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# CITY OF JONESTOWN, TX TRANSPORTATION PLAN

JUNE 2015



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The purpose of the plan is to explore Jonestown's transportation issues and challenges and recommend solutions. Texas A&M University through the program Texas Target Communities ("TTC") and the City of Jonestown TX, began a partnership in the Fall 2014 to produce a Transportation Plan. This document is the product of that collaboration assesses the current community's conditions and explores future strategies in order to enhance the transportation system of Jonestown and address good practices to develop a sustainable rural community. The document comprises:

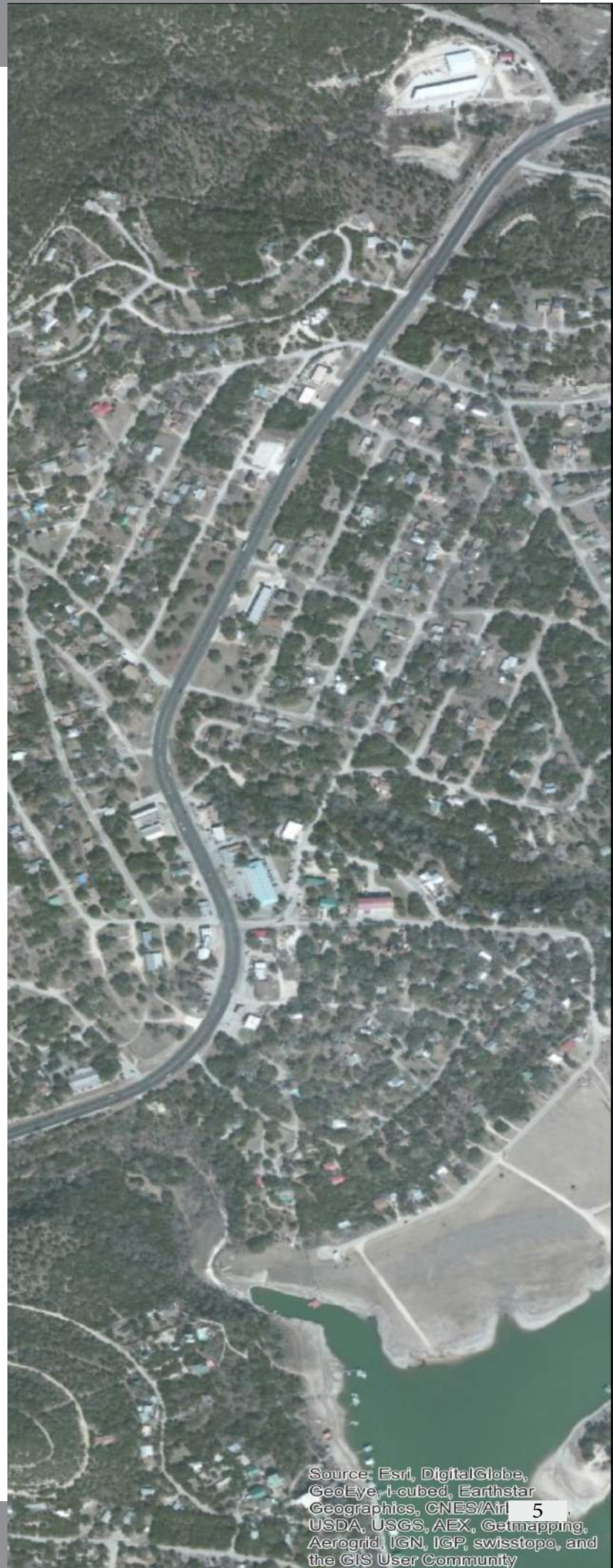
- Thoroughfare plan;
- Conceptual plan describing recommendations for safe alternative transportation routes;
- Plan and elevation drawings.



## Introduction

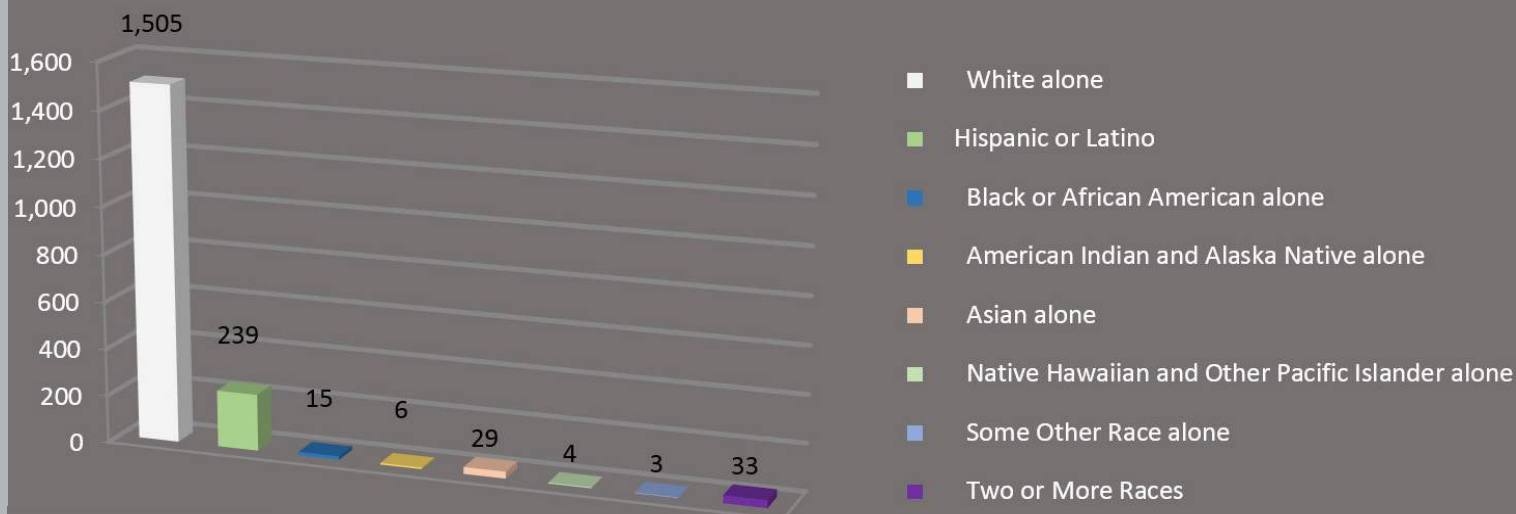
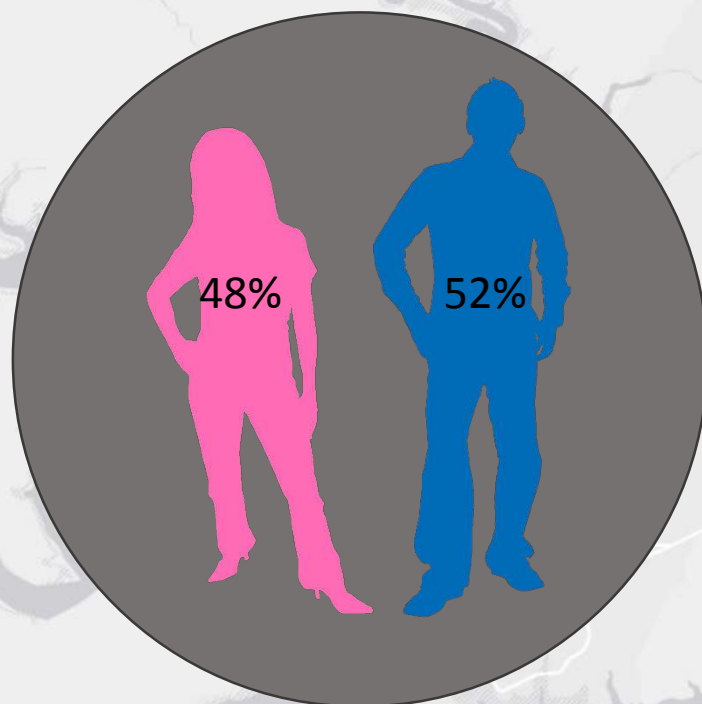
Mobility throughout a community ensures freedom of movement and enhances quality of life. Traffic congestion, pollution, urban sprawl, social exclusion, safety and health can decrease mobility and should be a part of a sustainable transportation development process. Since 1987, sustainable development has become a fundamental component in every kind of planning project ,because preserving society and the environment through sustainable goals and objectives increases quality of life. (Brundtland, 1987). A mobility system can increase multimodal transportation, reduce pollution and negative externalities such as gas emissions, smog, pollution, urban traffic congestion, and road accidents.

The purpose of this plan is to develop and explore Jonestown's transportation and show applicable systems that may result in a more sustainable community. The following chapters identify the major issues and opportunities and provide a street classification system and analysis. Different solutions are proposed that provide different scenarios to overcome the transportation issues.



## Population Composition

The demographic composition of the city can help delineate the needs and behaviors of drivers in the area. Jonestown shows an even distribution between male and females with a total of 1,834 people (Census Bureau, 2010). From 2000 to 2010 the population increased by 58 inhabitants revealing stable growth. In terms of age the largest group is men and women aged from 45-64 years old, with a low amount of people under 30. Jonestown's profile makes it a place for people in retirement. A majority of the population is white (84%) followed by Hispanics (13%), Asian (1.6%), Black (0.8%) and American Indian (0.6%).





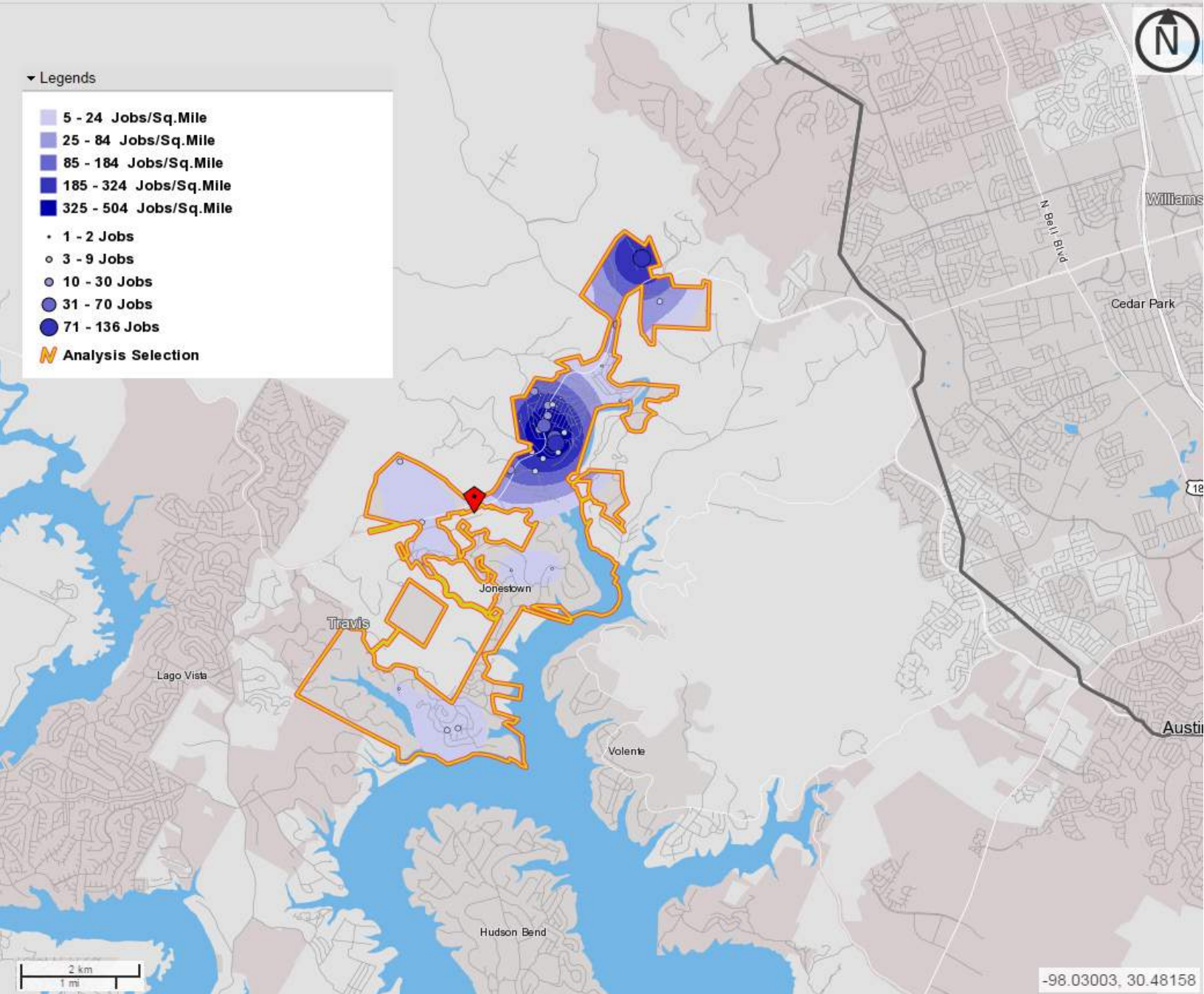


Fig 5. Major job centers in Jonestown. Source: U.S. Census Bureau. (2010).

## Traffic movement

It is important to analyze the main components that characterize the movements within and outside of the city. Workers are one of the first components that must be taken in consideration. The map delineates job centers within the city limits. In particular, two areas are highlighted; the first and largest area is located in the most internal part of the city limits, which has a more dense concentration of networks. The second densest area of the town is at the northern entrance of the city. These two zones are delineated by the common denominator of FM 1431. Given the high level of accessibility, it is definitely a contributing factor to the local economy. The inflow outflow map (Fig. 6), shows a fairly constant stream of workers through Jonestown. About 439 people, living outside, commute to Jonestown, while 576 people living in Jonestown leave daily for work. Only 23 people live and work within the city. Most commute to nearby Austin, Cedar Park, and Round Rock. A total of 462 workers were analyzed by direction and distance of commuting. 6% of the commutes exceed 50 miles. 52% of the commuters are employed in the Austin area, while the main towns of origin of internal workers to Jonestown are Austin, Lago vista, Leander and Cedar Park, which are distributed quite equally.

▼ Legends

Note: Overlay arrows do not indicate directionality of worker flow between home and employment locations.

- ➡ Employed and Live in Selection Area
- ➡ Employed in Selection Area, Live Outside
- ➡ Live in Selection Area, Employed Outside
- 📍 Analysis Selection

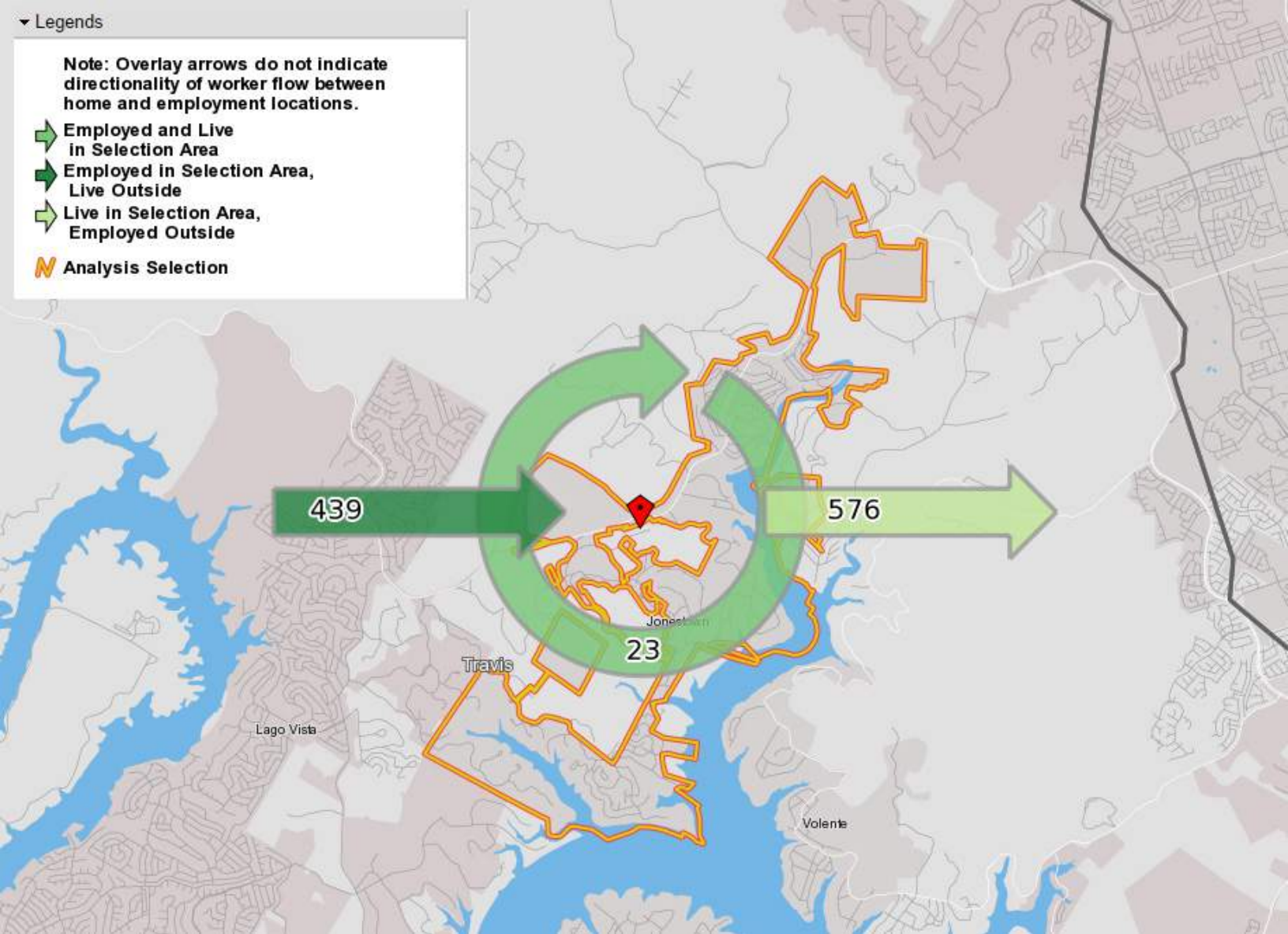
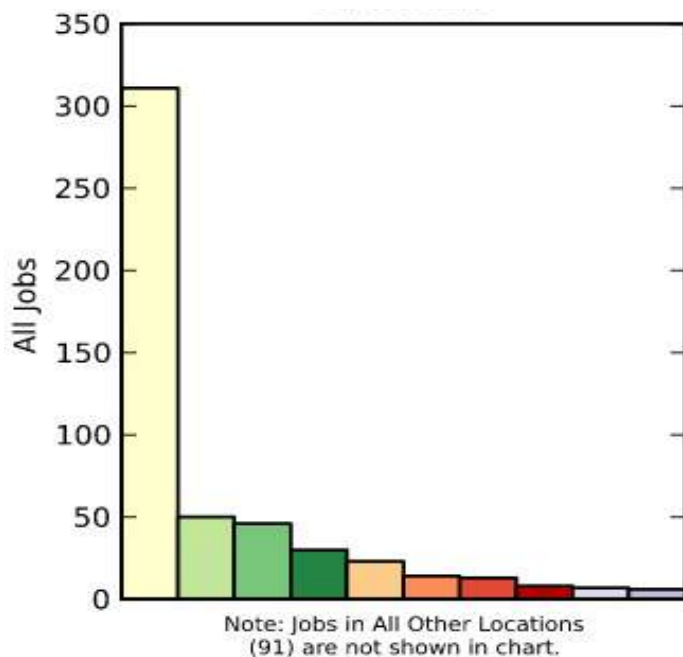


Fig 6. Inflow and Outflow Traffic in Jonestown. Source: U.S. Census Bureau (2010).



- Austin city, TX
- Cedar Park city, TX
- Round Rock city, TX
- Lago Vista city, TX
- Jonestown city, TX
- Georgetown city, TX
- Leander city, TX
- San Marcos city, TX
- West Lake Hills city, TX
- Lakeway city, TX

Fig 7. Jobs counts by Work Places. Source: U.S. Census Bureau. (2010).



The FM 1431 corridor is classified as a minor arterial (CAMPO) and can host a daily flow of about a thousand workers. This importance and characteristic of the street entails a responsibility and priority in maintenance, safety and infrastructure adaptation in order to respond to the demand of mobility generated from Jonestown and surrounding areas. The role of this road is central to the local economy, besides being a connector with other communities and is also currently the main street of Jonestown. The centrality of this infrastructure should be accompanied by an equal importance and attention.

Internal mobility can increase demand of workers within the city limits. The limits that Jonestown showed after the preliminary meetings were grouped into safety, lack of adequate infrastructure and the necessity of urban connectivity. Looking at the numbers of workers in and out of Jonestown, it seems obvious to say that the numbers are directly related to all three classes of problems. Surely the most important goal is to create alternative roads equipped with infrastructure.

Several actions can be taken in order to enhance the mobility in Jonestown:

- Sort out traffic from RM 1431 by creating alternative routes;
- Create a sustainable internal mobility;
- Raise the security level;
- Overcome lack of connectivity in the urban area.

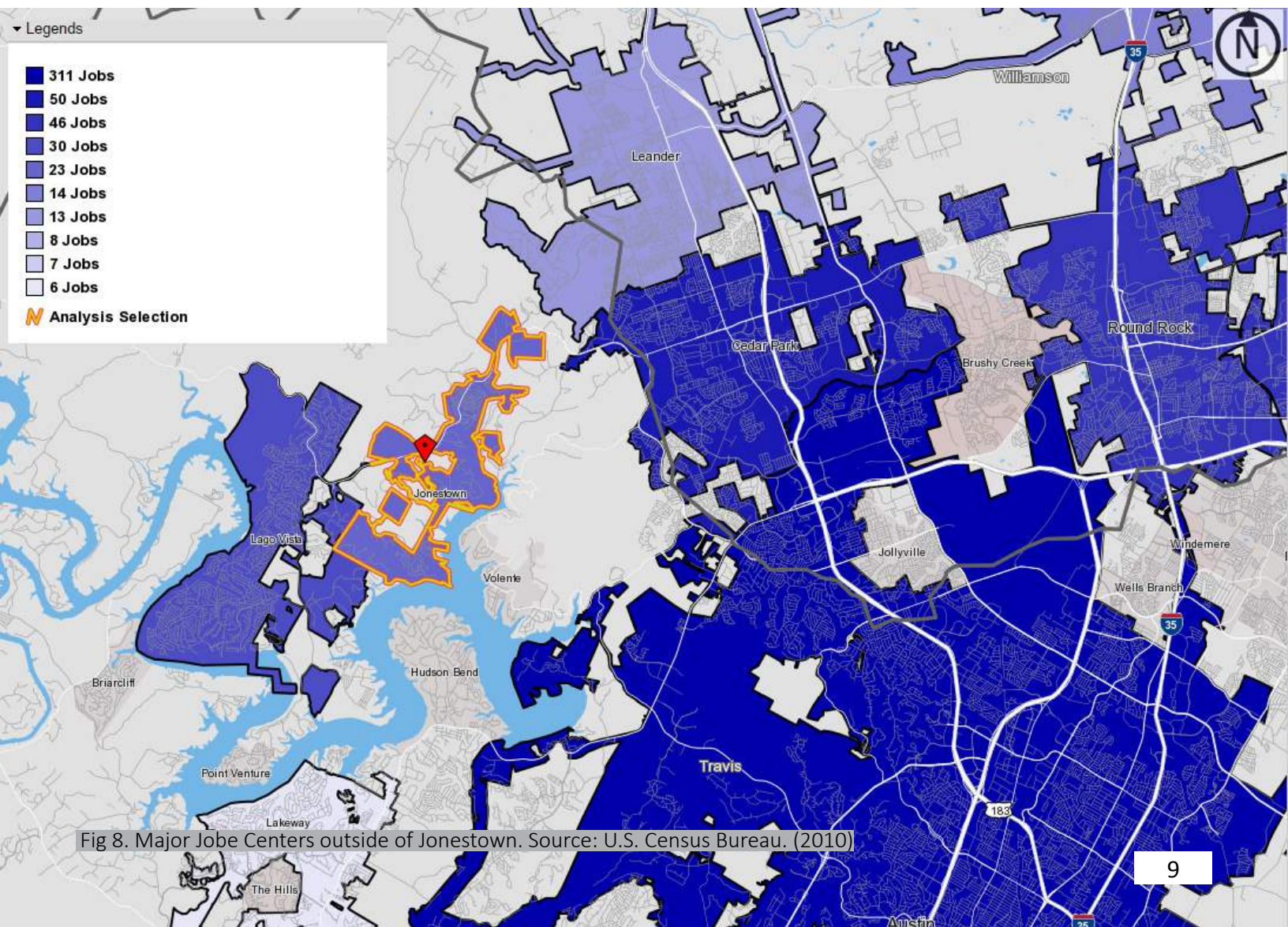


Fig 8. Major Job Centers outside of Jonestown. Source: U.S. Census Bureau. (2010)



## Motor vehicle, bike and pedestrian crashes

Automobile accidents are one of the most serious problems that affect transportation planning. CAMPO and TxDOT report and list the level of safety in transportation facilities for the area of Jonestown. The data reported are coming from accidents involving automobiles, bicycles and pedestrians. The first map (Fig. 11) shows the number as a percentage of accidents that occurred in Jonestown. Most of the accidents occurred on FM 1431. Fortunately, most of the incidents were not fatal, but it's still pointing out that there is the concrete possibility of death on this stretch of road, since at least 4 accidents were fatal. 20% of these accidents caused injury. There have been no recorded bicyclist accidents, but this does not mean the area is safe. What can be understood from this data, knowing the area of Jonestown, is that there is not a quantifiable number of cyclists, or the real possibility of actually riding. The same can be applied to data about accidents with pedestrians involved. There is a lack of adequate infrastructure such as sidewalks, lighting and signage, that would increase the safety and mobility of residents.

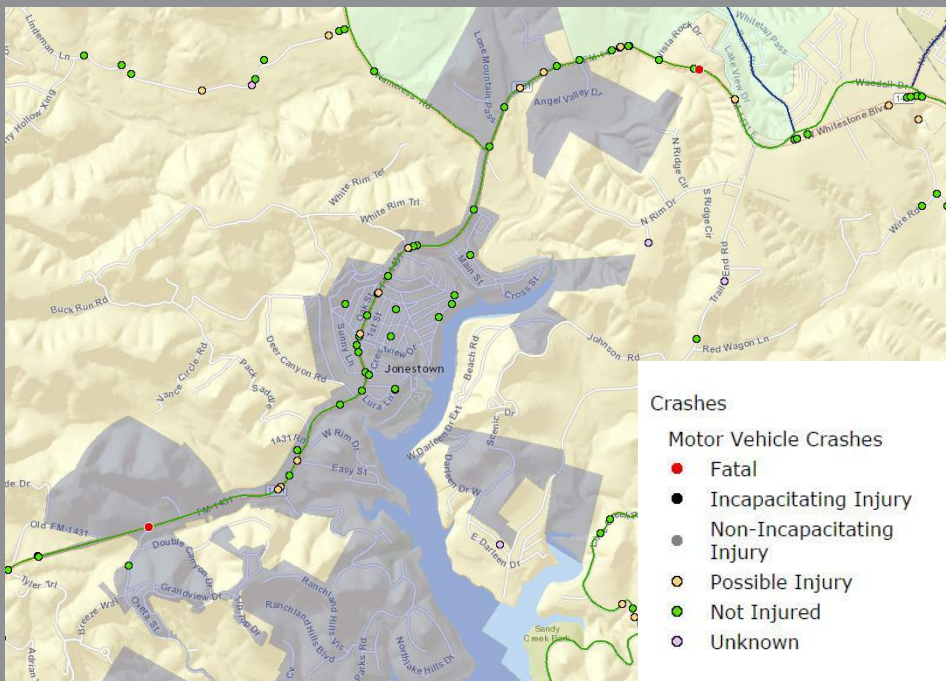


Fig 11. Motor vehicle crashes in Jonestown. Source: CAMPO (2015)

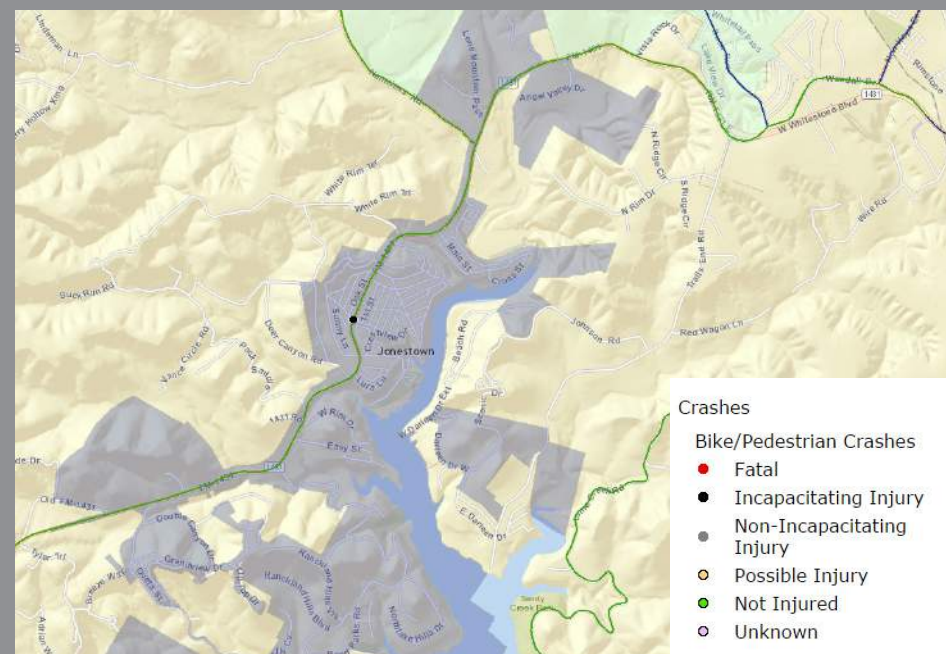


Fig 12. Bike/Pedestrian crashes in Jonestown. Source: CAMPO (2015)

Fig 13. Future Traffic Congestion in Jonestown.  
Source: CAMPO (2015)

## Future traffic congestion

FM 1431 is the main route for traffic of this travelling to Lago Vista to the West and Austin to the East. Traffic by volume is analyzed at 2010, 2015, 2025, 2035 (CAMPO, 2015). The numbers are in accordance to the forecasts of the MPO and are expected to increase exponentially.

As of 2010, there was no degree of congestion of traffic on FM 1431, with a Volume < 1 (CAMPO, 2015). By in 2015, however, a small segment of this road adjacent to the Austin area will increase in congestion. 2025 forecasts show traffic congestion for the entire corridor in Jonestown. By 2035, it is expected to be entirely converted to congested (CAMPO 2015). These forecasts show a massive growth of vehicular traffic that will involve the entire area of Jonestown. Finally CAMPO data presents the number of AADT (Annual Average Daily Traffic) counts, which show us how many people actually were recorded passing on FM 1431. The years considered in this case range from 2015 to 2035. It is predicted in 2015 to be around 13000 trips. Finally by 2035 it is forecasted to be 15000 trips. Jonestown's community will see a continuous increase in traffic counts in the future.

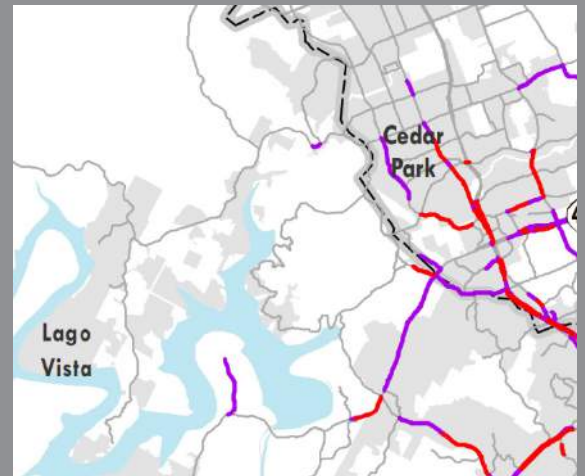
**Congestion categorized by Volume to Capacity Ratio**

- Uncongested (VC < 1)
- Congested (VC between 1 and 1.3)
- Severely Congested (VC > 1.3)

2015



2020



2025



2035





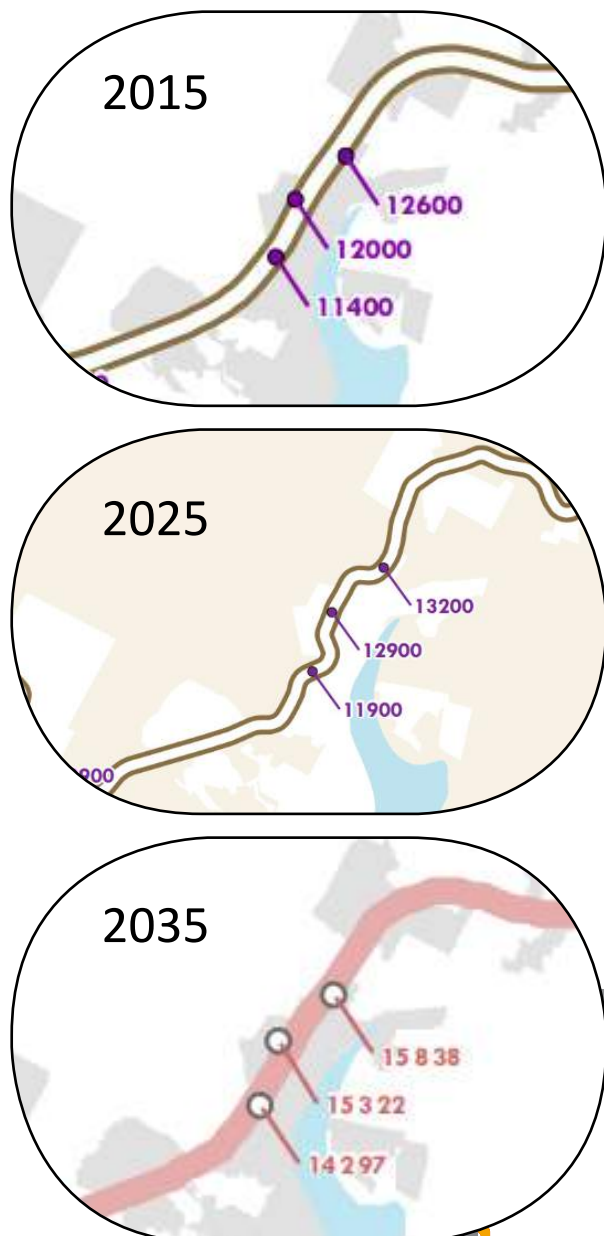


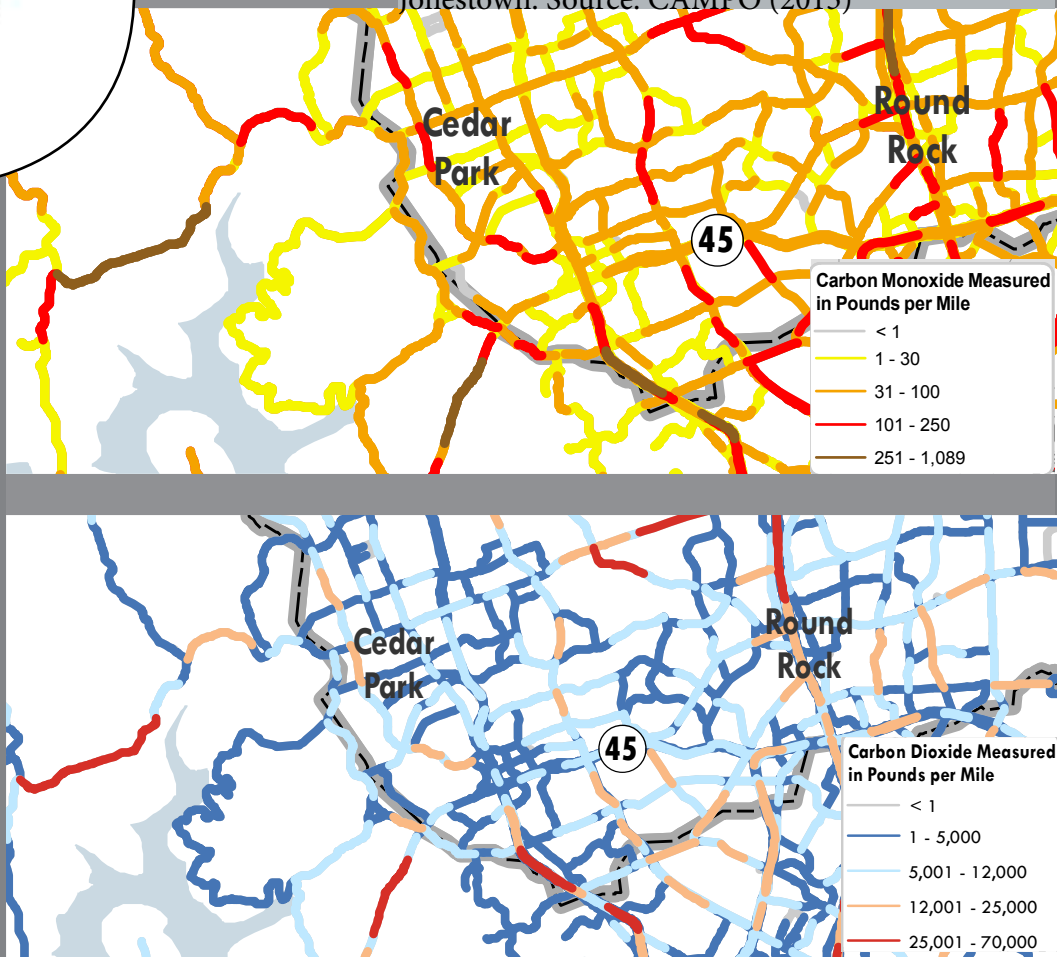
Fig 14. Present and Future Counts in Jonestown. Source: CAMPO (2015)

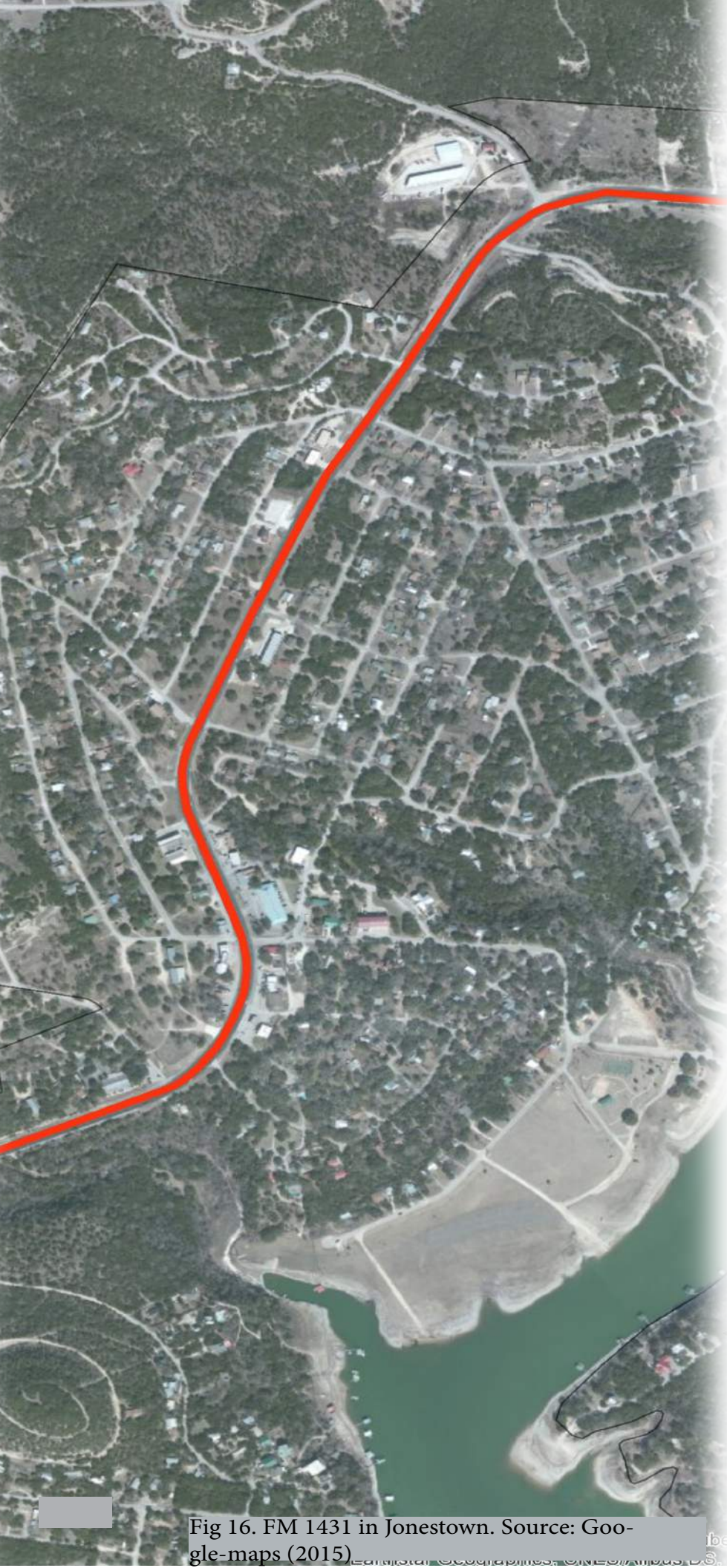
## Future traffic related pollution

Finally CAMPO data, presents the number of AADT counts, which show us how many people actually were recorded passing on RM 1431. The years considered in this case range from 2011 to 2013. Again in this case the number of cars presences is shown as constant for the first two years to go to gain about one thousand of passages over the last recorded year. This helps to increase the importance of this corridor to Jonestown's community as subject to a continuous increase in car occupancy and in need of appropriate development measures.

Due to increased traffic, there is also the risk of increased pollution. In 2008 there were several points measuring very high CO<sub>2</sub> levels. Studies have been carried out through the MPO, which analyzed the level of harmful emissions due to vehicular traffic. During 2035, CO<sub>2</sub> level is expected remain about unchanged, maintaining a high level of pollution along this road corridor. The effects of exponential growth in traffic by 2035 that will lead to really serious congestion of the community have also influences on the surrounding environment. These externalities represent a social cost that can be mitigated.

Fig 15. Future traffic related pollution in Jonestown. Source: CAMPO (2015)





## Existing conditions and issues identifications

The meeting held with city staff and public officials in Jonestown on December 11th 2014 revealed transportation issues and possibilities. The contribution of the citizens has been extremely important to identify and provide feedback about the current progress of the transportation plan.

### FM 1431

The primary growth has occurred along FM1431. This is the main road and connects local street networks to the city of Austin. To ensure a good connection between Jonestown and surrounding areas, FM1431 is important. The flow of people into and out of the local area provides resources for economic and social development. The presence of FM 1431 has the potential to identify a key aspect of the town are create a well recognizable downtown area. Having a central point in the city will undoubtedly strengthen the image and value of Jonestown. Jonestown is divided into two parts, North and South, by the presence of the highway. The average speed along 1431 is 50 mph. This speed and lack of infrastructure creates a serious danger to the safety of any pedestrian and/or cyclist. Projects to improve safety and infrastructure such as street lighting, signage, and placement of stop signs or slowdown should be promoted.

Fig 16. FM 1431 in Jonestown. Source: Google-maps (2015)





Fig 17. Jonestown's city center. Source: Bing maps (2015)

## Environment and morphology

The unique topography and beautiful hills of Jonestown represent potential strengths and weaknesses. The elevation of 814 ft increases vehicular speeds and limits the sight distance. Several crossings points in Jonestown are dangerous for drivers on FM 1431. Drivers coming from a local road have limited vision of inbound cars in both directions, because the crossing is located on the top of a slope, or just behind a blind curve. The safety of drivers is constantly at risk as excessive speed, poor visibility and maneuvers. Control measures such as those mentioned because of to slow down traffic, or at least control it in some spots, appear absolutely essential to ensure satisfactory and safe mobility. Particular attention should be paid to specific intersections.



Fig 18. Limited sight distance in Jonestown  
Source: Google maps (2015)



## Local roads network

The city's mobility is not represented solely by the flow of cars generated by FM 1431, but also by the local roads system, which affects a substantial part of the population residing in Jonestown. The city unfortunately has a considerable shortage of basic infrastructure for internal mobility including the lack of sidewalks. This affects the ability of the population to travel even short distances, forcing them to resort to using vehicles to move within the city. The absence of pedestrian crossings from one side to the other of FM 1431 creates a disconnection and division in the city. The city expressed a desire to walk and bike in Jonestown, but currently the streets do not have enough space to accommodate the presence of combined shoulder/ bike lanes. Finally one of the major concerns expressed by the city residents was the urban design in Jonestown related to its land use. One case cited was the distance of the postal dropbox located too far from the post office forcing people to drive from one place to the other. Current condition of the city shows a need for basic infrastructure to improve connectivity with the city limits. Another example on main street (1431) are several leading driveways to nowhere as a result of untreated and uncontrolled urban projects. Lastly, parking for businesses along 1431 and events are needed.

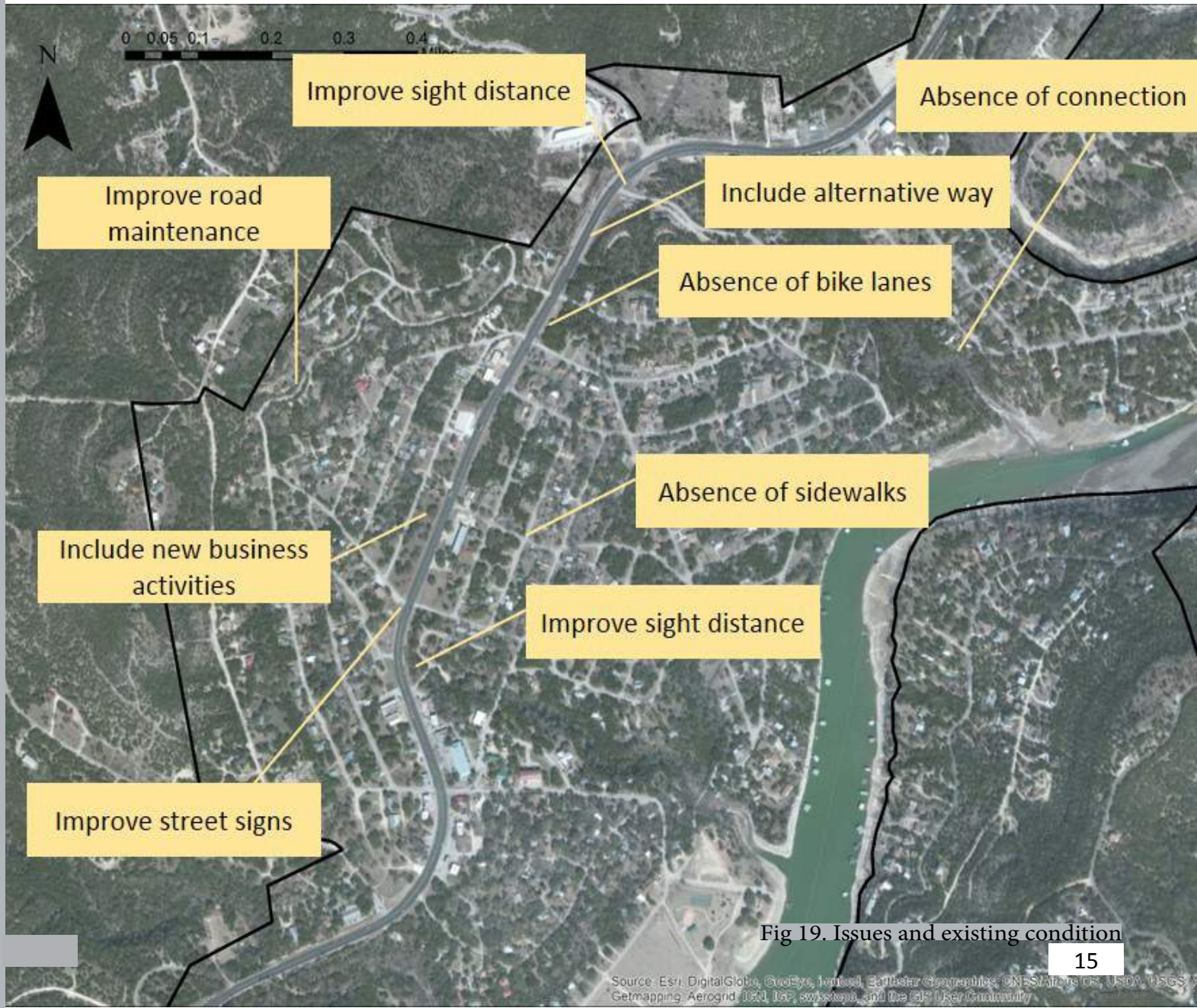
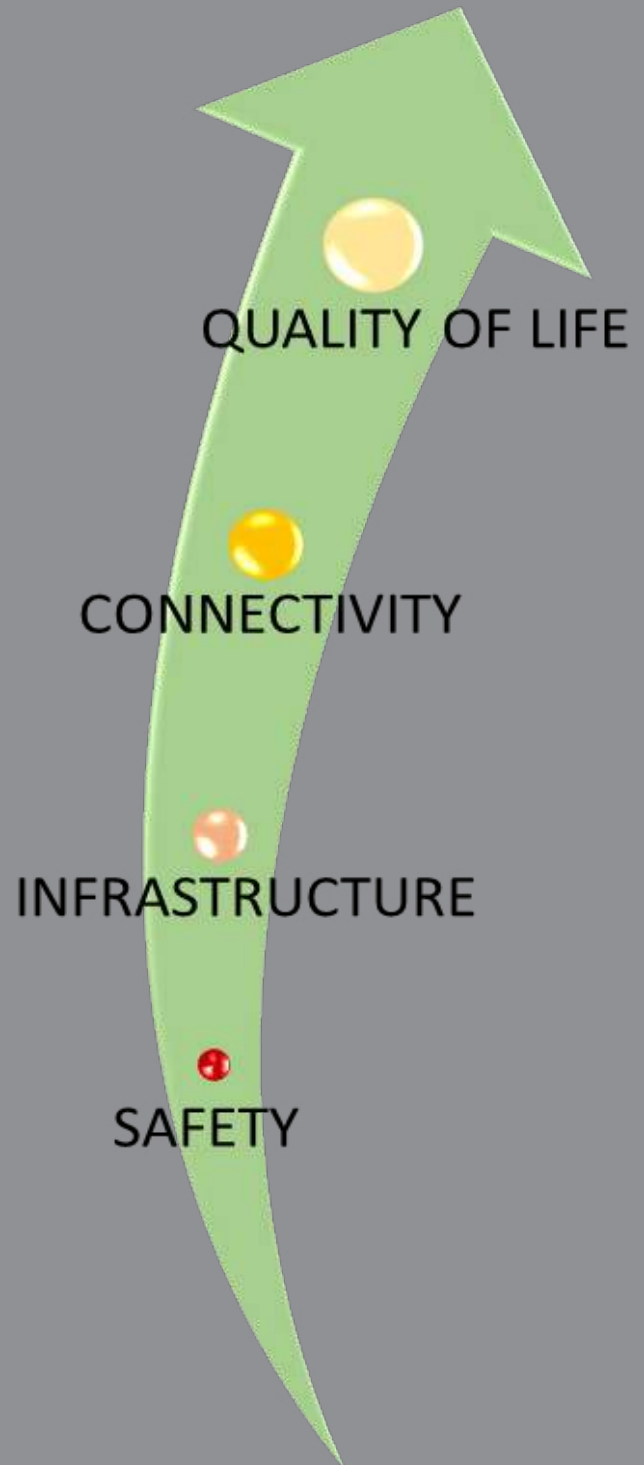


Fig 19. Issues and existing condition

## **Safety, infrastructures, and connectivity.**

Based on this analysis there are three main sets of issues regarding internal and external mobility in Jonestown: safety, infrastructure, connectivity. The first category is safety on the roads. The excessive speed on FM 1431 sometimes as high as 50-55 mph, is not suitable for traffic through Jonestown. Safety is also compromised by the reduced sight distance on various points along FM 1431. This difficult situation is also exacerbated by the morphology of the territory which is inadequate for Texas urban road standards. There is also a lack of infrastructure for internal and external mobility. Infrastructure is missing on FM 1431, which doesn't have adequate signage especially for traffic and speed regulation. Street lighting is in short supply, leaving whole areas of the main corridor completely dark, increasing the level of danger. Citizens have expressed a desire to walk and cycle within their city, but pedestrian and bicycle facilities are lacking. Sidewalks and bike lanes are desirable but hampered by the presence of Fm 1431, which bisects the community. Because of the division, connectivity is limited. The core of the town is along the corridor FM 1431, but the community is also composed of homes scattered in the hills. It is therefore important to try to connect these areas with the primary core of Jonestown to create a feeling of identity, membership, and connectivity.



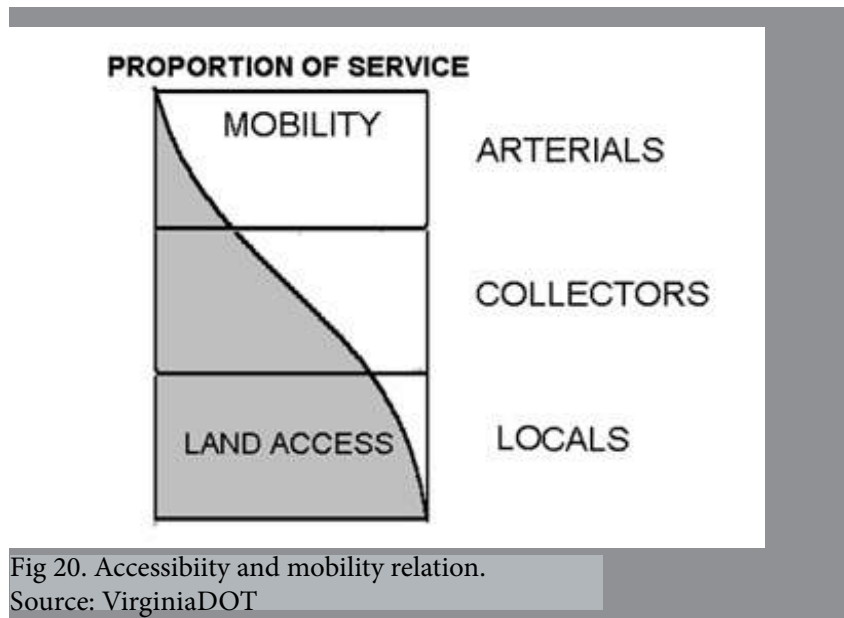
# Street Classification

## Plan considerations

The starting point for developing a good transportation plan is understanding the composition of Jonestown's street network. This is represented by the functional classification of its streets. Roads are grouped into different types and classes conforming to the features of traffic flow in the town. This classification shows the level of service provided by the infrastructure in order to understand its functionality and importance for the community.

According to the US Department of Transportation (2012) three main functional classes are defined (Fig. 20). The classification does not preclude the access or usage of other roads. For example, commuters driving through more than one single kind of street create a mixture of roads during their travels. Local streets are mainly designated to accompany drivers to the destination of their trips, while arterials are basically thought to support movement covering long distances in less time, connecting one place to another. Accessibility is the feature distinguishing the three different types of streets (Office of Planning, Environment, & Realty, 2012). A good degree of mobility and speed limits accessibility to the land and to the street itself. Locals roads have the highest level of accessibility but with a low grade of mobility. Speed is reduced and time of commuting is longer. Collectors are the connecting point between the first two types, allowing a good equilibrium between accessibility and mobility.

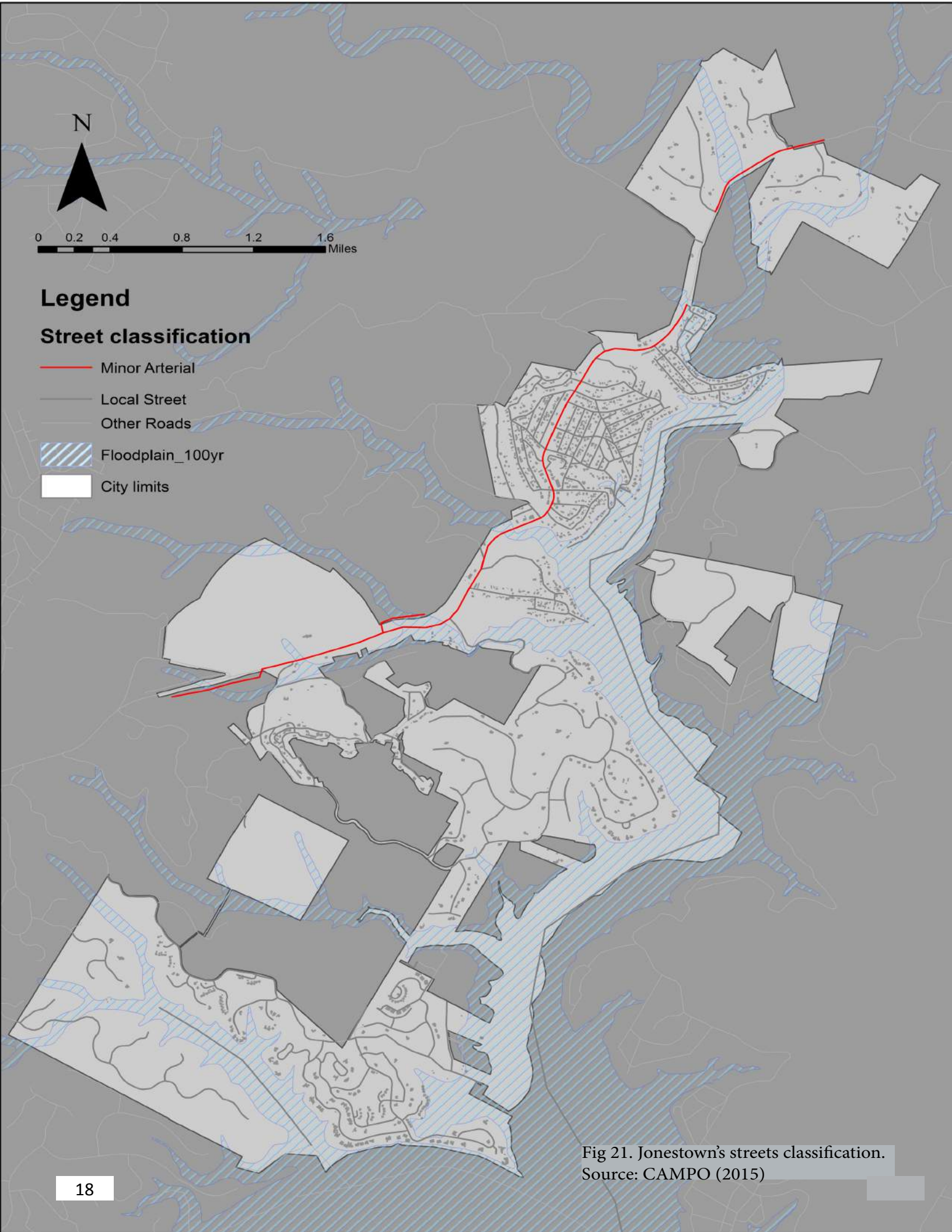
In the following pages we can see how the road system of Jonestown has been divided in separated classifications.



## Jonestown's Street Classification

The street classification of Jonestown depicts the lack of differentiation of road types. FM1431 highway is classified as a minor arterial. All remaining streets of the town are classified as local streets. These are the only two classifications present in the city. This classification reveals a need for accessibility and mobility. Although the local streets have greater levels of accessibility, the boundaries of the city, location, topography and other factors affect the connectivity between the different parts of Jonestown. The main problem is the major arterial (FM 1431) directly connecting to local streets which increases difficulty for drivers.





## Legend

### Street classification

- Minor Arterial
- Local Street
- Other Roads
- Floodplain\_100yr
- City limits

Fig 21. Jonestown's streets classification.  
Source: CAMPO (2015)

# Thoroughfare Plan

The thoroughfare plan of Jonestown aims primarily to increase the level of hierarchy of road types in the town. Some of the previous local streets should become local collectors in order to create better mobility and safety in the city. The collector creates a loop that surrounds the central area, creating a certain identity in the city center. Also the roads give priority to sidewalks and bike lanes.

## Goals and Objectives

### **GOAL A: Increase the level of road safety for drivers, pedestrians and cyclists, for internal and external mobility in Jonestown.**

A1. Reduce travel speed along the corridor of RM 1431 to increase safety in central area of the city, by using traffic calming, and high visibility speed signs.

A2. Provide major intersections with traffic lights to monitor and regulate traffic in main area of Jonestown introducing medians, continuous turning lanes and buffers in the segment of FM 1431.

A3. Redesign pedestrian crossings on FM 1431 and increase safety for pedestrians by including refuge islands of different color pattern as visual calming measure to reduce traffic speed.

A4. Provide parabolic convex mirrors on critical points of FM 1431 to increase sight distance for drivers.

### **GOAL B: Generate a simple, continuous hierarchy of streets in Jonestown.**

B1. Prevent future traffic congestion and reduce travel time by creating alternative routes to FM 1431.

B2. Increase access to the main facilities and business activities in the city.

B3. Update traffic studies to understand and prevent future traffic congestion problems.

### **GOAL C: Provide basic infrastructure in Jonestown to create, support and in the future expand mobility inside and outside the city.**

C1. Construct bike and pedestrian lanes that connect central areas of the city.

C2. Promote mixed land use development to avoid unnecessary car trips and encourage bicycle or pedestrian facilities usage.

C3. Provide bus stops in Jonestown, especially for remote and isolated areas of Jonestown and to underserved or disadvantaged populations.

C4. Keep city's website updated with new and future transportation improvements to make alternative transportation systems more user friendly and popular.





0 0.2 0.4 0.8 1.2 1.6 Miles

## Legend Thoroughfare plan

- Proposed Bike Lane
- Proposed priority sidewalks
- MInor Arterial
- Minor Collector
- Local Street
- Other Roads
- Floodplain\_100yr
- City limits



# Legend Thoroughfare plan

- Proposed Bike Lane
- Proposed priority sidewalks
- MInor Arterial
- Minor Collector
- Local Street
- Other Roads
- Floodplain\_100yr
- City limits



# FM 1431 Proposed Design





Fig 24. FM 1431 current section

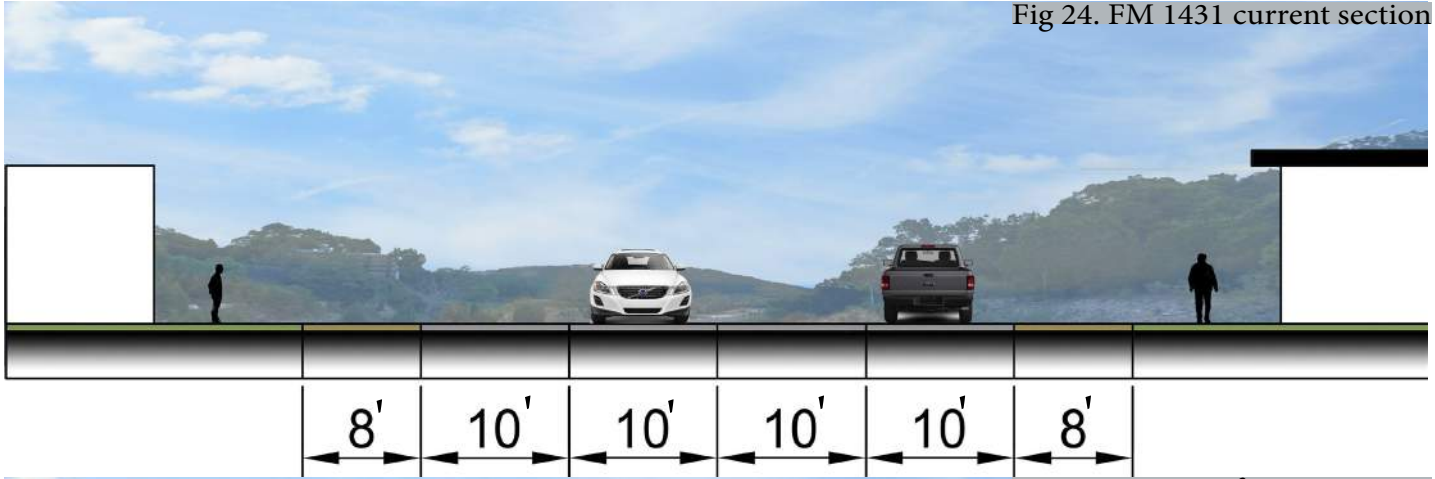


Fig 25. FM 1431 future section

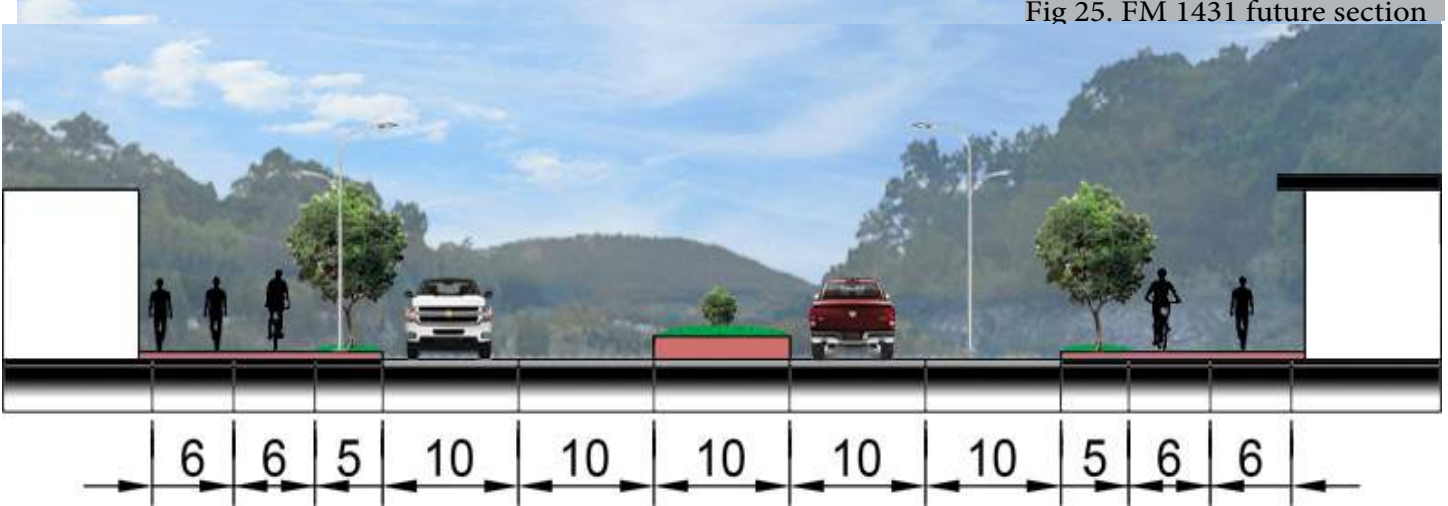


Fig 26. FM 1431 Before



Fig 26. FM 1431 After

## FM 1431 - Design solutions

The new design concept of the minor arterial is thought to give more space to different modes of transportation. Large sidewalks and bike paths are directly added beside FM1431. Also between pedestrian and drivers a buffer is provided to divide them and increase the level of security. This buffer is also adorned with landscaping to delineate the entrance into the city center. This stretch of arterials is important to the future development of the community. This design is meant to reduce the travel speed in order to facilitate accessibility. Intersections to cross from one side of the city to the other is critical. These must be handled safely with proper street lighting and infrastructure.



# Minor Collector Proposed Design

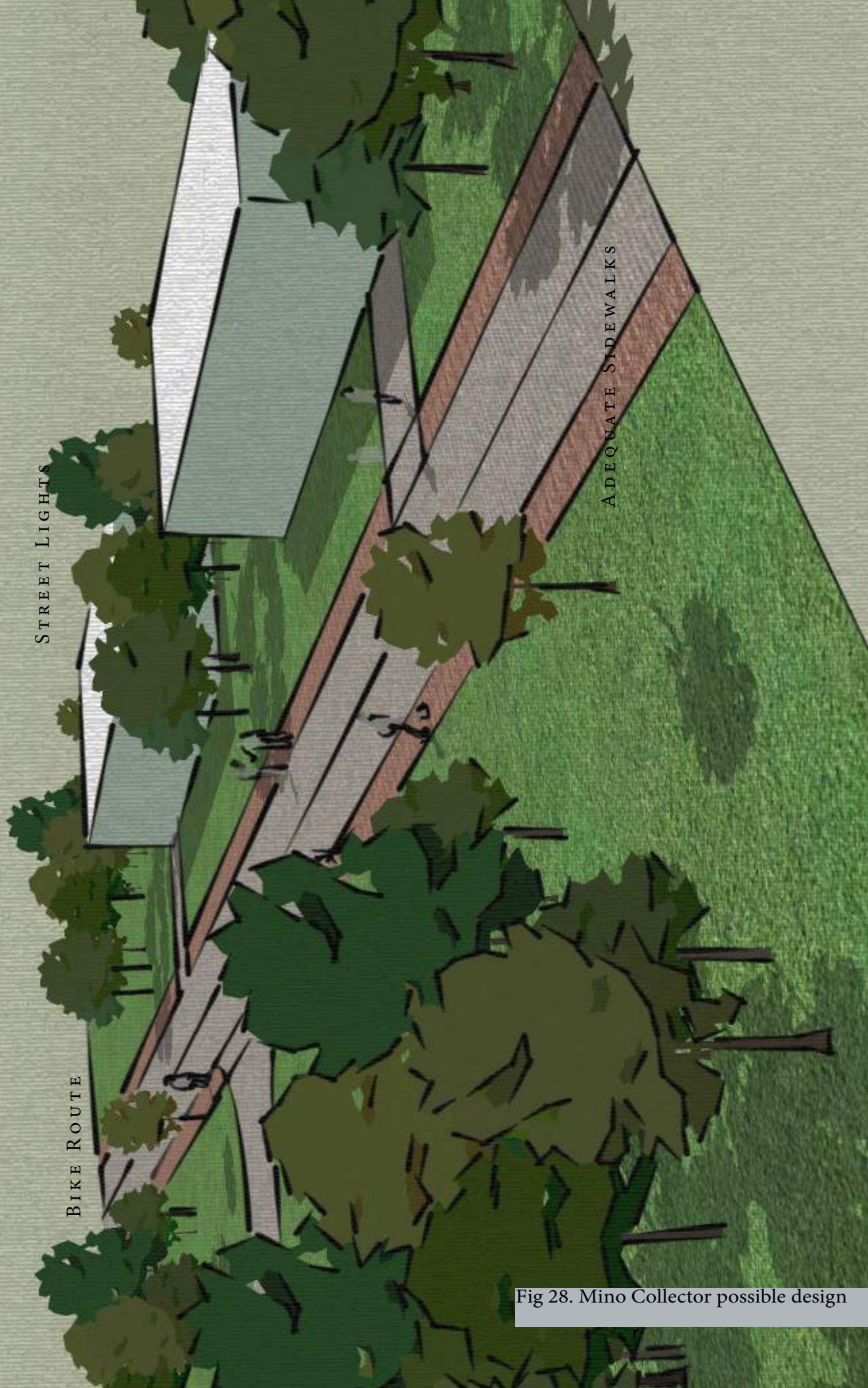


Fig 28. Mino Collector possible design



Fig.30 Minor collector current section

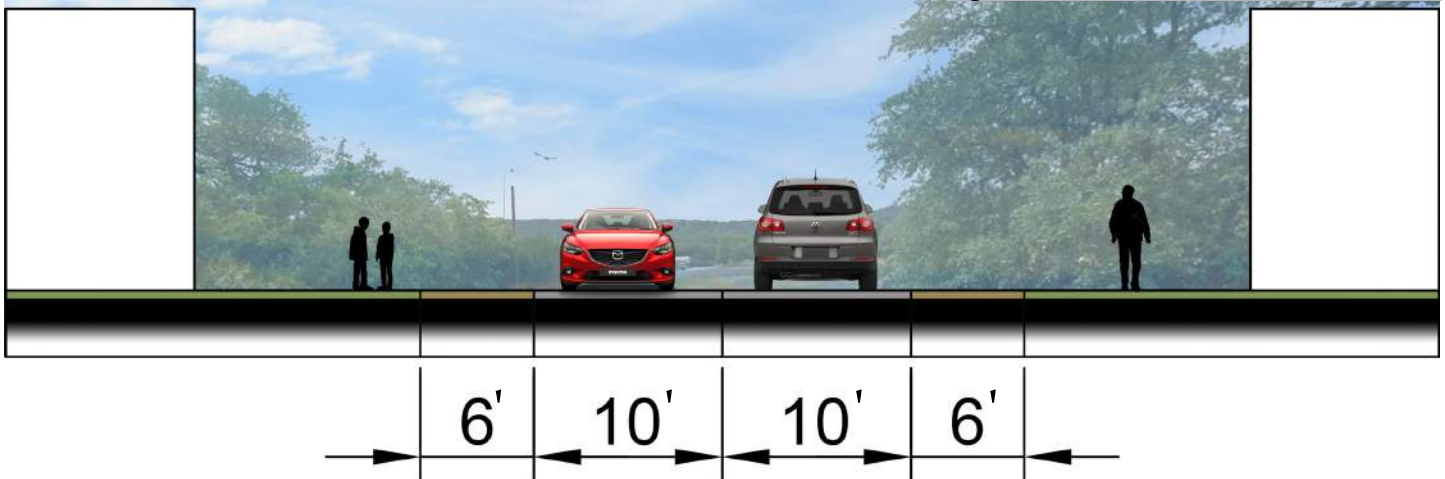


Fig.31 Minor collector future section

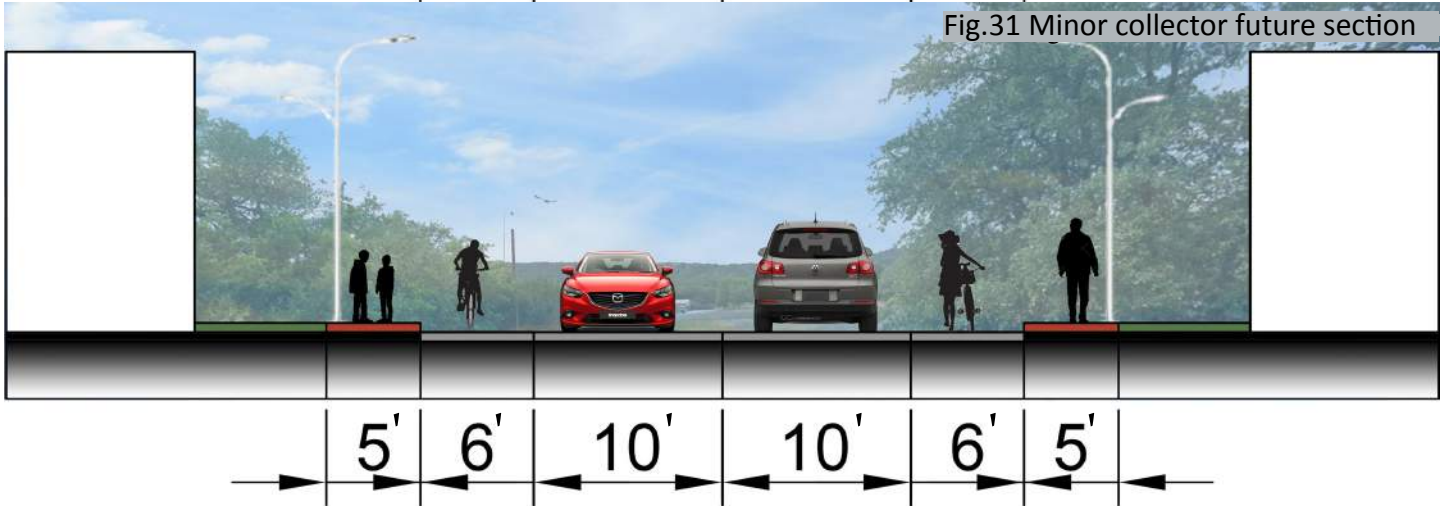


Fig.31 Minor collector before



Fig.32 Minor collector after

## Minor collectors - Design solutions

Minor collectors are the street class introduced by the thoroughfare plan. While other roadways will be improved, a real conversion and upgrade of the roads are key. The plan specifies which roads are more suitable to be considered future minor collectors because they create a sort of loop around the City Center by creating a balance between accessibility and mobility. Another determining factor is their function as an alternative to street FM 1431. Given the predicted growing traffic as seen from the traffic analysis, these collectors can serve as an alternative road to possible bottlenecks or traffic congestion. Given the rather broad dimension of the roadway, minor collectors will be dedicated also as multimodal infrastructure providing them with bike lanes and sidewalks. The addition of landscaping on these roads is recommended to create a form of protection for pedestrians as well as to form distinguishable features for the main area of Jonestown.



# Local Street Proposed Design

DOWNTOWN IDENTITY

SAFETY AND HEALTH  
IMPROVEMENTS

PEDESTRIAN CONNECTIVITY

Future Local Street

Fig 33. Local Street possible design



Fig.34 Local street current section

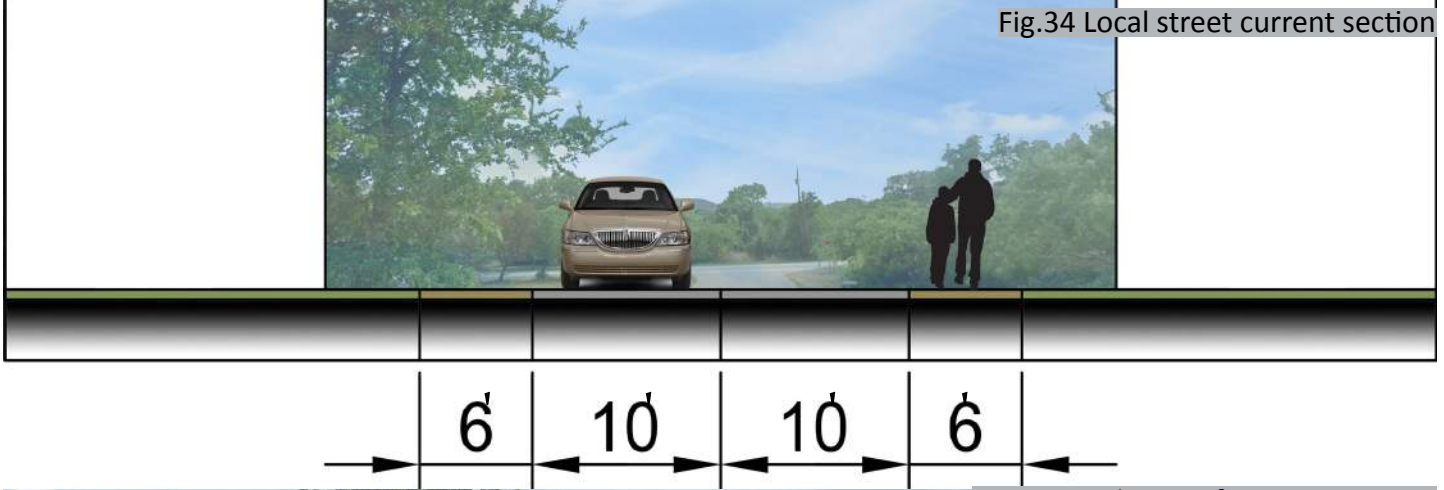


Fig.35 Local street future section n

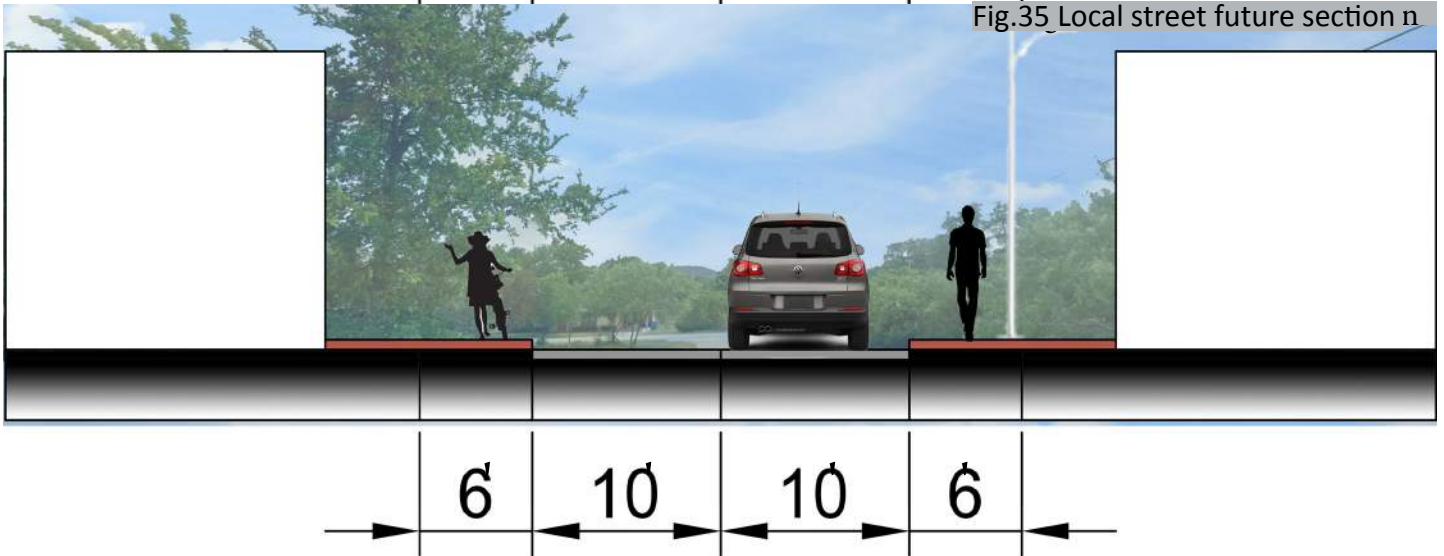


Fig.36 Local street before

Fig.37 Local street after:

## Local streets - Design Solutions

This type of road is the one that leads directly to the city centre. It is in a sense the most important for internal mobility the city. The level of accessibility and connection with the collector streets is crucial. The proposed design incorporates sidewalks and street lights to increase safety. Given the small size of this type of road, cyclists will use the shoulder of the road. This solution is designed to decrease the use of the car for short trips in the city and for recreational exercises. According to the thoroughfare plan priority must be given to streets of the main town center in order to create internal mobility and a recognizable city center.



# Corridor Design Solutions

Pedestrian crossing  
island

Median turning  
lane

Median strip



Widening corners  
at intersections

Sidewalks separated  
from the road by a  
buffer

Additional lane to  
accommodate future  
projected traffic







