Segment 2: West Sligh Ave from N. Rome Ave to N. River Blvd. (0.7 miles)
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University of South Florida CGN 6933: Sustainable Transportation
Department of Civil and Environmental Engineering
Spring 2019: Thursday April 18, 2019
Segment Overview (North Rome to North River)

I-75 to the right
West Sligh Avenue: Goals and Objectives

Goal 1: Provide safer travel patterns for all
1. Reduce collisions at intersections by **20 percent** to maximize road safety (Vision Zero).
2. Implement traffic calming to encourage driver awareness and reduce speeds by **5 mph**.

Goal 2: Provide complete streets
1. Enhance pedestrian and bicycle facilities- Continuous sidewalks and bicycle lanes; **two crosswalks every mile**.
2. Have **three bus stops every mile** to encourage the use of public transit.

Goal 3: Provide better use of the available land space
1. Create multi-level parking facilities to increase available land space by **15 percent**- more space for residential areas, stores, restaurants, parklets etc.
2. Establish a **15 percent** shift towards more mixed-use commercial and residential spaces that fits the resident’s needs.
West Sligh Avenue Almanac

- **Corridor name, limits, lengths**
  - **Corridor Name:** West Sligh Ave from North Rome to North River
  - **Speed Limits:**
    - Residential: 25 mph
    - Main Road: 35 mph
    - Crest(bridge): 30 mph
  - **Lengths:**
    - Length of Road: 0.7 miles
    - Width of Road: Residential: 17.63 feet, Main Road: 40.7 feet, Crest(bridge): 41.47 feet
    - Width of Sidewalk: Residential: 6 feet, Main Road: 5-foot sidewalk, 2.52-foot median, Crest(bridge): 5.04 feet
    - **Note:** On West Sligh, wherever turning lanes are provided, road width is 54.87 feet

- **Safety**
  - **Years:** 2013-2017
  - **Number of PDO:** 62
  - **Number of Possible Injuries:** 24
  - **Number of Injury Crashes:** 12

- **Mobility**
  - **Transit:** HART Route Stop 45
  - **Average Headway:** 15 minutes
  - **Bicycle:** No bike lanes
  - **Pedestrian:** Sidewalks, but not continuous
Existing Cross Section: Main Road

Group 5, West Sligh Ave from North Rome to North River
Existing Cross Section: Turn Lanes

Group 5, West Sligh Ave from North Rome to North River
Existing: Bike and Pedestrian Connections

Group 5, West Sligh Ave from North Rome to North River
1314 West Sligh Avenue has a Walk Score of 58 out of 100.

This location is Somewhat Walkable so some errands can be accomplished on foot.

Nearby parks include Lowry Park, Epps Park and Playground.
Existing: HART Transit Connection

Route 45: Stops on segment

Routes 1, 9, 12, 14, 36: Go through Sligh Ave. but not our segment
AADT Formulation (Hillsborough County)

2014 AADT: **25,015**  
2018 AADT: **28,749**

Calculating Percent (Straight-Line) Growth Rates:

\[
PR = \frac{Present - Past}{Past} \times 100\%
\]

\[
PR = \frac{2018\ AADT - 2014\ AADT}{2014\ AADT} \times 100\%
\]

\[
PR = \frac{28,749 - 25,015}{25,015} \times 100\% = 3.73\%
\]

2025 AADT: approximately **37,000**  
2040 AADT: approximately **65,000**

Group 5, West Sligh Ave from North Rome to North River
Group 5, West Sligh Ave from North Rome to North River
2025 Aerial View

Group 5, West Sligh Ave from North Rome to North River
2025 Aerial View (Turn Lanes)
2025 Activity Centers: Private Parking

BEFORE

- Get rid of small parking facilities; too close to road
- Increases available land use
- Incorporate one giant parking garage
- Wayfinding signs, bike racks
Total Crashes: 2013-2017

Group 5, West Sligh Ave from North Rome to North River
2025 Traffic Calming Measures: Bollards

- N. Rome
- N. Orleans
- N. Willow
- N. Boulevard
2025 Bus Stops and Bus Shelters

- 3 bus stops every mile
- Solar Power
- Comfort/Weather Protection

https://www.pinterest.com/pin/648799890037560188/

Group 5, West Sligh Ave from North Rome to North River
2025 Bus Stops and Bus Shelters

Add Route 45 to:
- N. Rome
- N. Willow
- N. River

Solar Power Shelters

Group 5, West Sligh Ave from North Rome to North River
2025 Cross Walks

- Easily Accessible Crosswalk Buttons
  - **Mounting Height:** The centerline of the push button shall be mounted 42 inches (1070mm) above the clear ground space for approach
  - **Close to Crosswalk:** The push button shall be mounted no further than 5 feet (1.5m) from the extension of the crosswalk lines, and within 10 feet

2040 BUS RAPID TRANSIT (BRT)

- Future of sustainable public transit
- Dedicated bus lanes - lowered costs, more efficient
- Implementation means redesigning the landscape to accommodate other vehicle types ex- bicycles, pedestrians
- Ideally designed to relocate bicycle lanes to a parallel street
2040 Design Concept

Group 5, West Sligh Ave from North Rome to North River
2040 Design Concept (Turn Lanes)

Group 5, West Sligh Ave from North Rome to North River
2040 Aerial Views

Group 5, West Sligh Ave from North Rome to North River
2040 Aerial Views (Turn Lanes)

Group 5, West Sligh Ave from North Rome to North River
Before:

After:

- Geometrical Parking
- Offers 60 percent more space than regular parking
- More efficient
- Forces a one way flow of traffic
- Easier to get in and out of space

https://www.reddit.com/r/oddlysatisfying/comments/arppwx/frankfurt_germany_stunning_geometrical_parking/
Brazil’s already-installed bus stops do not have solar panels or electronic displays, but they do provide maximum shelter from the wind and rain. Each “tubo” is made of a metal frame and curved glass—simple, elegant, and low-tech.
Industrial designer, Laurence Kemball-Cook ideated converting the energy of walking people for a green charge. When people walk over these power generating slabs known as “Pavegen,” the energy generated is converted into a small amount of electricity which will be used by the bus stop to glow at night.
This bus stop concept was proposed by a group of researchers at MIT to be installed next year in Florence, Italy. The EyeStop features touch-screens as well as LEDs that provide Web access, tools for planning a best route, and getting directions. You can choose to have your local EyeStop to sync with your phone to get latest updates about your frequent buses.
2040 Bridge Design

1. Make a separate bicycle and pedestrian lane
2. Create a barrier between bicyclists/pedestrians and cars

2040 Crosswalks

HOLOGRAPHIC CROSSWALK

- A new way to think about traffic lights of the future
- Small, barely noticeable, three-light setups replaced by a very modern, highly visible hologram system
- Based on plasma laser beam technology that uses an array of lasers projecting a 10ft tall virtual wall across the street with beams forming silhouettes of crossing pedestrians

This concept is based on the increasing pedestrian deaths that occur at pedestrian crosswalks every year in Korea. The designer says that traditional traffic lights are overshadowed by large electronic ad signs, and the focus is lost at these intersections due to less visibility. This design would be impossible to miss due to its size, and wall-like appearance.
THE STARLING CROSSING

STARLING - STigmeric Adaptive Responsive LearnING.”

- Based on machine learning
- Cameras on each end of the street that monitor vehicle type by calculating the speed and trajectory
- Generates LED-lit patterns that stop traffic, highlight where bikes should wait, and help pedestrians cross
- Lights are embedded in high-impact plastic strong enough to handle the weight of cars
- Over time, the system learns the shortcuts people take across the street, and reshapes the crossing to fit those natural paths
- Based on BIOMIMICRY - inspired by ants, which leave a path of pheromones for other ants.
- System can also learn where crossing is safest, and guide pedestrians to those locations
Group 5, West Sligh Ave from North Rome to North River
2040 Sustainable Trash Bins

- Throw in recyclable trash and redeem money points
- Money points can be used for free rides in the public transit system
- Two birds with one stone:
  a) Encourage public transit
  b) Keep the environment safe and clean.
- Already being used successfully in Beijing, China and Istanbul, Turkey

TDM Measures Proposed to Reduce VMT

- Providing information about local alternatives to private vehicles
- Explaining the benefits of commuting alternatives to business owners
- Promoting a wide range of transportation options
- Discouraging the use of single-occupancy vehicles by introducing tolls and surcharges that increase the cost gap between driving alone and other options
- Increasing the average passenger density of privately operated vehicles by promoting ideas like carpooling
- Discouraging the use of single-occupancy vehicles by increasing parking charges and reducing parking spots
- Promoting mixed land use
- Introducing limits on driver accessibility to key areas of cities with high levels of traffic congestion
Thank You! Questions?

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