



Fayetteville Comprehensive Transportation Plan

Presentation to City Council

May 6, 2024

Overview

The Fayetteville Comprehensive Transportation Plan:

- Documents the status of the transportation system
- Provides data for making connectivity & corridor investment decisions
- Builds on recent local & regional plans
- Consolidates projects into one comprehensive list
- Gives the City an advantage in preparing for grant applications

Problem Statement

- Subdivisions with a single-point of access have been cut off from travel and emergency services during major incidents
- Fayetteville's street layout predominantly consists of disconnected local streets
- Lack of connectivity places stress on larger travel corridors



Scope of Work

Fayetteville Comprehensive Transportation Plan:

- Task A: Data Collection
- Task B: Connectivity Analysis
- Task C: Strategic Corridor Analysis
- Task D: Recommendations
- Task E: Deliverables
- Task F: Public Engagement

City Staff Engagement

- Interdisciplinary City staff review team:
 - Public Services
 - Traffic Services
 - Development Services
 - Emergency Response
- Held biweekly progress meetings and longer work sessions at critical stages of the project

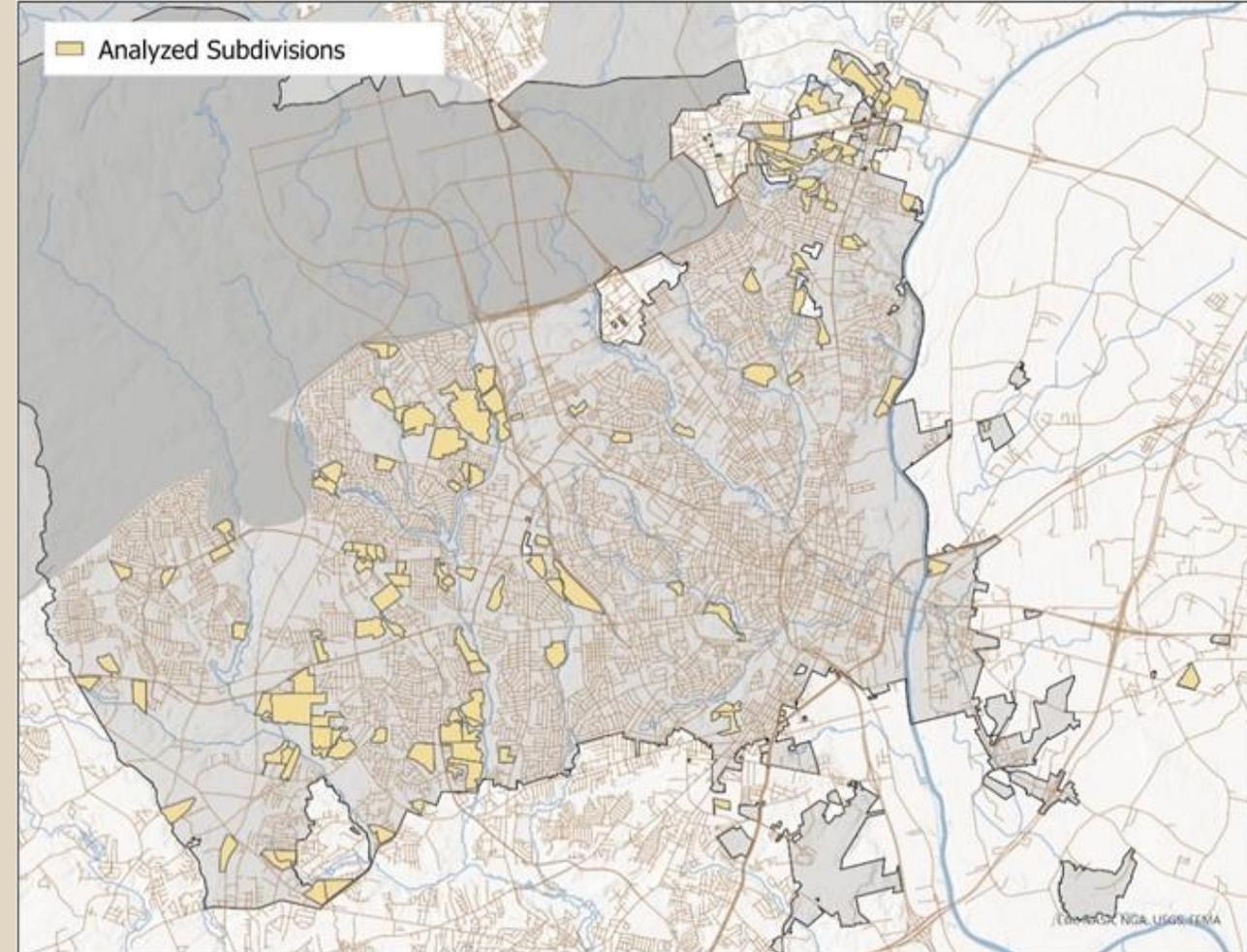
Connectivity Analysis Overview

Objectives:

- Identify problem areas
- Enhance emergency access and multimodal connectivity
- Develop a plan for implementation and identify funding sources
- Develop unified development ordinance recommendations

Methodology

- City provided list of medium-to-large subdivisions with single point of access (231 subdivisions)
- Narrowed list to 100 subdivisions to prioritize larger subdivisions with more households
- Up to two potential connections identified for each subdivision (total of 175)



Performance Metrics



Equity

12.5%



Resiliency

50%



Feasibility

12.5%



Community

Access

12.5%



Multimodal

Access

12.5%

Methodology

Ranking Methodology: Resiliency Score

- Resiliency Score
 - Access to the Collector / Arterial
 - Access to Fire Station
 - Units per access point
 - Potential to connect disconnected areas
 - Potential vulnerability to flooding (per previous events)
 - Potential vulnerability to flooding (per nearby water bodies)
 - Access for future development

Rank	Connection Name	Jurisdiction (City Council District)	Total Score	Normalized Score					Final Score
				E Score	F Score	R Score	M Score	C Score	
				0.125	0.125	0.5	0.125	0.125	
1	CREEKS EDGE TOWNHOMES CONNECTION 1	7	47	0.75	0	0.78	1.00	0.92	0.72
2	ROBINWOOD / ROBINHILL ESTATES CONNECTION 1	6	41	0.375	0.5	0.61	0.80	1.00	0.64
3	KING'S GRANT 429 UNITS CONNECTION 1	1	35	0	0	1.00	0.20	0.67	0.61
4	MCKINLEY RESERVE CONNECTION 1	3	38	0.25	0.75	0.43	0.90	1.00	0.58
5	LAFAYETTE PLANTATION MHP CONNECTION 2	7	34	1	0.5	0.61	0.20	0.50	0.58
6	LIBERTY HILL CONNECTION 1	1	30	0	0.75	0.78	0.40	0.25	0.57
7	KING'S GRANT 113 UNITS CONNECTION 2	1	36	0.375	0.75	0.43	0.80	0.83	0.56
8	CROSS CREEK MHP CONNECTION 1	7	29	0.875	0.75	0.61	0.00	0.25	0.54
9	STEWARTS CREEK CONNECTION 1	4	27	0.625	0.75	0.65	0.20	0.00	0.52
10	WOODCHASE CONNECTION 1	7	33	0.875	0.75	0.30	0.80	0.50	0.52
11	WESTSHORE CONNECTION 1	2	34	0	0.5	0.48	0.80	0.92	0.52
12	NORTH RIDGE PARK CONNECTION 1	3	31	0.5	0.75	0.43	0.60	0.50	0.51
13	HIDDEN CREEK VILL APTS CONNECTION 1	7	31	0.625	0.75	0.43	0.20	0.75	0.51
14	FAIRFIELD CONNECTION 2	7	33	0.125	0.5	0.39	0.80	0.92	0.49
15	OAKDALE CONNECTION 1	5	26	0.75	0.5	0.48	0.20	0.25	0.45
16	BUCKHEAD CONNECTION 1	9	29	0	0	0.57	0.80	0.50	0.45
17	NORTH HILLS CONNECTION 1	3	27	0.5	0.75	0.35	0.50	0.42	0.44

Methodology

Ranking Methodology: Other Scores

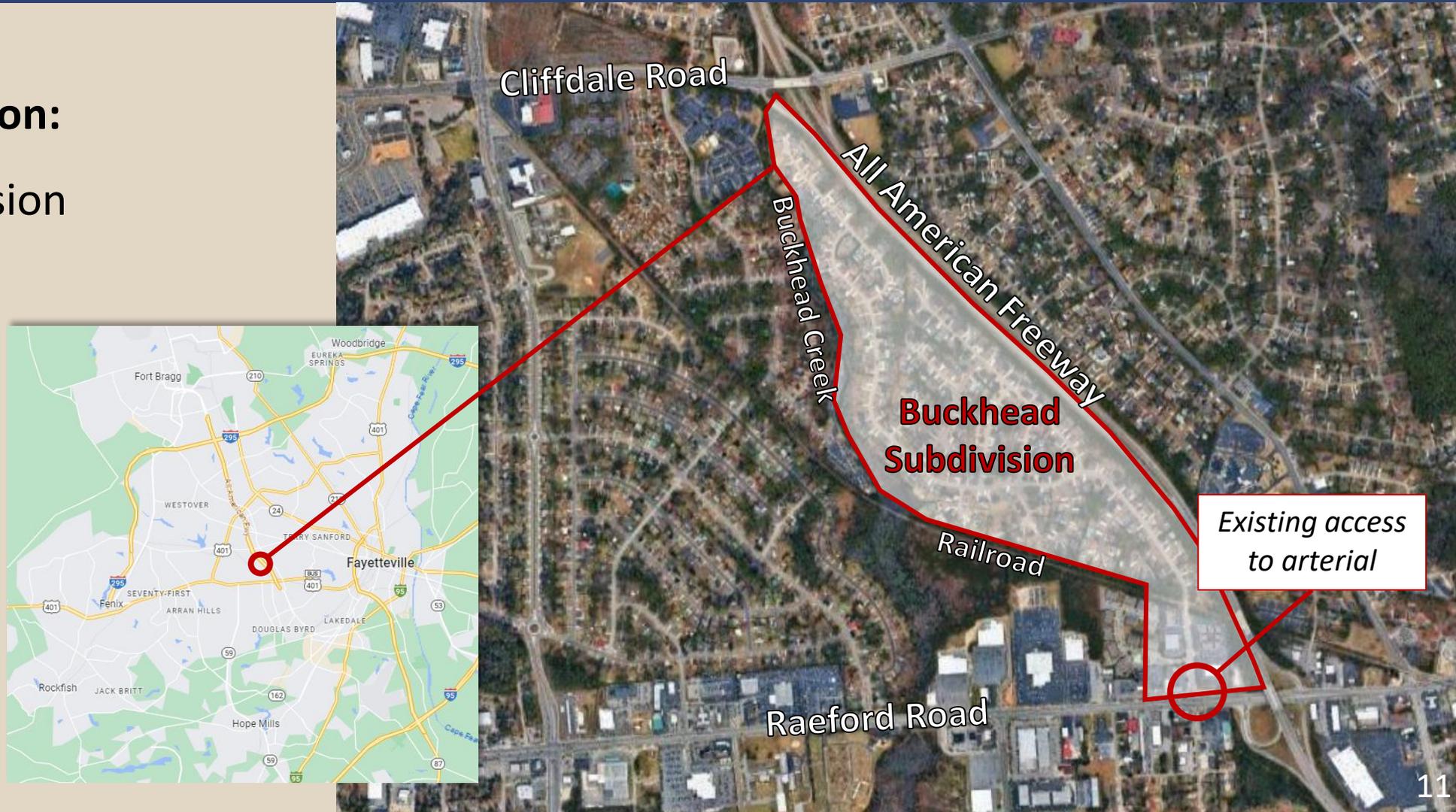
- Equity Score
 - Median household income
 - Transportation Disadvantaged Index (TDI)
- Feasibility Score
 - Cost & constructability
 - Barriers to access
- Multimodal Access Score
 - Access to bus stops and sidewalks
 - Connectivity between communities
- Community Access Score
 - Access to schools, community centers, & commercial uses

Rank	Connection Name	Jurisdiction (City Council District)	Total Score	Normalized Score					Final Score
				E Score	F Score	R Score	M Score	C Score	
				0.125	0.125	0.5	0.125	0.125	
1	CREEKS EDGE TOWNHOMES CONNECTION 1	7	47	0.75	0	0.78	1.00	0.92	0.72
2	ROBINWOOD / ROBINHILL ESTATES CONNECTION 1	6	41	0.375	0.5	0.61	0.80	1.00	0.64
3	KING'S GRANT 429 UNITS CONNECTION 1	1	35	0	0	1.00	0.20	0.67	0.61
4	MCKINLEY RESERVE CONNECTION 1	3	38	0.25	0.75	0.43	0.90	1.00	0.58
5	LAFAYETTE PLANTATION MHP CONNECTION 2	7	34	1	0.5	0.61	0.20	0.50	0.58
6	LIBERTY HILL CONNECTION 1	1	30	0	0.75	0.78	0.40	0.25	0.57
7	KING'S GRANT 113 UNITS CONNECTION 2	1	36	0.375	0.75	0.43	0.80	0.83	0.56
8	CROSS CREEK MHP CONNECTION 1	7	29	0.875	0.75	0.61	0.00	0.25	0.54
9	STEWARTS CREEK CONNECTION 1	4	27	0.625	0.75	0.65	0.20	0.00	0.52
10	WOODCHASE CONNECTION 1	7	33	0.875	0.75	0.30	0.80	0.50	0.52
11	WESTSHORE CONNECTION 1	2	34	0	0.5	0.48	0.80	0.92	0.52
12	NORTH RIDGE PARK CONNECTION 1	3	31	0.5	0.75	0.43	0.60	0.50	0.51
13	HIDDEN CREEK VILL APTS CONNECTION 1	7	31	0.625	0.75	0.43	0.20	0.75	0.51
14	FAIRFIELD CONNECTION 2	7	33	0.125	0.5	0.39	0.80	0.92	0.49
15	OAKDALE CONNECTION 1	5	26	0.75	0.5	0.48	0.20	0.25	0.45
16	BUCKHEAD CONNECTION 1	9	29	0	0	0.57	0.80	0.50	0.45
17	NORTH HILLS CONNECTION 1	3	27	0.5	0.75	0.35	0.50	0.42	0.44

Example

Buckhead Subdivision:

- 125-acre subdivision
- 241 households



Example

New Street Connection would reduce distance to resources by:

- Arterial – 1 mile
- Bus Stop – ½ mile
- Sidewalk – 1 mile
- School – 1 mile
- Commercial Uses – ½ mile
- Fire Station 2¼ miles



Example



Resiliency Score – 0.57



Equity Score – 0.00



Feasibility Score – 0.00



Multimodal Score – 0.80



Community Score – 0.50

Total Score =

$$(0.57 * 0.5) + ((0 + 0 + 0.8 + 0.5) * 0.125) = 0.45$$



Results

Took the top 20% (38 connections):

- City set a score threshold of 0.44 for a more reasonable list of initial projects to implement
- Intention of advancing high-scoring connections toward concept preparation and cost estimation

Original Rank	Connection Name	Jurisdiction (City Council District)	Total Score	Normalized Score					Final Score
				E Score	F Score	R Score	M Score	C Score	
				0.125	0.125	0.5	0.125	0.125	
1	CREEKS EDGE TOWNHOMES CONNECTION 1	7	47	0.75	0	0.78	1.00	0.92	0.72
2	CREEKS EDGE TOWNHOMES CONNECTION 2	7	43	0.75	0.75	0.61	1.00	0.67	0.70
3	LEXINGTON WOODS CONNECTION 1	2	42	0.375	0.75	0.52	1.00	1.00	0.65
4	ROBINWOOD / ROBINHILL ESTATES CONNECTION	6	41	0.375	0.5	0.61	0.80	1.00	0.64
5	KING'S GRANT 429 UNITS CONNECTION 1	1	35	0	0	1.00	0.20	0.67	0.61
6	MCKINLEY RESERVE CONNECTION 1	3	38	0.25	0.75	0.43	0.90	1.00	0.58
7	LAFAYETTE PLANTATION MHP CONNECTION 2	7	34	1	0.5	0.61	0.20	0.50	0.58
8	ROBINWOOD / ROBINHILL ESTATES CONNECTION	6	37	0.375	0.5	0.48	1.00	0.75	0.57
9	LIBERTY HILL CONNECTION 1	1	30	0	0.75	0.78	0.40	0.25	0.57
10	KING'S GRANT 113 UNITS CONNECTION 2	1	36	0.375	0.75	0.43	0.80	0.83	0.56
11	CROSS CREEK MHP CONNECTION 1	7	29	0.875	0.75	0.61	0.00	0.25	0.54
12	STEWARTS CREEK CONNECTION 1	4	27	0.625	0.75	0.65	0.20	0.00	0.52
13	WOODCHASE CONNECTION 1	7	33	0.875	0.75	0.30	0.80	0.50	0.52
14	WESTSHORE CONNECTION 1	2	34	0	0.5	0.48	0.80	0.92	0.52
15	NORTH RIDGE PARK CONNECTION 1	3	31	0.5	0.75	0.43	0.60	0.50	0.51
16	HIDDEN CREEK VILL APTS CONNECTION 1	7	31	0.625	0.75	0.43	0.20	0.75	0.51
17	LEXINGTON WOODS CONNECTION 2	2	32	0.375	0.75	0.39	0.70	0.67	0.51
18	CARLSON BAY APTS CONNECTION 2	7	26	0.75	0.75	0.57	0.20	0.00	0.50
19	BORDEN HEIGHTS CONNECTION 2	2	31	1	0.5	0.35	0.70	0.33	0.49
20	FAIRFIELD CONNECTION 2	7	33	0.125	0.5	0.39	0.80	0.92	0.49
21	BORDEN HEIGHTS CONNECTION 1	2	30	1	0.5	0.35	0.60	0.33	0.48
22	HIDDEN CREEK VILL APTS CONNECTION 2	7	29	0.625	0.75	0.39	0.20	0.67	0.48
23	RIVER BLUFF CONNECTION 1	2	28	1	0.75	0.35	0.30	0.33	0.47
24	RAEFORD CROSSING CONNECTION 1	7	28	0.875	0.75	0.35	0.40	0.33	0.47
25	MCKINLEY RESERVE CONNECTION 2	3	32	0.25	0.75	0.26	0.70	1.00	0.47
26	OAKDALE CONNECTION 2	5	28	0.75	0.25	0.52	0.40	0.25	0.47
27	CROSS CREEK MHP CONNECTION 2	7	27	0.875	0.75	0.39	0.20	0.33	0.47
28	HIDDEN LAKE APTS CONNECTION 2	7	29	0.375	0.75	0.35	0.70	0.50	0.46
29	HIDDEN LAKE APTS CONNECTION 1	7	28	0.375	0.75	0.39	0.60	0.42	0.46
30	ASTORIA AT HOPE MILLS APTS CONNECTION 1	2	28	0.625	0.75	0.35	0.60	0.33	0.46
31	RIVERCLIFF CONNECTION 1	2	31	0.875	0	0.43	0.50	0.58	0.46
32	RAEFORD CROSSING CONNECTION 2	7	28	0.875	0.75	0.30	0.40	0.42	0.46
33	ASTORIA AT HOPE MILLS APTS CONNECTION 2	2	29	0.625	0.5	0.35	0.70	0.42	0.45
34	OAKDALE CONNECTION 1	5	26	0.75	0.5	0.48	0.20	0.25	0.45
35	CRYSTAL LAKE APTS CONNECTION 1	3	25	0.25	0.75	0.48	0.40	0.25	0.45
36	BUCKHEAD CONNECTION 1	9	29	0	0	0.57	0.80	0.50	0.45
37	NORTH HILLS CONNECTION 1	3	27	0.5	0.75	0.35	0.50	0.42	0.44
38	KAREN LAKE CONDOS CONNECTION 2	4	27	1	1	0.17	0.30	0.50	0.44

Results

Then narrowed to top 17 connections:

- Some high-scoring connections were not advanced because the connection:
 - Joins privately-maintained streets,
 - Does not join to the larger street network,
 - Is partially outside the City limits, and/or
 - Can be consolidated with one or more other high-scoring connections.

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16	BUCKHEAD CONNECTION 1	9	29	0	0	0.57	0.80	0.50	0.45
17	NORTH HILLS CONNECTION 1	3	27	0.5	0.75	0.35	0.50	0.42	0.44

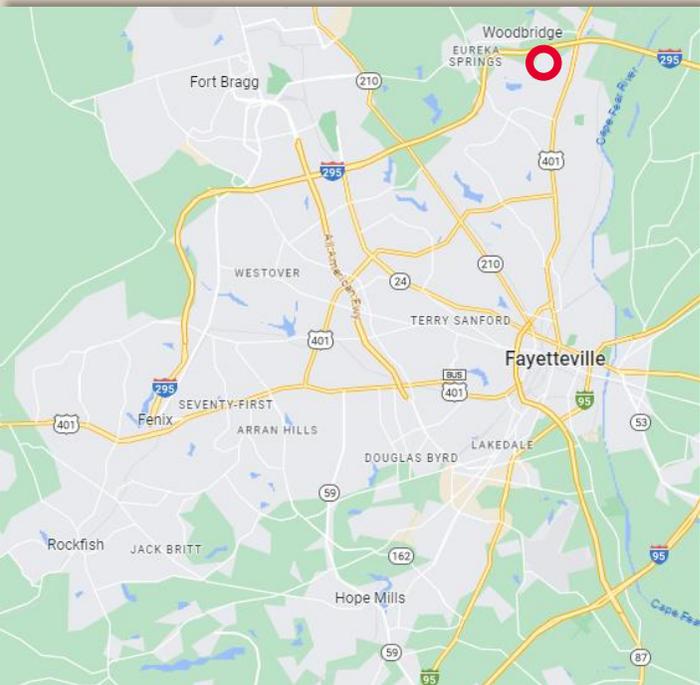
Example

Liberty Hills



Example

Liberty Hills



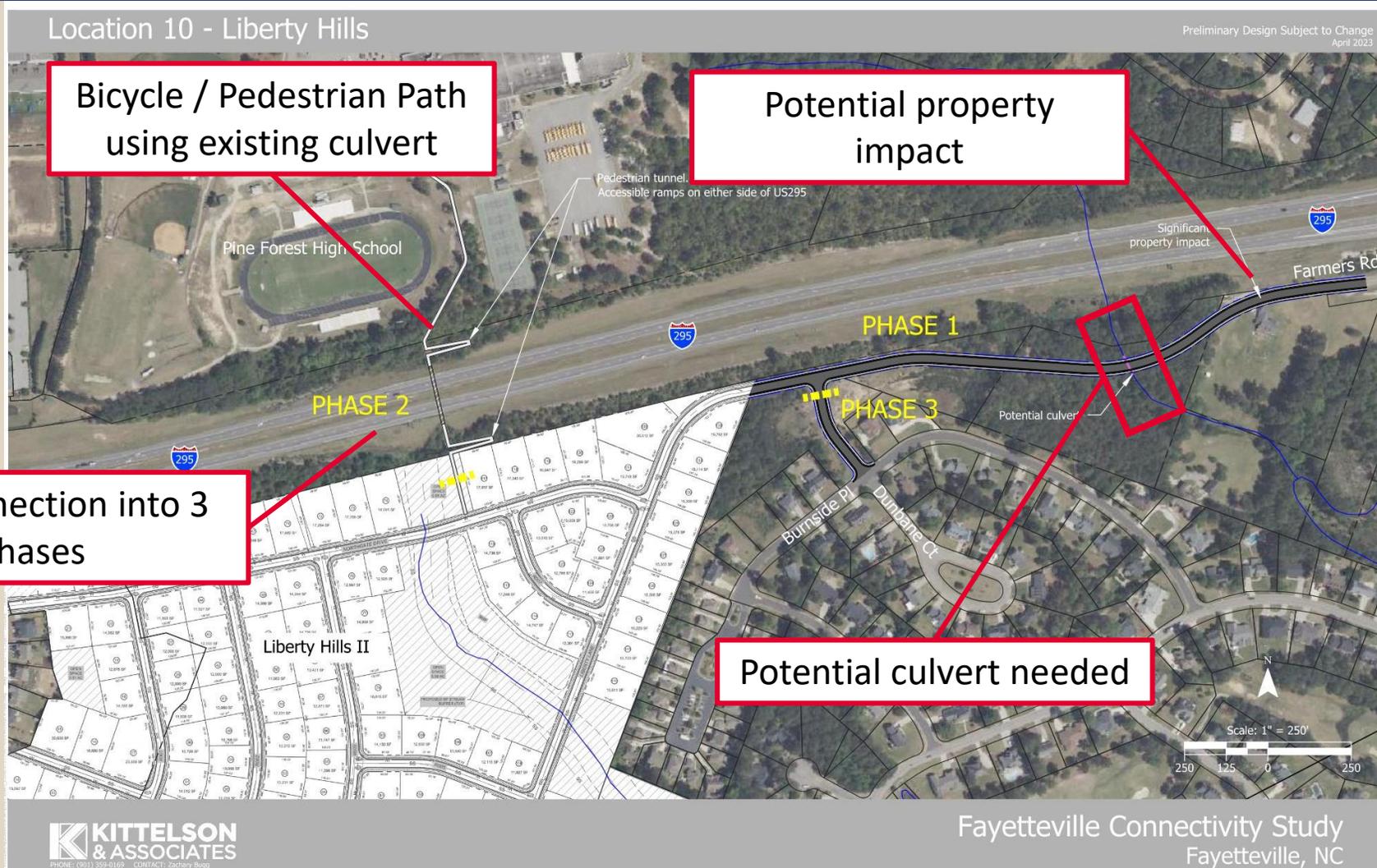
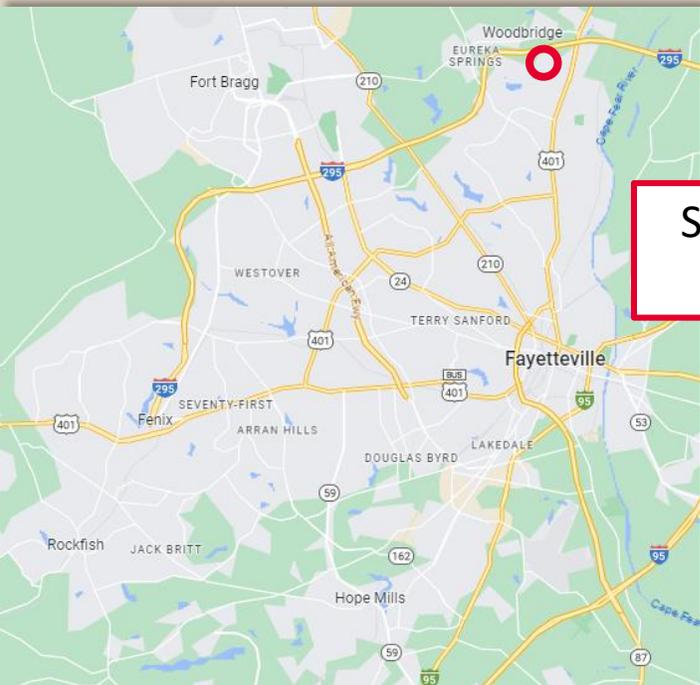
Example

Liberty Hills

Estimated Cost Phase 1 = \$3.7M

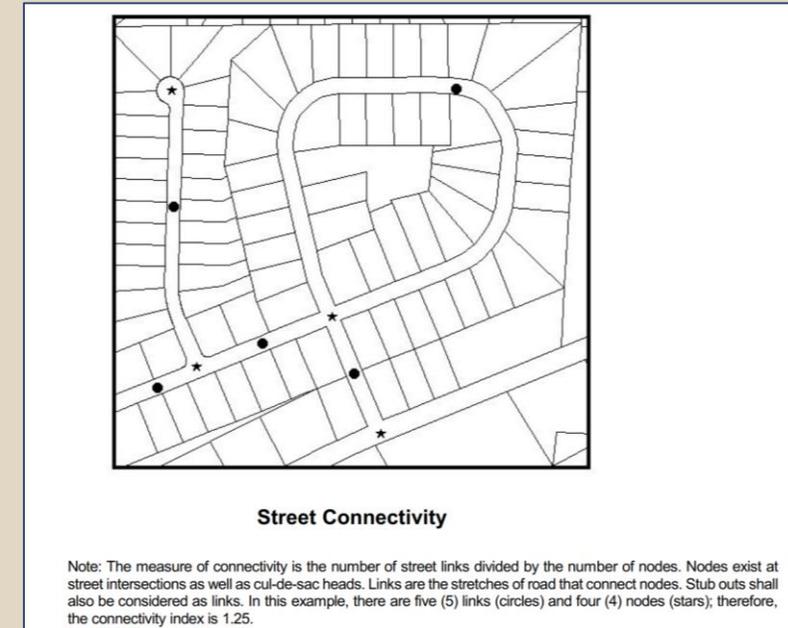
Estimated Cost Phase 2 = \$1.1M

Estimated Cost Phase 3 = \$550K



Development Code Review

- Focused on project goals:
 - Enhance neighborhood connectivity
 - Increase multimodal access
 - Shorten emergency routes
- Compared development code with 3 peer cities:
 - Wilmington (pop. 115,000)
 - Cary (pop. 175,000)
 - Winston-Salem (pop. 250,000)



Cary Connectivity Index

Strategic Corridor Analysis Overview

Objectives:

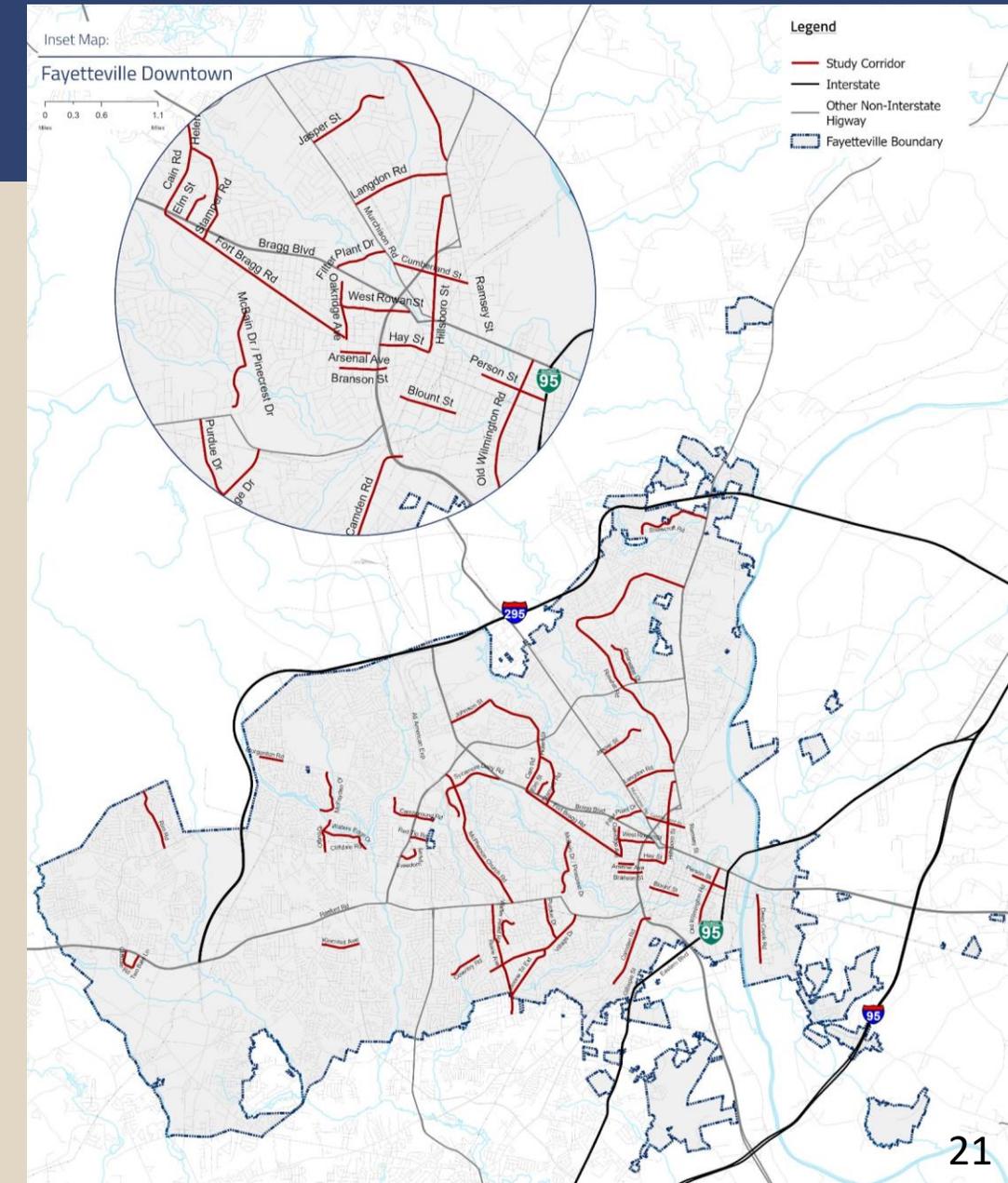
- Identify strategic corridors that are important to the transportation network
- Identify locations that do not meet intended performance
- Identify tools that improve multimodal safety and mobility
- Develop a plan for implementation and identify funding sources

Met with the same Steering Committee to discuss these study outcomes!

Identify Corridors

Identified corridors that are:

- Owned/maintained by City of Fayetteville
- Receiving comments/concern from public
- Have 4 or more lanes
OR 2 lanes experiencing congestion
- Perceived to be carrying “cut through” traffic
- Key for multimodal connectivity



Methodology

Overall Approach:

1. Locate deficiencies
2. Prioritize locations for improvement
3. Identify project recommendations

Traffic



- Crash frequency
- Current level of service
- Future (2050) level of service

Pedestrian



- Crash frequency
- Gaps in crosswalks
- Gaps in sidewalks

Bicyclist



- Crash frequency
- Level of traffic stress

Transit



- Transit propensity

Plus...

- Public/agency feedback
- At-grade rail crossings

Project Toolbox

Traffic Safety & Congestion

				
1. Access Management	2. Roundabouts	3. Widening/ Turn Lanes	4. Signal Modifications	5. Traffic Calming

Pedestrian Infrastructure

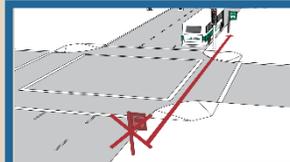
	
1. Filling Sidewalk Gaps	2. Crosswalk Signing/Marking
	
3. Signalize Crosswalk	4. Pedestrian Refuges

Bicycle Infrastructure

		
1. Multiuse Lane	2. Shared Use Paths	3. Buffered Bike Lanes
		
4. Complete Streets	5. Grade Separated Crossings	

Toolbox

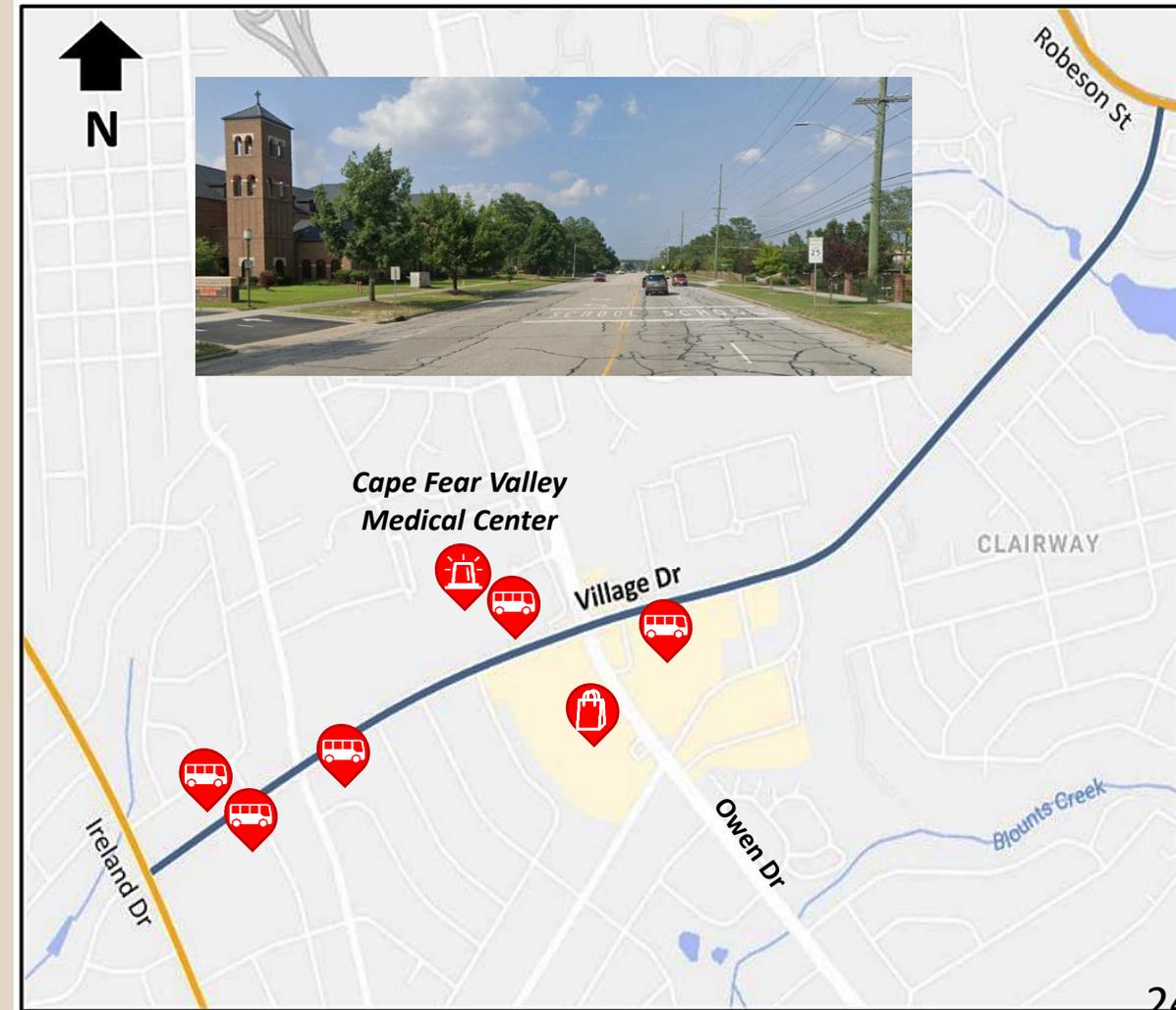
Transit Access

			
1. Extend / Increase Service	2. Improve Crossing by Stops	3. Move Bus Stop to Far Side	4. Improve Amenities

Example

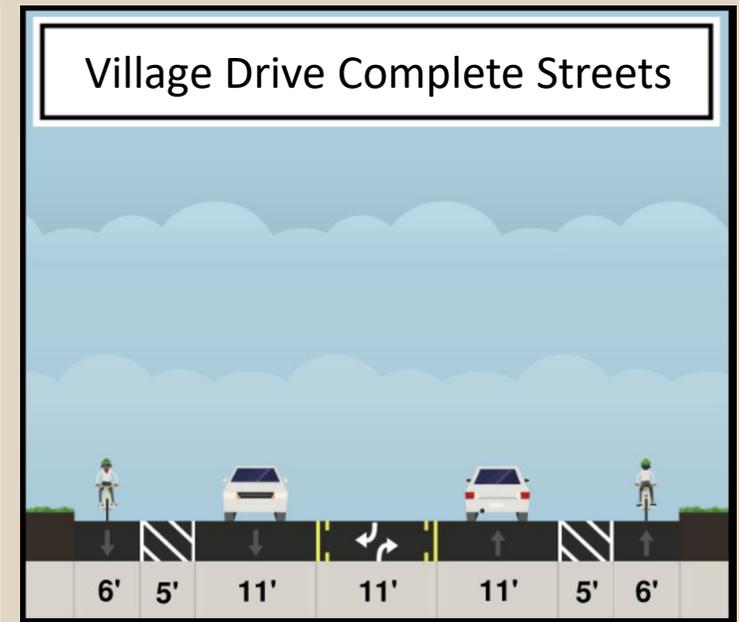
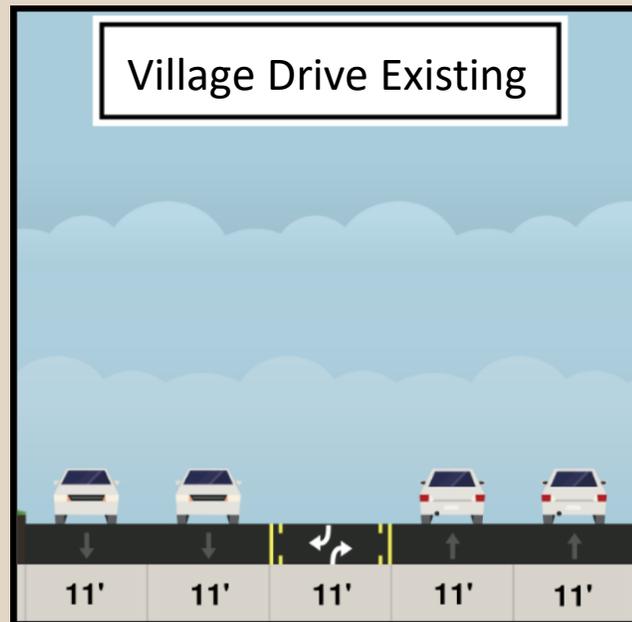
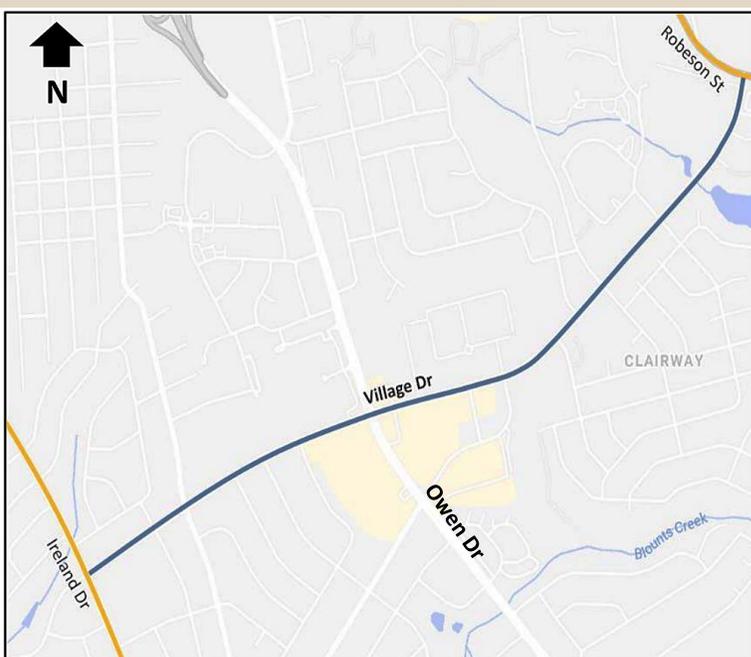
Village Drive

- High vehicular crash frequency
- Lack of crosswalks
- High bicycle level of traffic stress
- High transit propensity
- At-grade rail crossing
- Poor level of service at Owen Drive



Example

Village Drive



Strategic Corridor Recommendations

Corridor	Recommendations
1 - Rosehill Rd/ Stacy Weaver Dr	Road Diet, Fill Sidewalk Gaps, Crosswalks, Shared Use Path, Improve Bus Stop Crossings & Amenities
3 - Sycamore Dairy Rd	Road Diet, Fill Sidewalk Gaps, Crosswalks,
4 - McPherson Church Rd	Add Medians / Control Access, Improve Bus Stop Crossings & Amenities
5 - Village Dr	Road Diet, Crosswalks, Signalized Pedestrian Crossing, Improve Bus Stop Crossings & Amenities
6 - Hay St	<i>Overlap with NCDOT corridors in FAMPO CMP</i>
12 - Jasper St / Topeka St	Road Diet, Buffered Bike Lanes,
13 - Cliffdale Rd	Fill Sidewalk Gaps, Crosswalks
21 - Langdon Rd	Traffic Calming, Crosswalks, Consider Added Bus Service
23 - Roxie Ave	Curb Extensions, Crosswalks, Sidewalk, Bus Stop Crossings & Amenities
24 - Blount St	Shared Use Path
26 - Cumberland St	Fill Sidewalk Gaps, Crosswalks, Crossing Infrastructure,
27 - Hillsboro St	Traffic Calming, Crosswalks, Crossing Infrastructure, Separated Bike/Ped Connection, Improve Bus Stop Crossings & Amenities
31 - Coventry Rd	Sidewalk, Crosswalks, Curb Extensions, Improve Bus Stop Crossings & Amenities
34 - Deep Creek Rd	Remove Channelized Right, Shared Use Path, Crosswalks, Traffic Calming, Improve Bus Stop Crossings & Amenities
38 - W Rowan St	Traffic Calming, Fill Sidewalk Gap
42 - Old Wilmington/B St	Traffic Calming, Roundabout, Crosswalks, Improve Bus Stop Crossings & Amenities

Next Steps

-  Archive full potential connections list for future project opportunities
-  Consider synergy with ongoing maintenance and resiliency projects
-  Designate corridor projects as short-, medium-, and long-term
-  Identify funding sources and coordinate with grant applications
-  Perform community engagement after projects are funded for design

Goals and Outcomes Recap

Fayetteville Comprehensive Transportation Plan:

- Documents the status of the transportation system
- Provides data for making connectivity & corridor investment decisions
- Builds on recent local & regional plans
- Consolidates projects into one comprehensive list
- Gives the City an advantage in preparing for grant applications

Questions / Discussion



Summary

The Fayetteville Comprehensive Transportation Plan:

- Informational item for City Council
 - Local roadway network connectivity analysis
 - Strategic corridors evaluated for improvements
 - Development code evaluated for improvements
- Requesting limited public engagement from stakeholders
- Final plan will be presented to City Council at a future meeting