City of
Gainesville

General Pavement Overview &
Streets, Stations & Strong Foundations Roadway Priorities

Brian M. Singleton, P.E., Director
Public Works Department
June 13, 2024

Agenda

1. Pavement Overview, Condition, Budget and Needs
2. N Main Street Project Final Update
3. NE 9th Street Project Scoping

Pavement Overview, Condition, Budget and Needs

Vision and Mission Planning

Strategic Plan

- **Critical Need: Technology and Facility Upgrades**
- **Goal 4 - Resilient Local Economy: Expand & upgrade City infrastructure to support business development and economic investment**
- **Goal 5 - “Best in Class” Neighbor Services: Maintain & upgrade City facilities and buildings to better serve our neighbors.**

Infrastructure Maintained by Public Works

Roadways - $2 billion asset

Pavement, Sidewalks, Curbs, Drainage Structures & Pipes, Signs & Markings, Traffic Signals and Fiber
Pavement: $250M; Pavement Structure: $500M

Buildings - $366.5 million asset

Roofs, interior & exterior paint, flooring, windows, doors, site civil, HVAC, electrical, plumbing, fire suppression, security systems and elevators

Pavement Management Techniques

Worst-First

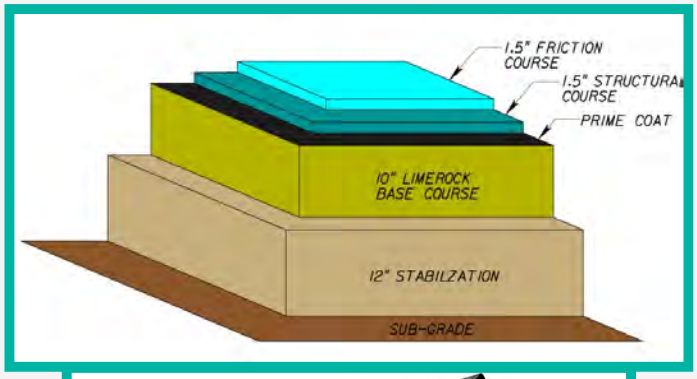
- Conventional – Most peers utilize this method
- Asset decays and is replaced (mill & resurface/reconstruction)
- Does not take into account backlog
- Costly

Optimization – City practice for 20+ years.

- Recommended by FHWA (Pavement Preservation)
- Pavement Preservation = Surface Treatments
- Sustainable: Asset protected and left in place
- Fiscally responsible & minimizes backlog growth
- More visibility

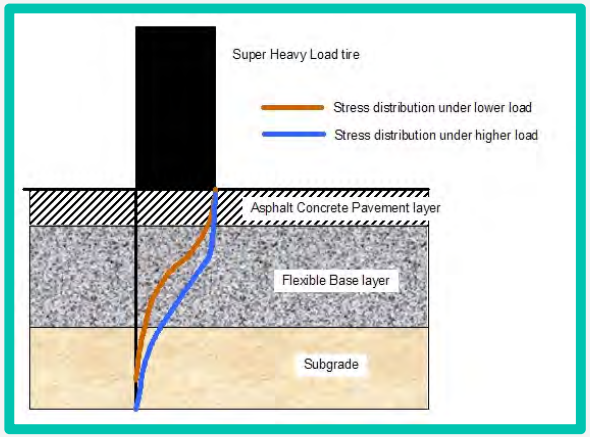
Pavement Structure

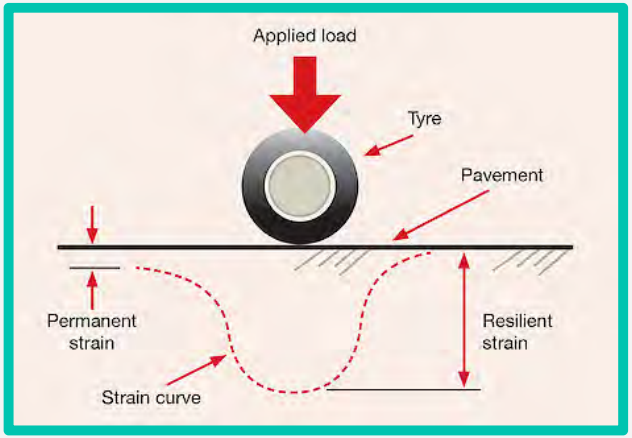
Pavement Structure

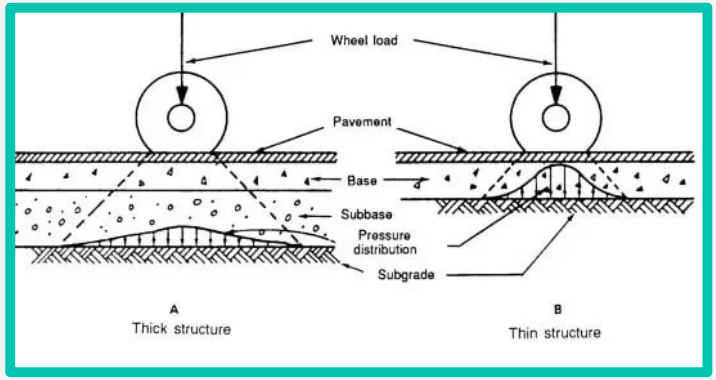


Goal

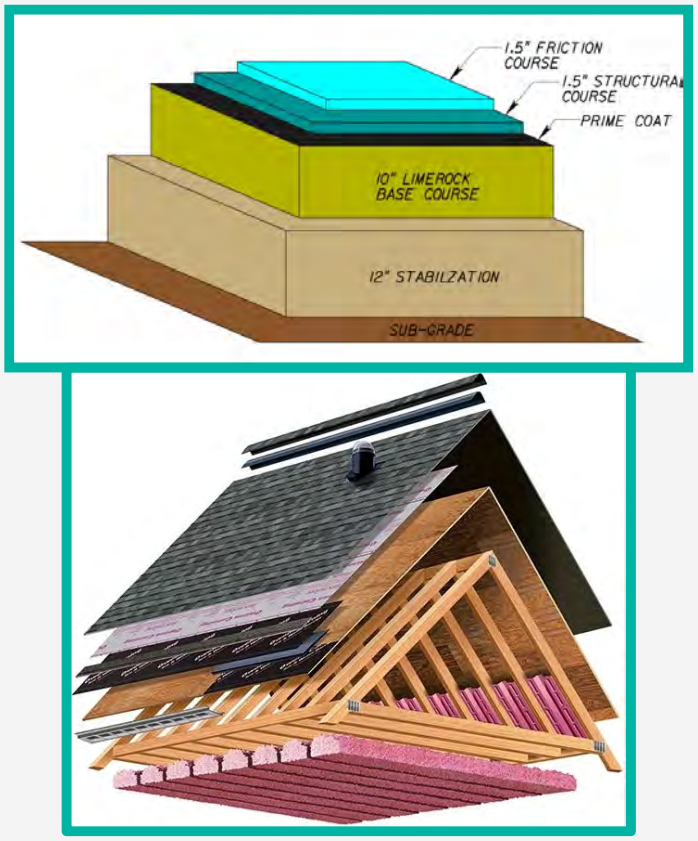
- Keep water from infiltrating from top to bottom
- Sound foundation to support traffic loads







Pavement Structure Comparison



- Friction course – Shingles
- Structure course – Felt/moister barrier
- Base Course - Decking
- Stabilization – Trusses
- Sub-grade – Building Interior

Pavement Failures

Caused by traffic loading

Pavement not strong enough to support traffic loads

Preserving pavement is not possible

Pavement Failures

Pavement oxidizes and loses flexibility

Pavement Failures

Pavement oxidizes and loses flexibility

Pavement Cracks

Pavement Failures

Pavement oxidizes and loses flexibility

↓

Pavement Cracks

↓

Water intrusion & potholes

Pavement Failures

Pavement oxidizes and loses flexibility

↓

Pavement Cracks

↓

Water intrusion & potholes

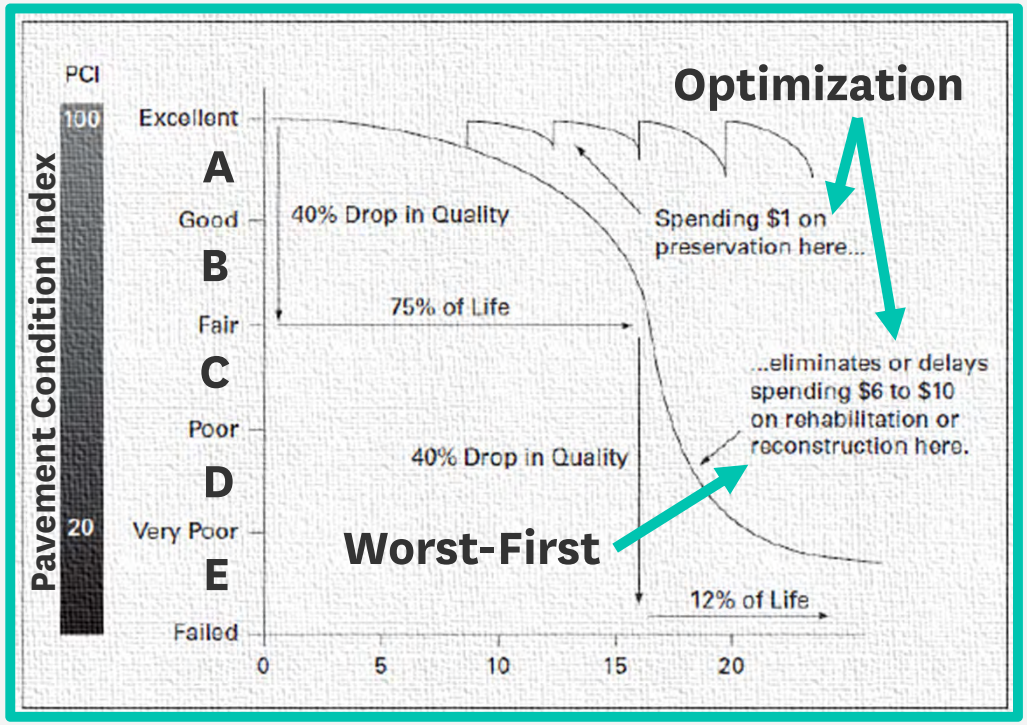
Pavement Failures

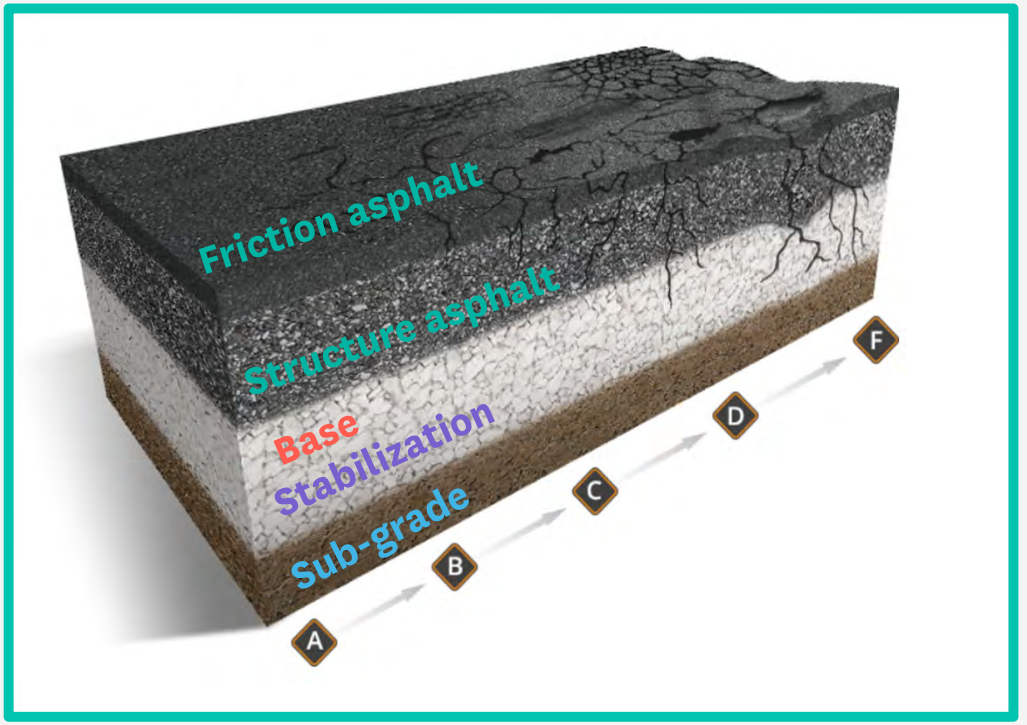
Goal: Replace Asset

Combination of aged pavement and inadequate structural capacity

Pavement preservation not possible

Pavement Deterioration vs. Time





A Excellent
PCI >90
<4 Years

B Good
PCI 75 to 90
4 to 10 Yrs

C Fair
PCI 50 to 75
10 to 15 Yrs

D Poor
PCI 25 to 50
15 to 20 Yrs

F Very Poor
PCI <25
20+ Years

Pavement Management Techniques

Rejuvenation

Crack Sealing

Microsurfacing

Cape Sealing

Hot In-Place Recycle

Cold In-Place Recycle

Mill & Resurface / Overlay

Full Depth Reclamation / Reconstruction

Pavement Management Techniques

Current contract prices limited to treatments only (professional services, vision zero, ADA, striping, curb, etc. excluded); Mileage assumes 22 ft wide roadway.

Rejuvenation

Crack Sealing

Microsurfacing

Cape Sealing

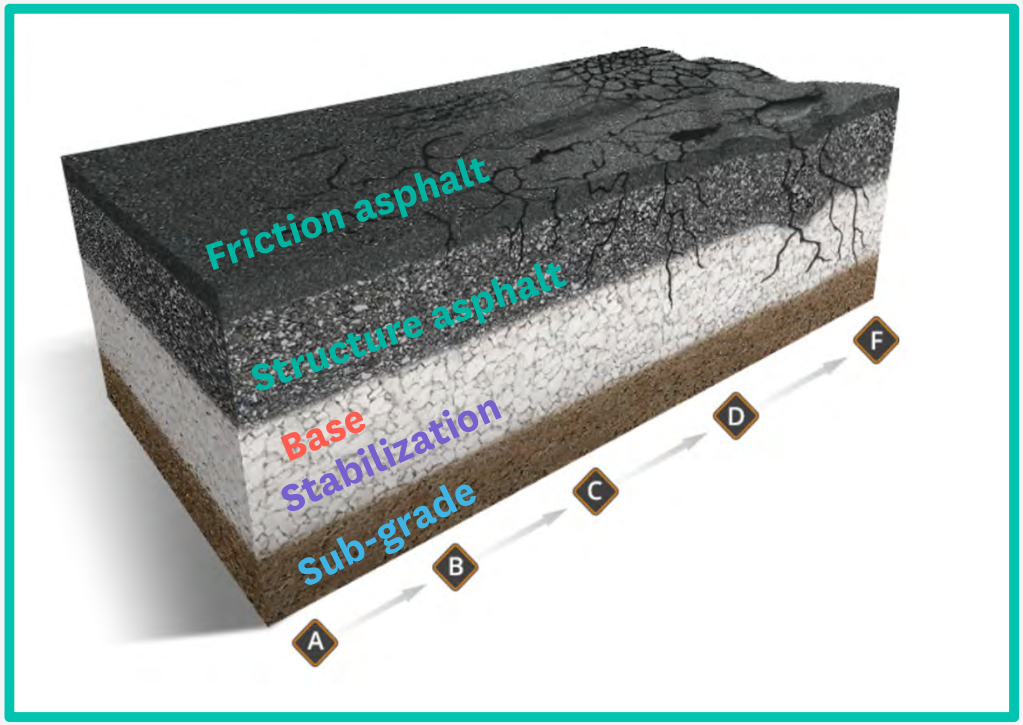
Hot In-Place Recycle

Cold In-Place Recycle

Mill & Resurface / Overlay

Full Depth Reclamation / Reconstruction

Technique vs. Time



A — Excellent
PCI >90
<4 Years
Rejuvenation
$1.34/SY

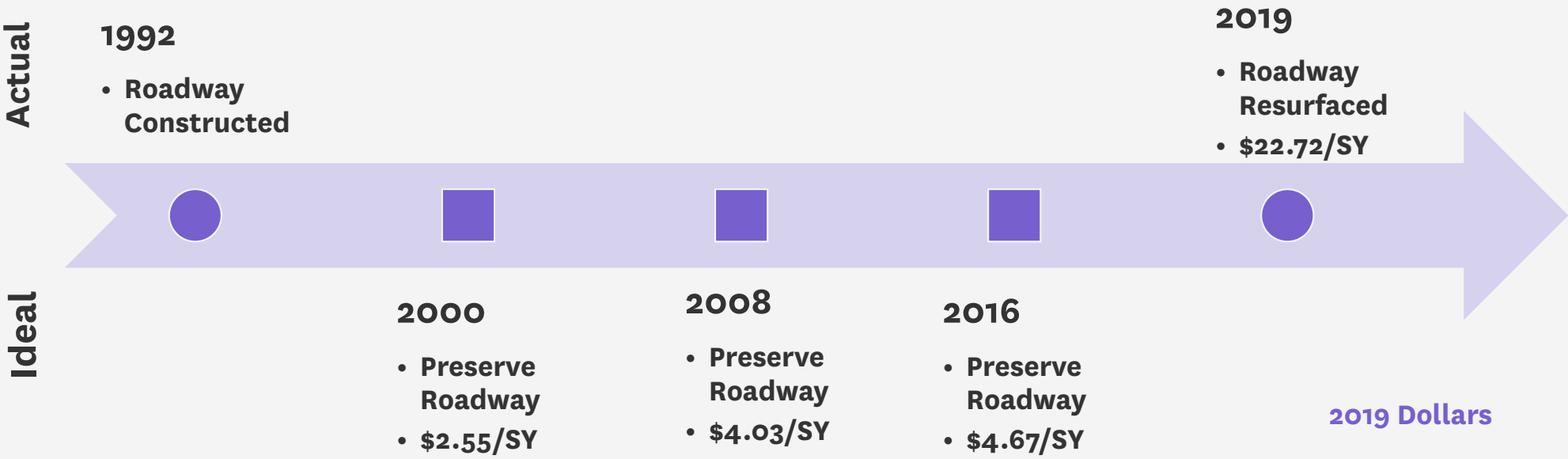
B — Good
PCI 75 to 90
4 to 10 Yrs
Crack or Micro
$3.85 to $5.50/SY

C — Fair
PCI 50 to 75
10 to 15 Yrs
Micro or Cape
$5.50 to $9.56/SY

D — Poor
PCI 25 to 50
15 to 20 Yrs
Mill & Resurface or Overlay
$35.55/SY

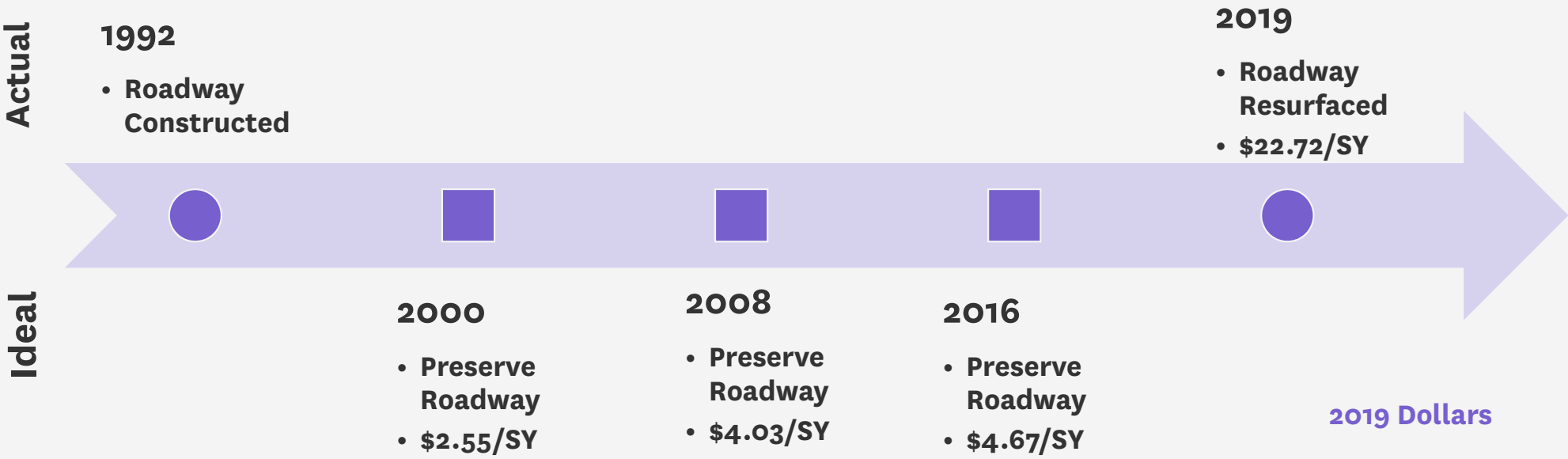
F — Very Poor
PCI <25
20+ Years
Reconstruct
$74.05/SY

Pavement Management Techniques
Roadway Example – NW 43rd Street



- Pavement Preservation - $11.25/SY or $2.34 M
- Delayed (Actual) Resurfacing - $22.72/SY or $4.72 M
- Estimated sunk cost - $2.38 M

Pavement Management Techniques
Roadway Example – NW 43rd Street



- Ideal Resurfacing (2008) - $9.99/SY or $2.08 M
- Pavement Preservation (2 cycles) - $6.58/SY or $1.37 M
- Cost difference - $0.71 M

Pavement Management Techniques
Tale of Two Cities

Worst-First

Bridgeport, Connecticut

Replacing Asset

Optimization

Fairfield, Connecticut

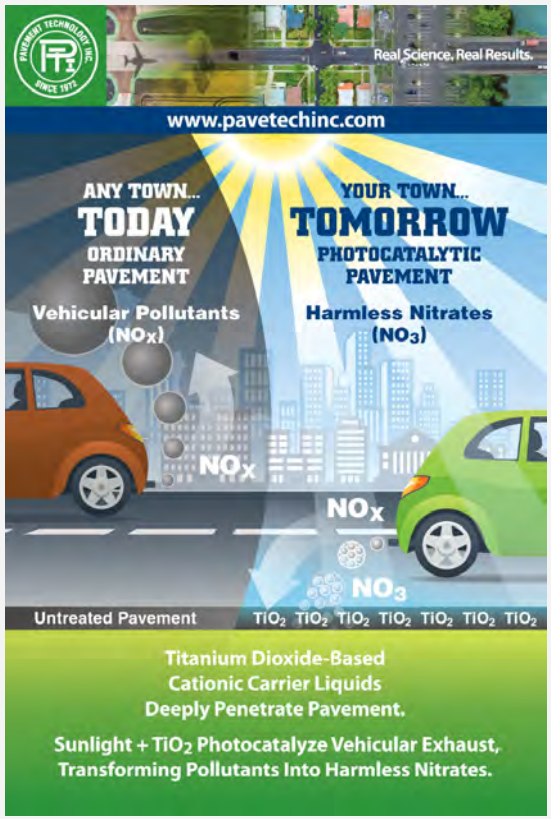
Preserving Asset

Gainesville’s Process

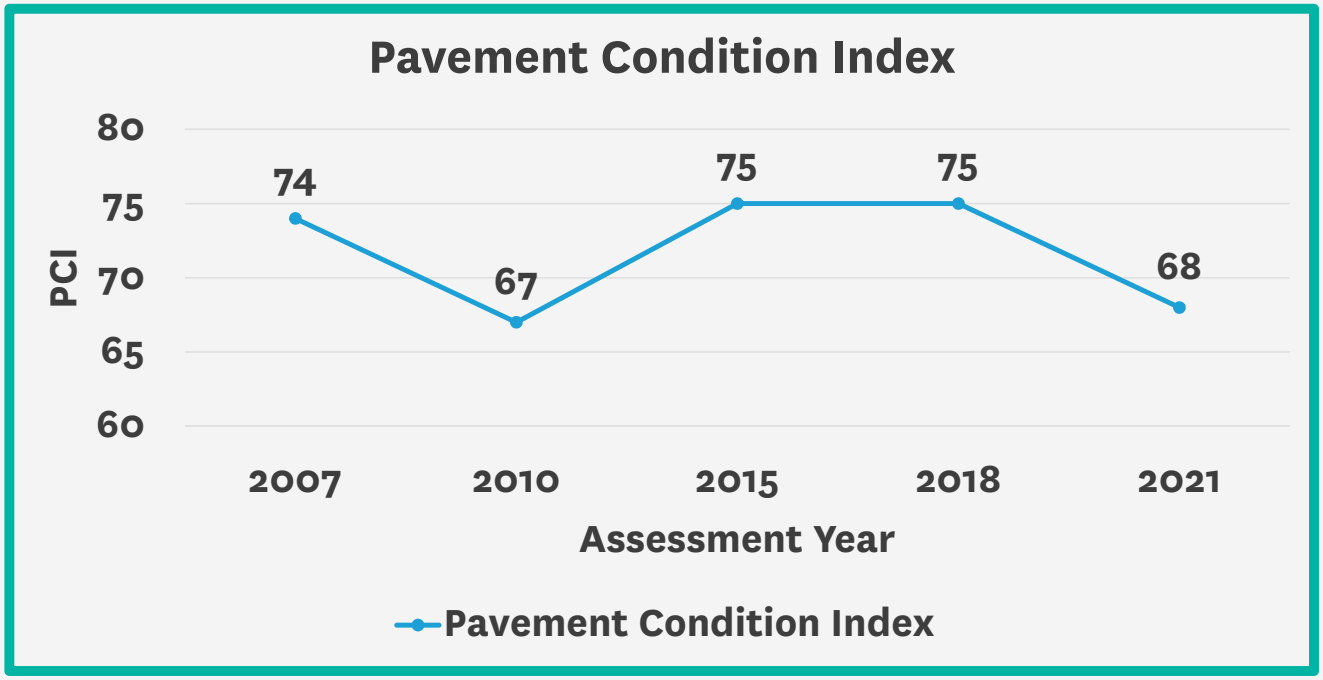
Pavement Management Techniques
Emerging Technology – Watch List

Preservation Technique that reduces pollutants

- Rejuvenator with titanium dioxide for new pavements ($2.73/SY)
- Self-cleaning, self-regenerating air-purifying surface that removes nitrogen oxides (NO_x) & volatile organic compounds (VOC_s)
- Reduction in heat island effect
- Awaiting studies to quantify amount of nitrates produced by chemical reaction; assumed to be less harmful than air pollution



Pavement Condition Inventory vs. Time

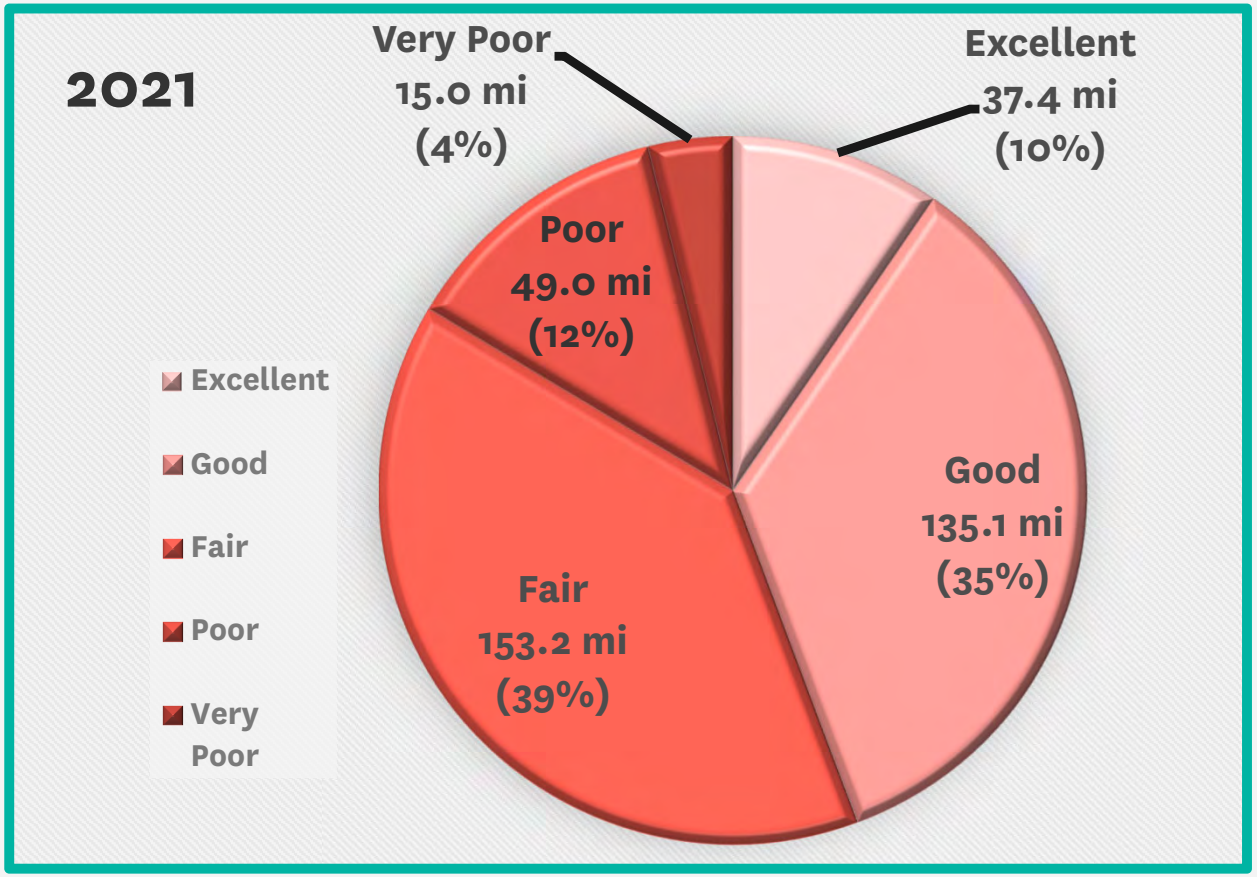


Data is not normalized from year to year

Collected utilizing different techniques & vendors

Analyzed with different software

Pavement Condition Inventory - 2021

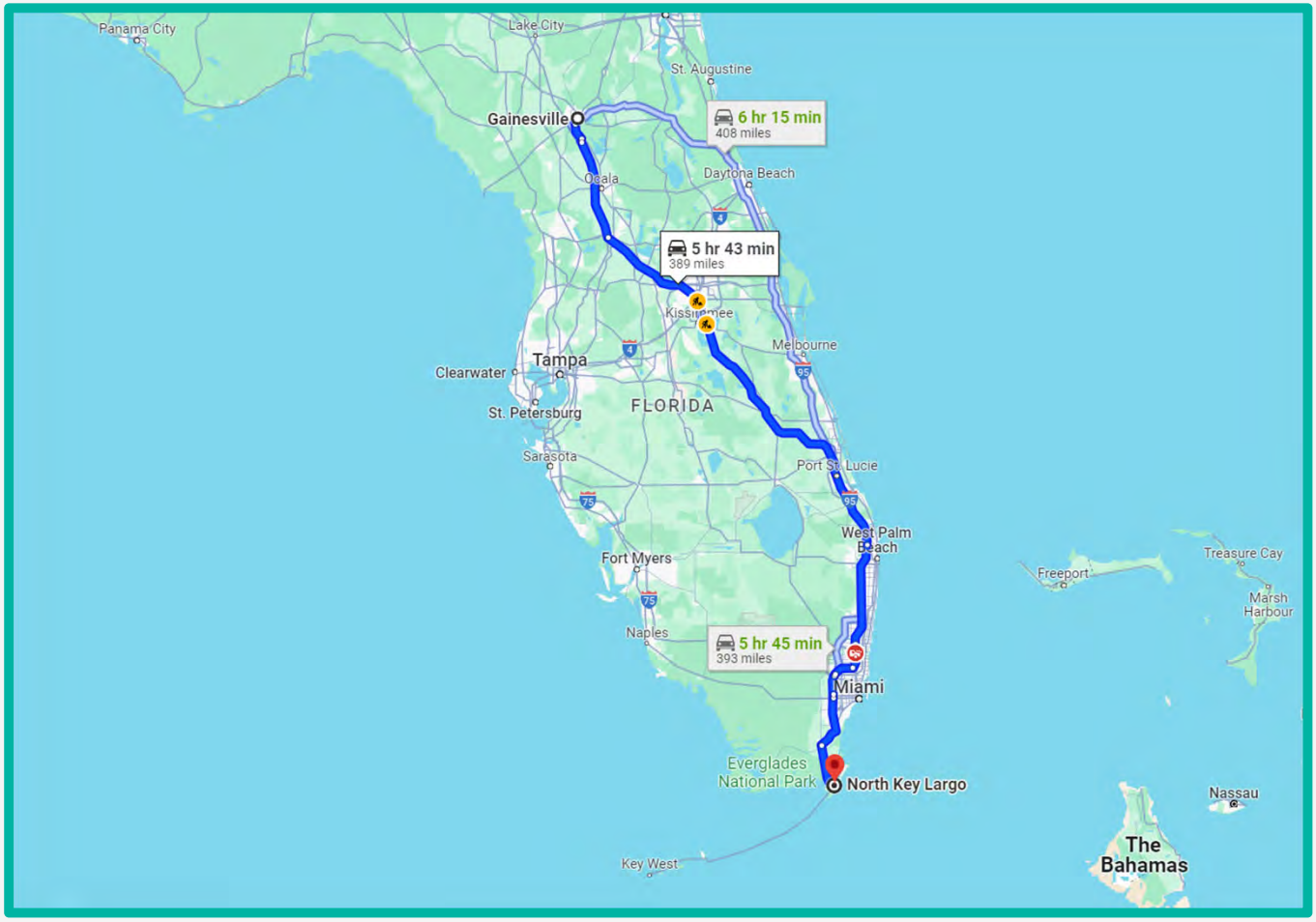


Last assessment conducted in 2021

389.7 miles (2021)
~415 miles (2024)

Vendor reported $79.1 million backlog (2021 dollars)

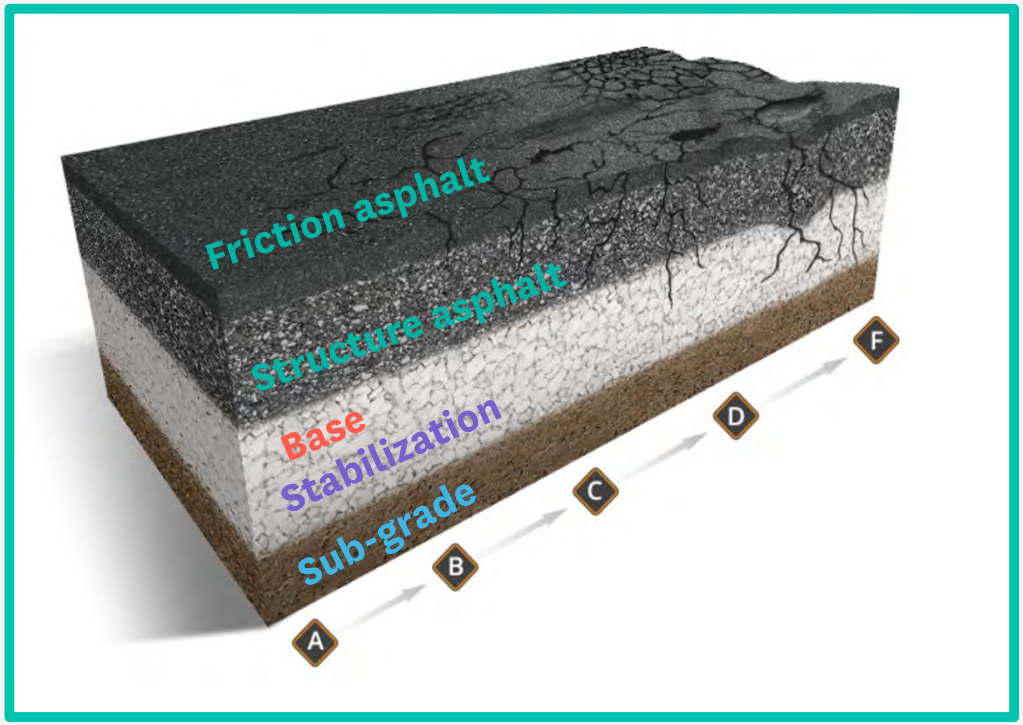
Pavement Condition Inventory - 2021



Gainesville's paved inventory stretches from Gainesville to North Key Largo

389.7 miles (2021)

Pavement Condition Inventory - 2021



A — Excellent
PCI >90
<4 Years
Rejuvenation
37.4 miles (10%)

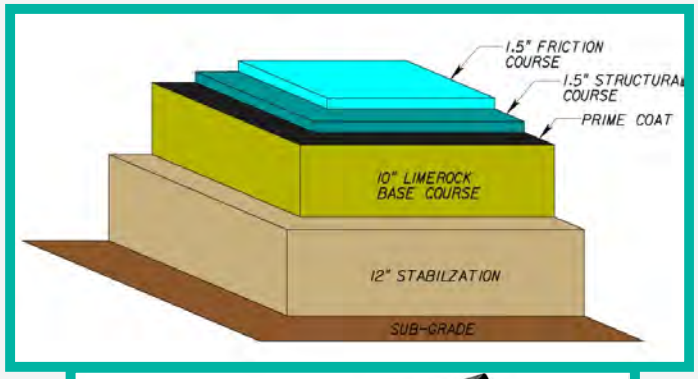
B — Good
PCI 75 to 90
4 to 10 Yrs
Crack or Micro
135.1 miles (35%)

C — Fair
PCI 50 to 75
10 to 15 Yrs
Micro or Cape
153.2 miles (39%)

D — Poor
PCI 25 to 50
15 to 20 Yrs
Mill & Resurface or Overlay
49 miles (12%)

F — Very Poor
PCI <25
20+ Years
Reconstruct
15 miles (4%)

Pavement Structure Comparison



- **Friction course – Shingles** — 37.4 miles (10%
- **Structure course – Felt/moister barrier** — 135.1 miles (35%
- **Base Couse - Decking** — 153.2 miles (39%
- **Stabilization – Trusses** — 49 miles (12%)
- **Sub-grade – Building Interior** — 15 miles (4%)

Inventory Needs vs. Funding

Current estimated backlog

$108 million – includes incidentals such as ADA and striping; does not include enhancements such as VisionZero

Treatment Target

Based on 415 mile inventory, 20 to 27 miles should be treated annually

Target Funding Level

Based on current backlog, $5.4 million to $7.2 million should be allocated annually to maintain current status

Historical Funding Level

Approximately $1.5 million to $3 million has been allocated annually from various sources

Planned Work Program

Pavement Program (tentative)

- $5 million available (2022 thru 2024); Solid Waste Fee & General Fund
- 60/40 split of preservation/replacement
- Funding spread equally throughout the City based on quadrants (NE, NW, SE, SW)
- 25.6 miles to be treated (4.8 mi rejuvenator, 5.7 mi micro, 7.6 cape & 7.5 replace)

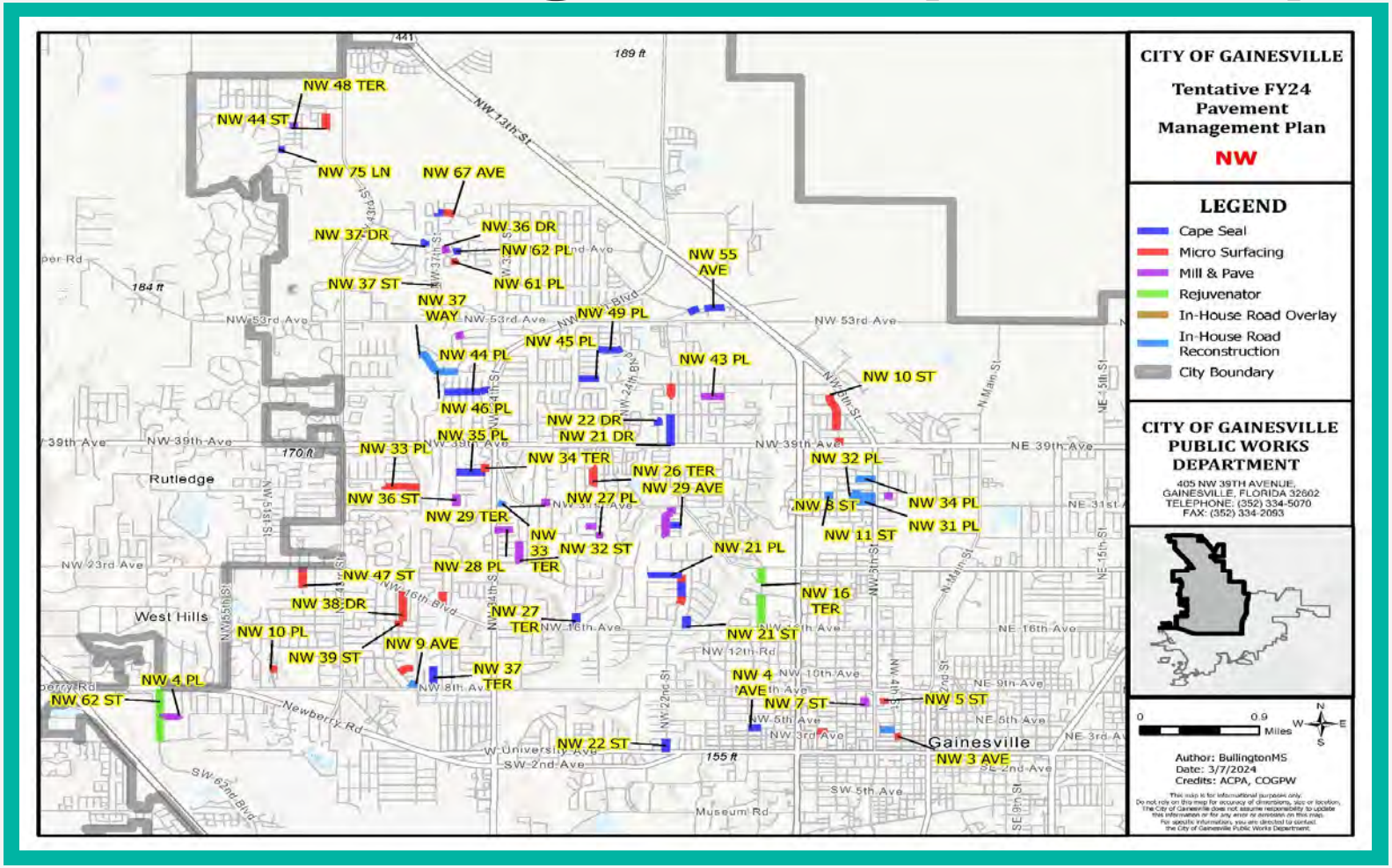
Gas Tax

- NW 6th St (NW 7th Ave to NW 8th Ave) - $100,000 – 0.1 mi replace
- NW 8th Ave (Newberry Rd to NW 40th Dr) - $950,000 – 0.8 mi replace
- Unit Blocks of NW 1st St and NW 1st Ave - $600,000 – 0.1 mi replace

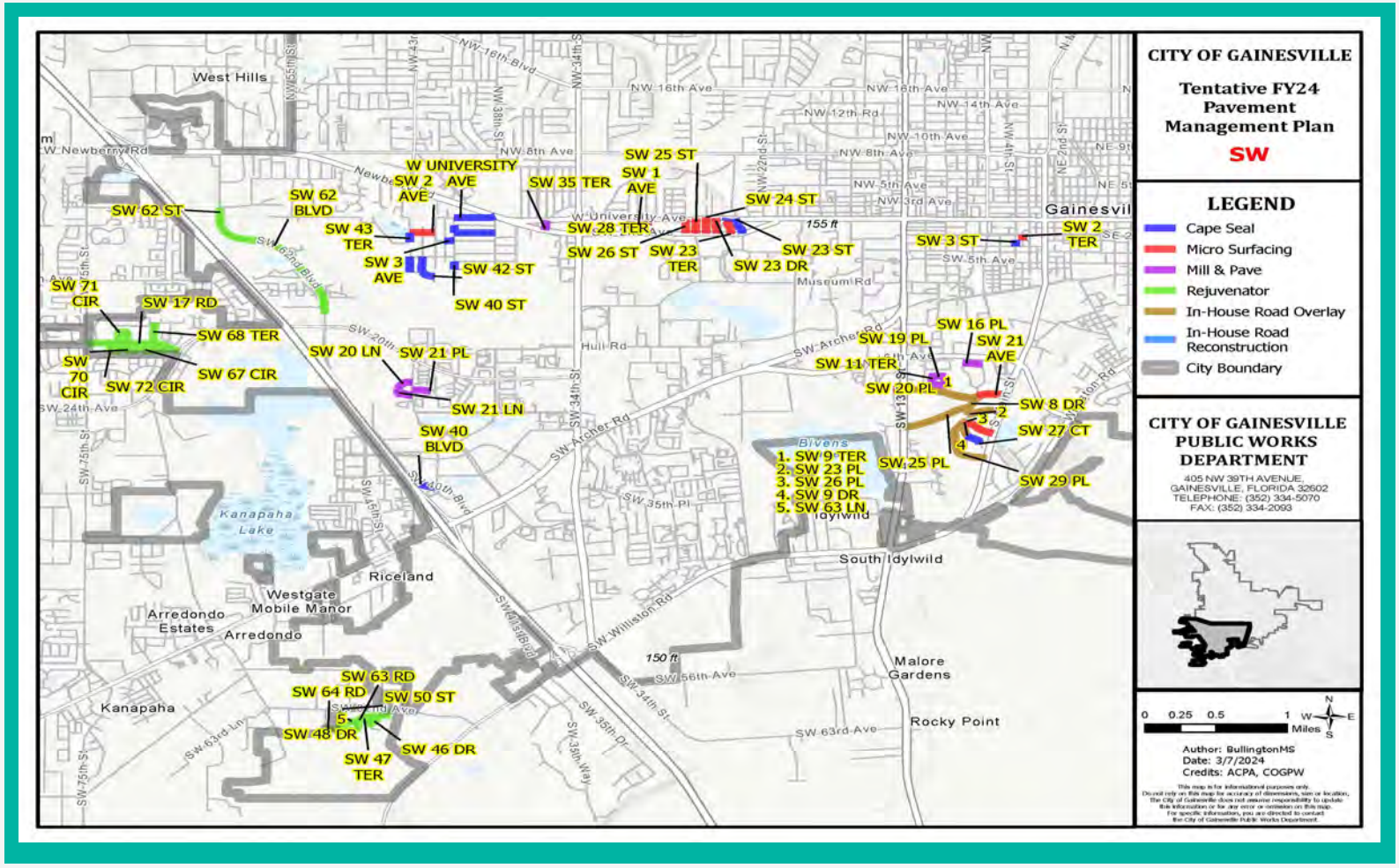
Streets, Stations and Strong Foundations

- N Main St (N 39th Ave to N 53rd Ave) - $1.3 million – 1.0 mile replace
- NE 9th St (University Ave to NE 23rd Ave - $TBD – 1.5 mile replace

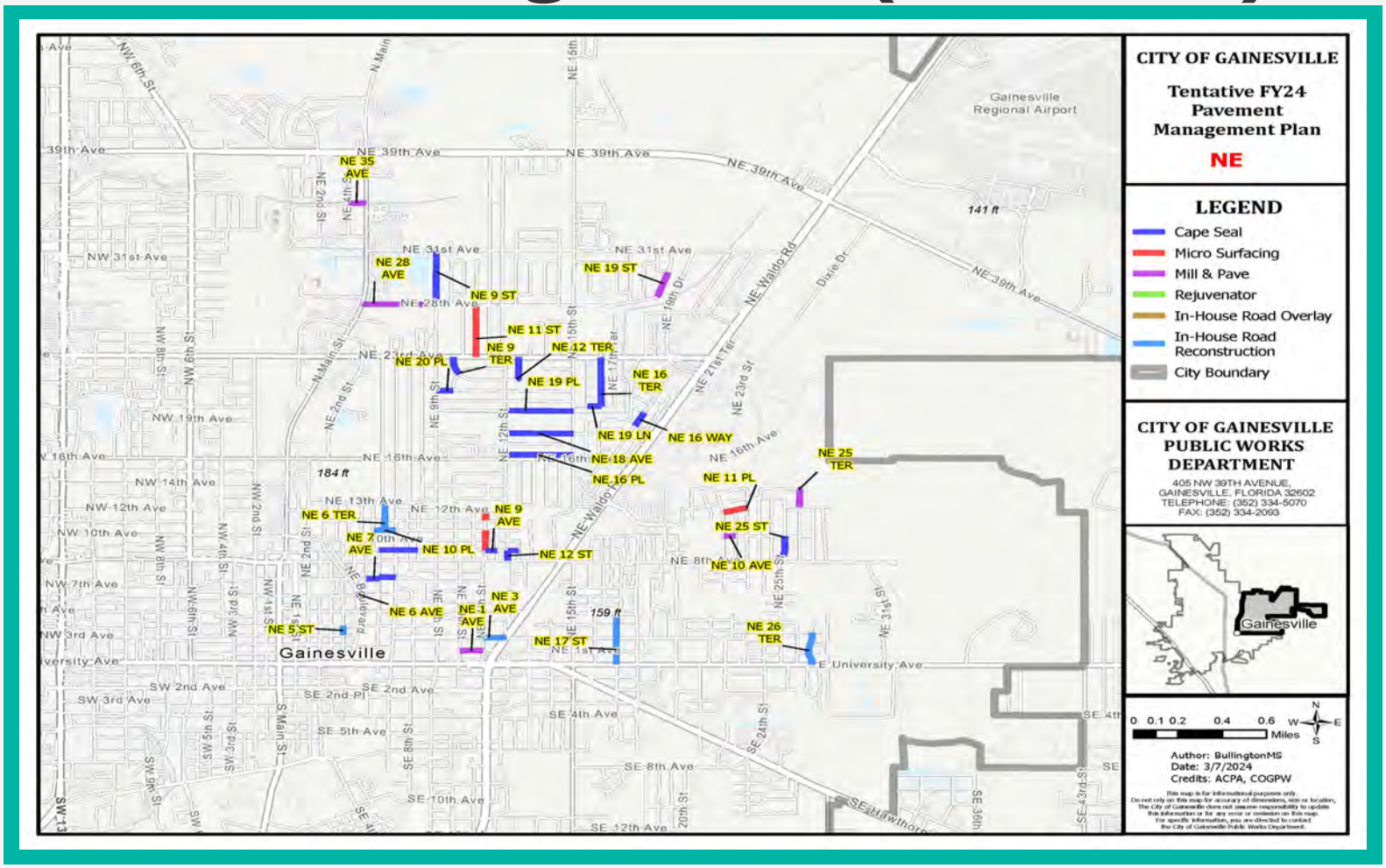
Pavement Program NW (tentative)



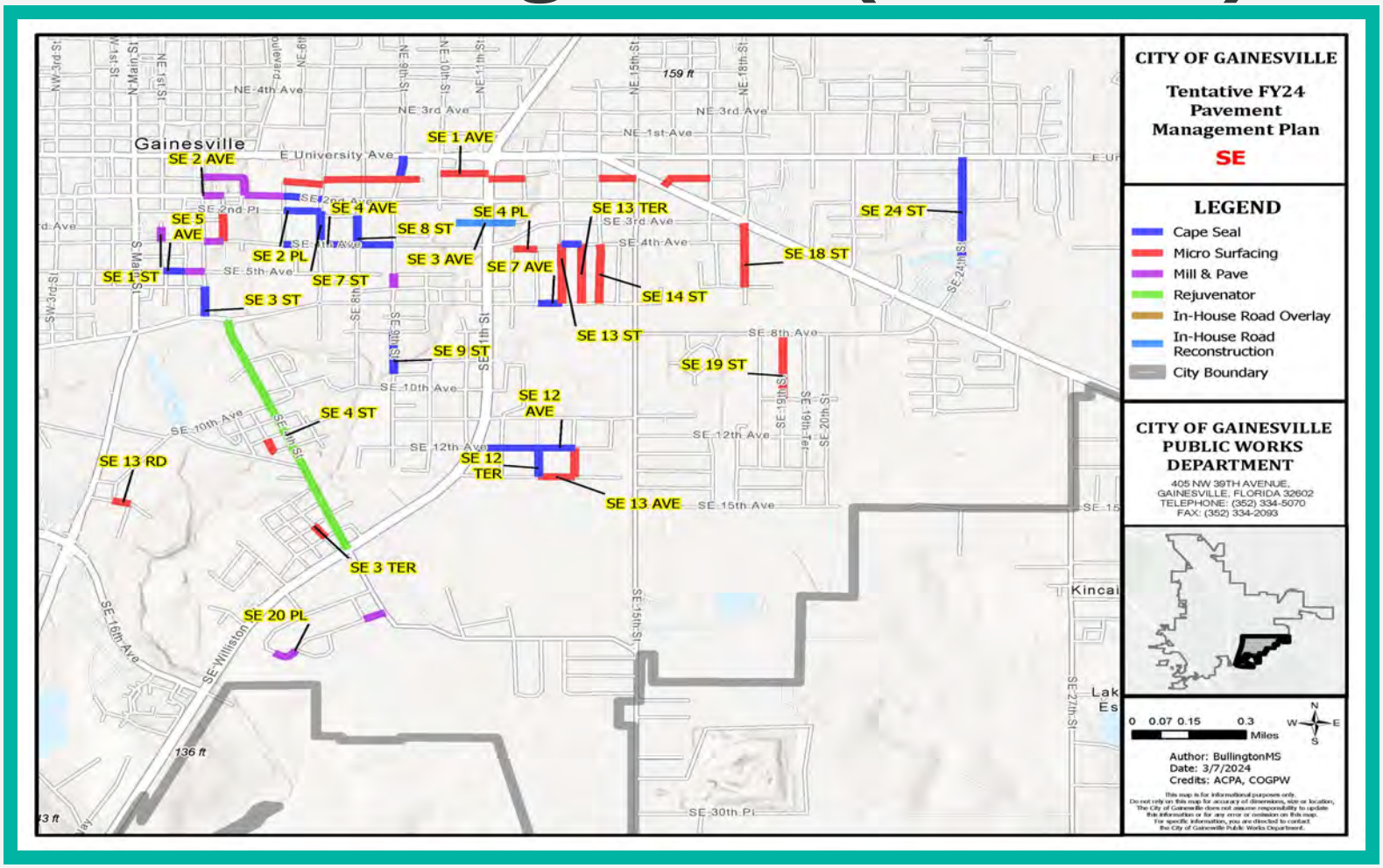
Pavement Program SW (tentative)



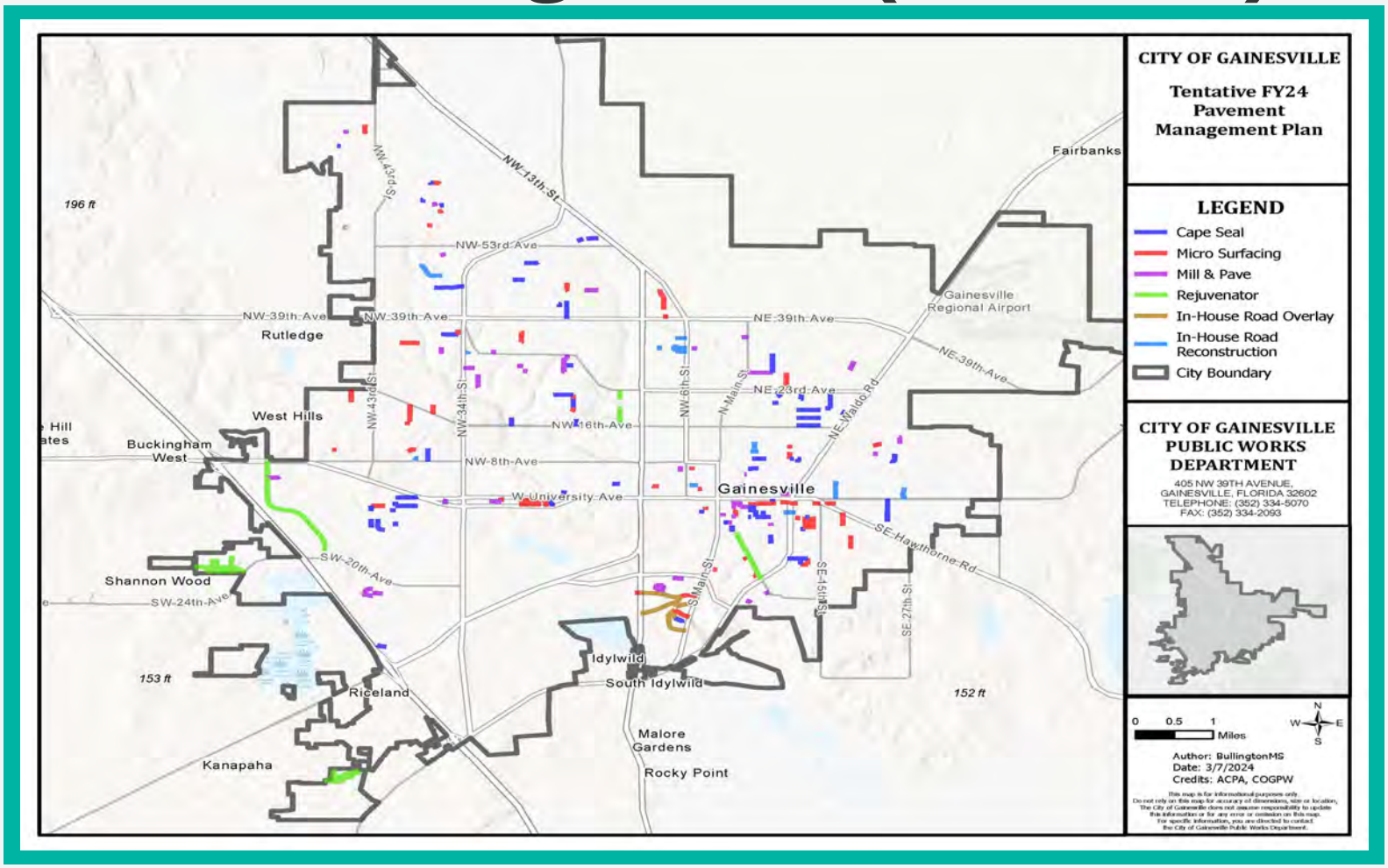
Pavement Program NE (tentative)



Pavement Program SE (tentative)



Pavement Program All (tentative)



Pavement Management Program

Next Steps

- Complete 2024 pavement condition scan
- Normalize collection mythology & assessment analysis
- Introduce Equity Toolkit in prioritization methodology
- Update Solid Waste Rates with FY25 budget to align with current pavement costs and waste collection costs

One Cent Surtax – Thru December 2032

Parks & Conservation Land - ~$8.7M annually

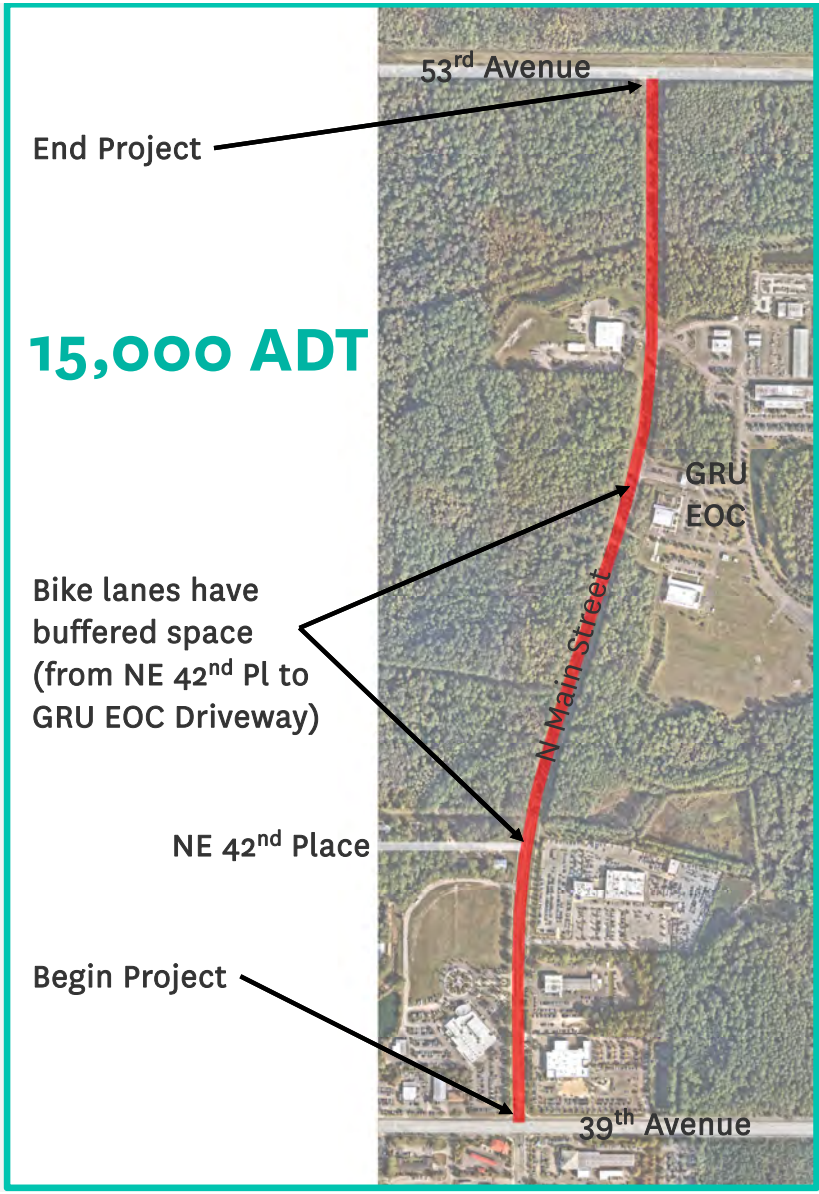
Roads, Public Facilities & Land for Affordable Housing ~$8.7M annually

Programmed Projects: Catalyst Building Renovation for GFR & N Main St Potential Projects: NE 9th Street, SW Public Safety Center, Fire 3 @ EHEDI, Public Works Operations Facility, GPD Property & Evidence Building, GFR Catalyst Ph II and Emergency Operations Center.

N Main Street Project

N Main Street Project

- **Milling and resurfacing**
- **Reconfiguration of travel lanes to accommodate 4-ft bike lanes**
- **Curb ramp modifications for ADA compliance**
- **Construction cost:**
  Budgeted - $1.300M
  Actual - $1.117M



N Main Street Project

BEFORE

No bike lanes

Pavement failure

Some curb ramp slopes above maximum for ADA compliance

N Main Street Project

AFTER

Bike lanes

Bike lane buffer
(NE 42nd Pl to GRU EOC)

ADA Compliant
Curb Ramps

NE 9th Street Project

Public Involvement

Survey and Workshop to facilitate public input

Outreach:
428 postcards
Media release; Facebook Event
Message boards/street signage

Survey:
Online (QR code on postcards and at workshop)
478 Respondents

Workshop:
1/23/24 6PM @ Howard Bishop Middle School
60 Attendees

Workshop Agenda

1. Project Overview
2. Existing Conditions
3. Transportation/ Traffic Data
4. Options
5. Interactive Session

Project Overview

Where?

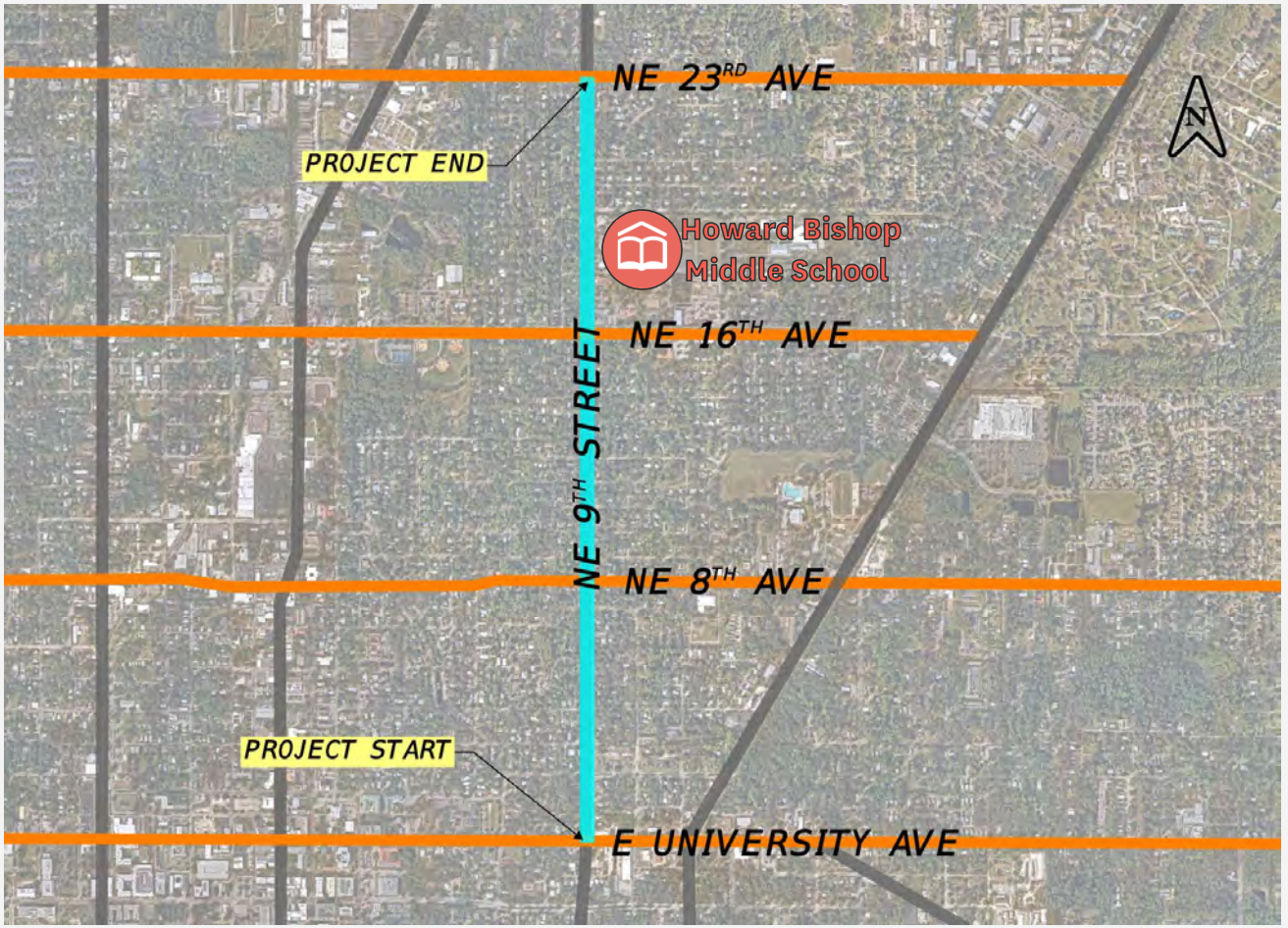
NE 9th Street (Univ. to 23rd Ave)

What?

Resurface and possibly modify

Why?

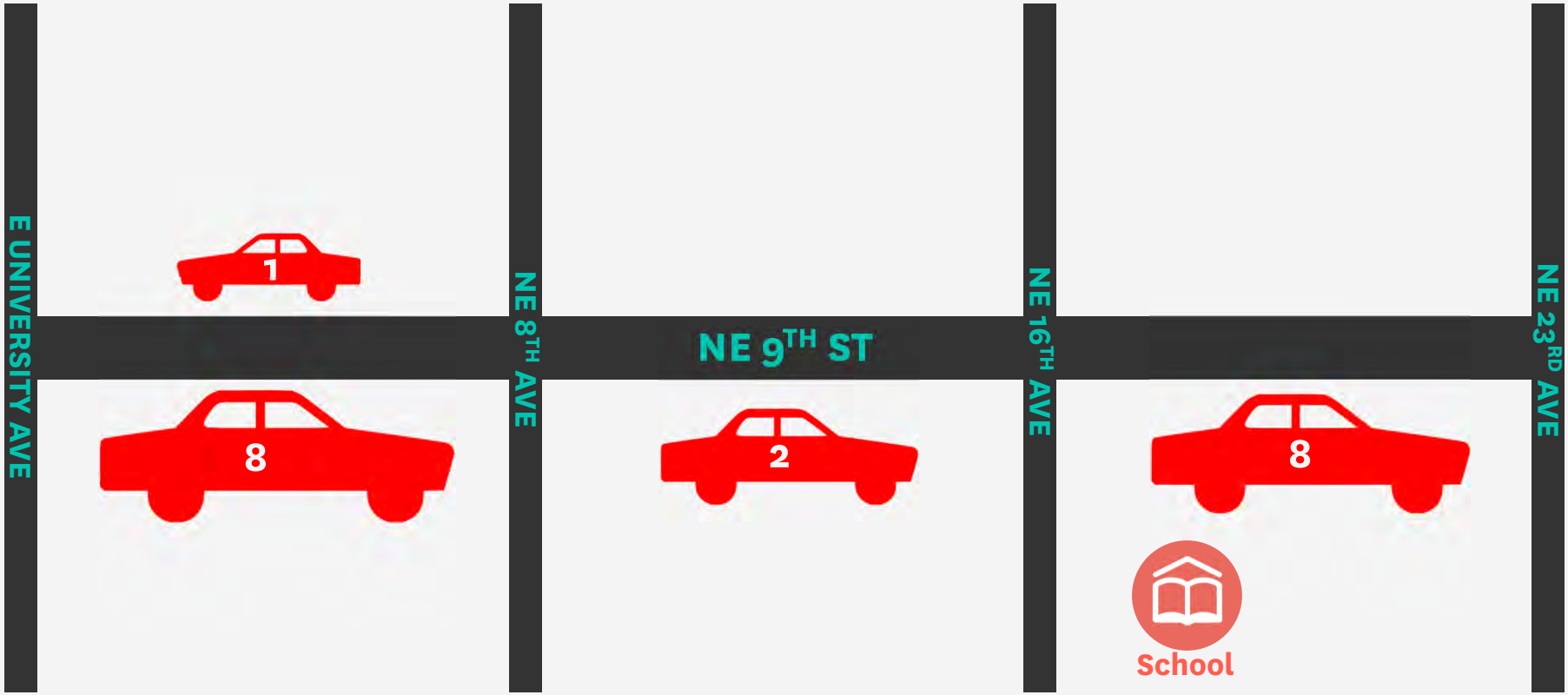
Pavement condition and safety



Transportation/Traffic Data

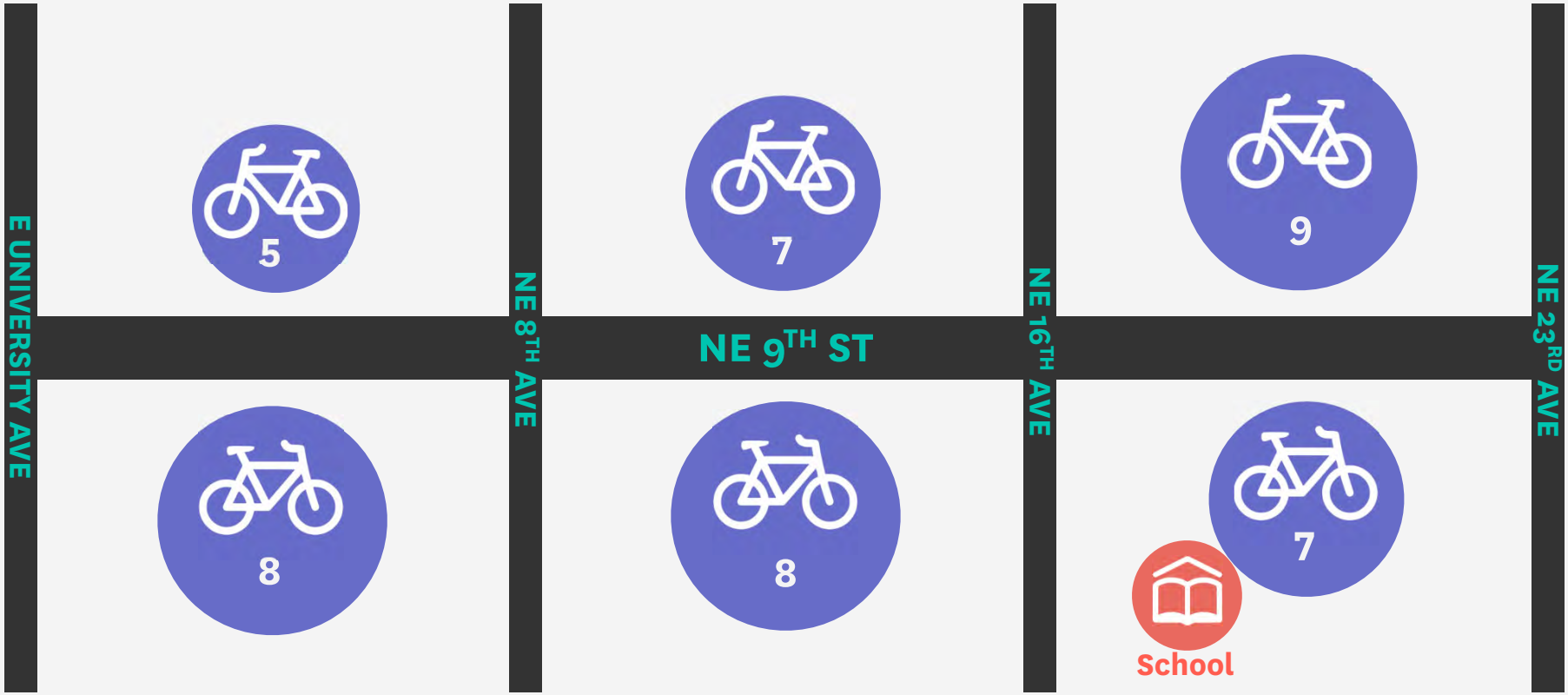
Parking

Data collected 4/18 and 4/20 2023.

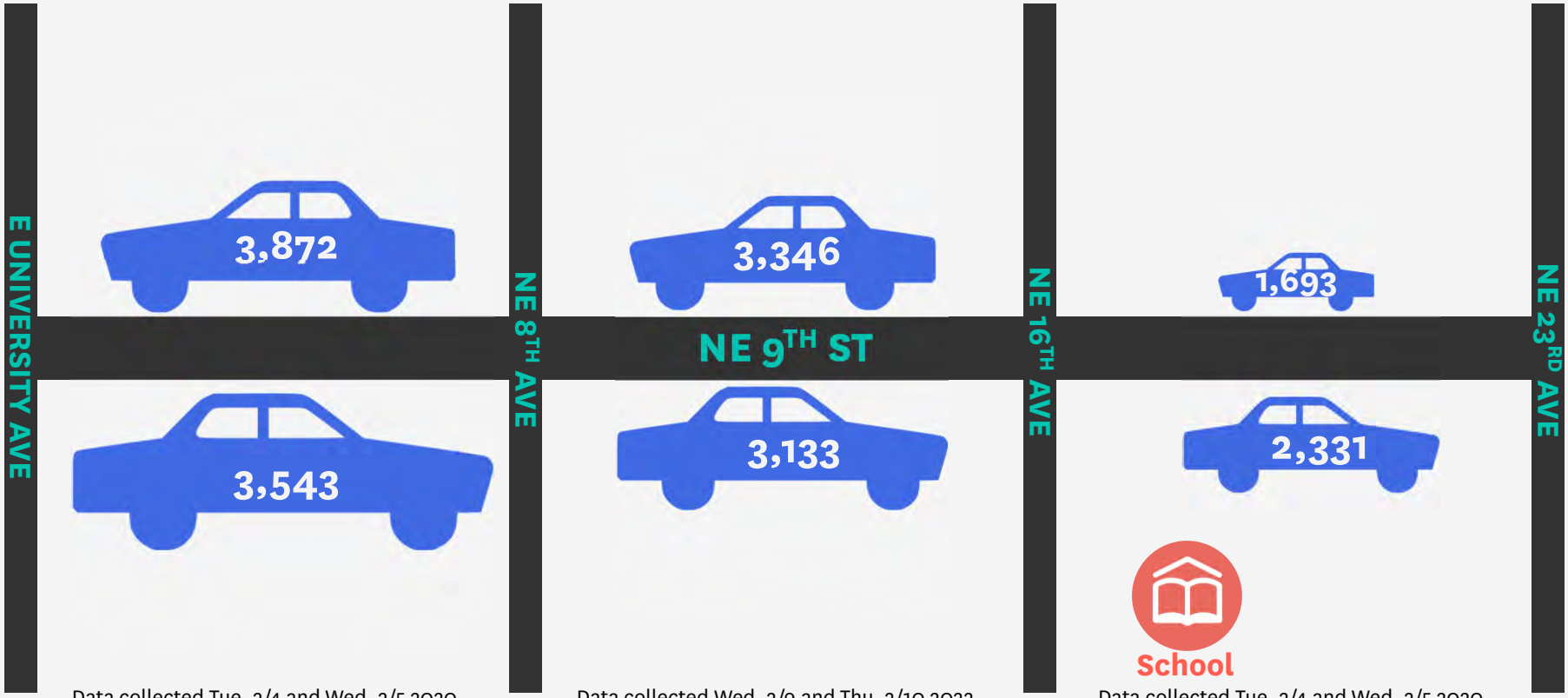


Bicyclists

Data collected 4/18 and 4/20 2023.



Average Daily Traffic (ADT)

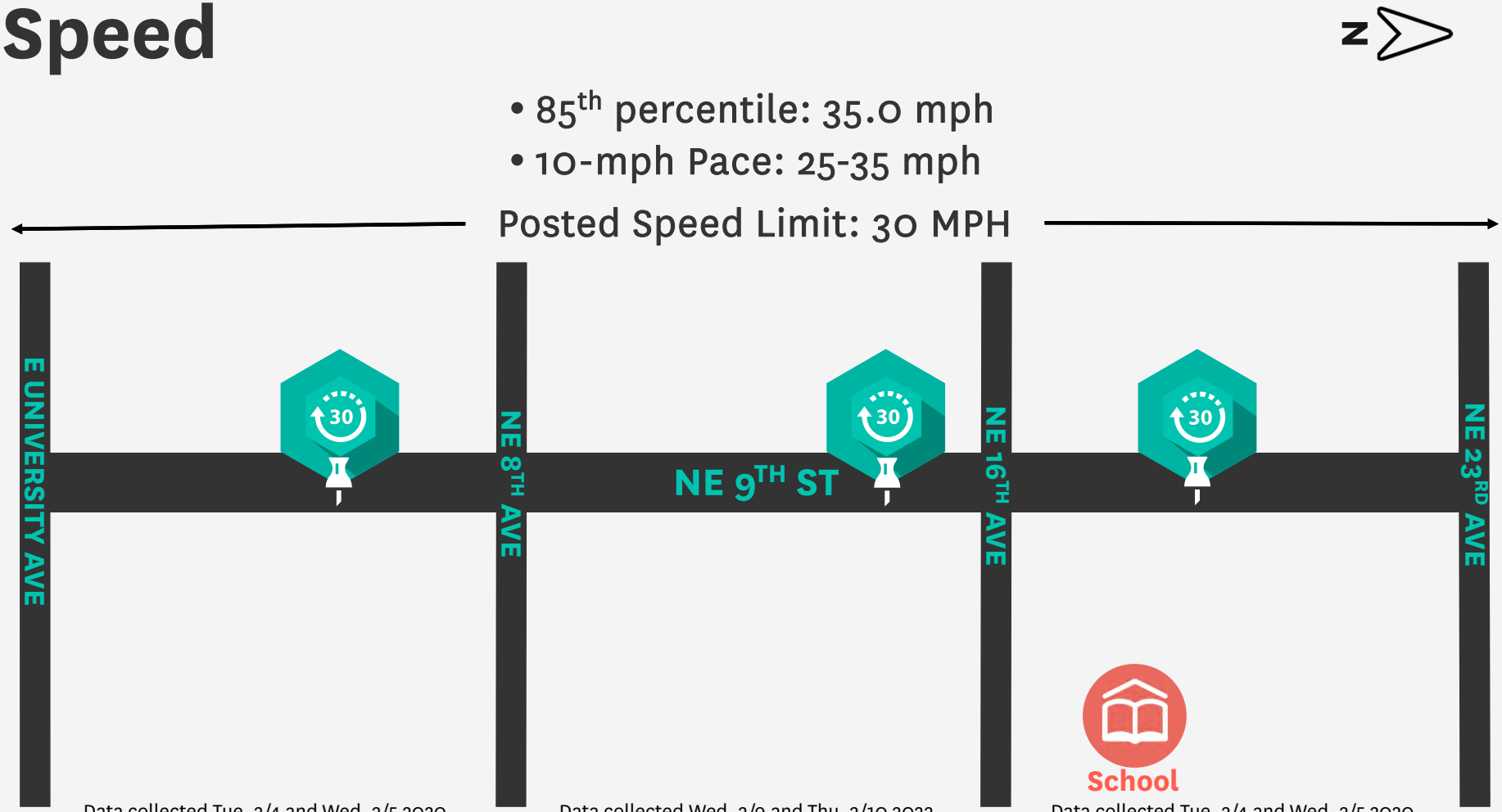


Data collected Tue. 2/4 and Wed. 2/5 2020.
600 Block

Data collected Wed. 2/9 and Thu. 2/10 2022.
1400 Block

Data collected Tue. 2/4 and Wed. 2/5 2020.
1900 Block

Speed


N
• 85th percentile: 35.0 mph
• 10-mph Pace: 25-35 mph
Posted Speed Limit: 30 MPH
E UNIVERSITY AVE
NE 8TH AVE
NE 9TH ST
NE 16TH AVE
NE 23RD AVE
30
30
30
School
Data collected Tue. 2/4 and Wed. 2/5 2020.
600 Block
Data collected Wed. 2/9 and Thu. 2/10 2022.
1400 Block
Data collected Tue. 2/4 and Wed. 2/5 2020.
1900 Block

Five-Year Crashes

(2018-2022)

Crash Totals by Type

Crash Type	2018	2019	2020	2021	2022	TOTAL
Pedestrian	-	-	-	-	1	**1**
Bicycle	-	-	-	-	-	**0**
Angle	3	2	4	3	2	**14**
Head On	-	-	1	-	-	**1**
Right Turn	1	-	-	-	-	**1**
Left Turn	-	2	1	2	3	**8**
Rear End	2	2	3	1	5	**13**
Sideswipe	-	-	2	1	-	**3**
Off Road	1	1	-	-	1	**3**
Other	6	2	1	2	1	**12**
TOTAL	13	9	12	9	13	**56**

Road Surface Conditions:

- 45 Dry
- 11 Wet

Time of Crash:

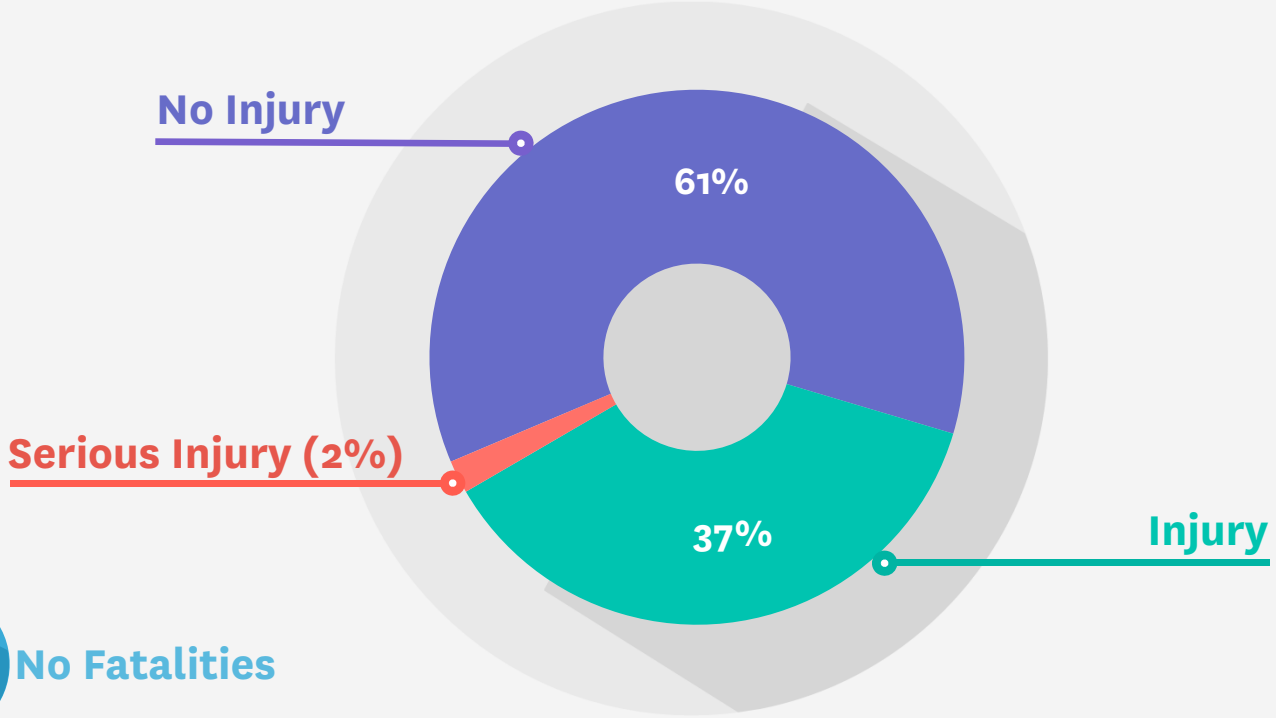
- 48 Day
- 8 Night

Crash Rate:
7.52 per mile

Five-Year Crashes

(2018-2022)

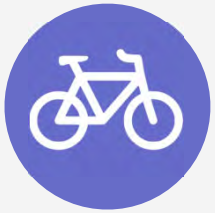
Crash Severity



No Fatalities

Transportation/Traffic Data

Parking

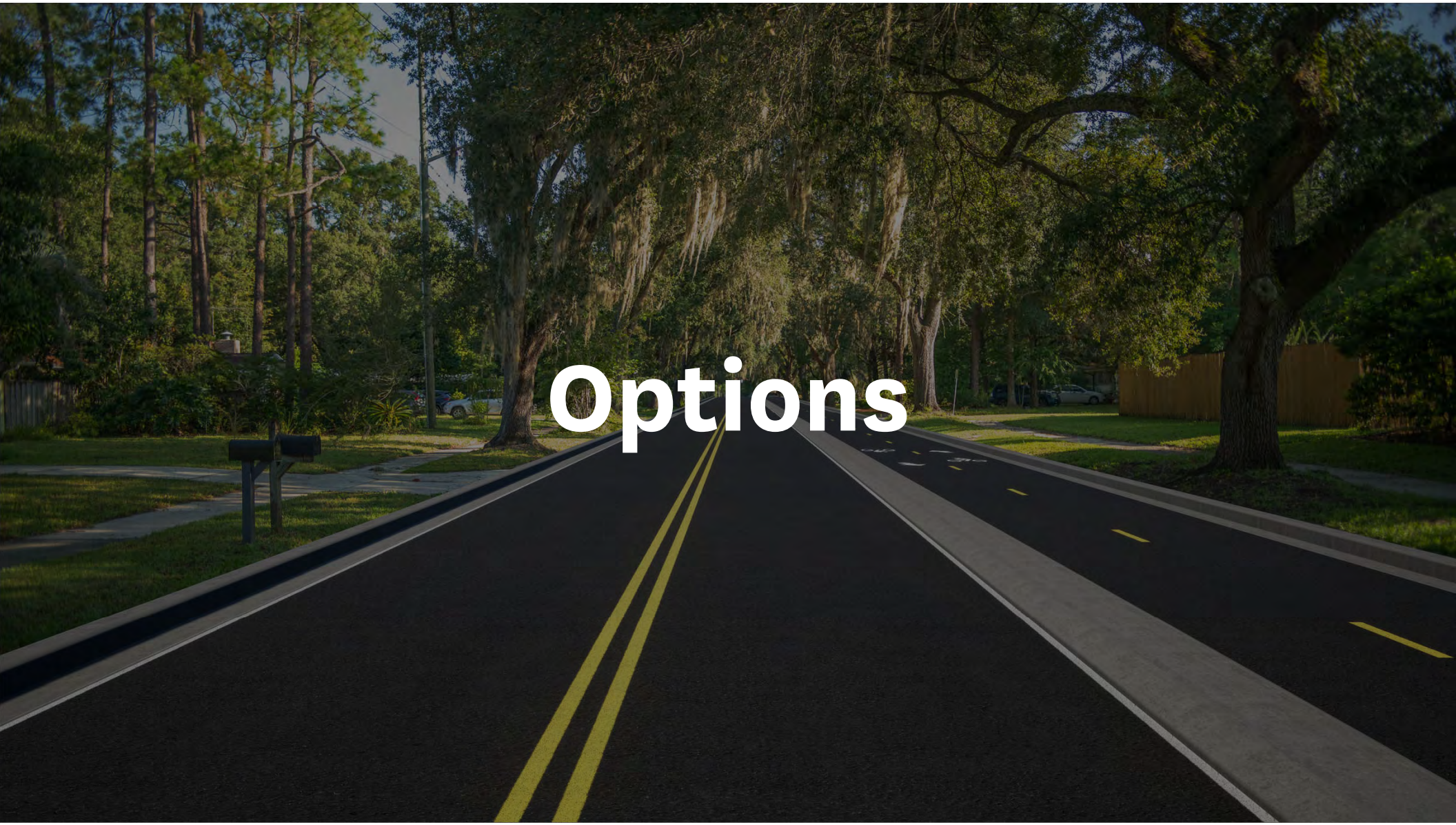


Bicyclists

Vehicular Traffic

Speed

Crashes


Options

Option 1

Existing Layout

- Resurface roadway
- Maintain existing layout
- 10-foot travel lanes
  4-foot bike lanes
  7-foot parking lane

Estimated Cost

$3.2M

Option 2

Existing Layout/Extend Bike Lanes

- Resurface roadway
- Keep 4-foot bike lanes and 7-foot parking lane
- Widening at intersections with traffic signals

Estimated Cost

$5.2M

Option 3

Buffered Bike Lanes

- Resurface roadway
- Buffered 6-foot bike lanes
- Parking lane eliminated and widening required at some intersections

Estimated Cost

$5.2M

Option 4

Protected Cycle Track

- Resurface roadway
- Add physical separation between bike lanes and vehicular lanes
- Parking lane eliminated and widening required at some intersections

Estimated Cost

$6.2M

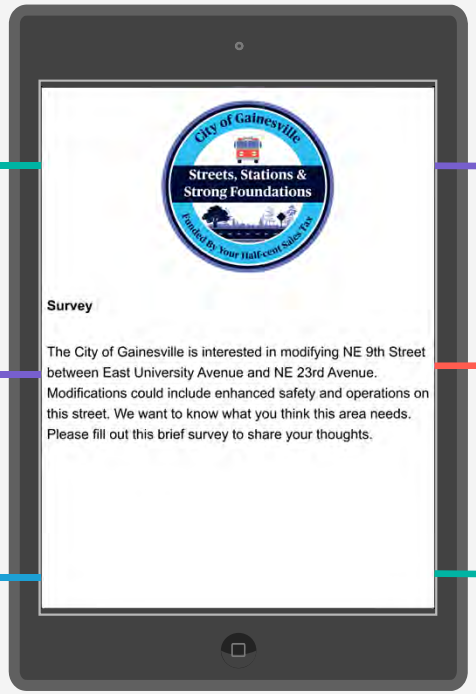
Interactive Session

Survey Topics

Traffic Congestion

Bicycle and Pedestrian Facilities

Layout Options



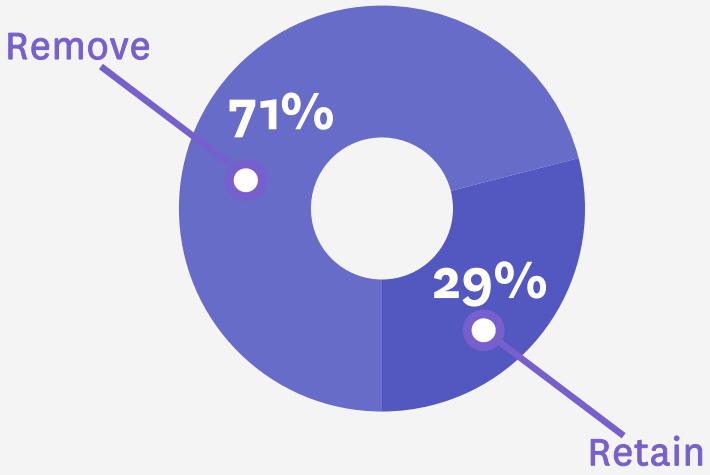
On-street Parking

Transit Facilities

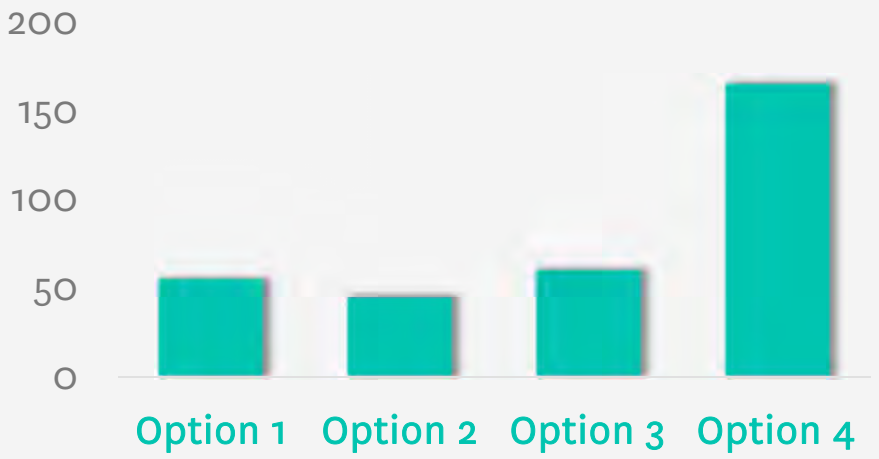
Drainage Issues

Survey Results

On-Street Parking



Layout Preference



Common themes from responses and comments:

- Improve bicycle facilities
- New and enhanced crosswalks
- Add traffic calming
- Congestion at school

Survey Results Evaluation

Challenges/Contraindications with Option 4 (cycle track):

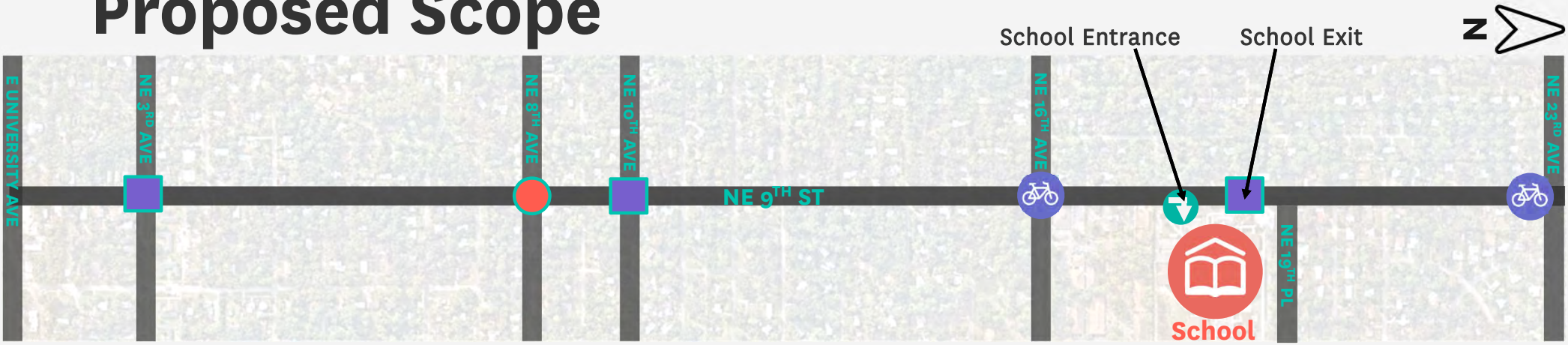
- Frequent breaks in physical barrier due to bus stops and numerous driveways & side-streets on NE 9th St
- Solid waste and recycling pick-up
- Limited right-of-way available to accommodate the cycle track at NE 8th Avenue roundabout
- 10-ft travel lanes with physical constraint affects maneuverability for RTS and Fire Rescue vehicles
- Accommodation of school traffic at Howard Bishop
- Additional costs (design and construction) & funding constraints

Proposed Scope

Option 3 – Buffered Bike Lane

- Add bike lane rubberized curb at key locations
- Milling and Resurfacing
- Repair broken sidewalk & heaved curb
- Curb ramp modifications for ADA compliance
- Bus stop modifications for ADA compliance
  - No enhancements recommended by RTS
- Drainage modifications as necessary

Proposed Scope



Raised Intersections (traffic calming), Crosswalks with flashing beacons

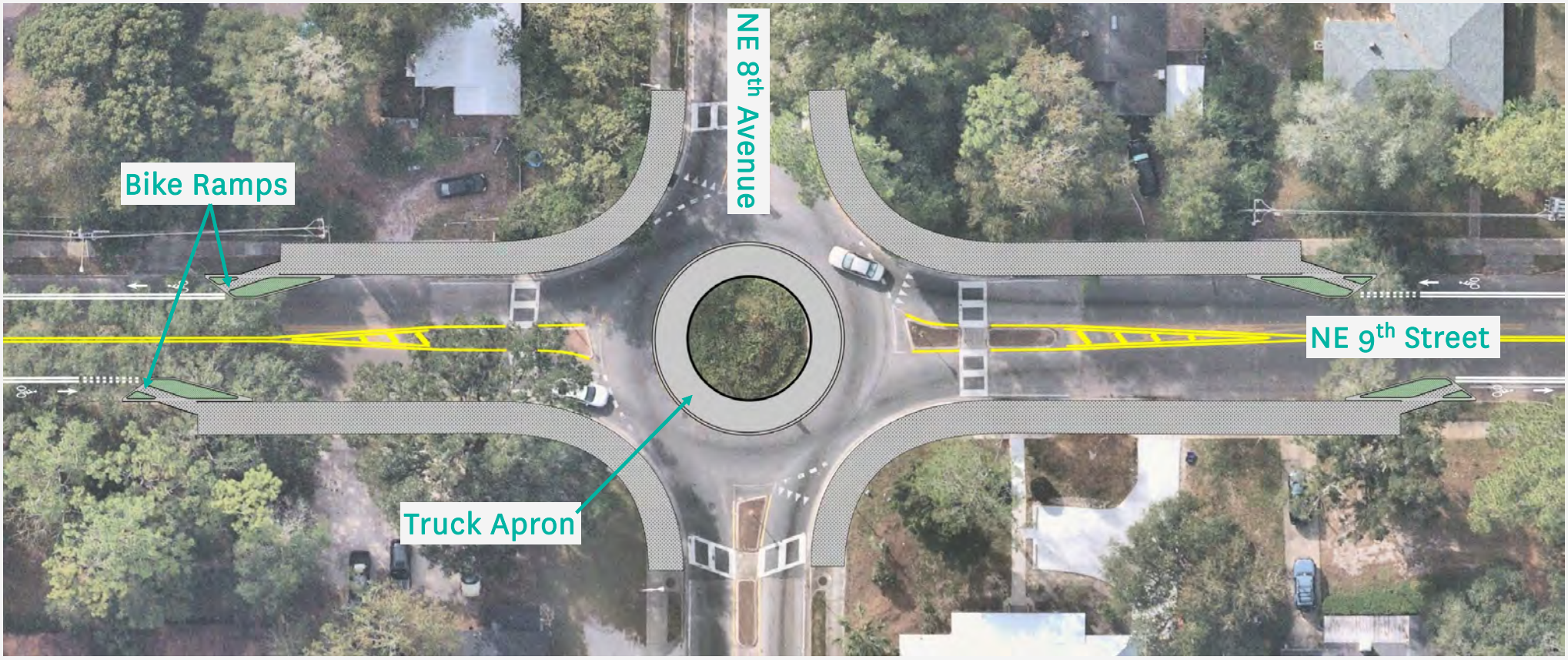
Widening to extend bike lanes at intersections:
- **Removal of 8 trees required (motion from TAB to approve removals)**
- **Signal reconstruction and re-timing**

Roundabout modifications:
- **Mountable truck apron & investigate increased deflection (traffic calming)**
- **Bike ramps & wider sidewalk for multimodal use**

Right turn lane at School entrance

Proposed Scope

Roundabout modifications



Proposed Scope

Right turn lane at School entrance

Project Timeline

Design Phase

- Begin Fall 2024
- Complete Fall 2025

Procurement Phase (Funding Dependent)

- Begin Fall 2025
- Complete Spring 2026

Construction Phase (Funding Dependent)

- Begin Spring 2026
- Complete Spring 2027

Recommendations

The City Commission authorize the City Manager to:

1. Proceed with the design and permitting of the NE 9th St project with modifications including a buffered bike lanes and the scope as presented.
2. Apply for Wild Spaces Public Places grant with Alachua County in the amount of $2.33 million for the NE 9th St project.
3. Return to the City Commission with a Construction Agreement for the NE 9th Street project.
4. Identify options for financing the Streets, Stations and Strong Foundations Program