

### INTRODUCTION SLIDE- Arthur

Hello we are team Bravos. We are an 8 member team made up of Landscape Architects, Urban Planners, and Computer Science students. Our team members are, Arthur, Jack, Grayson, Shane, Sacheth (Se-ceth), Paige, Madison, and Chris.

### BACKGROUND INVESTIGATION- Shane

So, when we went to Nolanville for our site visit we focused on the three challenges; mobility, safety and circulation. We found that a lot of roads do not have sidewalks and many people were walking and biking in the streets, which leaves them vulnerable to motor vehicles. We also found that Nolanville was missing a connecting link between the North and South side and some kind of big picture draw to get people to visit Nolanville.

### MISSION STATEMENT- Arthur

Our vision for the Endeavr Project is to promote **SAFETY, CIRCULATION, and MOBILITY** through alternative modes of transportation for the City of Nolanville. This vision will be achieved by bus routes, bike lanes and sidewalks. Our team proposes these mobility options to be incorporated as easy-to-use smart technologies that are accessible to all of the citizens. Ultimately, we aim to better the City of Nolanville for its residents through comprehensive and sustainable planning and design. On the left you can see our building blocks of Nolanville. We will be achieving each of these through our designs.

### DATA ANALYSIS- Shane

So, after our site visit, we did some research on Nolanville and found that only 0.7% of the land is zoned for some type of park or green space, that 10.3% of the streets have at least one sidewalk on either side of the road, that 76% of the year residences of Nolanville need to be careful because of how hot the heat index gets, that Nolanville has about 3% more exposure to loud noises then other towns in Bell County because of the train and that bronchitis in Nolanville is almost 2% higher than that of the entire Bell County because of the pollution in the air. From this data we realized that we needed to develop those areas that are zoned for a green space to increase the family friendly aspect of the city, that the most used streets need sidewalks to help with pedestrian safety, that the current microclimate of the city was an issue and that the noise from the train was disrupting the city more than expected.

### EXPERIMENT- IMAGE CLASSIFIER- Shane

Our goal was to create an image classifier that can be used in tandem with cameras around Nolanville to ultimately gather data about both the current state of traffic flow along with evaluating the solutions in the future. This classifier was built on publicly available data from the sources seen here, compiling to just over 1500 images of Cars, Pedestrians, and Cyclists.

### EXPERIMENT - IMAGE CLASSIFIER- Sacheth

For our model we used a pre trained neural network called vgg16. Vgg16 was trained on over 1 million images, which means that it has excellent feature detection and doesn't need a large dataset of images. Another good thing about this model is that it can see things that are barely

recognizable to the human eye.

#### EXPERIMENT - IMAGE CLASSIFIER- Sacheth

In terms of output, we obtained a 85% accuracy before tuning and around 90-95% accuracy after tuning. In the future we would like to test in on actual traffic in order to generate useful data.

#### OVERALL CONNECTIVITY MAP - Paige

We started our designs by looking at the overall connectivity of Nolanville and how it could be improved, and proposed sidewalks, bike lanes, bus routes and green spaces throughout Nolanville.

#### COMPLETE STREETS - Paige

Moving into our proposed designs we first started with the concept of complete streets. Creating complete streets within a small town helps with the economic growth and stability of the town and also improves the safety throughout.

#### AVENUE H - Paige

Here we have a section and overview of Avenue H. We included multiple aspects of a smart city like Solar powered, motion sensed street lights to reduce the amount of electricity used and help to keep the neighborhoods as undisturbed as possible , glow in the dark bike lanes to improve safety at night or early mornings, permeable pavers to help with water runoff and smart benches. The smart benches we are proposing have a solar panel on the top and two plugs underneath the bench so you can charge your phone or laptop while sitting and also have a kiosk located on each side. These could have advertisements for local businesses displayed on them or the bus schedule. The benches could also be dedicated to someone in order to help cover the cost.

#### MESQUITE STREET - Paige

Here we have a section and overview of Mesquite street. This street has the same smart elements as Avenue H. The only difference is that instead of a median there is a bioswale separating the traffic lanes to help with water runoff.

#### MAIN STREET - Paige

Here is a section and overview of main street. We have proposed to create this area into a downtown corridor but as you can see this street has the same smart elements as the two previous streets to create an overall comprehensive design for Nolanville.

#### CONNECTING THE NORTH AND SOUTH SIDE - Chris

The underpass of Highway 190 on Main Street is the entrance to the North or South side of Nolanville. This area is open to revitalization to make a good first impression of the town.

#### GREEN CONNECTOR - Chris

The revitalization will begin with the implementation of a mural and logo of Nolanville. We will also cover the grey infrastructure with brick, stone, and pavers to beautify and add color to the underpass. Wild flowers will also be placed for the aesthetics and to slow traffic.

#### IMPROVING THE MICROCLIMATE - Madison

Street trees or mature trees can significantly improve the microclimate for residents by lowering surface temperature, cooling houses in the neighborhood, and trees and other landscaping can also improve property value. This is important based on the heat index data discussed earlier. We then have proposed smart parks circled in red. These parks will foster smart elements that provide kids and adults with a place to socialize, exercise, play, and connect with one another.

#### METHODIST CHURCH SMART PARK DESIGN - Madison

And what one of these smart parks could look like with different smart play elements and native plantings.

#### DOWNTOWN OVERALL SITE PLAN - Madison

We wanted to enhance Nolanville's downtown by proposing mixed-use development. Building facades would have a historic, downtown feel.

#### MAIN STREET DOWNTOWN CORRIDOR - Paige

From this perspective you can see the proposed new economic developments libing main street they include local shops, local restaurants, and a mixed use building with retail on the first floor and a small apartment on the second. This is proposed to promote the use of main street and bring in visitors to Nolanville.

#### HOP ON HOP OFF BUS SYSTEM - Chris

These are our bus stop proposals around the north and south side of Nolanville, Each bus stop is 10 min walk from each other. Some bus kiosks and benches located around the town will display hourly bus schedules. This will help increase accessibility and economic vitality.

#### PULL OFF STOP DESIGN - Chris

This proposed pull off bus stop design is to create a continued traffic circulation. Pedestrians that are walking, biking, using the public bus, or car are limited to little to no obstructions on the road.

#### SMART BUS STOP DESIGN - Chris

This new smart bus stop design is to implement green infrastructure and rainwater harvesting. Vines are designed to climb on the columns to the middle top half of the bus stop. Water is collected from the roof and is stored in the columns and bench to keep the vegetation in and around the bus stop growing.

### KIOSKS - Chris

These are some different kinds of kiosk designs. Seating, shade structures, electrical outlets, and a garden planter are all interchangeable to find the best suitable design for the space.

### TWO WAY FRONTAGE ROAD - Chris

Analyzing the different problems in Nolanville was pollution and circulation. There is one Hop stop in Nolanville and only one way to get to the underpass on Main Street. With the implementation of trees and making North 5th Street to Main Street a two way, Nolanville will lower noise pollution and create another entry point to get to the underpass.

### PHASING INTRODUCTION -Arthur

The phasing maps are created to illustrate the short term, middle term, and long term goals for the new development of Nolanville.

- Maps include:
  - Bike lanes
  - Sidewalks
  - Economic development
  - Parks
  - Bus routes

### PHASE 1 - Arthur

- In the top left bike lanes on ave H and 10th street
- In the top right Sidewalks that connect Monarch Park to ave H, and sidewalks in a few residential area
- In the bottom left Placing a gas station in the New development along the high way that will help redirect the flow of traffic. The only gas stations in nolanville are located along Main Street on the south side of the highway, which forces locals to use the Main Street crossing. Adding to the traffic congestion on main st.
- In the bottom center There will be a park added to revitalization of downtown
- Lastly in the bottom right, Nolanville will have its own bus route that connects to the regional HOP stops

### PHASE 2 - Jack

The most notable addition in phase 2 is the introduction of the transit park located near the bus stop. The transit park is supposed to act as a new hub allowing for a general area that people can gather, hopefully making public transportation more popular. By this time the bus routes should start reaching the south side of the town, allowing more access to Church of Christ Campground, Pecan Village, and other destinations. The sidewalks and bike lanes by this time should be implemented around the Nolan Ridge and "The Dogs" area providing two complete circuits. These circuits will encompass Nolanville's most dense areas, hopefully

promoting more use.

### PHASE 3 - Grayson

By 2030, the bike lanes and sidewalks will extend along Old Nolanville Road on both sides to Nolanville Elementary School. The bike lanes will also be connected to Lonesome Oak Drive along a new street proposed in the Nolanville comprehensive plan. Additionally, there will be bike lanes and sidewalks in the core neighborhood north of downtown. The streets in the Ridges, the Plaza, and the Dogs will all have sidewalks that feed into Monarch City Park. It is important to have a complete sidewalk and bike lane network to allow for easy and convenient access throughout Nolanville, as well as encourage use of alternative transportation methods. The downtown economic area with the central park will be complete, creating a centerpoint of Nolanville and a sense of community and local pride.

### Safety, Circulation, and Mobility - Grayson

Through our proposed designs, improved Safety, Circulation, and Mobility will be achieved in Nolanville. And the building blocks of our design ideas will come together to help make Nolanville a smart town where people will want to visit and live.

### ENDING SLIDE- Arthur

Thank you for your time. Does anyone have questions?