



TRANSPORTATION SYMPOSIUM

2019

The Perception of Comprehensive Transportation Design

Kenneth Cheek

Two Ways of Thinking

Engineers



Landscape Architects



Part I

Design

OK, Define Design

- **Merriam-Webster definition?**
- As a Verb: To create, fashion, execute or construct according to plans.
- As a Noun: deliberate purposive planning.



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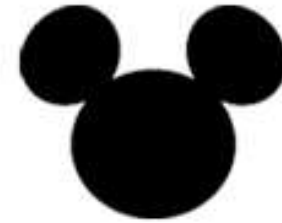
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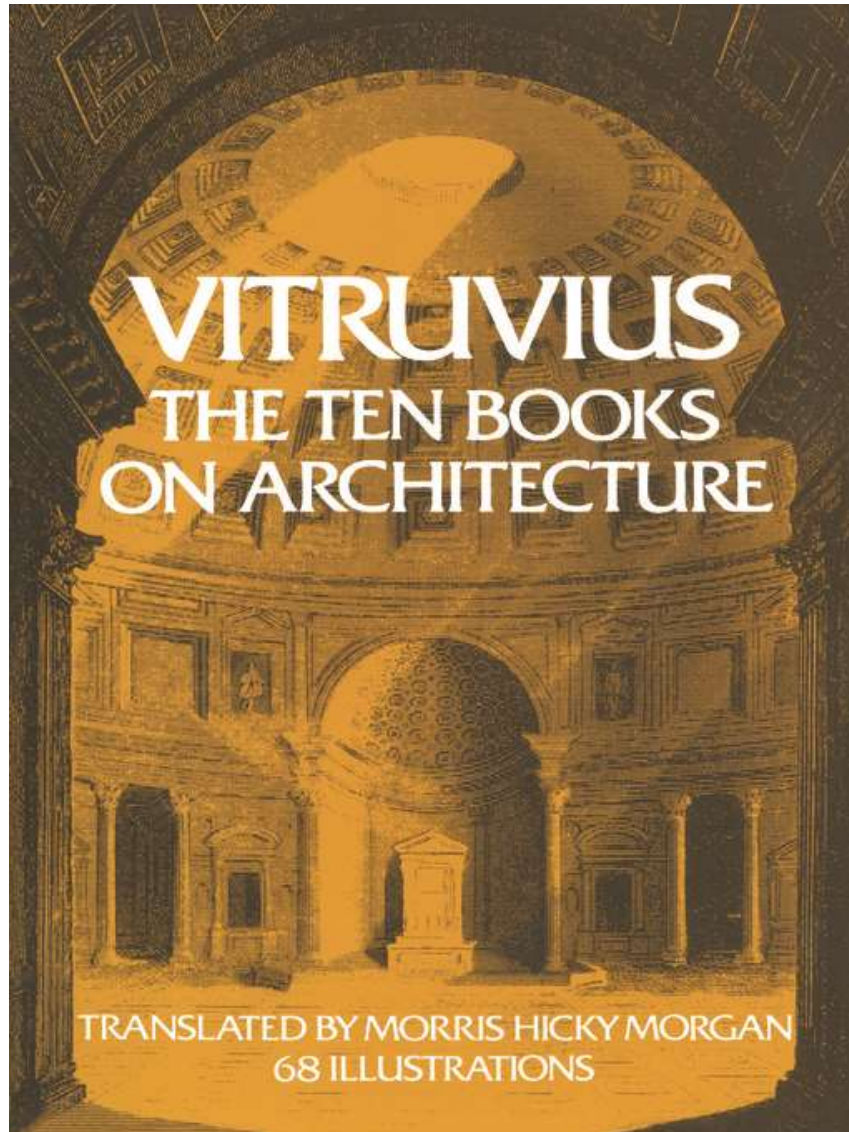


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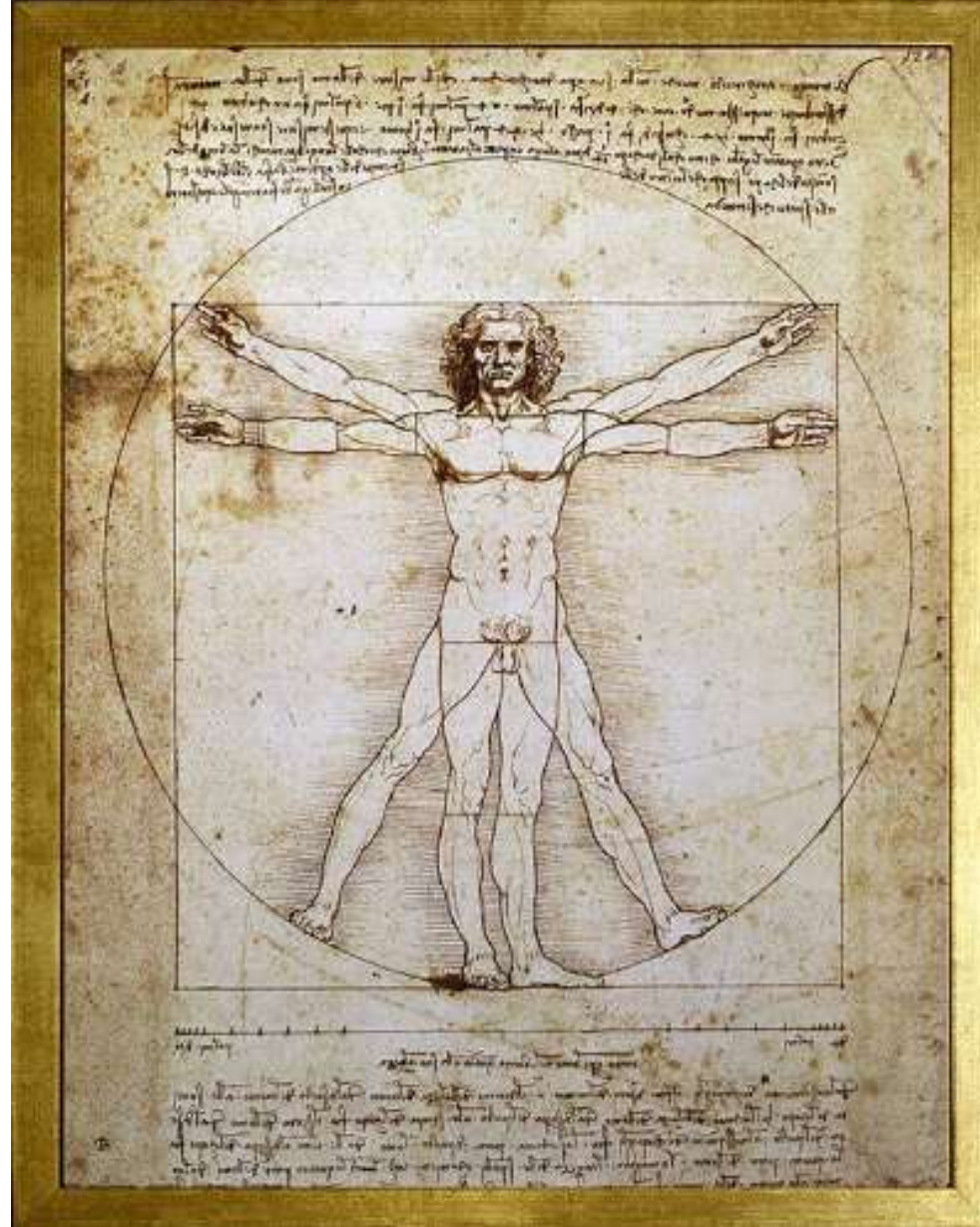
What's Old is New Again



- Marcus Vitruvius Pollio
- Recorded some time between 30 and 15 B.C.
- Oldest surviving account of architecture (design) in antiquity.
- Subjects include classic architecture, civil engineering, landscape architecture, construction management planning, surveying, mathematics, artistry and craftsmanship.
- Influenced Michelangelo and Leonardo da Vinci 1500 years later.

Vitruvian Man

**Bonus
Information!**



Speaking Latin

Vitruvian Triad: Structures Must Exhibit Three Qualities

1. **Firmatis** (Durability) – It should stand up robustly and remain in good condition.
2. **Utilitas** (Utility) – It should be useful and function well for the people using it.
3. **Venustatis** (Beauty) – It should delight people and raise their spirits.

20th Century Philosophy



“Form Follows Function”

***Frank Lloyd Wright’s
“Falling Water”***

FDOT Roadway Design

Basic Department Engineering Principles

- **Simple** – It should modest in its approach.
- **Efficient** – It should transport users without complications to save time.
- **Low Cost** – It should be economical and be couched as a savings for Florida taxpayers.

A Road By Any Other Name

Informal Engineer Questionnaire

1. What did college teach regarding Roadway design?
2. Define roadway design objectives.
3. What is a successful design?

A Road By Any Other Name

Informal Engineer Questionnaire

Q: What did college teach regarding Roadway design?

- Technical problem solving
- How to research, interpret and apply criteria
- Safety issues
- Level of service
- Structural integrity
- Foundation calculation

A Road By Any Other Name

Informal Engineer Questionnaire

Q: Define roadway design objectives.

- Basic safety
- Capacity and traffic volumes
- Functionality of proposed construction
- Vehicular circulation
- Supporting FDOT Production schedule/budgets

A Road By Any Other Name

Informal Engineer Questionnaire

Q: What is a successful design?

- Meets safety criteria
- Functions as intended
- Mistakes held to a minimum
- Solutions were embraced
- Project was delivered
- Proud of the project

Part II

The Appeal of Balanced Design

Functional Design



Brutsch Mopetta

Form Design



Red Baron Hot Rod

Balanced Design



1984 Porsche 911

Functional Design



Dauphine Renault

Form Design



Munster's Koach

Balanced Design



2018 Aston Martin Vanquish S

Functional Design



Vanguard Citicar

Form Design



Plymouth Rock

Balanced Design



1970 Corvette Stingray

Functional Design



The Toga



Toga, Toga, Toga!



Form Design



Balanced Design



Functional Design



Rickenbacker
“The Frying Pan”

Functional Design



Gibson "The Log"

Form Design



Form Design



Form Design



Balanced Design



Fender Stratocaster

Balanced Design



Gibson Les Paul

Balanced Design



1955 vs 2018



Balanced Design



1959 vs 2016

Other Daily Design Ideas



Other Daily Design Ideas



Other Daily Design Ideas



Other Daily Design Ideas



Other Daily Design Ideas



Duke Kahanamoku



Other Daily Design Ideas



Other Daily Design Ideas



Part III

Landscape Challenges

What About Landscaping?



Name Your Poison

- Narrow roadway corridor
- Lateral offsets
- Clear sight at intersections
- Storm water conveyance systems
- Overhead and underground utilities
- Street lighting
- ITS view zones
- Traffic signs and signals
- Sound wall placement
- Billboard view zones
- Etc., etc., etc.

Bottom Line

- Historically, roadways have not been planned with landscaping or roadway aesthetics as a part of the design team.
- Both landscaping or roadway aesthetic projects can be extraordinarily challenging to implement/execute when valuable real estate is claimed by other interests.
- Thinking ahead and planning accordingly for landscaping or roadway aesthetics is a worthy investment for the travelling public as well as the affected communities.

Good Times



Ever Feel Like This?

Serenity Now!



You Be Asking Yourself

**Ok...but how is this a
roadway design concern?**



Part IV

Landscaping within State Transportation

Statum Legis

2018 Florida Statutes

Title XXVI: Public Transportation

Chapter 334: Transportation Administration

334.044 (26) To provide for the enhancement of environmental benefits, including air and water quality; to prevent roadside erosion; to conserve the natural roadside growth and scenery; and to provide for the implementation and maintenance of roadside conservation, enhancement, and stabilization programs. At least 1.5 percent of the amount contracted for construction projects shall be allocated by the department on a statewide basis for the purchase of plant materials. Department districts may not expend funds for landscaping in connection with any project that is limited to resurfacing existing lanes unless the expenditure has been approved by the department's secretary or the secretary's designee. To the greatest extent practical, at least 50 percent of the funds allocated under this subsection shall be allocated for large plant materials and the remaining funds for other plant materials. Except as prohibited by applicable federal law or regulation, all plant materials shall be purchased from Florida commercial nursery stock in this state on a uniform competitive bid basis. The department shall develop grades and standards for landscaping materials purchased through this process. To accomplish these activities, the department may contract with nonprofit organizations having the primary purpose of developing youth employment opportunities.

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How Much?

Fiscal Year			
2019			
District	Highway Beautification Cost	Total Construction Cost	% of Construction for Beautification
01	<u>\$4,903,546</u>	\$170,177,218	2.88
02	<u>\$5,095,130</u>	\$425,109,454	1.20
03	<u>\$3,146,294</u>	\$205,461,097	1.53
04	<u>\$5,033,151</u>	\$309,062,118	1.63
05	<u>\$6,582,450</u>	\$562,030,602	1.17
06	<u>\$4,307,968</u>	\$269,432,887	1.60
07	<u>\$3,338,602</u>	\$211,666,508	1.58
08	<u>\$19,008,759</u>	\$1,121,541,325	1.69
40	<u>\$0</u>	\$25,000,000	.00
41	<u>\$54,066</u>	\$0	.00
65	<u>\$0</u>	\$1,328,300	.00
TOTAL	\$51,469,966	\$3,300,809,509	1.56

History and Impact of 1.5% Law

- The 1.5% statutes has been established since 1999.
- Was developed by FNGLA for local economic purposes.
- Since 2011, Governor's office has emphasized that roadway conservation and landscaping is a extraordinary state asset.
- Governor advocated DOT landscaping as an economic stimulus factor for tourism and businesses.
- The Department is evolving and is supportive.
- Central Office advocates the benefits of Multi-Discipline design approach including Landscape Architects early in project development to enhance the state image.

Is This Really Important?

- Engineering is **vital** to efficient and safe roadways.
- Average traveler probably enjoys and appreciates FDOT roadways but most likely does not ascertain details of roadway design and engineering such as...

Engineering Work

- Horizontal and Vertical Geometry
- Safety Improvements
- Pedestrian Design
- Bike Lanes
- Signal Upgrades
- Curve Transitions
- Cross Slopes
- Super Elevation
- Friction Wearing Details
- Etc.,etc.,etc.

Not to Mention...

- Project Development
- Schedules
- Budgets
- Estimates
- Traffic Analysis
- ADA Compliance
- Project Coordination
- Consultant Meetings
- Contracting Issues
- Etc.,etc.,etc.

However...

- People definitely recognize a beautiful landscaping project and what it does for their travel and community.



FDOT Landscaping



FDOT Landscaping



FDOT Landscaping



FDOT Landscaping



FDOT Landscaping



FDOT Landscaping



FDOT Landscaping



FDOT Landscaping



FDOT Landscaping



Yes, It Is Really Important!

- It is the law.
- Each District needs 1.5% target delivered annually.
- The state of Florida has budgeted and programmed more than \$500 million so far.
- Landscaping uniquely provides a local **sense of place** and delivers community pride unlike a fine engineered road.

Wait a minute, what is Sense of Place?



Sense of Place Definition

Sense of place is a bond of emotional attachment that one identifies to geographical or environmental characteristics of a particular location.

Sense of Place Examples



Aloha

Sense of Place Examples



Ever heard of Dauphine or Royal Street?

Big Easy

Sense of Place Examples



Localized identities

Sense of Place Examples



Localized identities

What about D2?



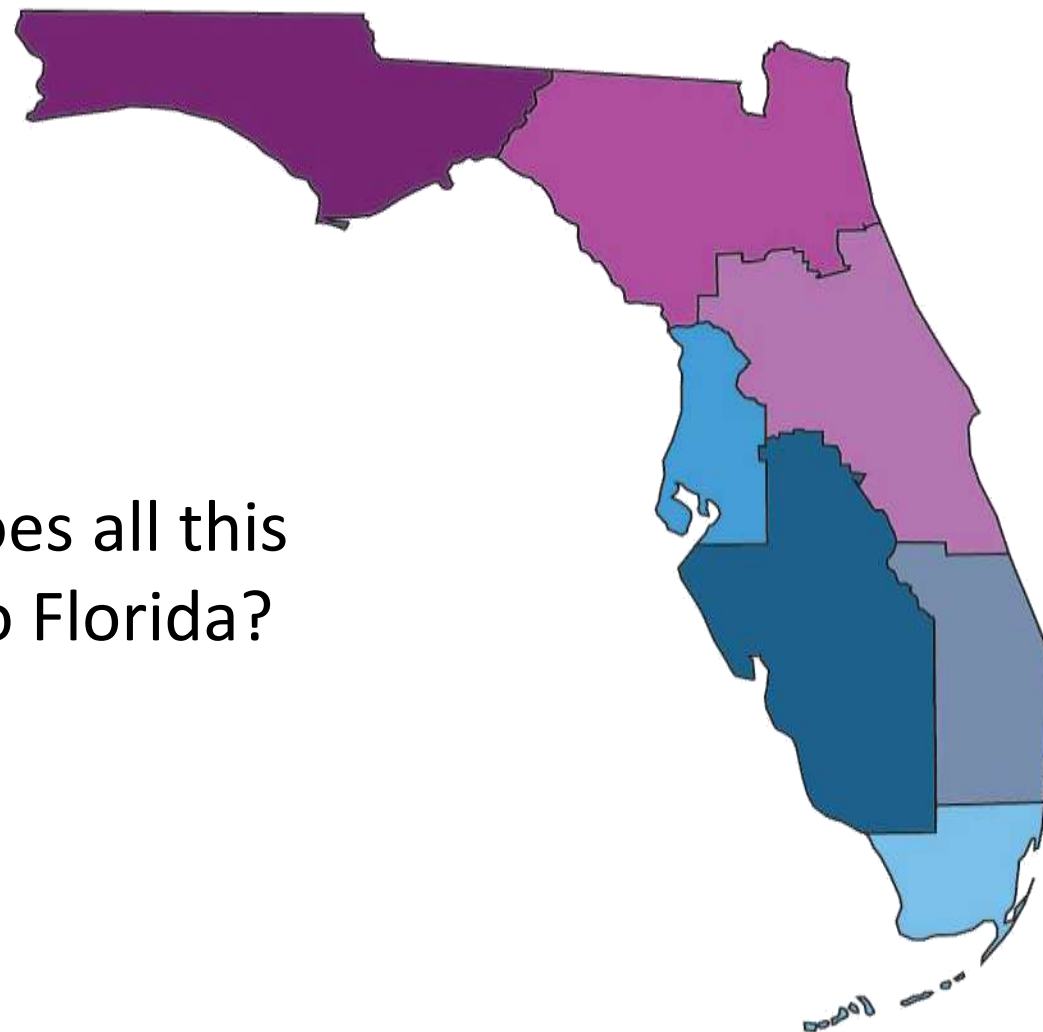
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- Landscaping uniquely provides a local **sense of place** and delivers community pride unlike a fine engineered road.
- It justifies the inconvenience for long and difficult projects.
- Provides regional politicians a sense of accomplishment for their jurisdictions.
- Builds trust with special interest groups we're listening regarding landscaping or environmental issues for their communities.
- Creates a sustainable and enriching relationship with our customers.
- Generates good press for Department.

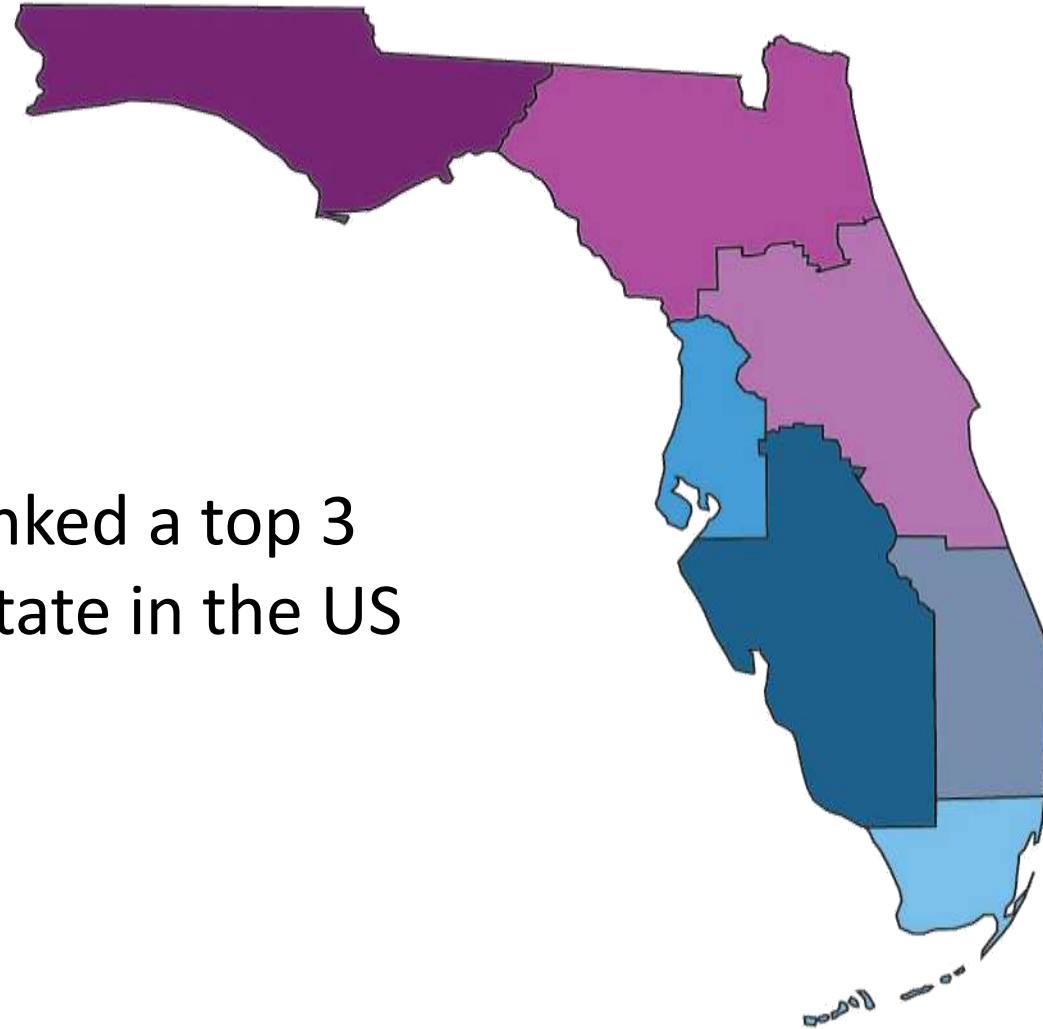
Part V

The State Of Florida

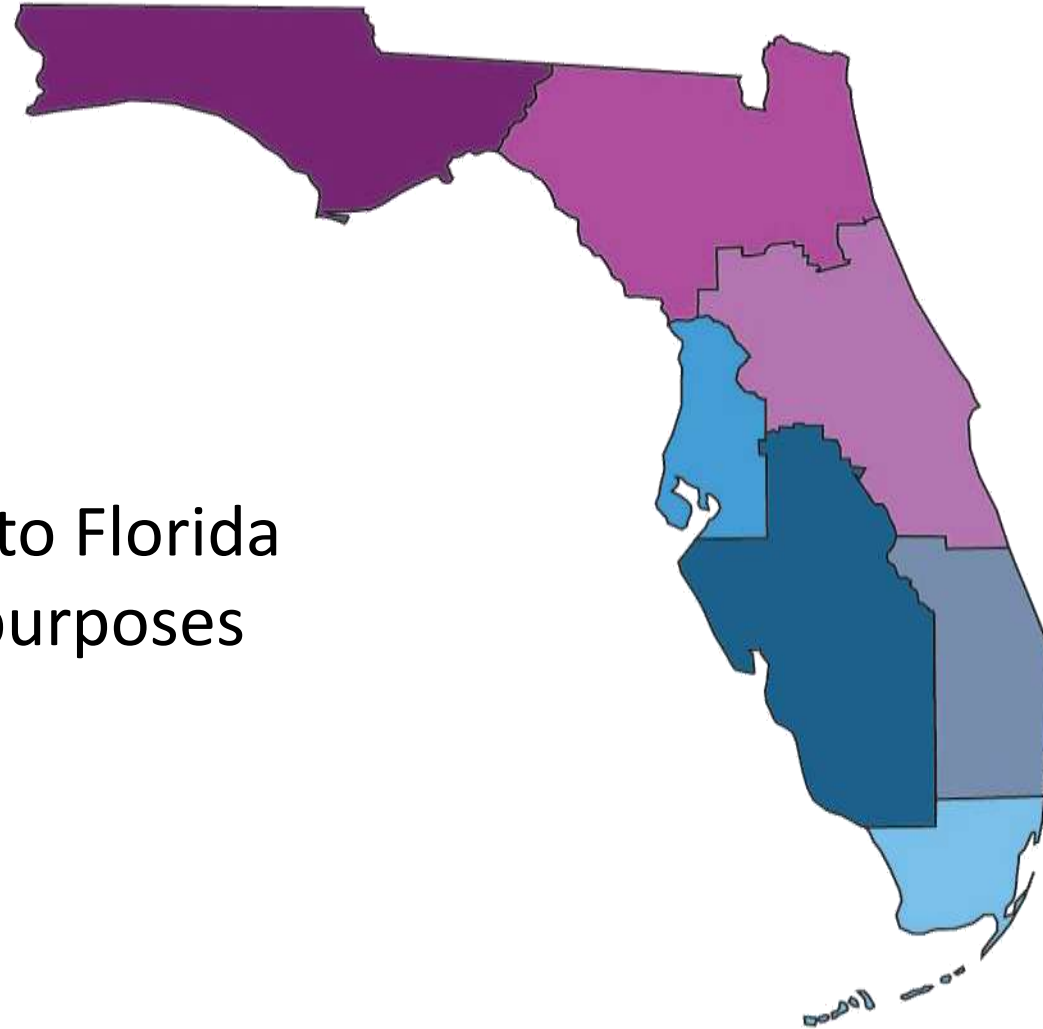
What does all this
mean to Florida?



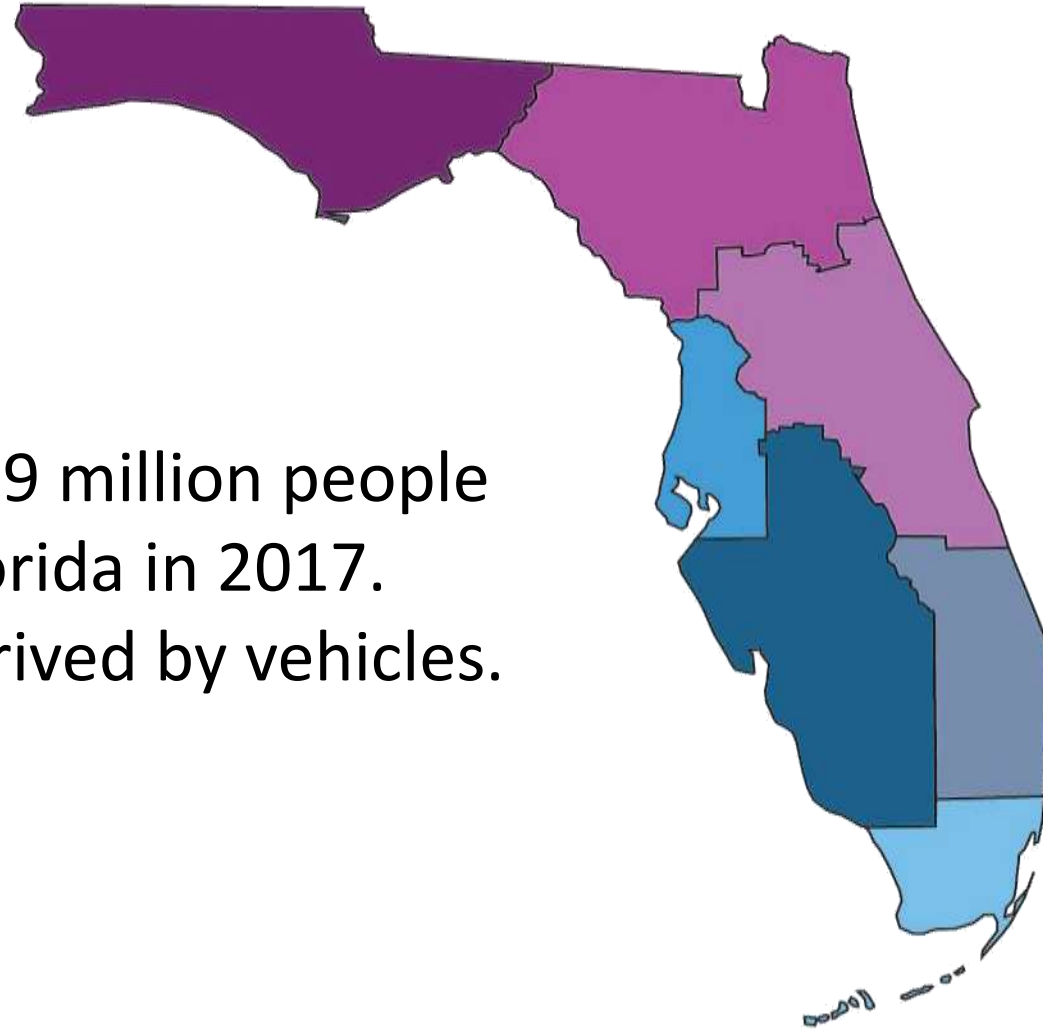
Typically ranked a top 3
destination state in the US

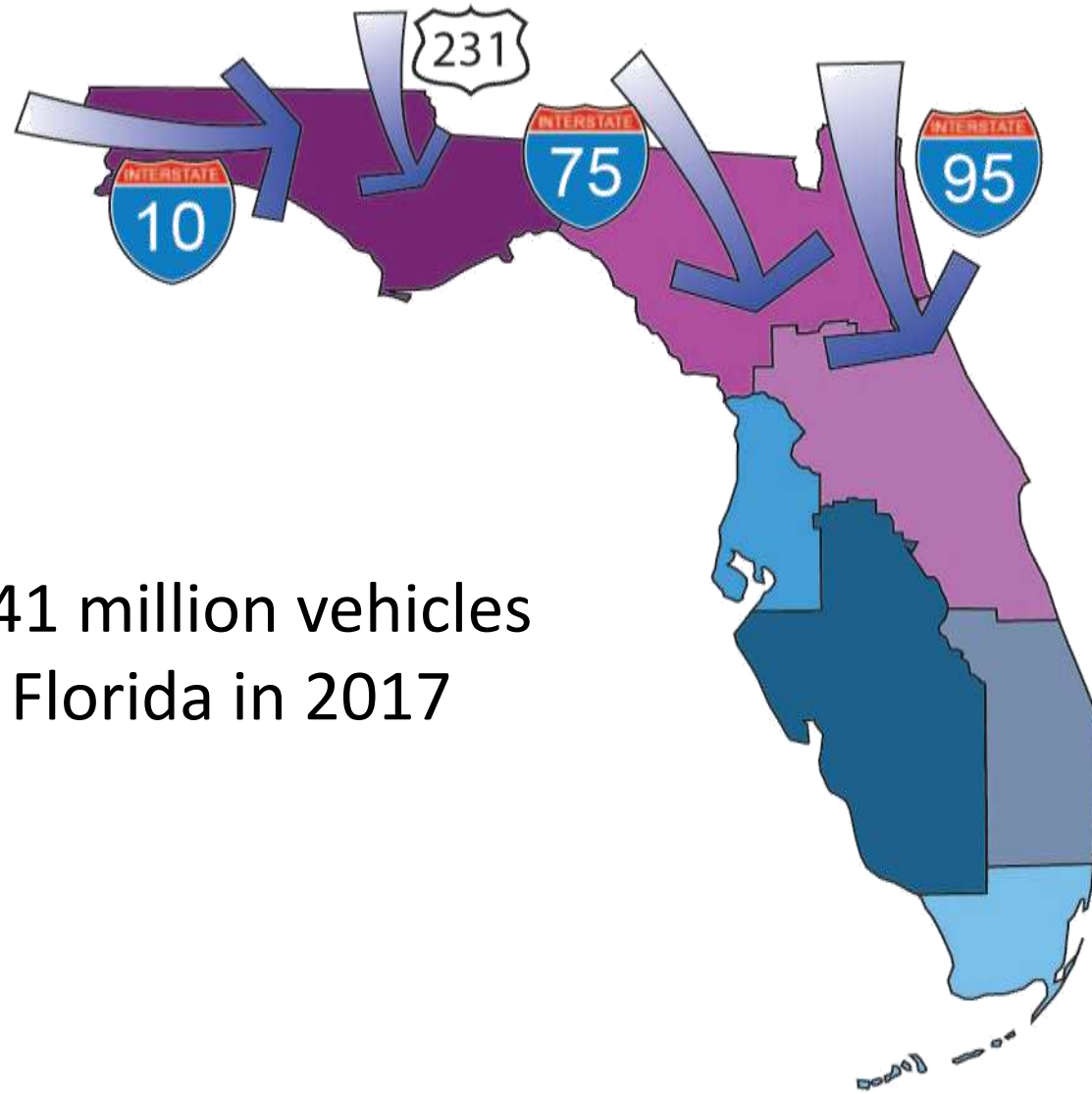


89% coming to Florida
for leisure purposes

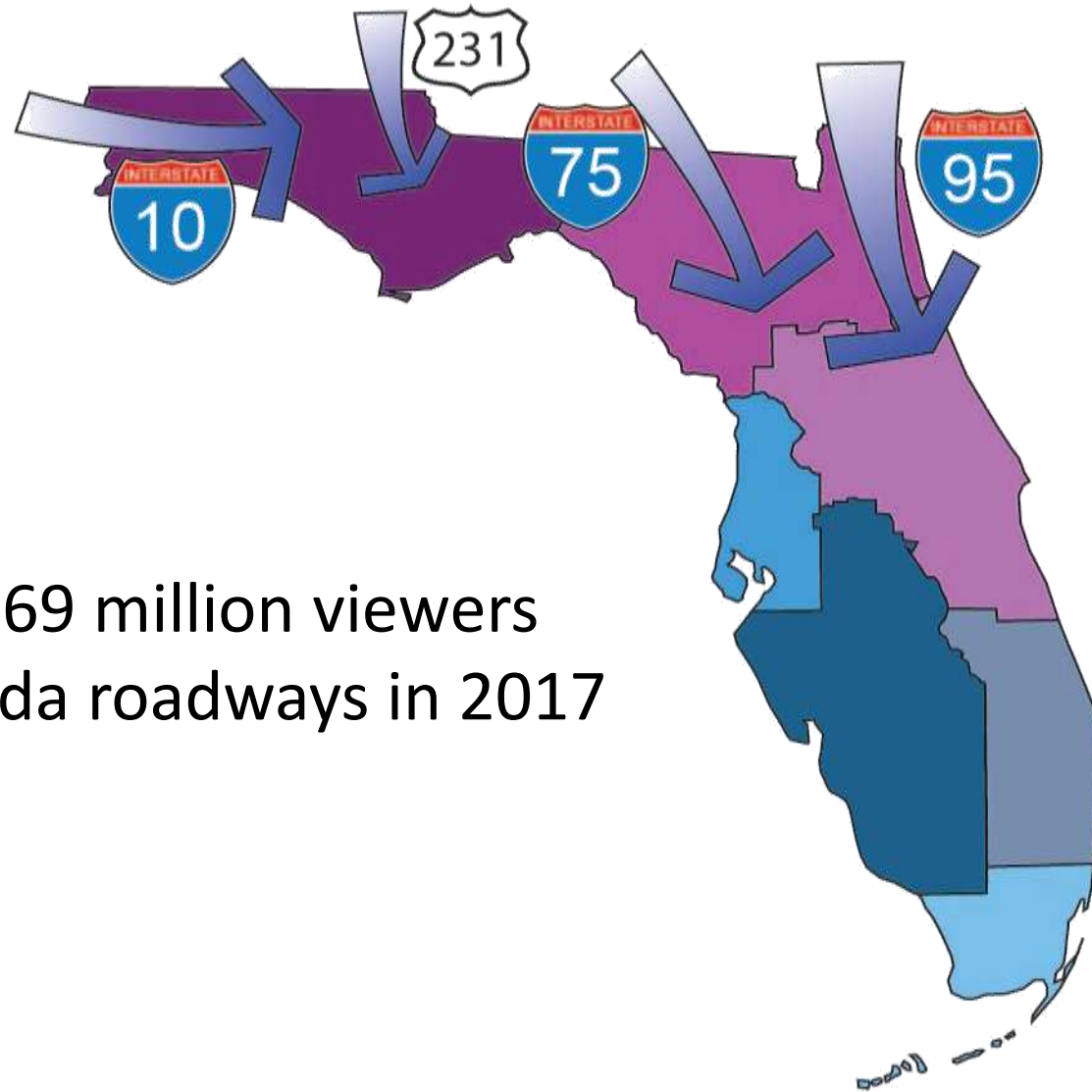


Approximately 119 million people
traveled to Florida in 2017.
More than half arrived by vehicles.





Approximately 41 million vehicles
traveled into Florida in 2017

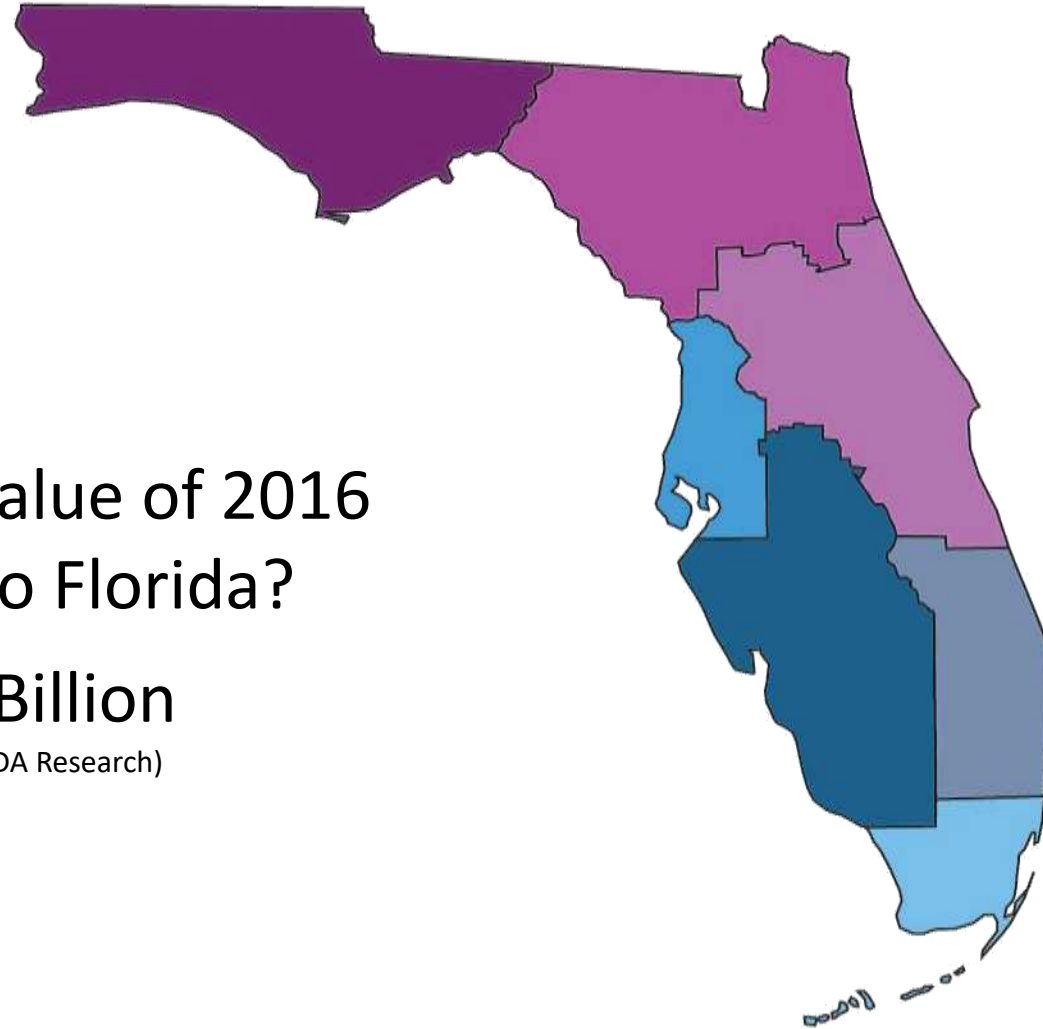


Approximately 69 million viewers experienced Florida roadways in 2017

Monetary value of 2016
visitors to Florida?

\$112 Billion

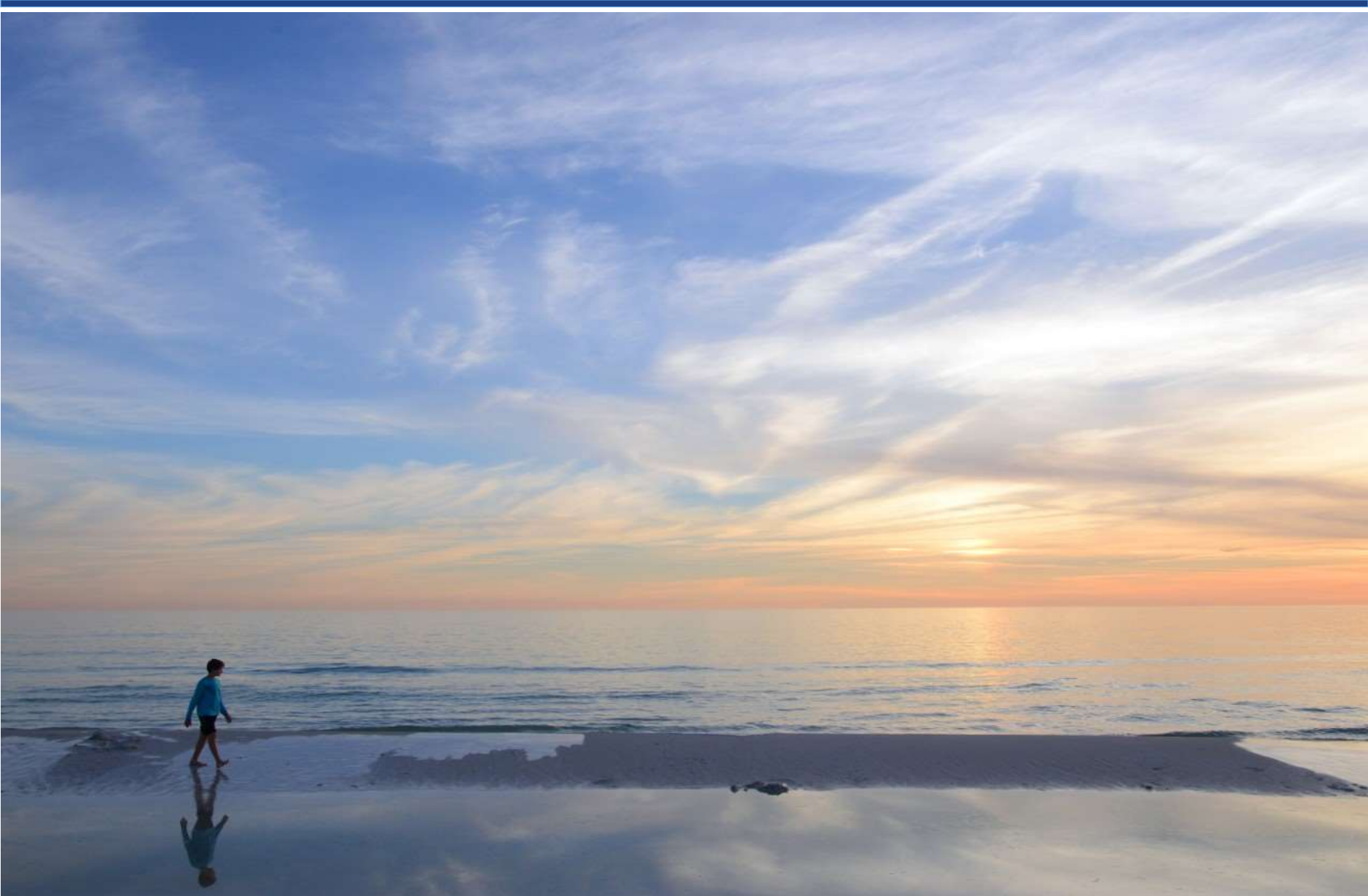
(VISIT FLORIDA Research)



Welcome to Florida



Welcome to Florida



Welcome to Florida



Welcome to Florida



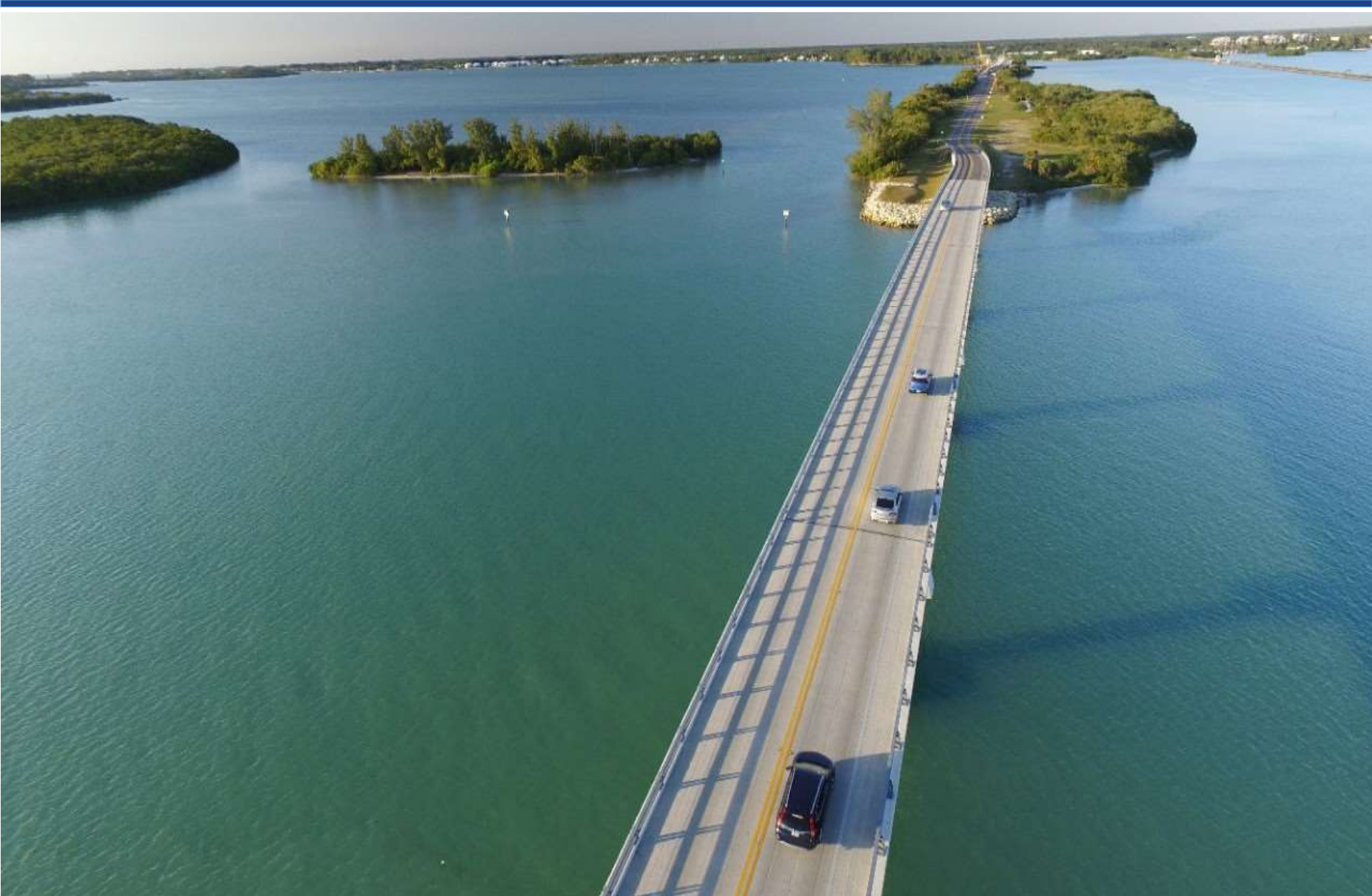
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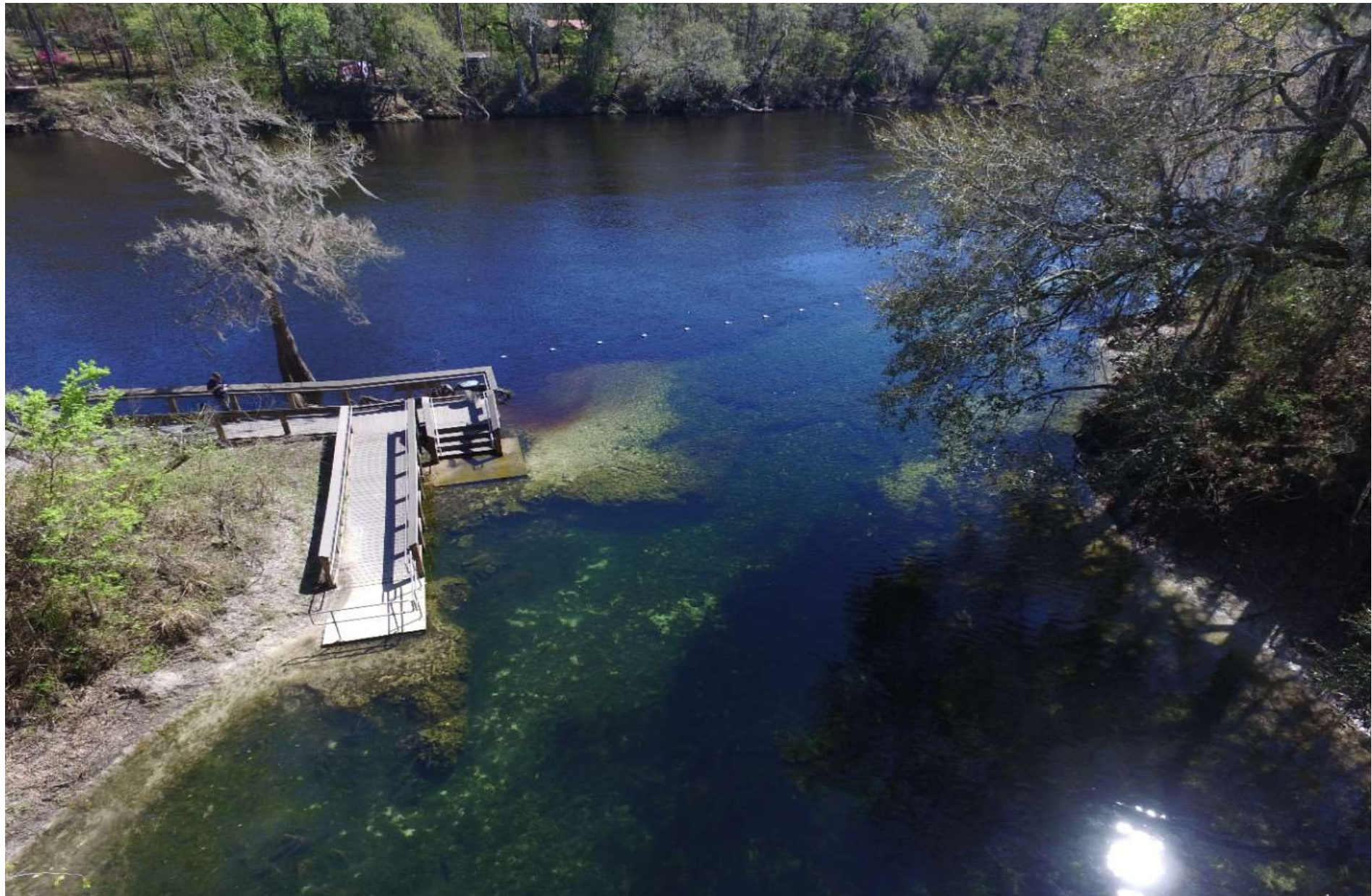
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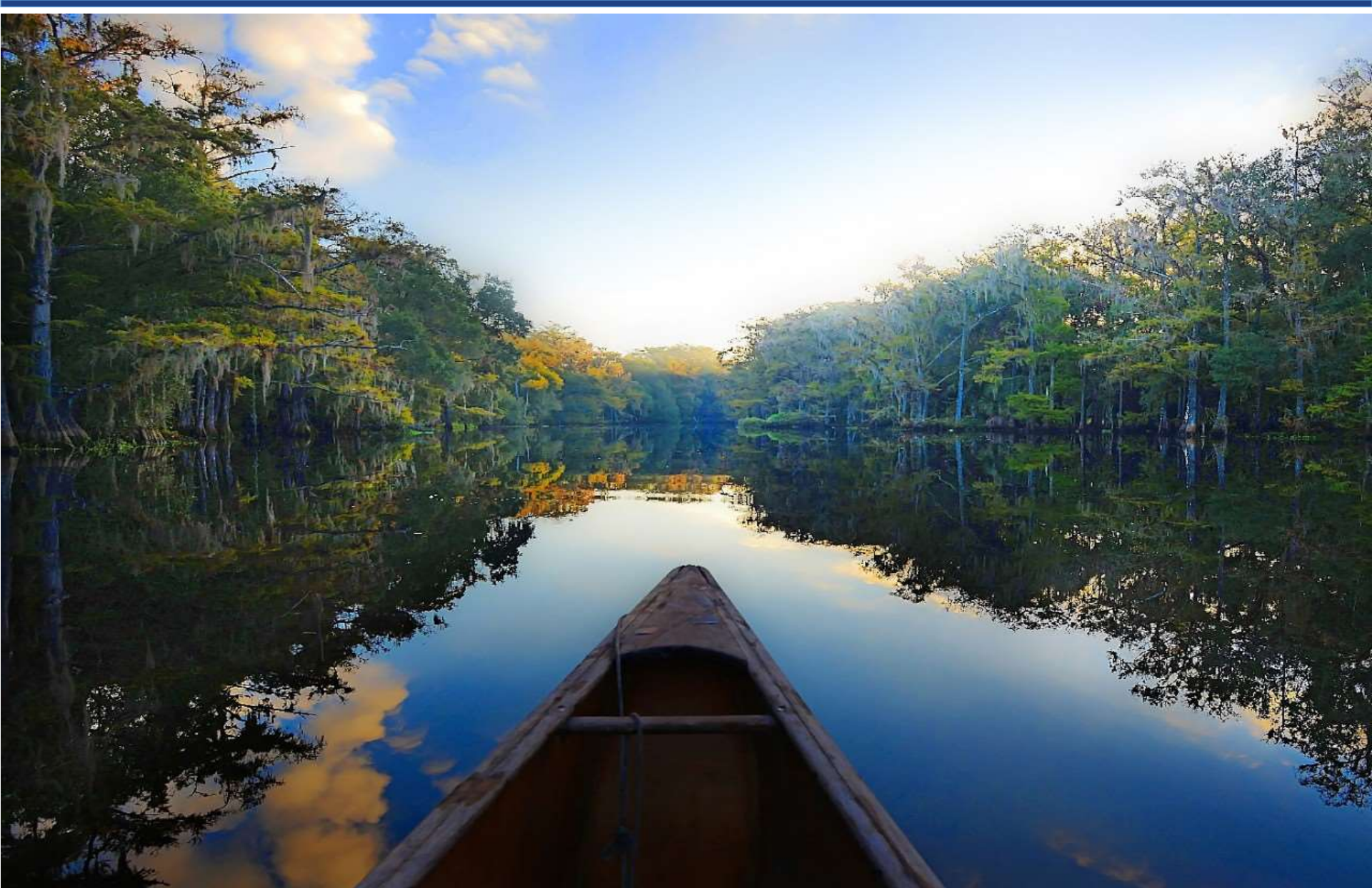
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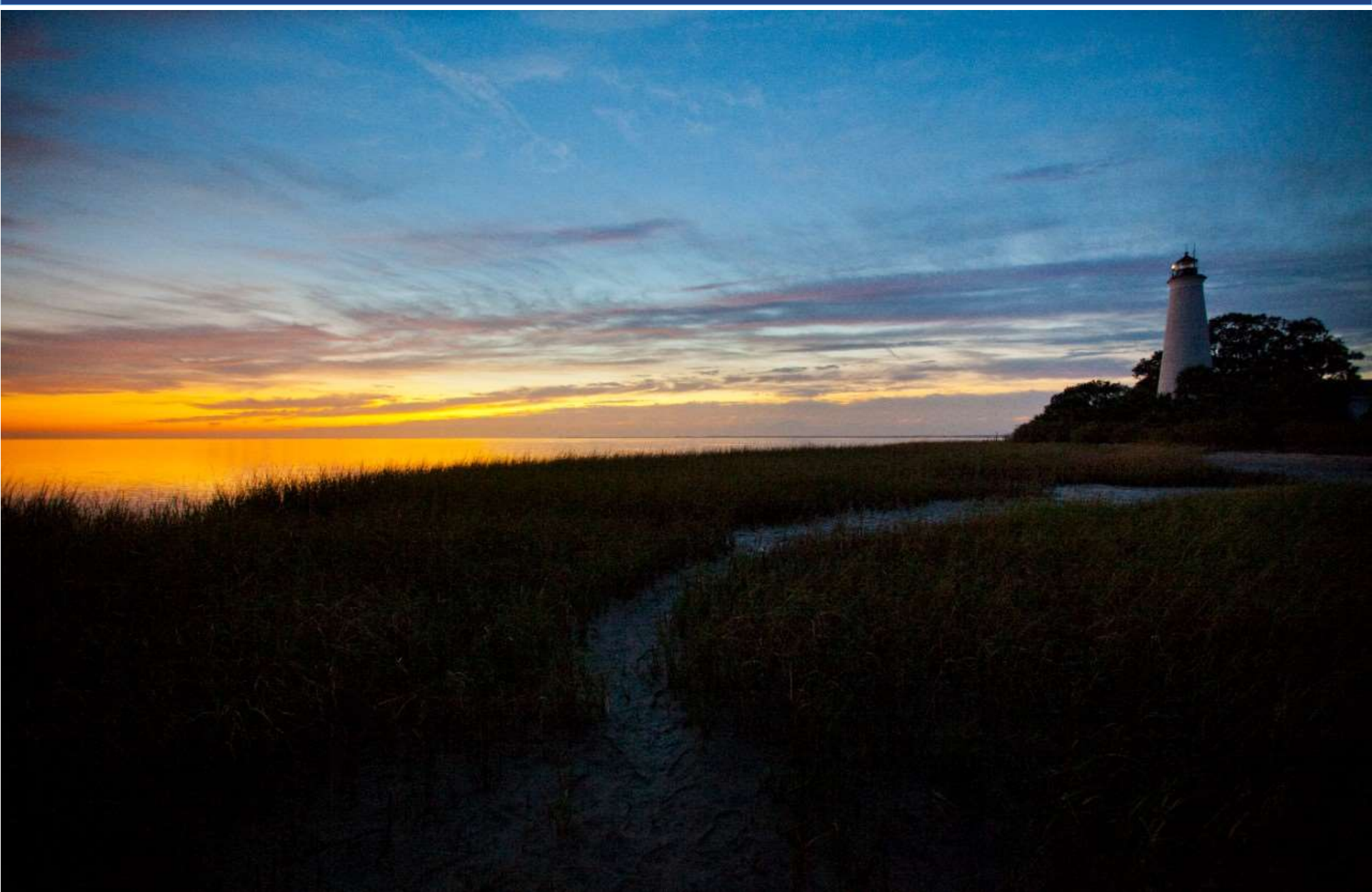
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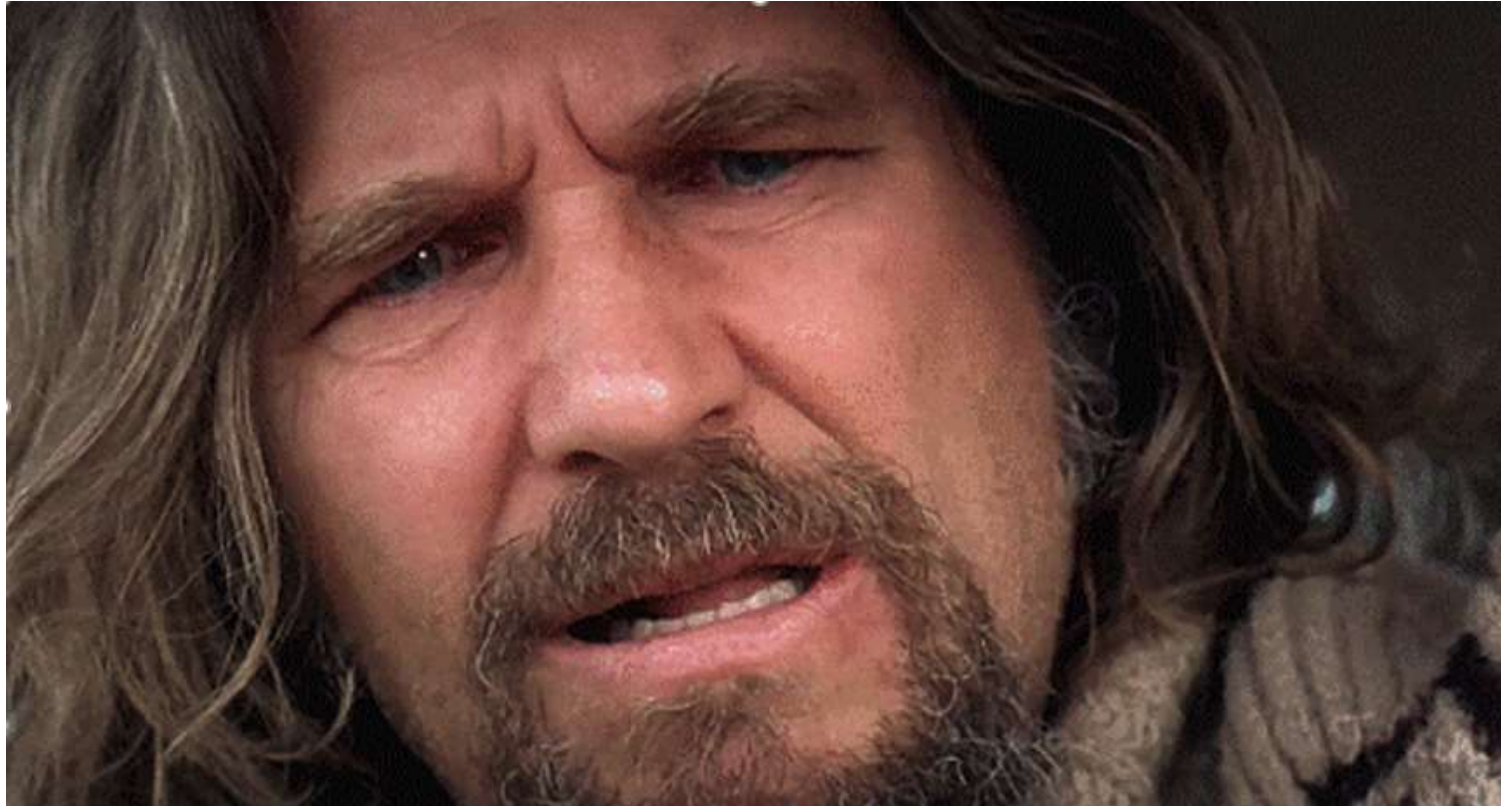
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Yeah, well, that just, like, your opinion, man.



How Can Landscaping Help This?



How Can Landscaping Help This?



How Can Landscaping Help This?



By Adding Visual Interest, Scale and SOP



Roadways are like cake...



Roadways with Landscaping is like CAKE!



Balanced Design



Is Everyone Onboard?

Turn, turn, turn!



Consultant Meeting

- Engineering firm requested a Marketing Meeting this past March at the District.
- 35 minute PowerPoint presentation.
- 9 speakers.
- All functional design showcases such as interchanges, bridges, widening, express lanes.
- At the very end of the presentation the Team Leader had a photo with an aesthetics wall treatment. He dismissed the endeavor. Called it “rubber neck feature”.

Texas Engineering



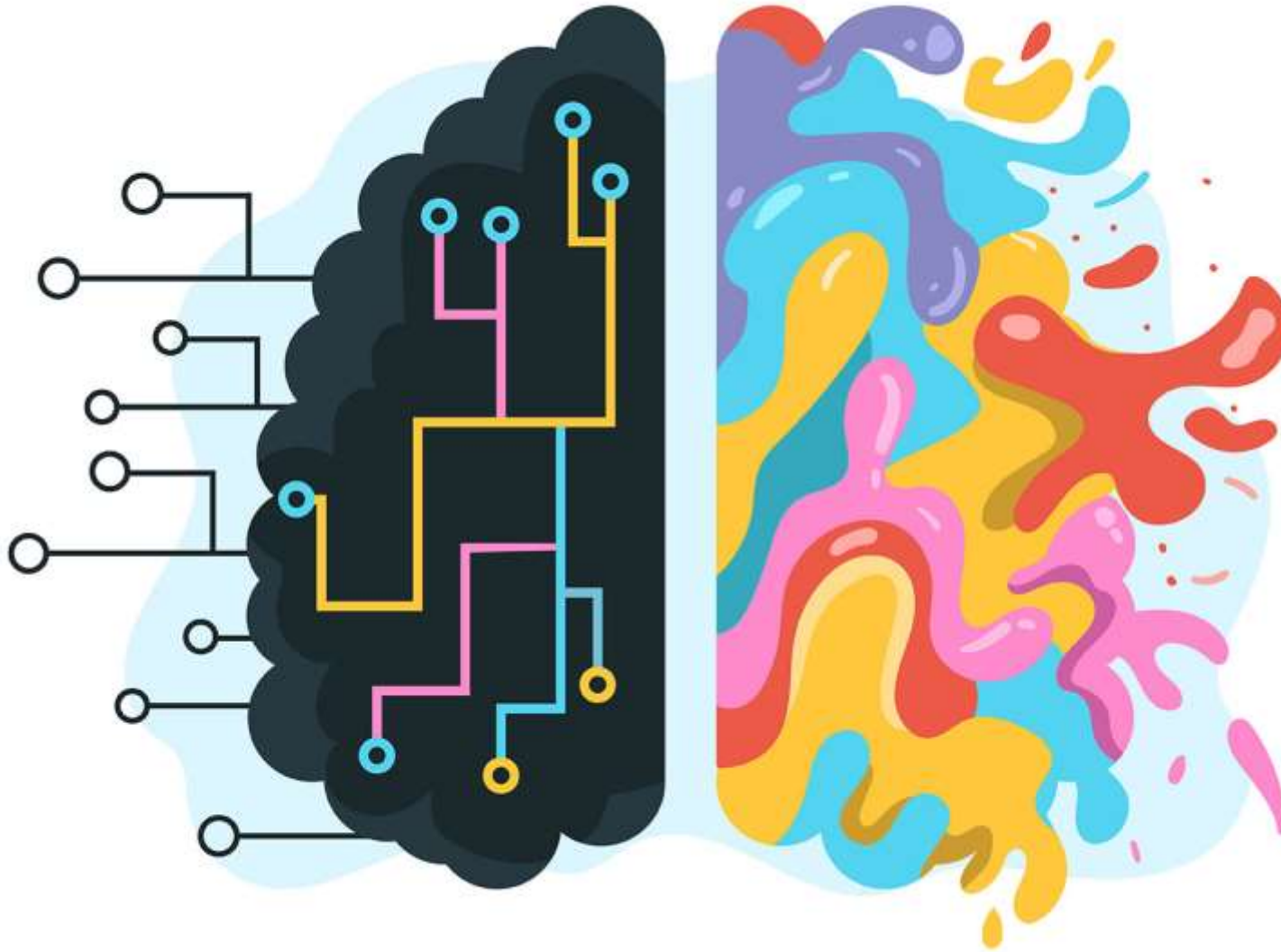
Context Sensitive Kentucky



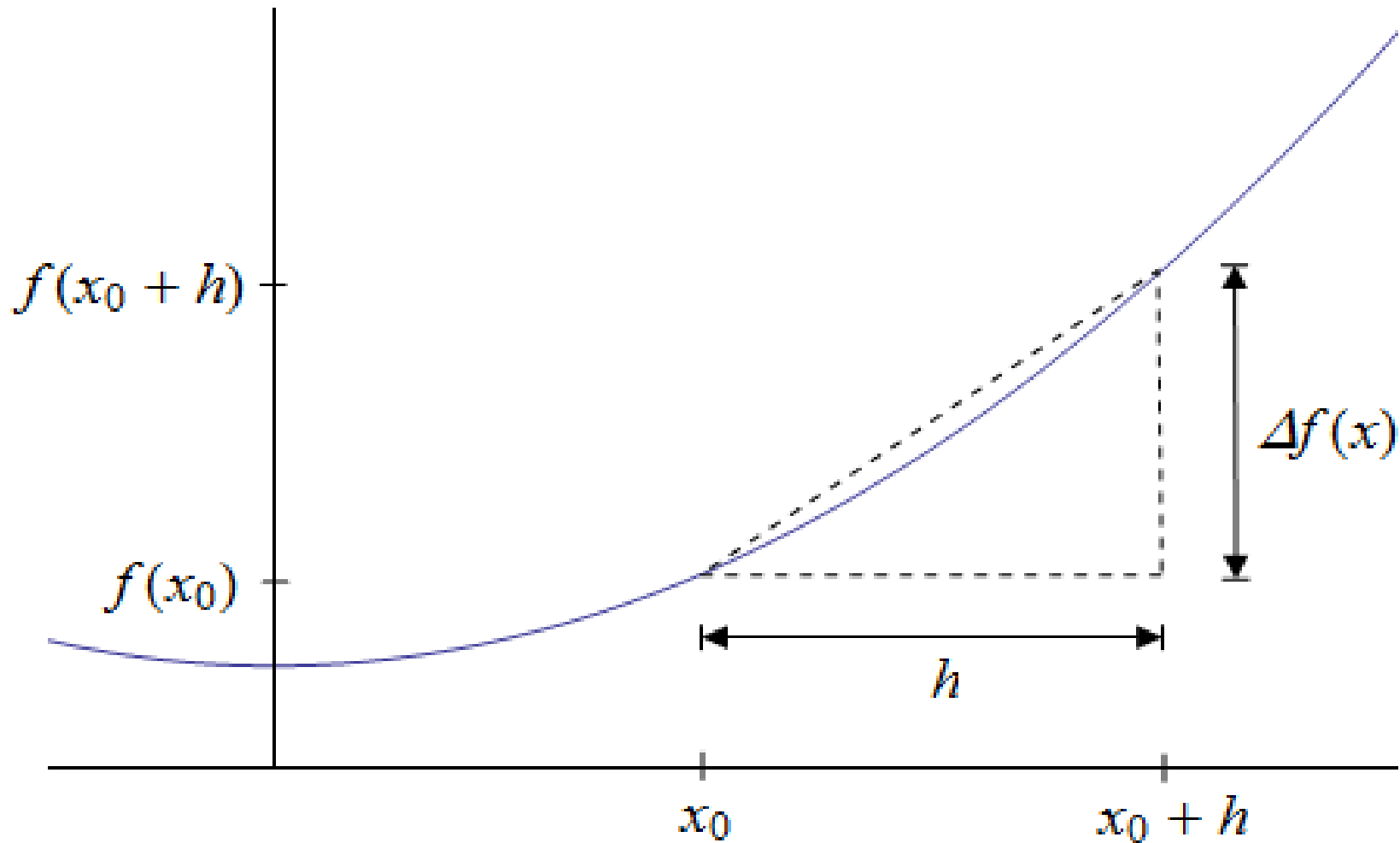
Part V

Creative Marketing

Food For Thought



Left Brain



Computational Oriented

Right Brain



Visual Oriented

Two Halves At Work

The image displays a musical score for a piece titled "Two Halves At Work". The score is written for piano and is organized into three systems, each consisting of a grand staff (treble and bass clefs).

First System: The right hand features a complex, rapid melodic line with many beamed sixteenth notes and fingering numbers (1-5) above the notes. The left hand plays a steady, rhythmic accompaniment of eighth notes. Dynamic markings include *sf* (sforzando) and *dim.* (diminuendo).

Second System: The right hand continues with a similar rapid melodic pattern. The left hand's accompaniment changes to a more complex, syncopated rhythm. The dynamic marking *pp* (pianissimo) is present, along with the instruction *leggiermente* (lightly).

Third System: The right hand maintains the rapid melodic flow. The left hand's accompaniment features a mix of eighth and sixteenth notes. The piece concludes with a final chord in the right hand and a sustained note in the left hand.

Real World Example



Main Attraction



Multi-discipline Approach



Multi-discipline Approach



Multi-discipline Approach



Multi-discipline Approach



Multi-discipline Approach



Multi-discipline Approach



Providing Service to District

- Identifying Resources to Conserve / Environmental Assets
- Roadway Layout
- Pond Placement / Pond design
- Urban Sidewalk Design
- Soundwall Placement / Aesthetics
- Interchange Slope Design
- Median Design
- Utility Placement
- Roadway Sign Locations
- ITS Coordination
- Long Term Maintenance Considerations
- Etc., etc., etc.

Providing Service to District

- Having Districts involving Landscape Architects early in the process as active partners during the planning stage can help diminish public outrage.

Shock and Awe



Shock and Awe



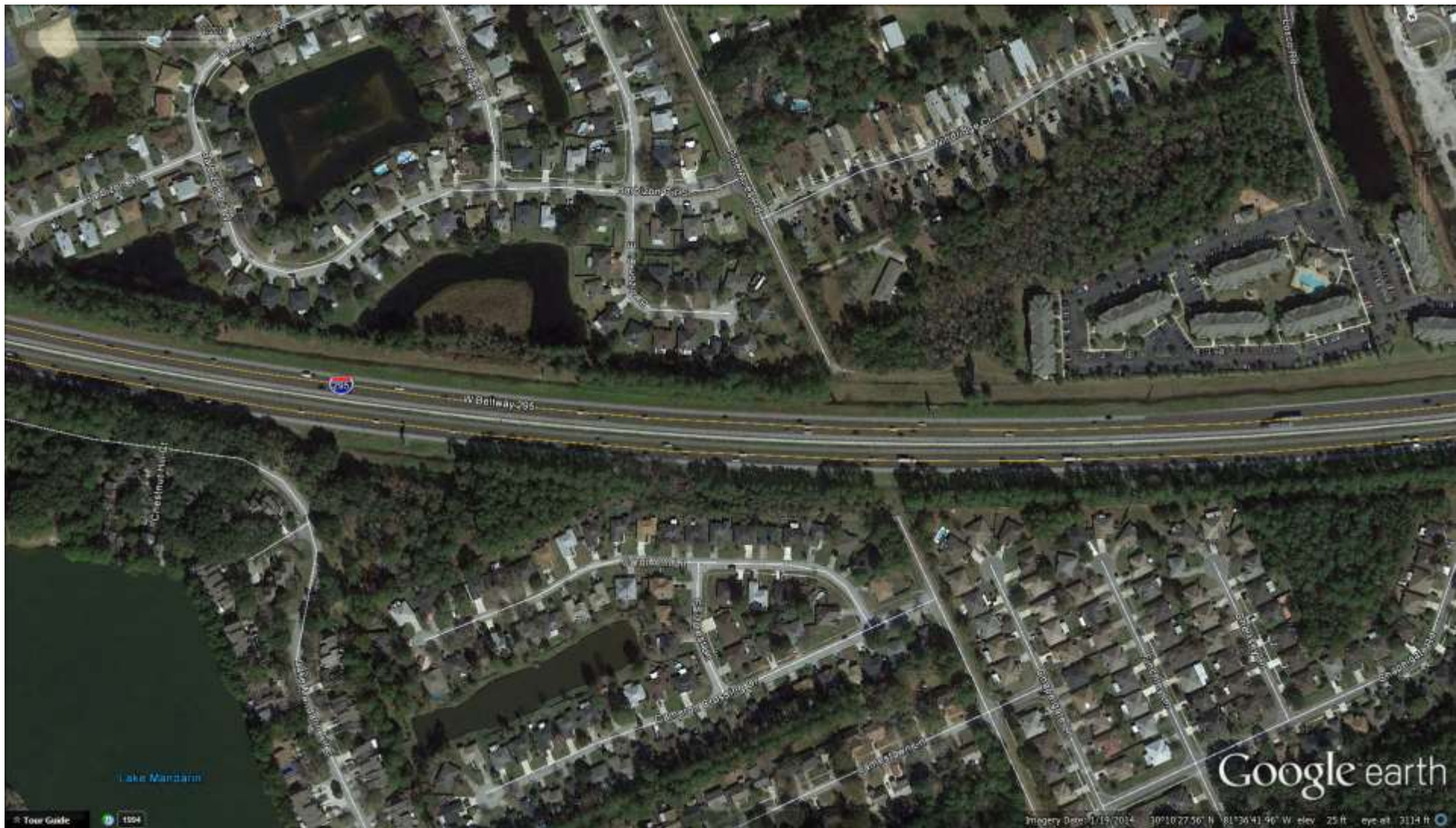
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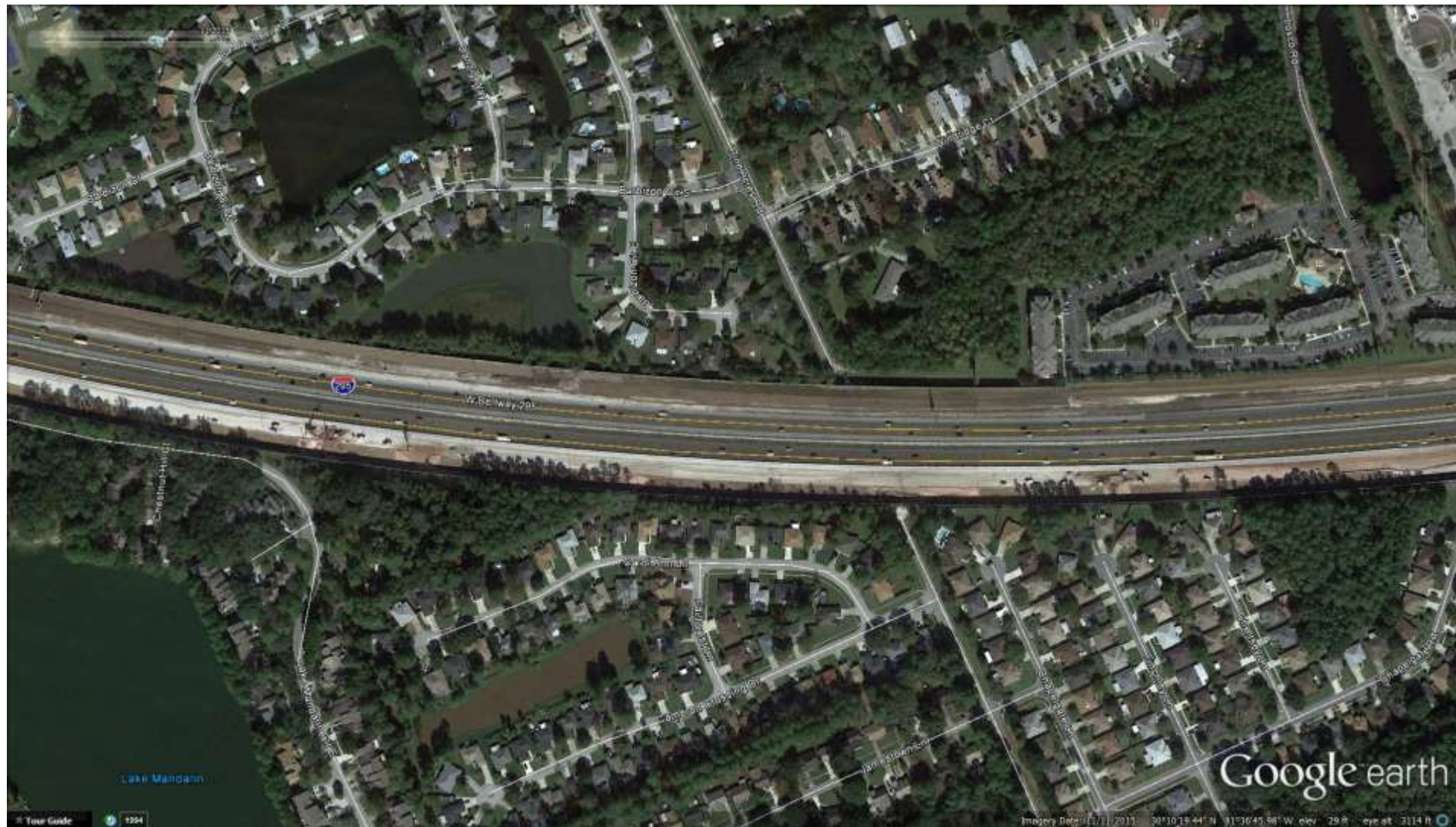
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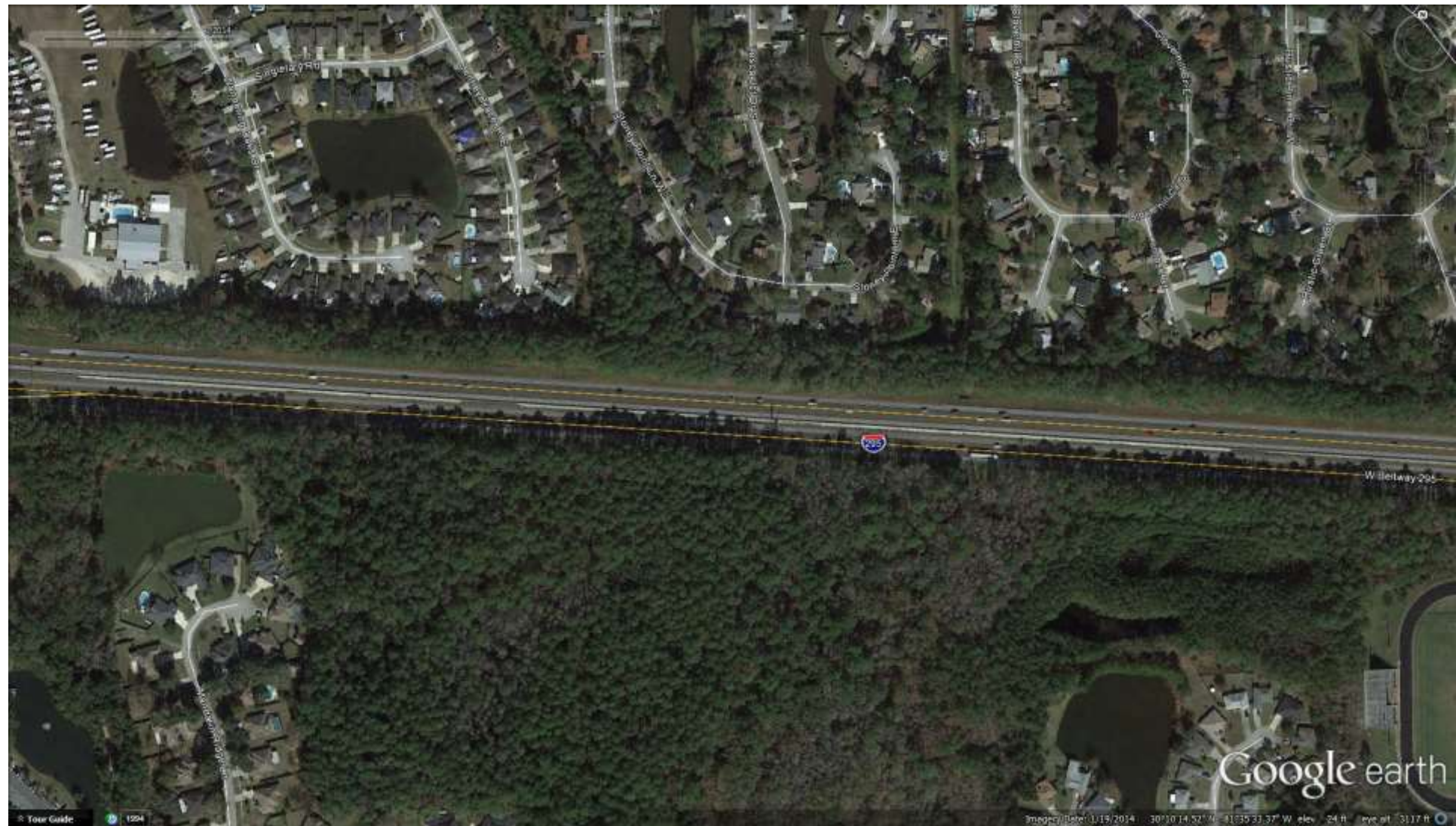
I-295 Jacksonville



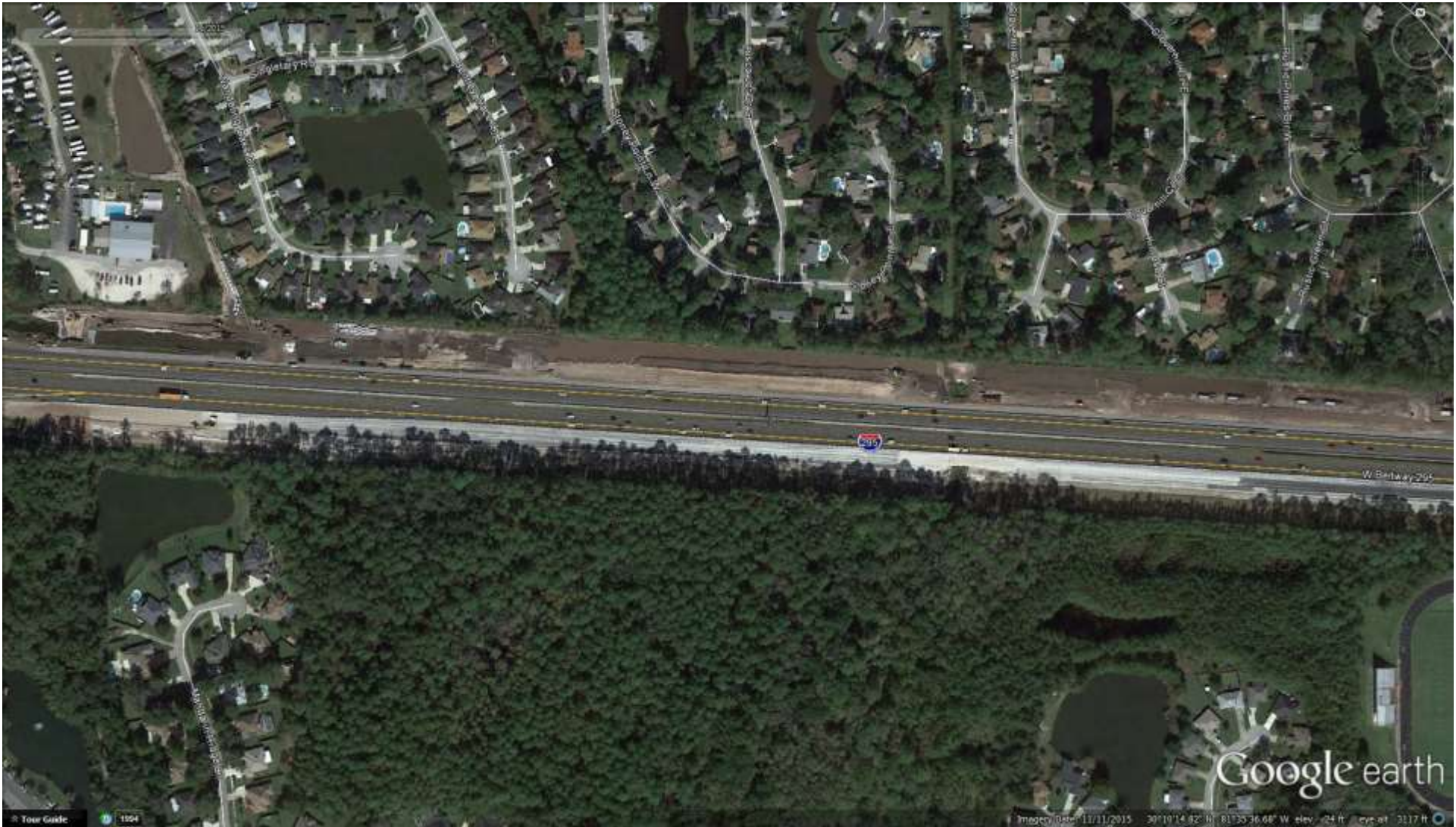
I-295 Jacksonville



I-295 Jacksonville



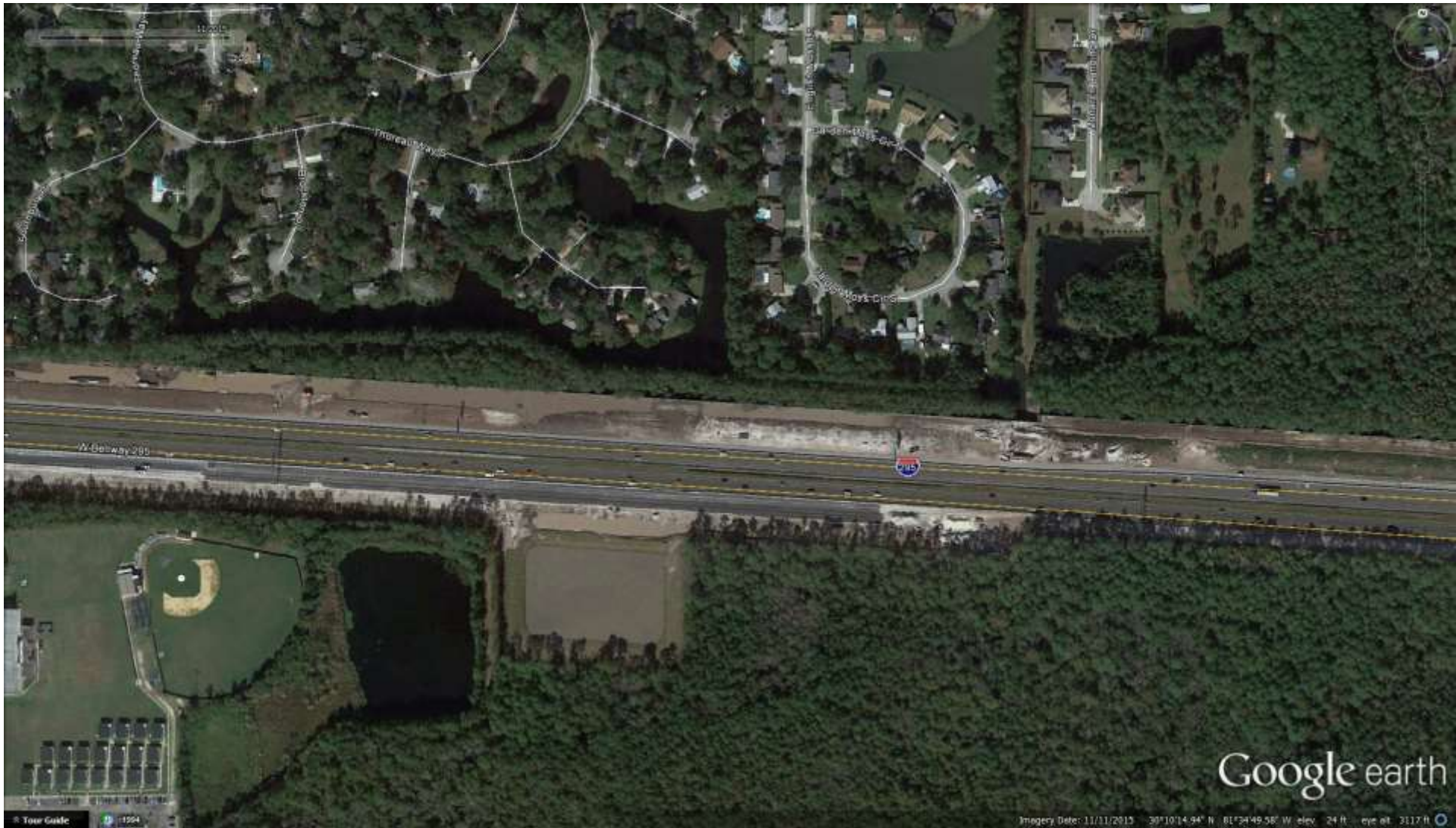
I-295 Jacksonville



I-295 Jacksonville



I-295 Jacksonville



FDOT Accused Of Poor Design!

How Did This Happen?

Public Just Wanted To Keep Trees

Angry Mob Blocks Bulldozers

FDOT Taken To Court

Chainsaws and Concrete

The Department of trees last spring as a last
Transportation has finally result but when pressed
gone over the line with for public input the
clearing trees recently failed to act.

FDOT: Say It Ain't So

The Department of trees last spring as a last
Transportation has finally result but when pressed
gone over the line with for public input the
clearing trees recently failed to act.

DOT's Shameful Widening

The Department of trees last spring as a last
Transportation has finally result but when pressed
gone over the line with for public input the
clearing trees recently failed to act.

Jax News

Sunday, June 01, 2019

FDOT Takes Historic Trees!

The Department of trees last spring as a last
Transportation has finally result but when pressed
gone over the line with for public input the
clearing trees recently on Department failed to act.
I-295 around Jacksonville "It's outrageous!" claimed
over the weekend. Many Ladd Dawkins, noted tree
mature Live Oaks were activist.

Wual News

Sunday, June 01, 2019

FDOT Does Not Care!

The Department of trees last spring as a last
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I-295 around Jacksonville "It's outrageous!" claimed
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mature Live Oaks were activist, "the Depa-
taken down during the could have
cover of night to make trees.

The Ax Man Cometh!

Monday, June 02, 2019

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open lanes is not enough" says
FDOT spokesman Ima
DeCoy. "The Department
does not care about your
feelings on trees, we are
in the transportation
business"

The Department has
focused all its resources
in developing this project
base upon a napkin
sketch that was drawn 5
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Part VI

Summary

Presentation Summary

- FDOT sees landscaping/aesthetics as a distinct state investment via 1.5% law, **BOLD** initiative, Complete Streets, Drainage Manual, PD&E Manual Aesthetic Effects, Florida Design Manual.
- Essential to balance increasing level of road/bridge construction.
 - I. State Transportation system should constitute more than just asphalt, concrete, and steel.
 - II. Shoulders, clear zones, ditches, utilities, guardrails, sound walls, signals, traffic signs, billboards, fencing, ponds, etc.
- Executive support for planning landscaping/aesthetics on State R/W to brand Florida as a premiere tourist destination.
- Acknowledge the need to recognize substantial impacts to existing vegetation and surrounding communities during planning stage.
- Necessity to coordinate and plan landscaping/aesthetics opportunities sooner than later for a better balanced design approach.



Suncoast Connector

Citrus County to Jefferson County

Northern Turnpike Connector

North terminus of Florida's Turnpike to the Suncoast Parkway

Southwest-Central Florida Connector

Collier County to Polk County

M-CORES projects

- Senate Bill 7068 was signed by Governor DeSantis on May 17th and is the most significant infrastructure program in Florida since 1950's.
- Modeled after Wekiva Parkway

Two Ways of Thinking

Typical Engineering Approach

Typical Landscape Architect Approach

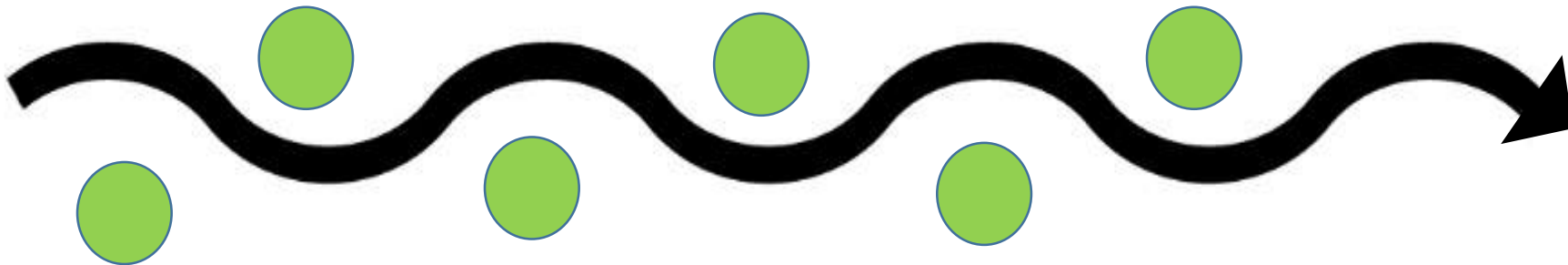


Two Ways of Thinking

Transportation Efficiency



Roadway Experience





OUR MISSION

The department will provide a safe transportation system that ensures the mobility of people and goods, enhances economic prosperity and preserves the quality of our environment and communities.



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The department will provide a safe transportation system that ensures the mobility of people and goods, enhances economic prosperity and preserves the quality of our environment and communities.

Conclusion

Thank you!

Conclusion

Questions or Comments?