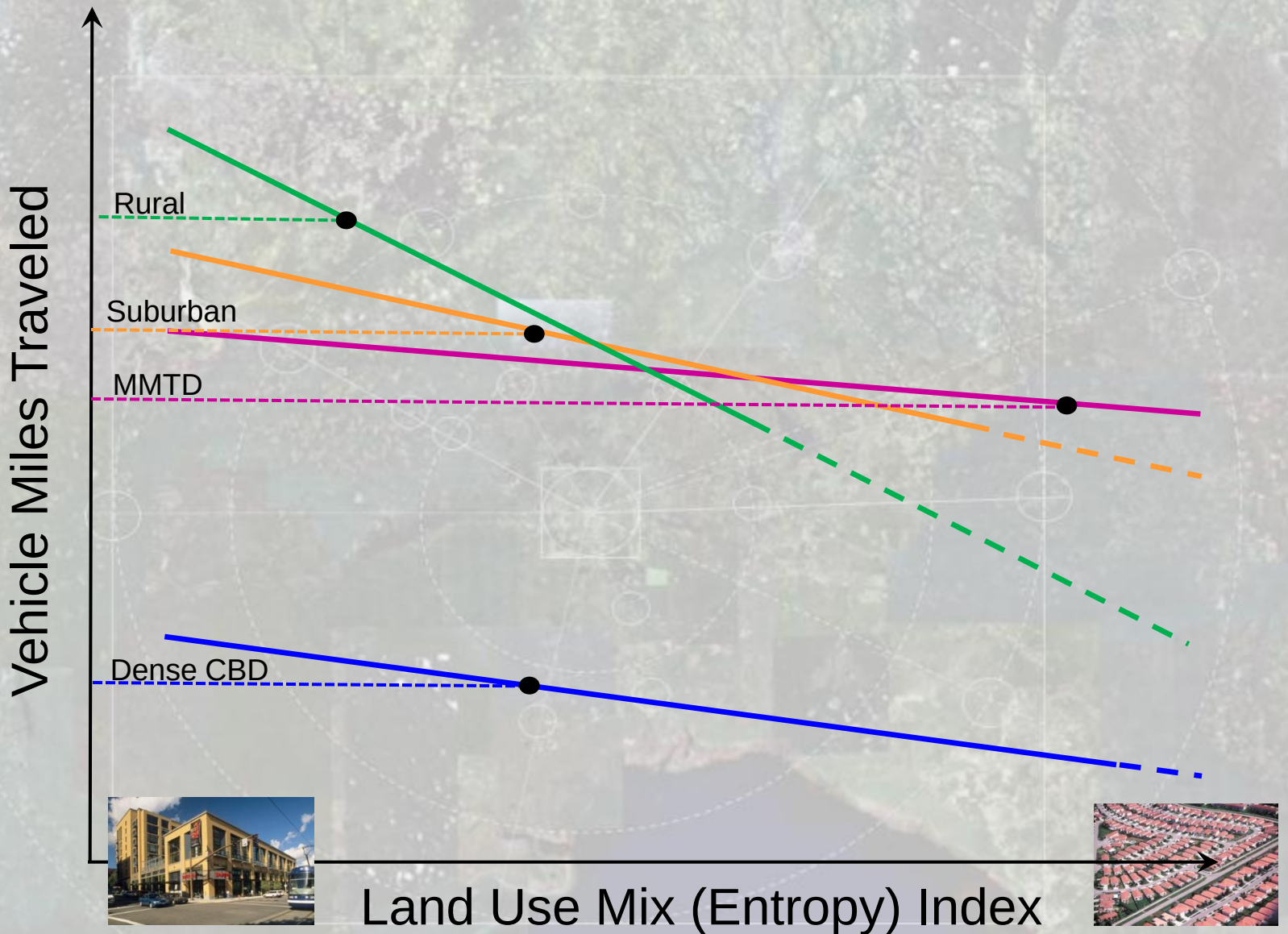
April 16, 2012

Sprinkle Consulting

Density (street mileage per square mile)

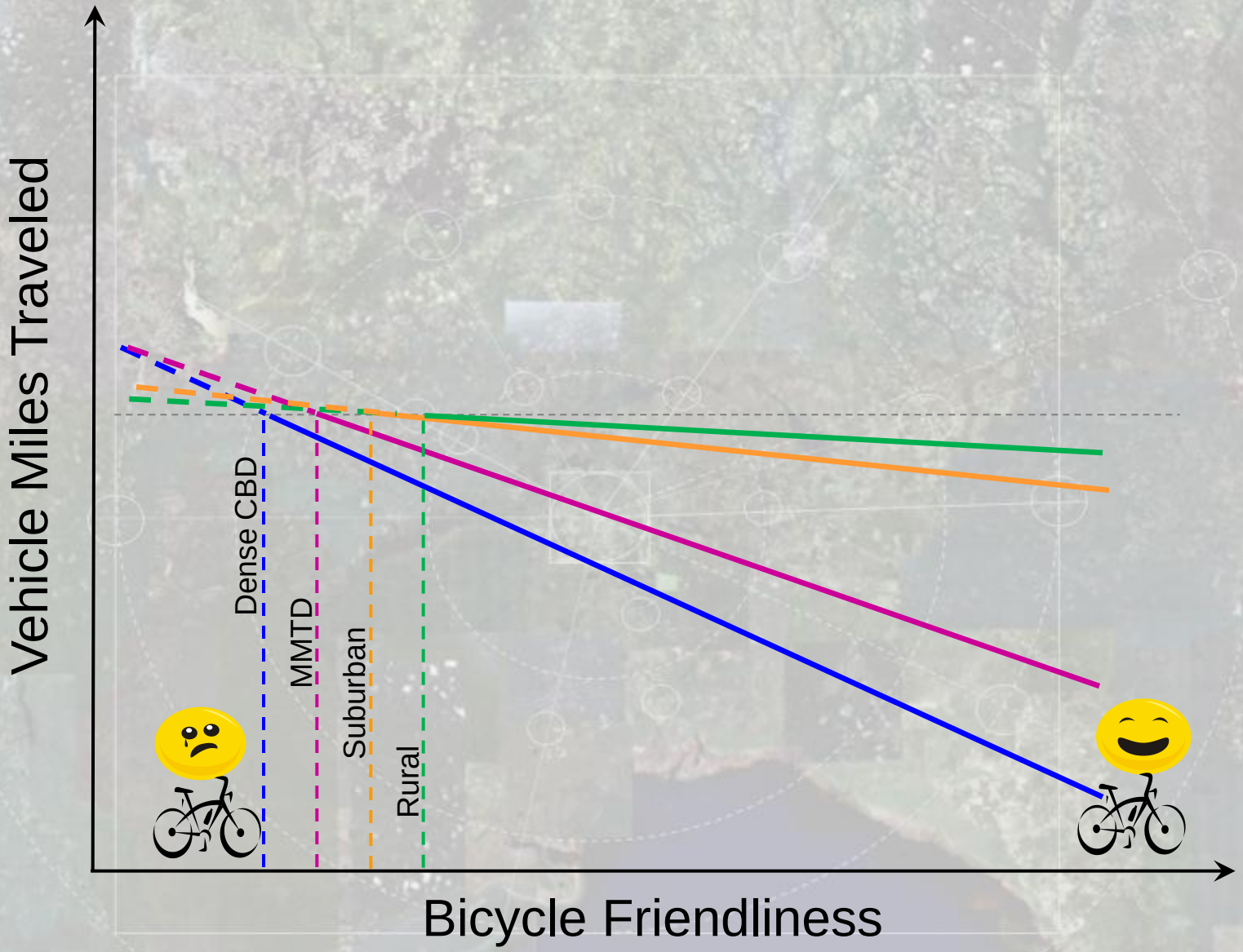


Diversity – Land Use Mix (entropy) Index

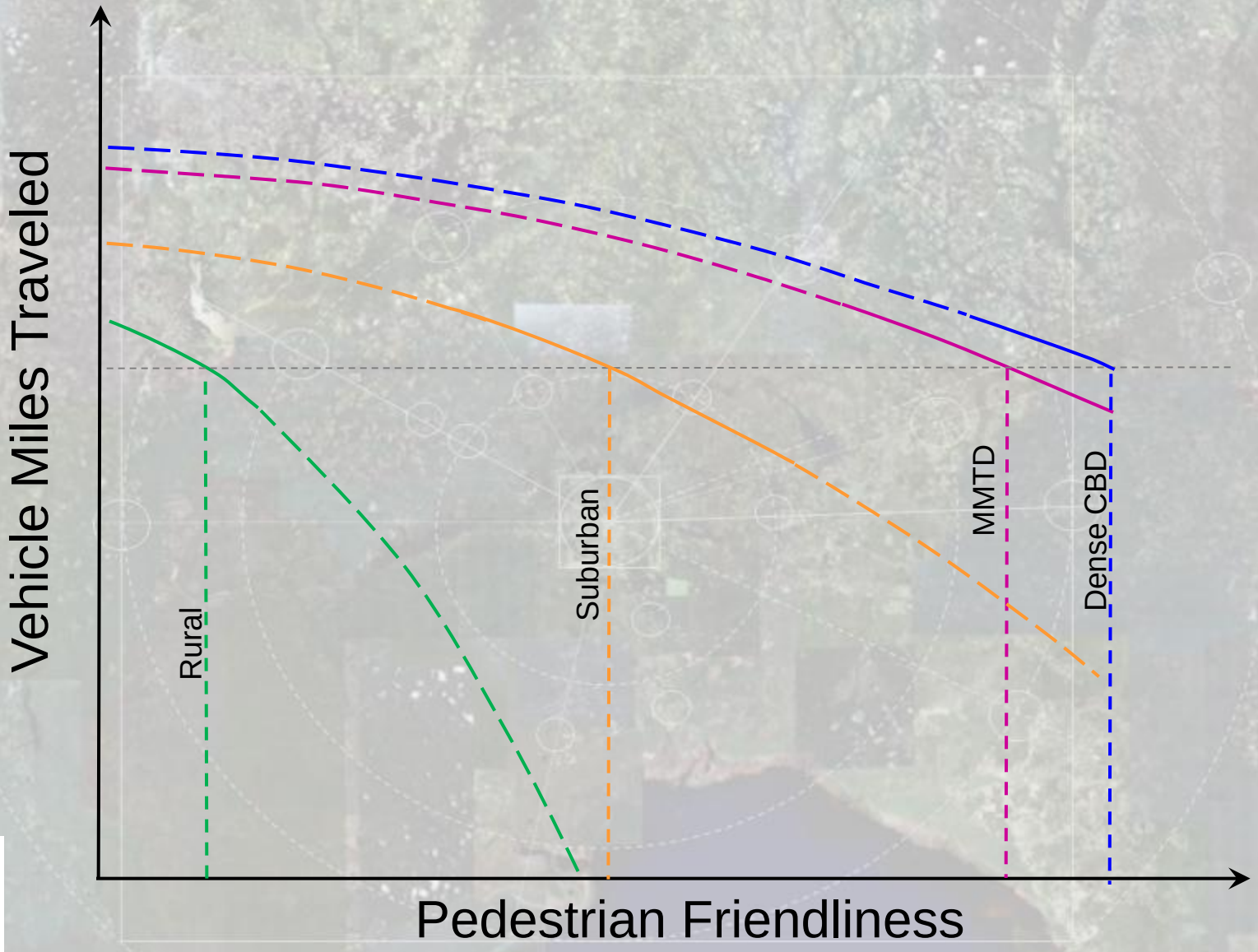


Distance to Transit (nearest stop)

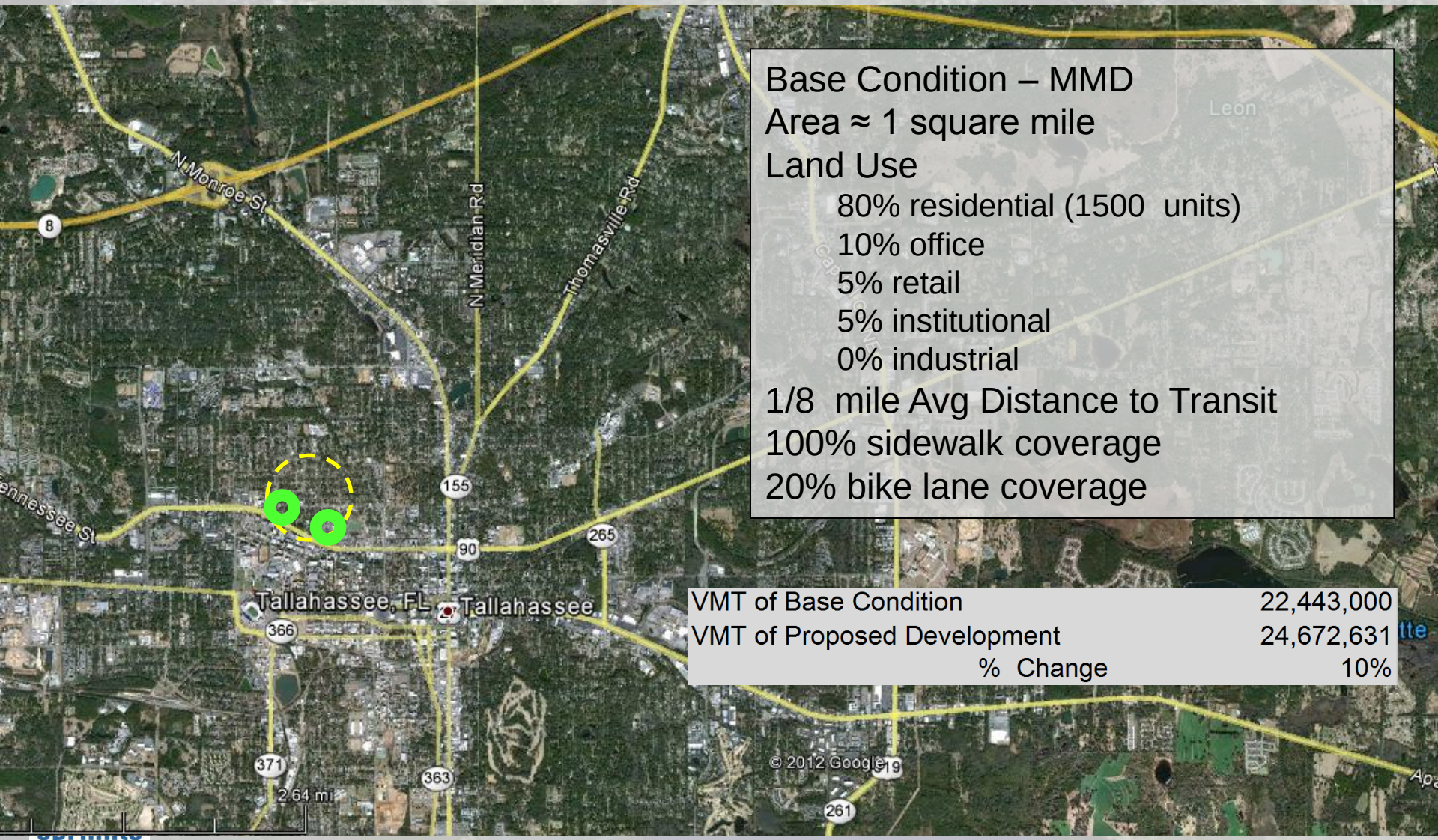
Bicycle Friendliness Modifier



Pedestrian Friendliness Modifier



Southwood – MMTD Setting



Base Condition – MMD
Area ≈ 1 square mile
Land Use
- 80% residential (1500 units)
- 10% office
- 5% retail
- 5% institutional
- 0% industrial

1/8 mile Avg Distance to Transit
100% sidewalk coverage
20% bike lane coverage

VMT of Base Condition	22,443,000
VMT of Proposed Development	24,672,631
% Change	10%

Active Transportation Planners+Engineers

Regional GIS Presentation

Lee Hartsfield, GISP

CRTPA Board Retreat: April 16, 2012

A Regional GIS For CRTPA

Lee Hartsfield, GISP
Tallahassee-Leon County GIS Coordinator

MISSION

- Develop a common regional base map.
- Promote sharing resources.
- Reduce redundancy of data collection and creation.
- Provide ongoing maintenance of base map and other data layers.
- Encourage enterprise information management solutions.
- Enhance decision making for all stakeholders.

AGENDA

A Brief Discussion On These Topics:

- **Project Objectives**
- **Data Collection**
- **Developing A Common Picture**
- **Challenges**
- **Live Demonstration**
- **Questions**

PROJECT OBJECTIVE

- To provide a common operational overview of transportation projects for the four participating counties; Gadsden, Jefferson, Leon, and Wakulla, which allows shared cost, access, and control of the GIS platform.

DATA COLLECTION

- Allow each county to contribute transportation projects and assets for their county.
- Allow for each to edit transportation projects and assets as needed.
- Allow for an environment where each county can leverage existing GIS data.
- Allow for each county to provide ancillary background GIS data as available and or required.

DEVELOPING A COMMON PICTURE

- Leveraging Existing Data (Leon County)
- Removing Redundancy
- Use Of Authoritative Sources
- Link To Web CRTPA/Leon County

CHALLENGES

- Information Convergence
- Common Background (Jefferson County)
- Developing Data Standards
- Link To CRTPA Call Box

DEMONSTRATION

In This Demonstration, Topics Covered Are:

- **An Overview Of ArcGIS Online & Visualization**
- **ArcGIS Online's Built-In Editing Functionality**
- **Analytical Scenarios**
- **An Overview Of Community Analyst**

QUESTIONS

Thank You

TLCGIS CRTPA Map-Copy

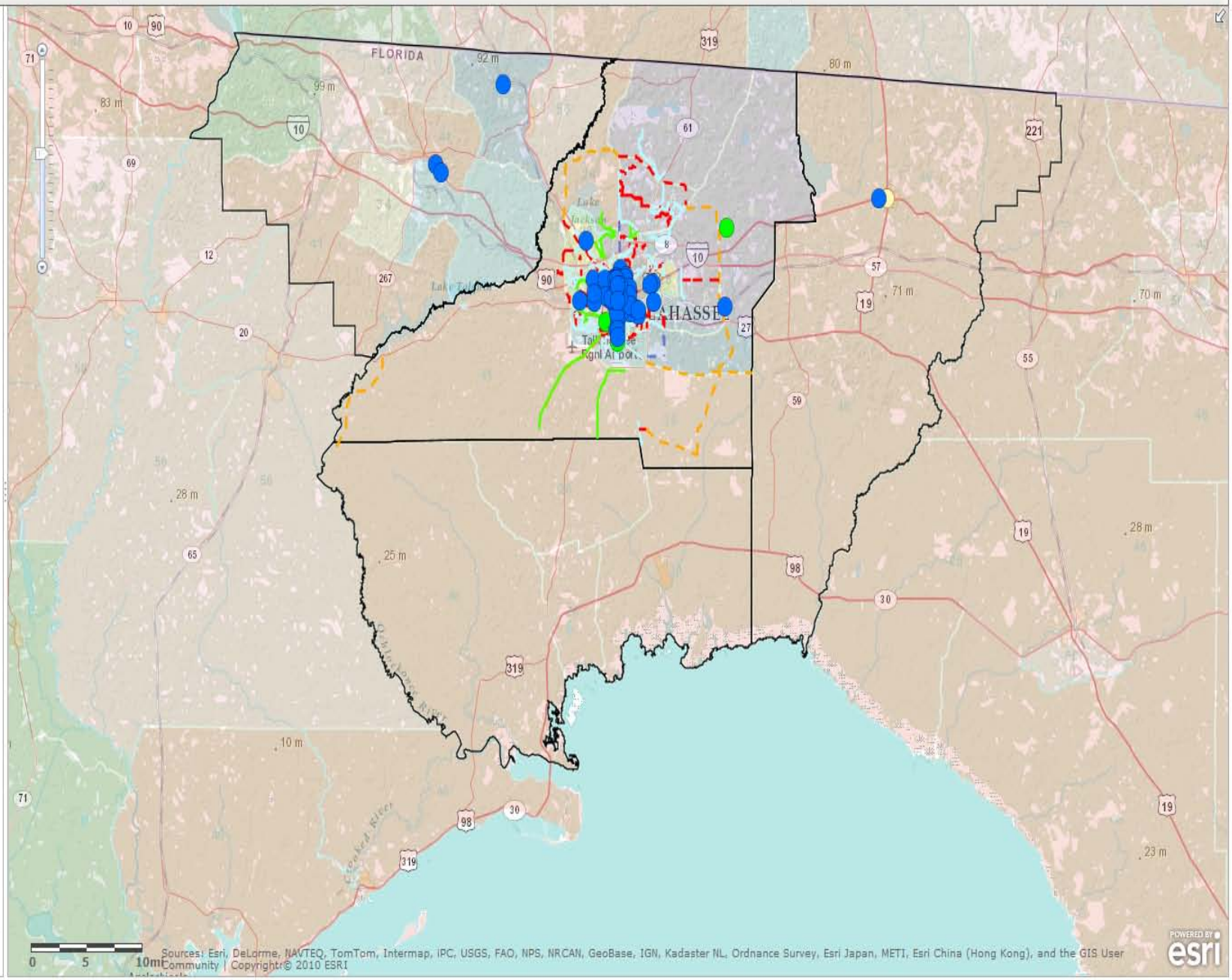
CRTPA Map for TLCGIS

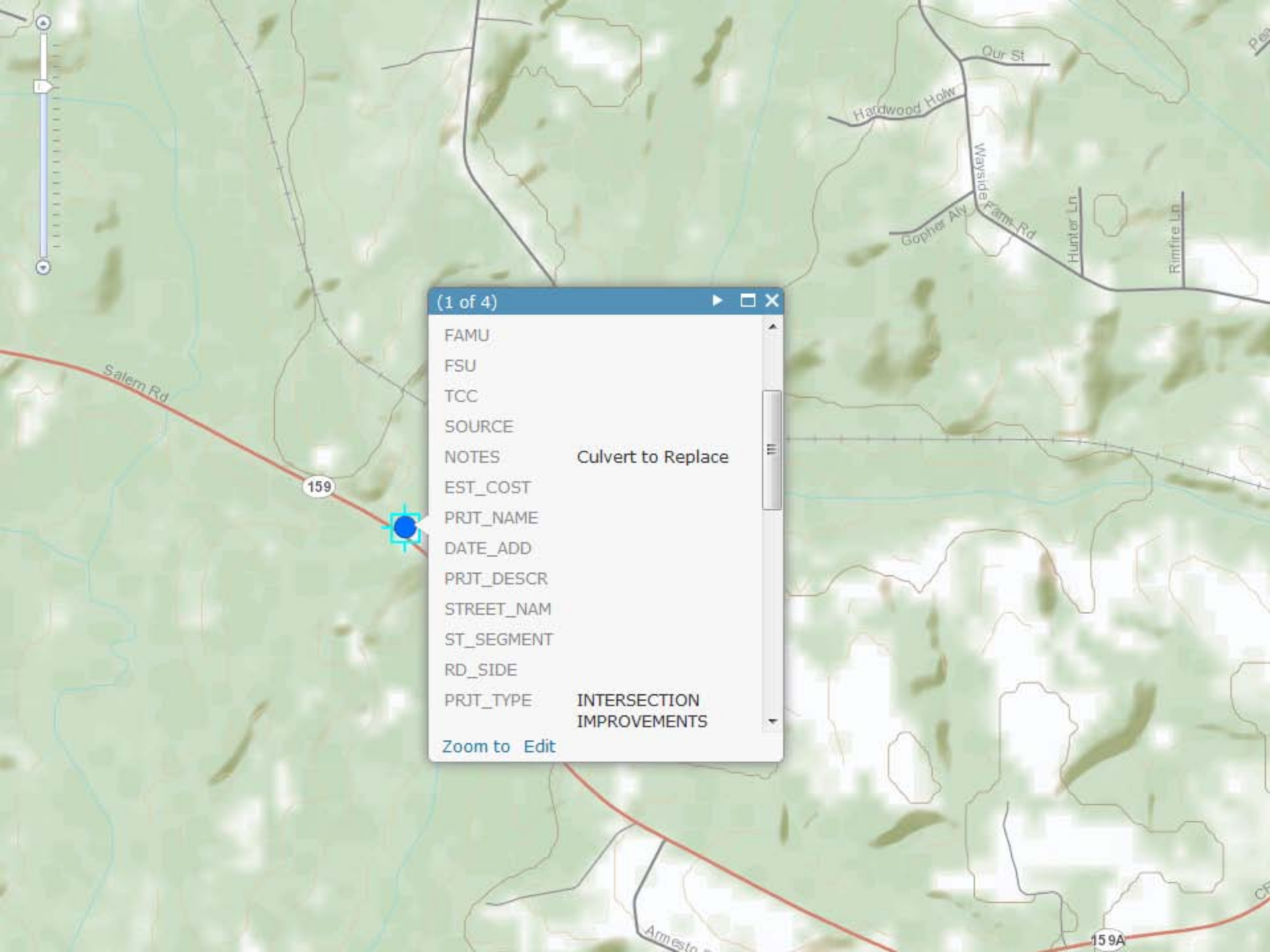
Web Map by guest_Rats
Last Modified: April 10, 2012
(0 ratings, 0 comments, 200 views)

More Details...

Open this map in:
ArcGIS Explorer Online

Make your own map
Add to this map
Make a new map

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Rimfire Ln
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OTHER CRTPA COUNTIES

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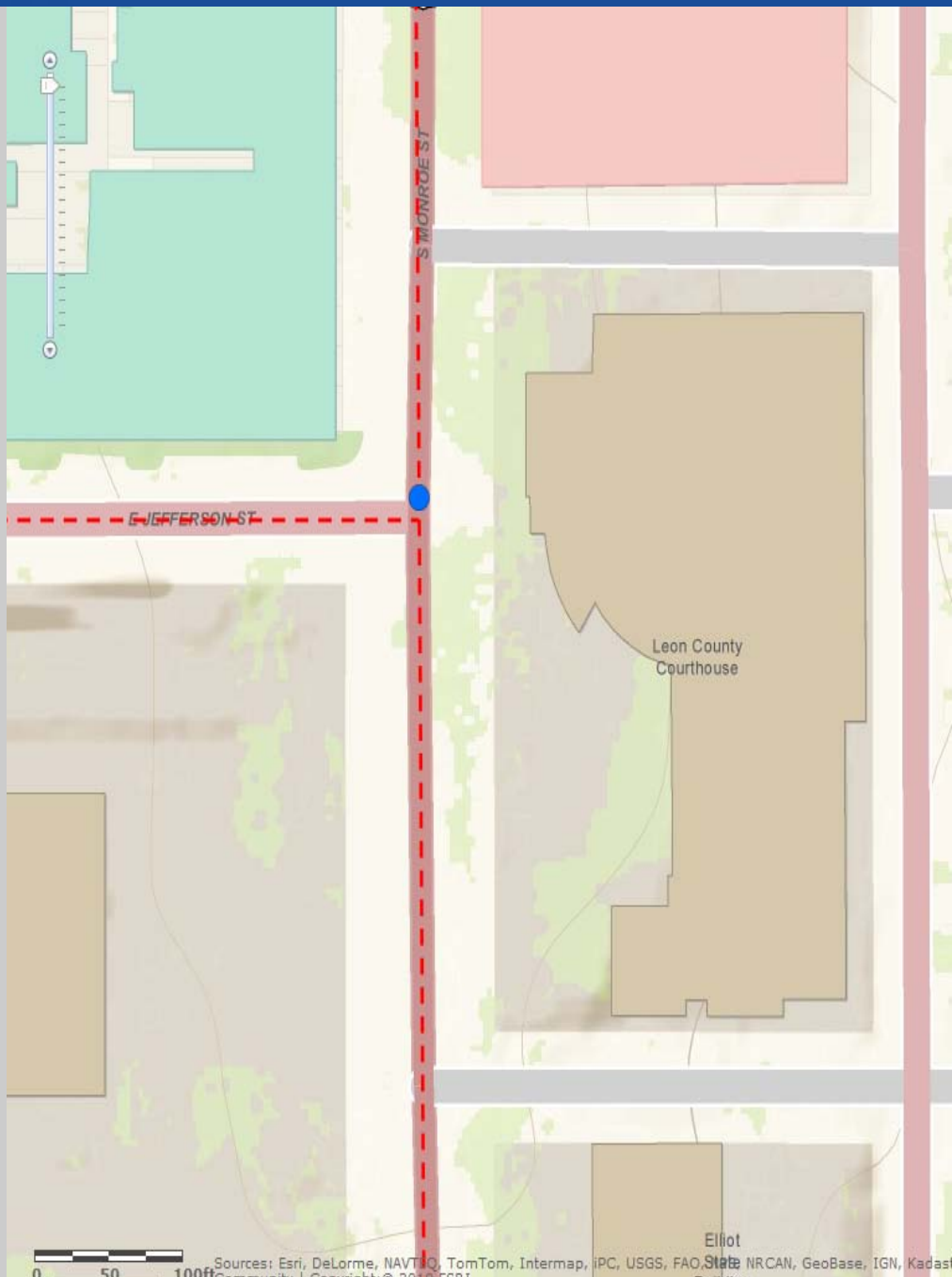
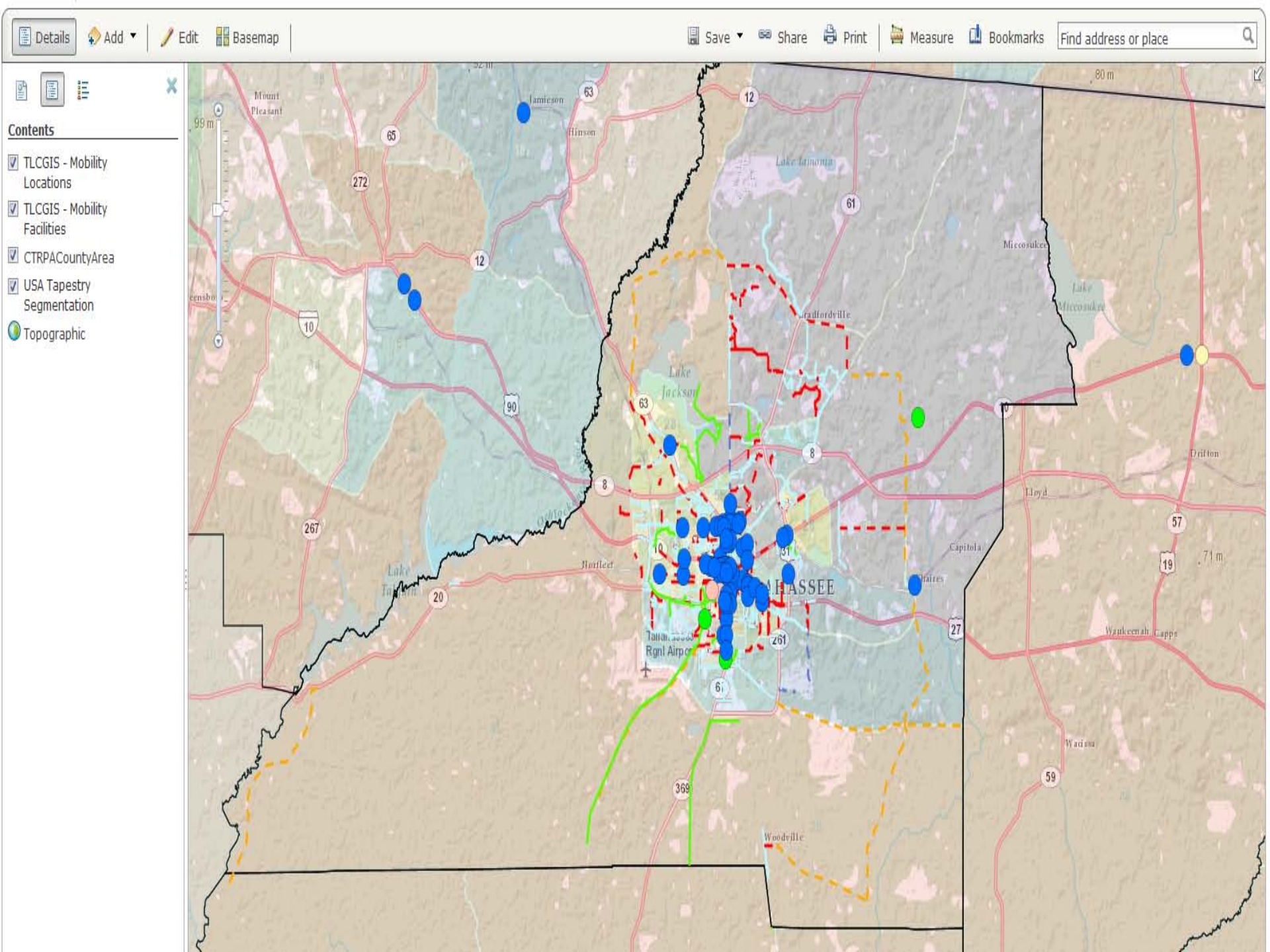
LEON COUNTY

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CTRPACountyArea
USA Tapestry Segmentation
Topographic
Mount Pleasant
Jamieson
Hinson
Lake Iamonia
Miccosukee
Lake Miccosukee
Bradfordville
Lake Jackson
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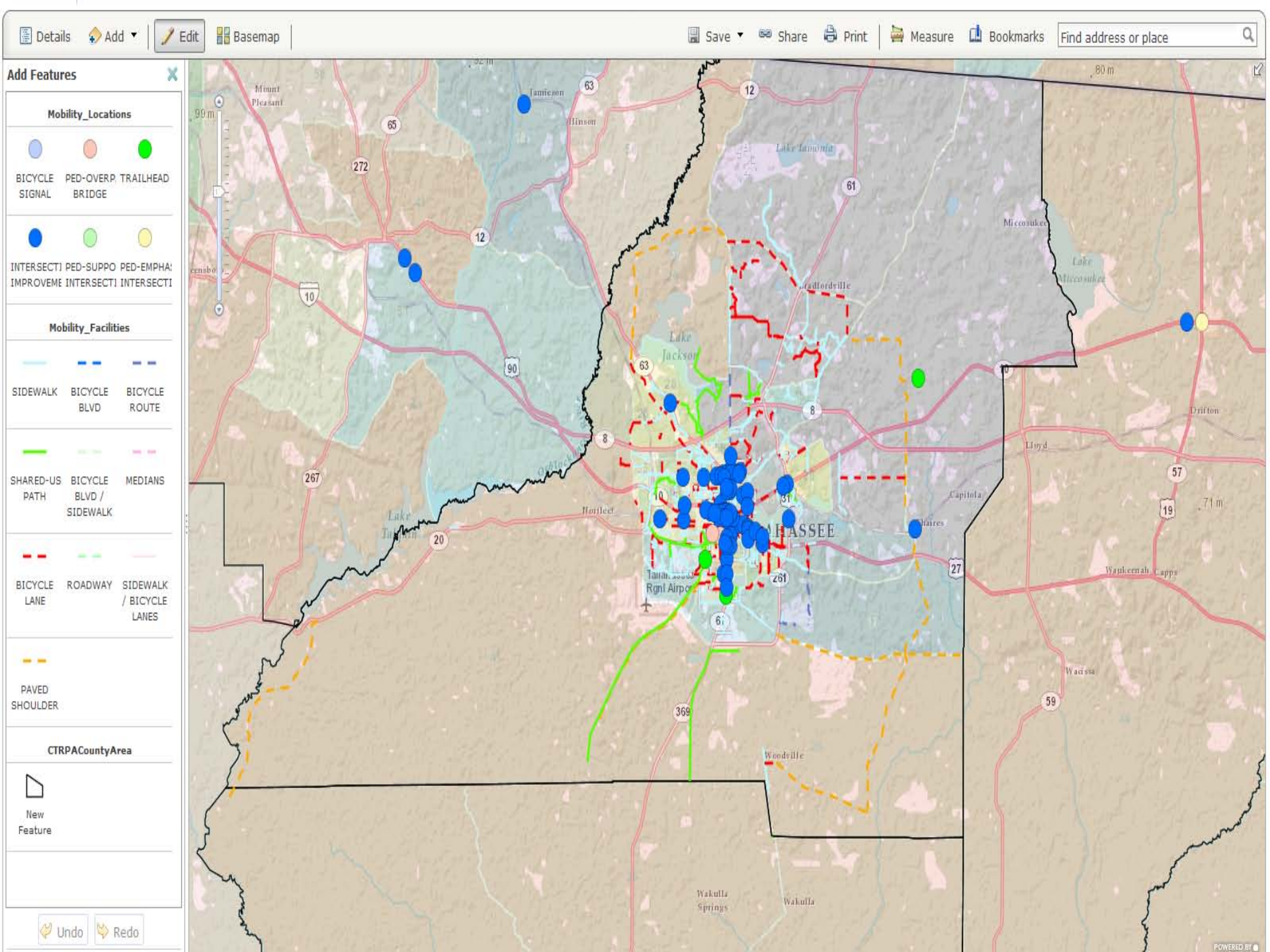
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TRAILHEAD
INTERSECTI IMPROVEME
PED-SUPPO INTERSECTI
PED-EMPHA INTERSECTI
Mobility_Facilities
SIDEWALK
BICYCLE BLVD
BICYCLE ROUTE
SHARED-US PATH
BICYCLE BLVD / SIDEWALK
MEDIANS
BICYCLE LANE
ROADWAY
SIDEWALK / BICYCLE LANES
PAVED SHOULDER
CTRPACountyArea
New Feature
Undo
Redo
Mount Pleasant
Jamieson
Ellinson
Lake Iamonia
Miccosukee
Lake Miccosukee
Bradfordville
Lake Jackson
Lake Talquin
Hartsfield
Capitola
Blaires
Tallahassee Rgnl Airport
Drifton
Lloyd
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Capps
Wacissa
Woodville
Wakulla Springs
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TALLAHASSEE
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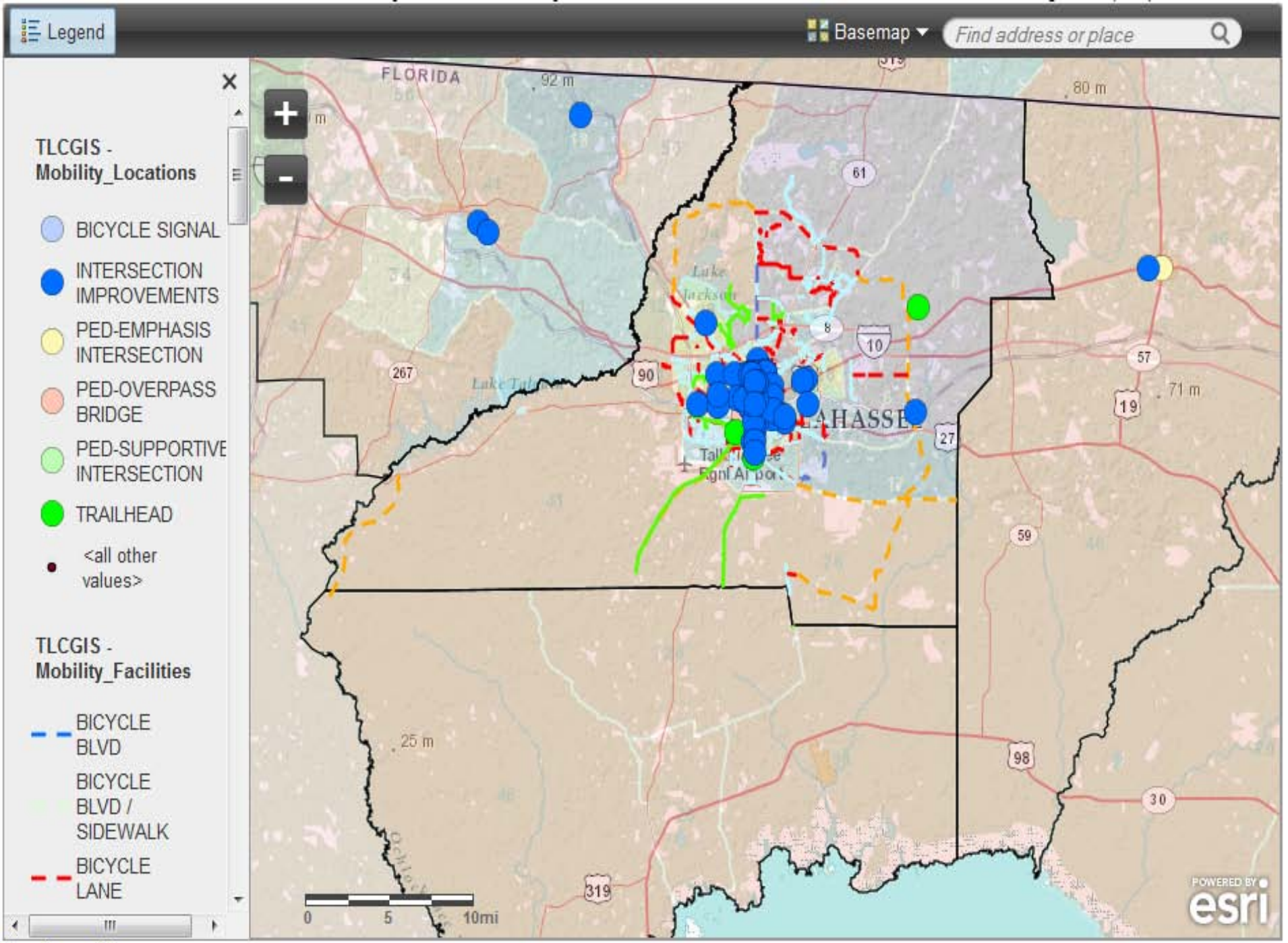
POWERED BY



View Larger Map