A Valora Solutions Product

TRAFFIC

Transportation Risk Assessment and Forecasting For Intelligent Corrections

What are we?

TRAFFIC leverages modern data analysis tools to the old problem of traffic management.

TRAFFIC allows institutions to make predictions about urban changes.

Our company, VALORA Solutions, is dedicated to building emerging technologies to solve problems humans alone cannot.

Transportation

Can we predict the effects of laws?

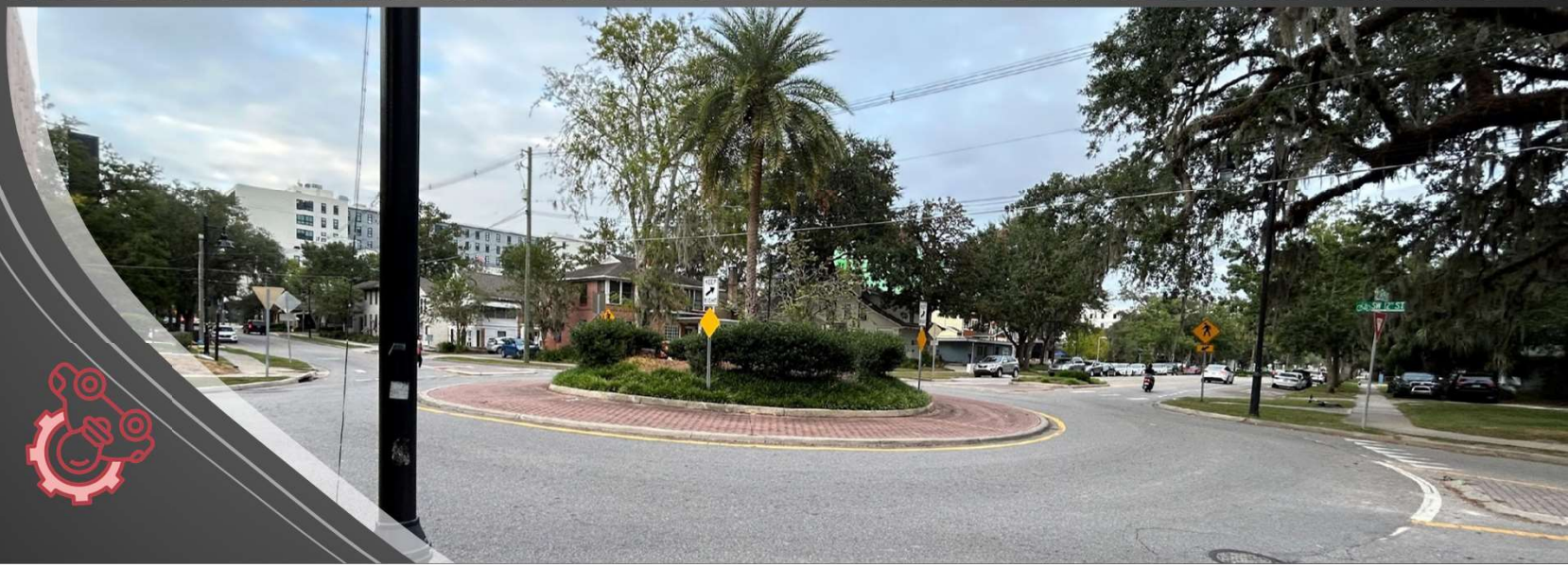
Forecasting the impact of laws is nearly impossible with traditional methods — there are simply too many variables to account for.

Transportation

= ?

How will a 5 mph change affect traffic and accidents?

Transportation



How will a change from 4-Way stop to roundabout affect traffic and accidents?

Risk

Poor urban planning has consequences...

42,795

Deaths in the United States in 2022 caused by traffic accidents

$871 Billion

Cost of traffic accidents **each year** in medical costs and lost work

9 Million

Disability-adjusted life years lost every year due to **poor urban design**

[8] NHTSA,[9] IIHS

Risk

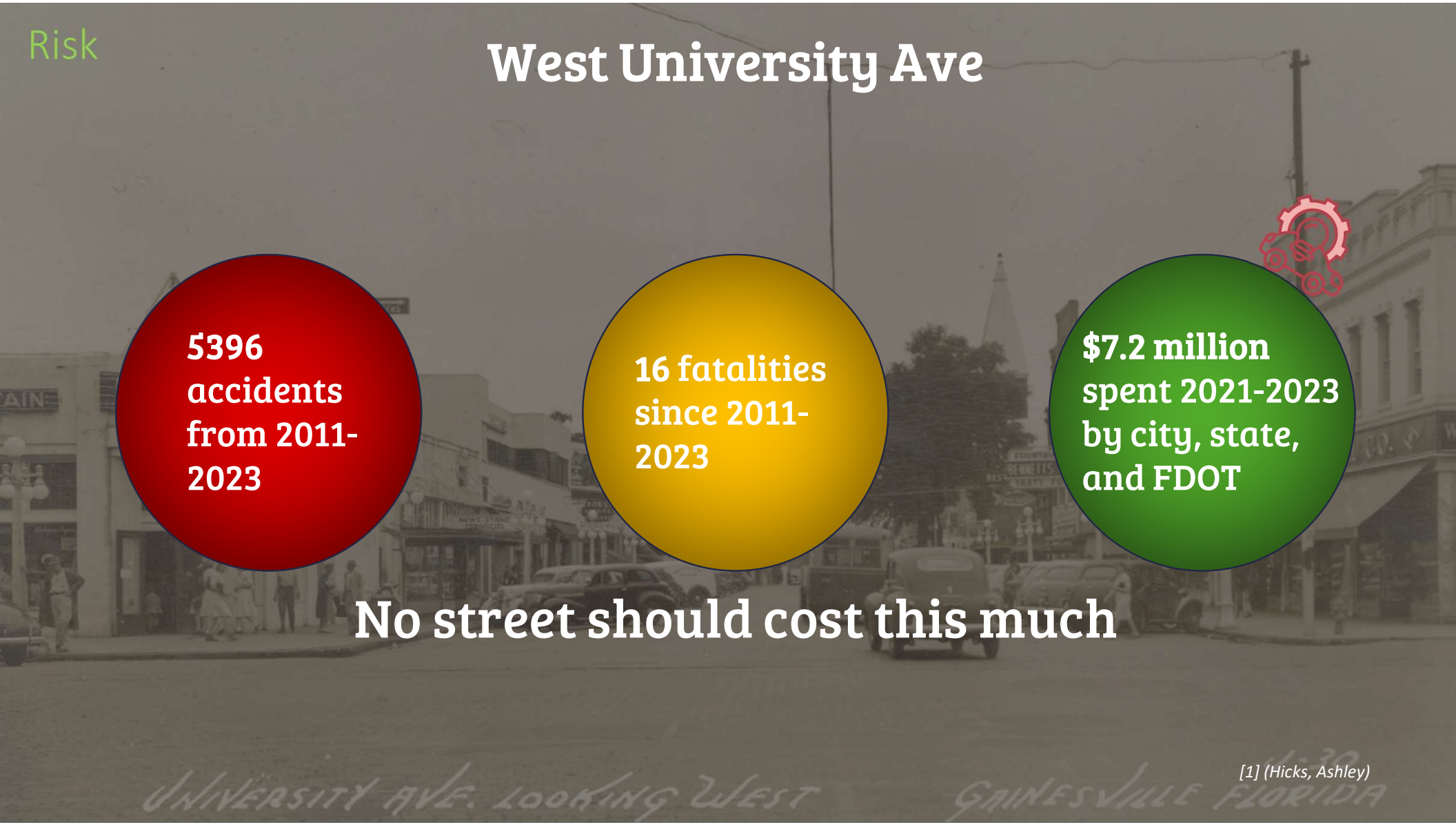
West University Ave

5396 accidents from 2011-2023

16 fatalities since 2011-2023

$7.2 million spent 2021-2023 by city, state, and FDOT

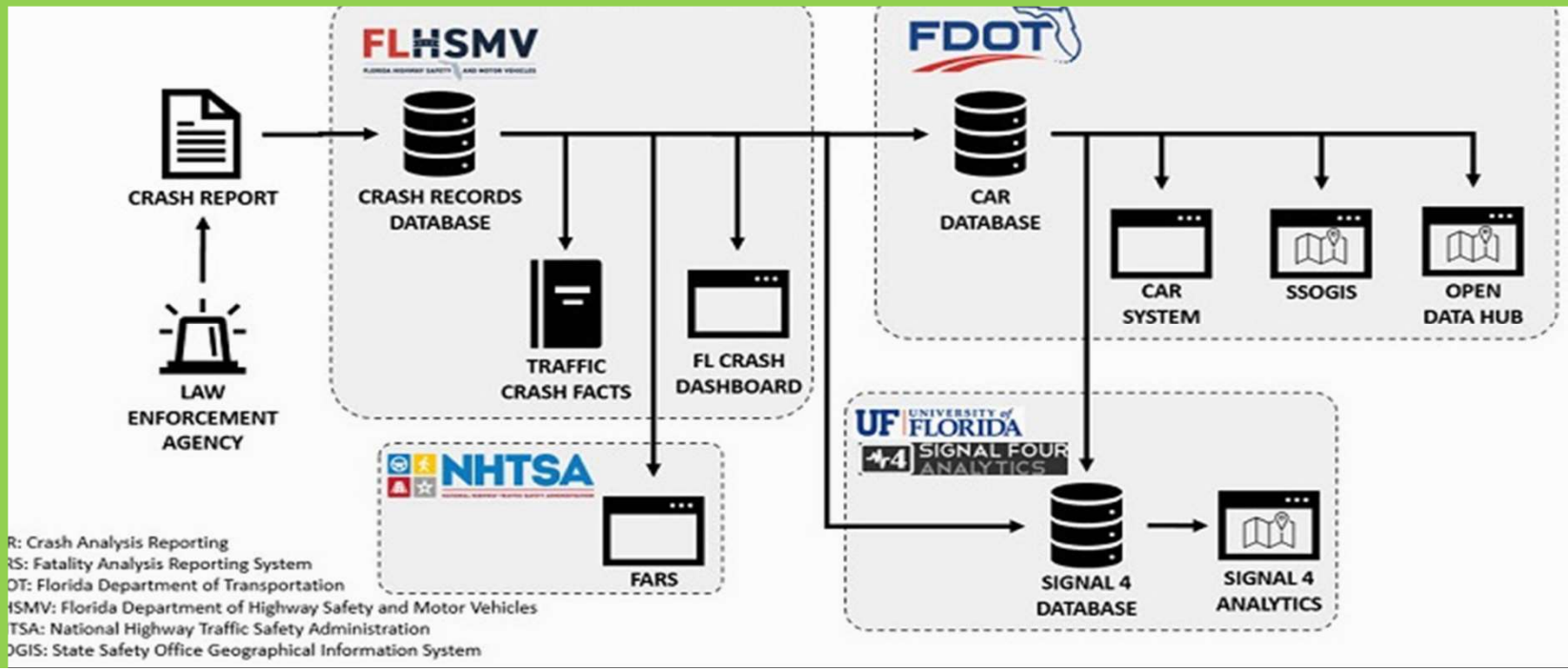
No street should cost this much



[1] (Hicks, Ashley)

Assessment

How can we use AI to fix urban design?



Assessment

Using AI to simplify road design

TRAFFIC

A much needed update to the legacy systems of legislators

Bolster the experience of law enforcement and legislators with responsive AI models

A Machine Learning model able to predict the effects of urban infrastructure projects and laws

Assessment

How AI creates *value*...

Successful models can reduce the *cost* of research tools for surveying.

Unlike non-AI models, AI machine learning models can be trained continuously, making them *flexible* to changes.

Forecasting

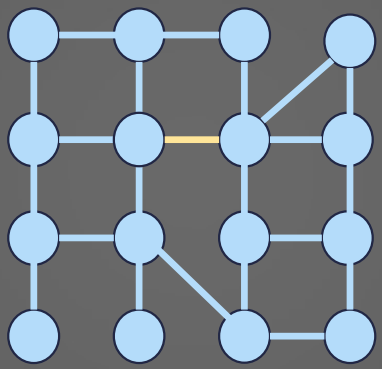
FNN: Feedforward neural networks can be used on curated data to create a machine model that can allow complicated data patterns emerge

GNN: Graph neural networks can simulate road patterns through graph structures, allowing complicated spatial patterns to emerge

...and the algorithms that make it possible

Forecasting

The Model in Action



Adding a speed bump at this road can reduce severe accidents there by 45% with minimal impact to flow congestion.

Intelligent

How will we compete?

Innovation

Using innovative methods, we can create a unique service that can compete with established companies

Focus

By placing our focus on a particular group, we can specialize our work to increase efficiency

Sustained Competitive Advantage

Intelligent

Model Metrics

Scalability

The model should apply to both small and large datasets

Reliability

The model's predictions should work as intended when realized

Throughput

The model should process multiple factors in a reasonable timeframe

Efficiency

The cost of the model should remain competitive with present competition.

Intelligent

Path to revenue and growth

Pitching to Cities

Obtain funding and data

Create models and deliver results

Correction

Transportation Solutions

	TRAFFIC	Maket.ai	ArcGIS	Streetmix	Tableau	PowerBI
Data Visualization	✓		✓		✓	✓
Map Interaction	✓	✓	✓		✓	✓
Optimization features	✓					
Artificial Intelligence	✓	✓				
Personalized Solutions	✓			✓	✓	✓
Road Design	✓	✓	✓	✓		
Real-Time Analysis	✓		✓		✓	✓

Correction

Andrés Espinosa

ISE Honors third year

Minors: Music Theory and Sales Engineering

Relevant Experiences: Government Analyst and Optimization Research

Oscar Diaz de la Rúa

CS Honors third year

Minors: Business Admin and Statistics

Relevant Experiences: Machine Learning research

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