



Surface Transportation Block Grant (STBG) Proposal

Town of Harrisburg

Highway 49 Improvements - Phase II



Applicant Information

Legal Name: Town of Harrisburg, North Carolina
Contact Person: Mallory Hodgson, P.E. – Director of Public Works
Address: 4100 Main Street, Ste. 101
City, State, Zip: Harrisburg, NC, 28075
Telephone: 704-206-8779
E-mail: mhodgson@harrisburgnc.org

Project Information

Project Name: Highway 49 Improvements – Phase II
Project Location: North Carolina Highway 49 between Morehead Road and Cedar Drive – Harrisburg, NC
MTIP ID: N/A
Total Project Cost: \$9,177,404 (See Appendix H)
Requested STBG Funds: \$7,341,924
Brief Project Description:

The Highway 49 corridor is an essential north-south arterial connecting the City of Charlotte, the Town of Harrisburg, and the City of Concord. The property along the corridor has seen extensive growth and in-fill development over the last decade. The Town developed a plan to serve as a guide for Town officials, residents, property owners and developers in making sound land use, infrastructure, design, and development decisions within this 4.6-mile corridor.

The Town is working to implement portions of this plan to improve access, improve safety, reduce congestion, move overhead utilities underground, improve pedestrian accommodations, and aesthetically improve the corridor.

- 1. Project Needs/Goals and Objectives: The project should directly address priority transportation needs within the Cabarrus-Rowan MPO Planning Area as described in MPO's Transportation Plan other applicable adopted local Plan or CTP. Project applications should clearly state the overall program goals and objectives, and demonstrate how the project will benefit the community. (0 to 20 points)**

The primary goals of the Highway 49 Corridor Improvements project are to improve access, improve safety, reduce congestion, move overhead utilities underground, improve pedestrian accommodations, and aesthetically improve the corridor. Traffic counts from NCDOT revealed that Highway 49 carries 26,000 to 35,000 vehicles per day. (NCDOT AADT Stations). Based on recommended guidelines from NCDOT, major thoroughfares with two lanes in each direction and a two-way-left-turn lane can accommodate approximately 24,000 to 28,000 vehicles per day at an acceptable level of service. Traffic volumes on the Harrisburg portion of Highway 49 are exceeding that threshold, notably during rush hour. Raised medians and access management throughout congested portions of Highway 49 corridor (as recommended in the Harrisburg Community Transportation Plan) have the potential to increase capacity up to 30,500 vehicles per day, improving capacity by 20%.

Source: *NCDOT Level of Service D Standards for Systems Level Planning*



The proposed improvements include replacing the two-way-left-turn-lane with a raised median to control access and minimize vehicular conflicts, consolidating entrances to minimize conflicts and preserve capacity, adding landscaping through the corridor, adding a shared use path along one or both sides of the corridor, and undergrounding overhead utilities on one or both sides of the corridor.

The Cabarrus-Rowan MPO Comprehensive Transportation Plan classifies the Highway 49 corridor through Harrisburg as “Boulevard - Needs Improvement” (See Appendix A, Inset D).

The Town is seeking grant assistance for Phase II of the Highway 49 Corridor project, which encompasses improvements on Highway 49 between Morehead Road and Cedar Drive. This stretch of Highway 49 has the least amount of development on the north side and would utilize raised medians along Phase II to control traffic at the Morehead Road intersection. See Appendix B for a conceptual layout of the improvements.

Phase 1 of the improvements, which is currently in design, will close a median opening between Roberta Road and Main Street, and extend Financial Way to Harrisburg Market. This will redirect some traffic from Highway 49 to Kee Lane, and allow for an extension of the left turn lane from Highway 49 onto Harrisburg Veterans Rd. This should alleviate peak hour traffic for the queuing that occurs on that section of Highway 49.

Phase 3 of the improvements will complete a sidewalk or shared-use path connection between Harrisburg Veterans Park and the proposed Harrisburg Train Station. This will involve completing any gaps in the existing sidewalk or converting that sidewalk into a shared-use path.

Phase 4 of the improvement will focus on the segment of Highway 49 between western Town limits and Caldwell Road. This will be a very similar project to phase II and would help set up the median for the future Caldwell Road extension.

2. Promotes Safety and Security: The project improves an existing hazardous condition. To receive full points, project sponsor must provide a complete description with supporting documentation of the hazardous condition. (0 to 15 points)

Currently, the two-way-left-turn-lane allows for full access movements that create multiple conflict points. Restricting the number of driveway access points will improve safety by reducing potential conflict points. See Appendix C for exhibits showing existing conditions for the proposed project area.

Between 2015 and 2020, there were a total of 113 crashes on this segment of Highway 49. The map provided in Appendix D shows the total number of crashes for each intersection and roadway segment along Highway 49 from Cedar Drive to Morehead Road.

A particular high-profile conflict exists between the northbound left turn lane from Highway 49 to Morehead Road and the southbound two-way-left-turn-lane on Highway 49 into AutoZone (See Appendix C – Exhibit C). Left turn lane traffic onto Morehead Road can become backed up particularly during rush hour, blocking or encroaching on southbound left turn access to AutoZone. Northbound vehicles that enter the left turn lane to Morehead Road early immediately conflict with southbound two-way-left-turn-lane traffic into AutoZone. This creates a dangerous head-on conflict scenario which can be completely mitigated by eliminating the two-way-left-turn-lane.

Source: NCDOT TEAAS data retrieved Feb 10, 2021

Further, according to the Caldwell Road Crash Analysis Memo, which includes analysis of the proposed project area, “the presence of multiple driveways coupled with a lack of exclusive right turn lanes and the presence of multiple signalized intersections are the likely causes for rear-end crashes, which is the predominant crash type accounting for 50% of all crashes. Exclusive right turn lanes (wherever feasible), consolidation of access points and improving progression through the signalized intersections are some of the potential mitigation measures to improve traffic safety.” *Source: Caldwell Road Crash Analysis Memo – Appendix G*

- 3. Documented Project/Program Support: Applicants must submit documentation that shows local support for the project/program in the form of an official resolution. Other support could include letters from affected citizens, advisory boards or commissions, sheriffs or police, neighborhood associations, or business groups. (0 to 20 points)**

On June 8, 2020, Harrisburg Town Council voted 7-0 in a motion to approve a contract with Timmons Group to assist the Town with the preparation of the Highway 49 Corridor Plan. On June 14, 2021, The Town hosted a public hearing for the adoption of the Highway 49 Corridor Improvement Plan. No members of the community spoke at the public hearing, and it was closed. On August 9, 2021, Harrisburg Town Council voted 6-1 in a motion to adopt the Highway 49 Corridor Improvement Plan. All three public meeting minutes can be found at the links below:

June 8th, 2020: <https://codelibrary.amlegal.com/codes/harrisburg/latest/m/2020/6/8>

June 14th, 2021: <https://codelibrary.amlegal.com/codes/harrisburg/latest/m/2021/6/14>

August 9th, 2021: <https://codelibrary.amlegal.com/codes/harrisburg/latest/m/2021/8/9>

The Town has received a letter of support from the YMCA for improvements along Highway 49 as it will be their main thoroughfare for patrons. This letter of support can be found in Appendix E.

The Harrisburg Town Council is aware of the requirements that come with funding through a Surface Transportation Block Grant and have authorized Town staff to execute and file applications for projects consistent with the Town’s adopted Transportation and Community plans by the means of a formal resolution. See Appendix F for a copy of the adopted Town Council resolution adopted on August 8, 2022.

- 4. Proximity to Existing/Planned Traffic Generators: The project is in proximity to traffic generators such as residential or commercial areas, schools and other institutional uses, parks, libraries, etc. Applicant must describe proximity to, and connection with existing/planned transportation system and how it will improve access to the facilities. (0 to 15 points)**

Highway 49 is the main arterial roadway in Harrisburg with a daily traffic count from 26,000 to 35,000 vehicles per day. Travelers on the corridor use the route to access Harrisburg schools, parks, residential developments, and industrial and commercial facilities.

Phase II of the Highway 49 improvements Project encompasses the area between Cedar Drive and Morehead Road. A major traffic generator in this particular segment of Highway 49 is Harrisburg Park. The two entrances to the park are Sims Parkway and Z-Max Blvd. The entrances are located only a few hundred feet from Highway 49. The park regularly hosts large scale events such as the Town’s July 4th



Celebration. In 2022 approximately 27,000 people attended the event in one day. Attendance is expected to grow in the future. Other events hosted at the park include recreational sports, live music, fairs, festivals, and movie nights. In addition, the Town of Harrisburg and the Rowan-Cabarrus YMCA are finalizing construction plans for a future YMCA inside of Harrisburg Park, which will generate additional traffic. The intersection of Z-Max Boulevard and Highway 49 needs improvements to function safely in its current condition in the peak hour. The adopted Highway 49 Improvements Plan and proposed Phase II project will convert the two-way-left-turn-lane to a dedicated left turn lane onto Z-Max Boulevard and prevent a left turn out of Z-Max Boulevard onto Highway 49, improving access to the facilities.

Harrisburg Park is not the only traffic generator in this segment of Highway 49 that will see improved access from the proposed project. There are many commercial businesses and entrance points to residential neighborhoods that will benefit from better pedestrian access and a reduction in conflict points along the route.

5. **Quantifiable measures for effectiveness in addressing congestion through innovative or multimodal approaches/applications. (Reduces single occupant vehicle use – 10 points; Reduces peak hour congestion volume – 5 points; Improves travel time on corridor – 1 point)**

It is not anticipated that this project will reduce single occupancy vehicle use, reduce peak hour congestion volume, or improve travel time on corridor significantly.

6. **Connectivity measures for linking other modes. (0 to 10 points)**

The adopted project includes updated pedestrian accommodations along the Highway 49 corridor. By setting back and potentially widening the current 5' sidewalk to a setback shared use path, safety is increased for those choosing to travel by foot or bicycle. Currently, Highway 49 is not bicycle friendly with no dedicated bicycle lane. Constructing a new shared use path would encourage local residents to walk or bike instead of choosing a vehicle, for fear of safety along the busy corridor.

Future goals for the Town include linking the Highway 49 shared use path with its developing greenway system. This would connect residents directly to Highway 49 and its commercial developments without the need for a vehicle.

Bonus Points

- A. **Funding - Commitment to amounts higher than the 20 percent local match may result in higher assigned points depending on the percent to complete. Sliding scale for each additional 10 percent local match. (5 points)**

Harrisburg is committing to a local funds match of 20% at this time, as stated on the Town Council resolution in support of an application for STBG funding in Appendix F.

- B. **Geographic equity – Projects serving populations less than 20k. (5 points)**

The most recent census performed by the US census Bureau, dated as April 1, 2020, estimates the population of Harrisburg as 18,967. An excerpt from the US Census Bureau information can be found in Appendix I.



- C. **Innovation - Projects will be examined to see if it contains new or innovative service concepts or facilities that have the potential for improving access and mobility. (5 points)**

N/A

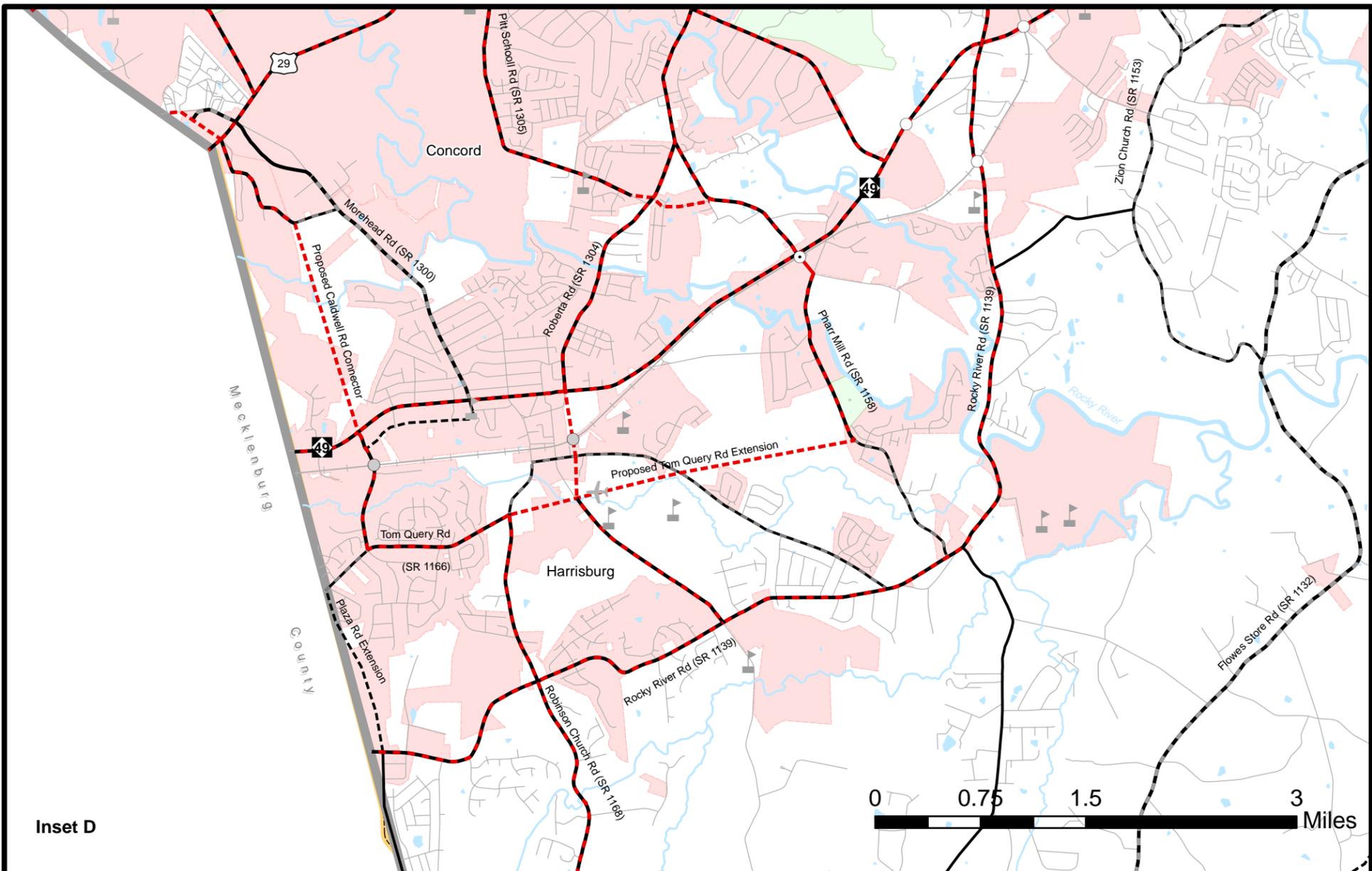
- D. **Progress - Bonus Points will be assigned for shovel ready projects with completed preliminary design, permitting, etc. (5 points)**

As referenced in Appendix B, the Town has conceptual plans for the proposed project area. No additional work would be necessary prior to The Town selecting an engineering firm to perform the design of this project.

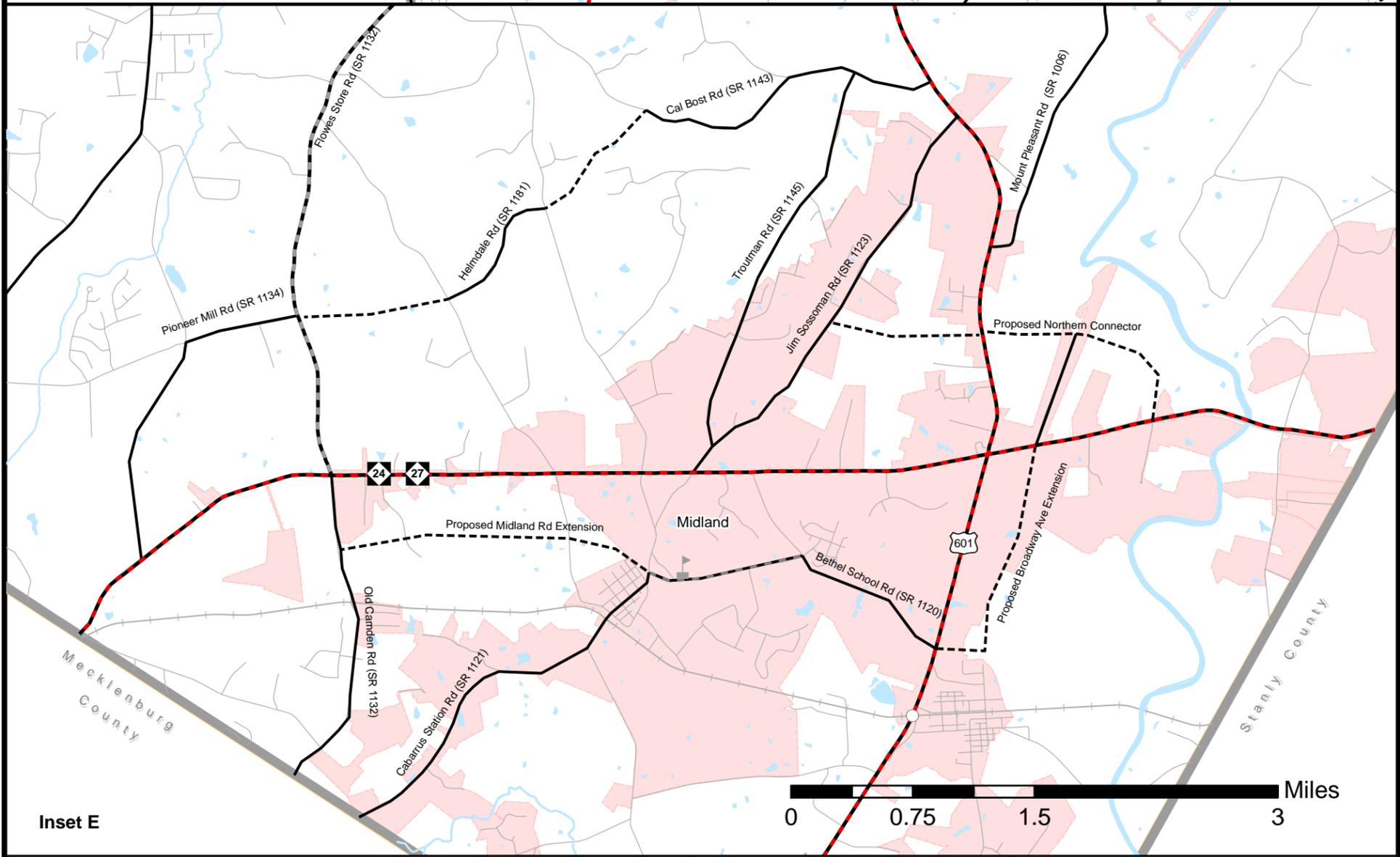
Appendices

- Appendix A – CRMPO CTP Highway Map
- Appendix B – Highway 49 Conceptual Plans
- Appendix C – Existing Conditions Maps
- Appendix D – Highway 49 Corridor Plan – Crash Map
- Appendix E – YMCA Letter of Support
- Appendix F – Harrisburg Town Council Resolution of Support
- Appendix G – Caldwell Road Crash Analysis Memo
- Appendix H – Engineer’s Opinion of Probable Cost
- Appendix I – 2020 US Census Data

Appendix A – CRMPO CTP Highway Map



Inset D



Inset E

Freeways	Other Major Thoroughfares
Existing	Existing
Needs Improvement	Needs Improvement
Recommended	Recommended
Expressways	Minor Thoroughfares
Existing	Existing
Needs Improvement	Needs Improvement
Recommended	Recommended
Boulevards	Existing Interchange
Existing	Proposed Interchange
Needs Improvement	Interchange Needs Improvement
Recommended	Existing Grade Separation
	Proposed Grade Separation



Sheet 2D of 5

Base map date: January 21, 2015

Refer to CTP document for more details

Highway Map Inset D & E Cabarrus-Rowan MPO

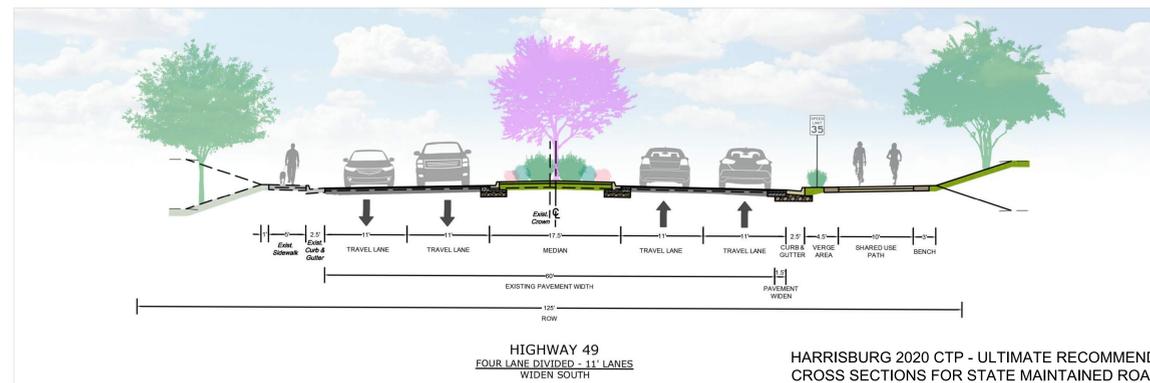
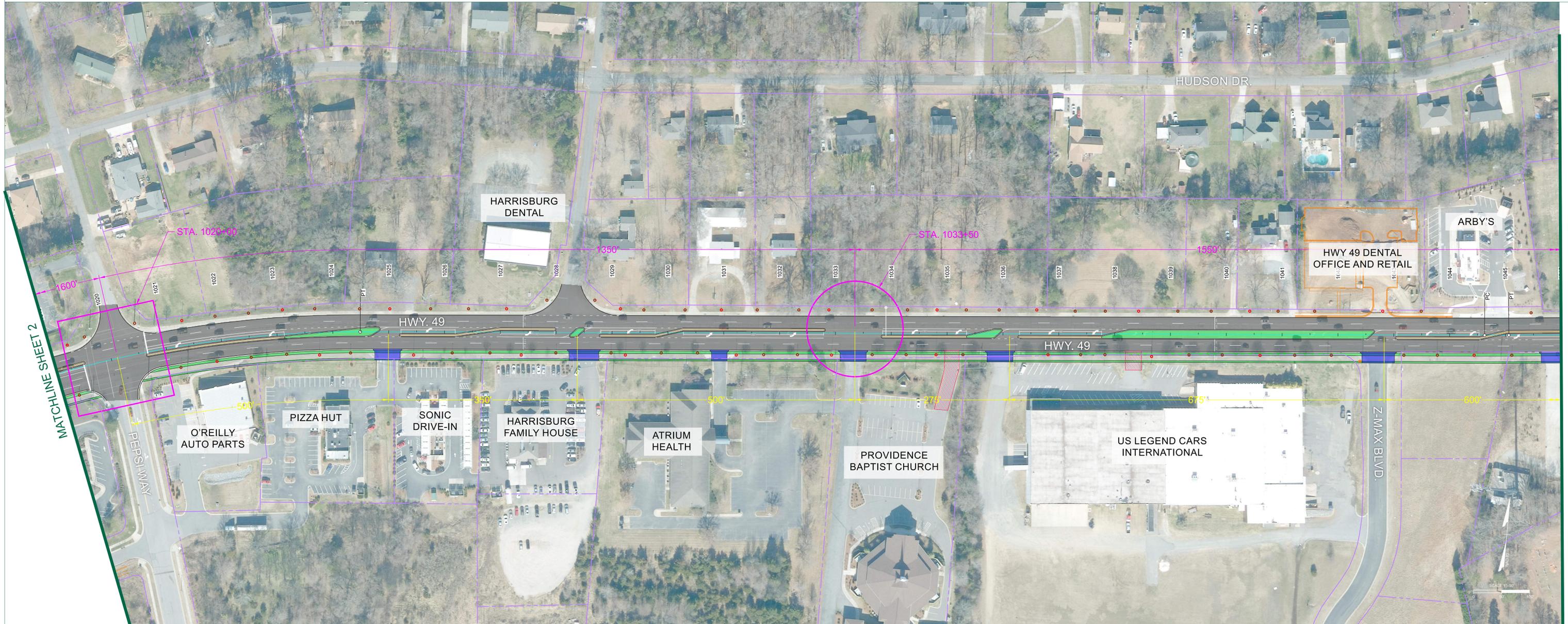
Comprehensive Transportation Plan

Plan date: September 26, 2016

Appendix B – Highway 49 Conceptual Plans

Highway 49 Corridor Improvements

CONCEPTUAL LAYOUT - SHEET 3



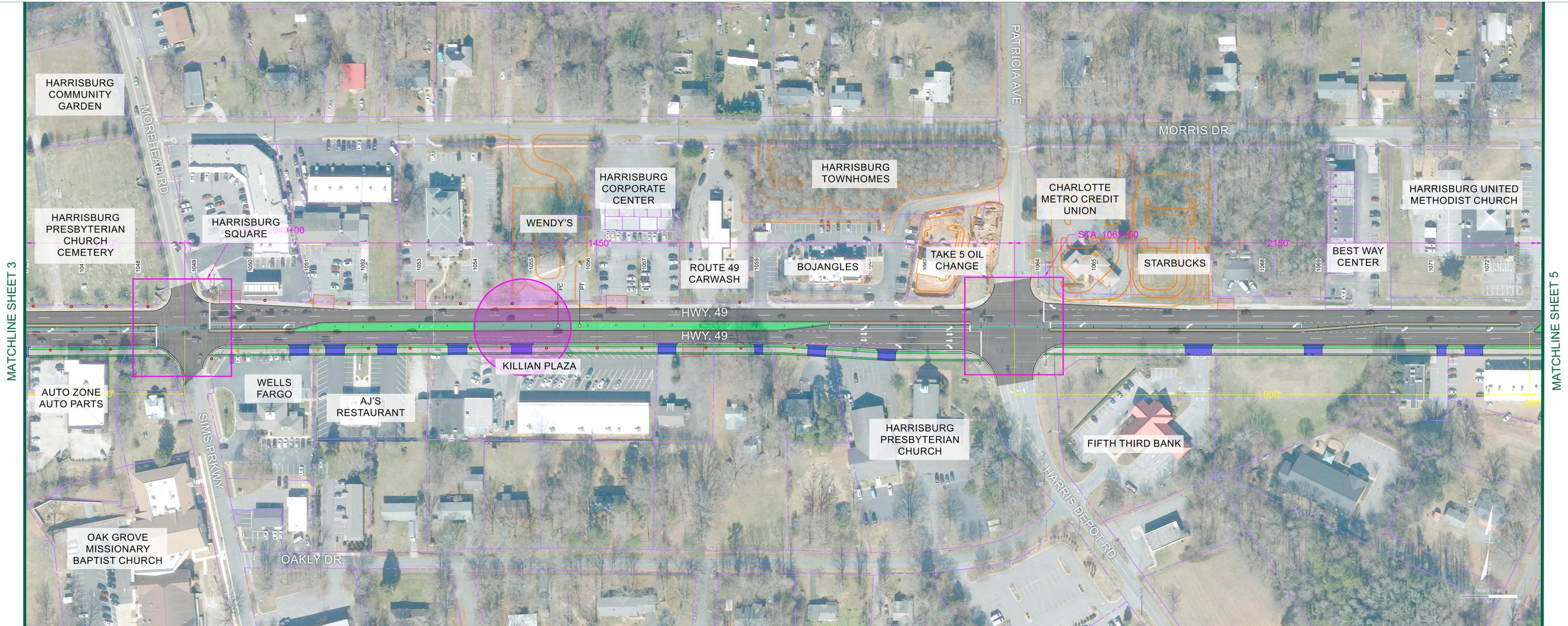
TYPICAL

	CONCRETE MEDIAN		RAISED MEDIAN WITH LANDSCAPE		CANOPY TREE SOUTHERN MAGNOLIA RED MAPLE WILLOW OAK
	ENTRANCE RECONSTRUCTION		DEPRESSED MEDIAN WITH LANDSCAPE		UNDERSTORY TREES - FLOWERING EASTERN REDBUD FLOWERING DOGWOOD FRINGE TREE
	ENTRANCE REMOVAL		ROADWAY MILL/OVERLAY		UNDERSTORY TREES SERVICEBERRY AMERICAN HORNBEAM AMERICAN SMOKETREE
	SHARED USE PATH		FUTURE SITE DEVELOPMENT		SHRUBS/GRASSES/PERENNIALS INKBERRY SHRUB, VIRGINIA SUMMERSWEET SHRUB PURPLE LOVEGRASS, LITTLE BLUESTEM GRASS PURPLE CONEFLOWER, BLACKED-EYED SUSAN
	DISTANCE TO/FROM FULL MOVEMENT		POTENTIAL FUTURE DIRECTIONAL CROSSOVER		EXISTING PEDESTRIAN & SIDEWALK LIGHTING
	DISTANCE TO/FROM DIRECTIONAL MOVEMENT		FULL MOVEMENT (PROSPECTIVE SIGNAL)		EXISTING OVERHEAD STREET LIGHTING (POWER POLE)
	POTENTIAL FUTURE DIRECTIONAL CROSSOVER		EXISTING SIGNALIZED INTERSECTION (SPAN-WIRE)		EXISTING OVERHEAD STREET LIGHTING (STAND-ALONE)

LEGEND

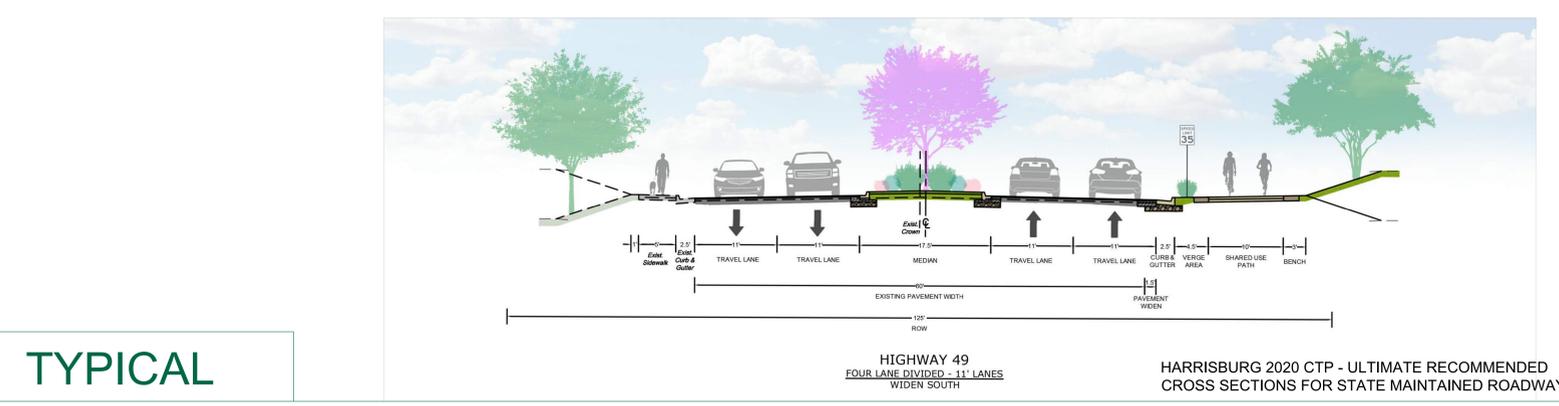
Highway 49 Corridor Improvements

CONCEPTUAL LAYOUT - SHEET 4



MATCHLINE SHEET 3

MATCHLINE SHEET 5



	CONCRETE MEDIAN		RAISED MEDIAN WITH LANDSCAPE		CANOPY TREE SOUTHERN MAGNOLIA RED MAPLE WILLOW OAK
	ENTRANCE RECONSTRUCTION		DEPRESSED MEDIAN WITH LANDSCAPE		UNDERSTORY TREES - FLOWERING EASTERN REDBUD FLOWERING DOGWOOD FRINGE TREE
	ENTRANCE REMOVAL				UNDERSTORY TREES SERVICEBERRY AMERICAN HORNBEAM AMERICAN SMOKETREE
	SHARED USE PATH				SHRUBS/GRASSES/PERENNIALS INKBERRY SHRUB, VIRGINIA SUMMERSWEET SHRUB PURPLE LOVEGRASS, LITTLE BLUESTEM GRASS PURPLE CONEFLOWER, BLACKED-EYED SUSAN
	ROADWAY MILL/OVERLAY				
	FUTURE SITE DEVELOPMENT				
	DISTANCE TO/FROM FULL MOVEMENT				
	DISTANCE TO/FROM DIRECTIONAL MOVEMENT				
	POTENTIAL FUTURE DIRECTIONAL CROSSOVER				
	FULL MOVEMENT (PROSPECTIVE SIGNAL)				
	EXISTING SIGNALIZED INTERSECTION (SPAN-WIRE)				
	EXISTING PEDESTRIAN & SIDEWALK LIGHTING				
	EXISTING OVERHEAD STREET LIGHTING (POWER POLE)				
	EXISTING OVERHEAD STREET LIGHTING (STAND-ALONE)				

LEGEND

Appendix C – Existing Conditions Maps

Legend 
50 ft

Exhibit A

Harrisburg
Dental

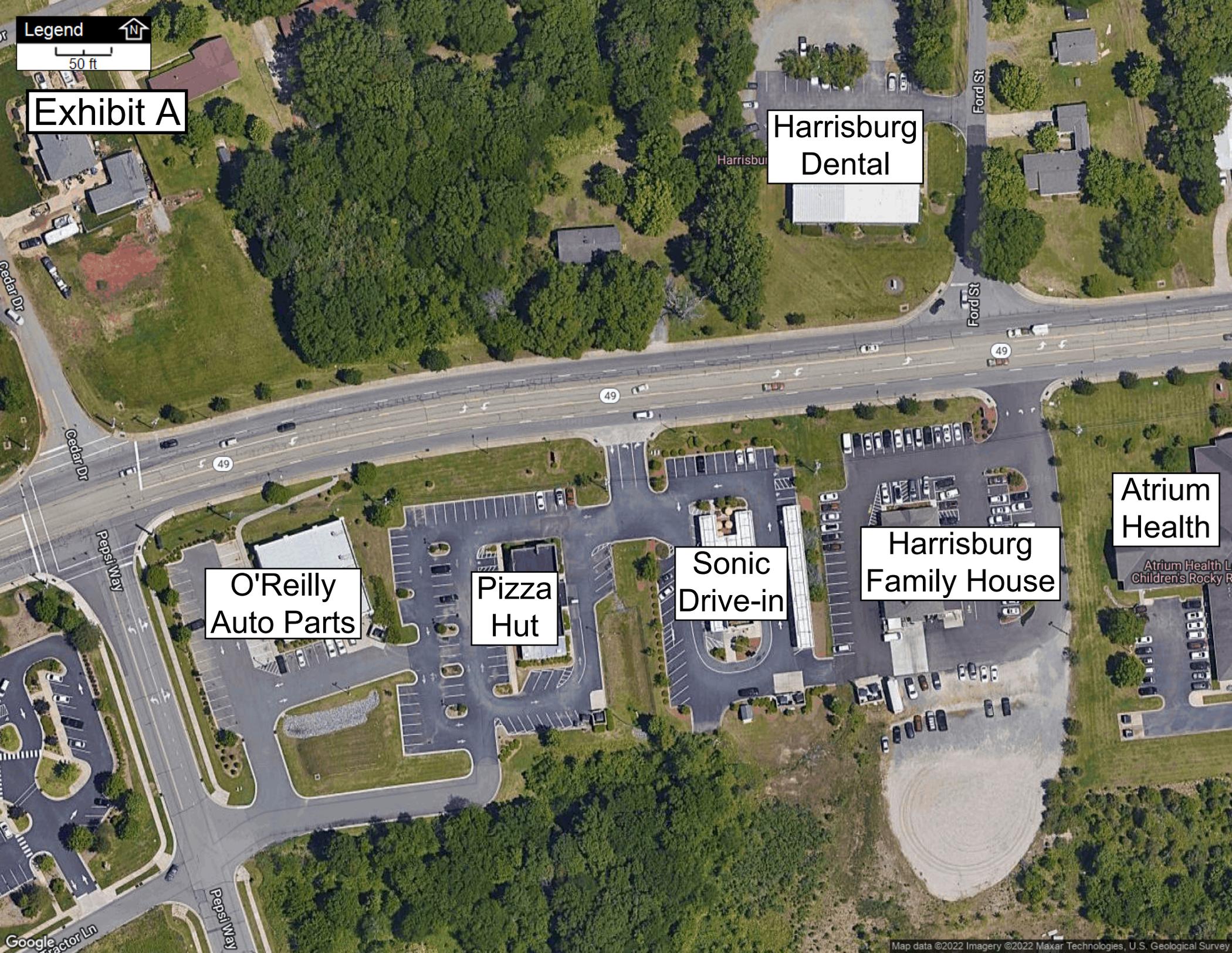
O'Reilly
Auto Parts

Pizza
Hut

Sonic
Drive-in

Harrisburg
Family House

Atrium
Health



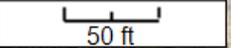
Legend 

50 ft

Exhibit B

Cornerstone
Dental Group

49

49

49

US Legend Cars
International

Providence
Baptist Church

Legend 
50 ft

Exhibit C

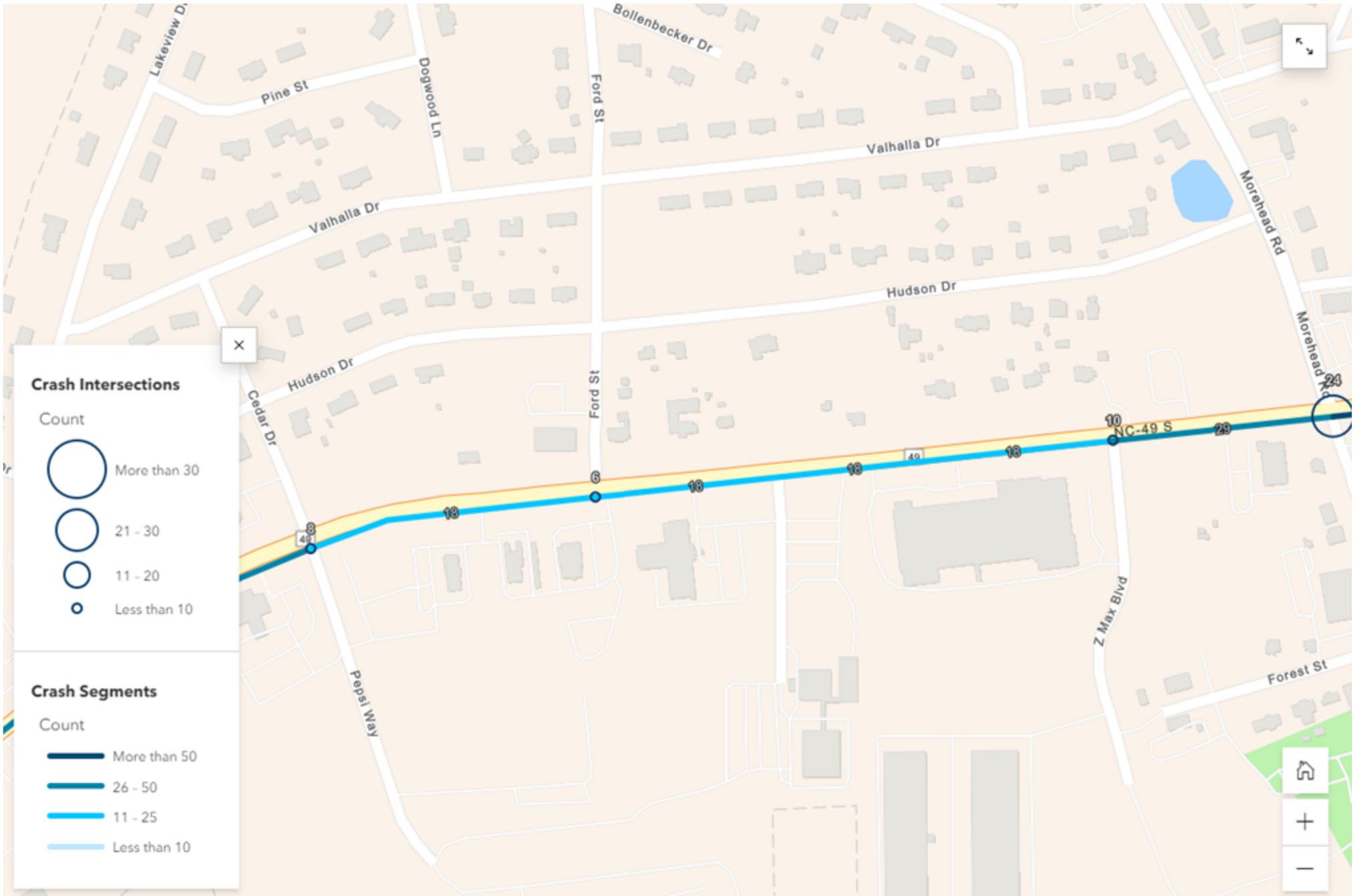
Firststone Group 

Arby's

AutoZone
Auto Parts

Oak Grove Missionary
Baptist Church 

Appendix D – Highway 49 Corridor Plan – Crash Map



Appendix E – YMCA Letter of Support



FOR YOUTH DEVELOPMENT®
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Ms. Mallory Hodgson
Interim Director of Engineering and Public Works
Town of Harrisburg, NC

Subject: Letter of Support of Highway 49 Improvements Project

Ms. Hodgson,

I am pleased to write this letter in support of the transportation projects the Town has identified and is working to initiate. As the Town has grown, the YMCA has been excited for the partnership with the Town to bring a full-service YMCA facility to Harrisburg Park. A key component of growing our organization in the Harrisburg area is ensuring that adequate transportation facilities exist for the residents and community members. Highway 49 will be the main thoroughfare for patrons of the YMCA. Improving safety and congestion is of the utmost importance. Additional pedestrian facilities will also improve access for the YMCA site to the community.

We recognize the efforts that Town staff has made to make improvements to the transportation corridors throughout Town. However, much work can still be done on Highway 49 and the YMCA supports the Town on these projects.

Feel free to reach out if you have any questions, comments or concerns. I can be reached at 704-454-7800 or bcrosby@rocabymca.org.

Thank you,

Brett Crosby
Executive Director
Rowan-Cabarrus YMCA – Harrisburg Branch

Rowan-Cabarrus YMCA Corporate Office
215 Guffy Street
Salisbury, NC 28147
704-216-9622

Appendix F – Harrisburg Town Council Resolution of Support



Resolution by the Town Council

In Support of the Town of Harrisburg, NC to Apply for Surface Transportation Block Grants through the Cabarrus-Rowan Metropolitan Planning Organization

- WHEREAS, On December 4, 2015, the President signed the Fixing America's Surface Transportation (FAST) Act into law. The FAST Act changed the Surface Transportation Program (STP) name to the Surface Transportation Block Grant Program (STBGP) and amended the provisions contained in 23 U.S.C. 133. From the STBGP funds apportioned to each state for the state's entire Federal-aid system, a portion the FAST Act allocates STBGP funds directly to any Metropolitan Planning Organization (MPO) that is designated as a Transportation Management Area (TMA). STBGP funds have broad latitude for use on metropolitan transportation planning and projects and in support of the Federal-aid system per 23 U.S. C. 133.
- WHEREAS, The Town of Harrisburg, herein referred to as the "Town" has need for and intends to construct and design transportation projects which meet the eligibility requirements associated with Surface Transportation Block Grant Program according to 23 USC §133.
- WHEREAS, The Town of Harrisburg intends to request State loan and/or grant assistance for the projects,

NOW THEREFORE BE IT RESOLVED, BY THE TOWN COUNCIL OF THE TOWN:

That the Town of Harrisburg Town Council supports Town Staff in the endeavor to seek funding through the Surface Transportation Block Grant Program for projects consistent with adopted transportation and community plans.

That Town of Harrisburg will arrange financing for all remaining costs of the project, if approved for a loan and/or grant award.

That the Town will adopt and place into effect on or before completion of the project a schedule of fees and charges and other available funds which will provide adequate funds for proper operation, maintenance, and administration of the system and the repayment of all principal and interest on the debt.

That the Town will provide for efficient operation and maintenance of the project on completion of construction thereof.

That Town Manager, Rob Donham, the Authorized Official, and successors so titled, is hereby authorized to execute and file an application on behalf of the Town with the Cabarrus-Rowan Metropolitan Planning Organization for a loan and/or grant to aid in the study of or construction of the project described above.

That the Town Manager, and successors so titled, is hereby authorized and directed to furnish such information as the appropriate agency may request in connection with such application or the project: to make the assurances as contained above; and to execute such other documents as may be required in connection with the application.



That the Town has substantially complied or will substantially comply with all Federal, State, and local laws, rules, regulations, and ordinances applicable to the project and to Federal and State grants and loans pertaining thereto.

Adopted this 8th day of August, 2022 at Town Hall, Harrisburg, North Carolina.

Jennifer Teague

(Signature of Authorized Representative)
Jennifer Teague

Town Mayor, Town of Harrisburg, NC

(Title)



CERTIFICATION BY RECORDING OFFICER

The undersigned duly qualified and acting Town Clerk of the Town of Harrisburg does hereby certify:
That the above/attached resolution is a true and correct copy of the resolution authorizing the filing of an application with the State of North Carolina, as regularly adopted at a legally convened meeting of the Town of Harrisburg duly held on the 8th day of August 2022; and, further, that such resolution has been fully recorded in the journal of proceedings and records in my office. IN WITNESS WHEREOF, I have hereunto set my hand this 8th day of August, 2022

Janet Rackley

(Signature of Recording Officer)

Town Clerk

(Title of Recording Officer)

Appendix G – Caldwell Road Crash Analysis Memo

CALDWELL ROAD CRASH ANALYSIS MEMORANDUM

Date: July 23, 2020

To: Town of Harrisburg

From: Shreyas Bharadwaj, P.E., PTOE
RK&K, LLP

Subject: Caldwell Road Extension from NC 49 to US 29
Crash Analysis
Mecklenburg/ Cabarrus County

The Caldwell Road Extension project will extend Caldwell Road in Harrisburg from its existing intersection with NC 49 to US 29, to improve north-south connectivity in the area. This memorandum presents the crash analysis results based on data provided by the NCDOT Traffic Safety Unit. The analyses were based on a five-year crash history (from March 1, 2015 to February 29, 2020). The analysis was performed for the following study corridors:

1. NC 49 from Ezabella Avenue to D-Stylo Hair Salon Northern Entrance
2. US 29 (Concord Parkway) from Wayhill Drive to 500' northeast of SR 1300 (Morehead Road)

CRASH DATA SUMMARY

Along NC 49, from Ezabella Avenue to D-Stylo Hair Salon Northern Entrance, the total crash rate of **304.64 crashes per 100 million VMT** is higher than the statewide crash rate reported by NCDOT of 298.59 crashes per 100 million VMT for an Urban NC Route with four or more lanes with a continuous left turn lane. During the study period, no fatal crashes were recorded for this segment. Non-fatal, nighttime, and wet pavement crash rates are all lower than the statewide averages. Most crashes (79%) were PDO crashes and non-fatal injury crashes accounted for the other 21%. Rear end (slow or stop) crashes were the most predominant (50%) followed by left turn (different roadways, 17%) crashes. **Figure 1** illustrates the breakdown of crashes by crash severity, crash type, lighting and road conditions while **Table 1** summarizes the crash statistics for the NC 49 segment.

Along US 29, from Wayhill Drive to 500' northeast of Morehead Road, the total crash rate of **214.36 crashes per 100 million VMT** is lower than the statewide crash rate reported by NCDOT of 315.52 crashes per 100 million VMT for an urban US route, divided, with four or more lanes with no access control. During the study period, no fatal crashes were recorded for this segment. Non-fatal, nighttime, and wet pavement crash rates are all lower than the statewide averages. Most crashes (78%) were PDO crashes and non-fatal injury crashes accounted for the other 22%. Rear end (slow or stop) crashes were the most predominant (26%), followed by side swipe (same direction, 23%) crashes. **Figure 2** illustrates the breakdown of crashes by crash severity, crash type, lighting, and road conditions while **Table 2** provides other relevant crash statistics for the US 29 segment.

Figure 1. Crash Statistics for NC 49 Corridor

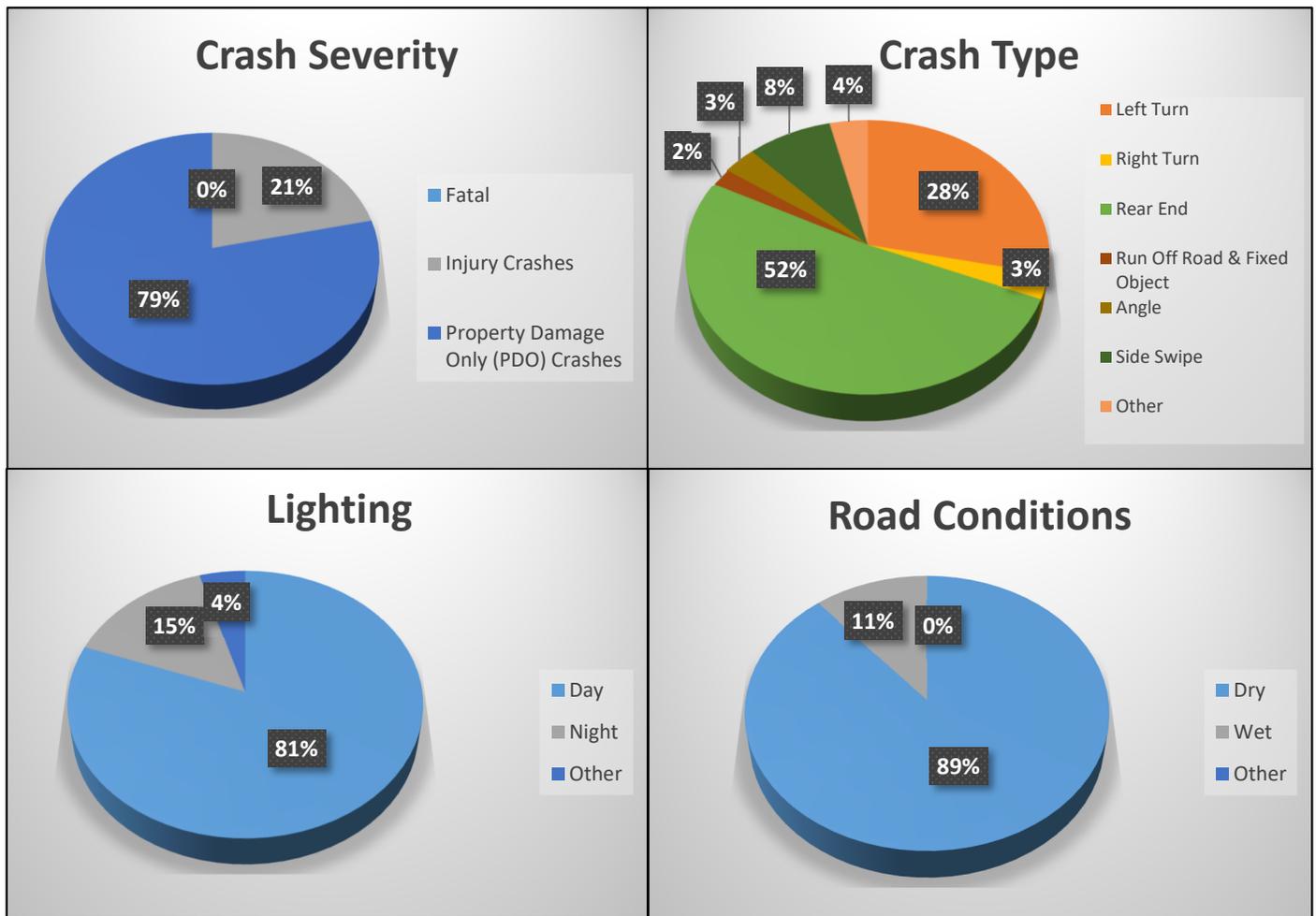


Table 1. Crash Analysis for NC 49 Corridor

Location: NC 49 from Ezabella Ave to D-Stylo Hair Salon Northern Entrance								
Category	Type	Number of Crashes						
		2015	2016	2017	2018	2019	2020	Total
Crash Severity	Fatal	0	0	0	0	0	0	0
	Injury Crashes	6	15	10	12	7	2	52
	Property Damage Only (PDO) Crashes	23	40	48	42	34	4	191
	Total	29	55	58	54	41	6	243
Crash Type	Left Turn	6	12	18	18	14	1	69
	Right Turn	1	0	2	1	2	1	7
	Rear End	16	31	31	23	20	4	125
	Run Off Road & Fixed Object	1	3	1	0	0	0	5
	Angle	3	1	1	3	0	0	8
	Side Swipe	1	5	3	6	5	0	20
	Other	1	3	2	3	0	0	9
	Total	29	55	58	54	41	6	243
Lighting	Day	196						
	Night	36						
	Other	11						
	Total	243						
Road Conditions	Dry	216						
	Wet	27						
	Other	0						
	Total	243						
Alcohol/ Drugs Involvement Crashes	Under Influence	5						
	Not Under Influence	238						
	Total	243						
Other Statistics	Annual ADT	37,000						
	Total Vehicle Exposure	79.77 (Million Vehicle Miles Travelled)						
	Equivalent PDO Rate*	872.79						
	Severity Index	2.87						
	Equivalent PDO Crash Index	696.2						
	Estimated Property Damage Total	\$1,499,112						
	Crash Rates		Segment		Statewide**		Critical Rate**	
	Total Crash Rate*		304.64		298.59		337.14	
	Fatal Crash Rate*		0.00		1.18		4.19	
	Non-Fatal Crash Rate*		65.19		84.87		105.71	
	Night Crash Rate*		45.13		56.99		74.18	
	Wet Crash Rate*		33.85		46.85		62.50	

*Per 100 Million Vehicle Miles
 ** Based on crash rates for Urban NC Route with four or more lanes with a continuous left turn lane

Figure 2. Crash Statistics for US 29 Corridor

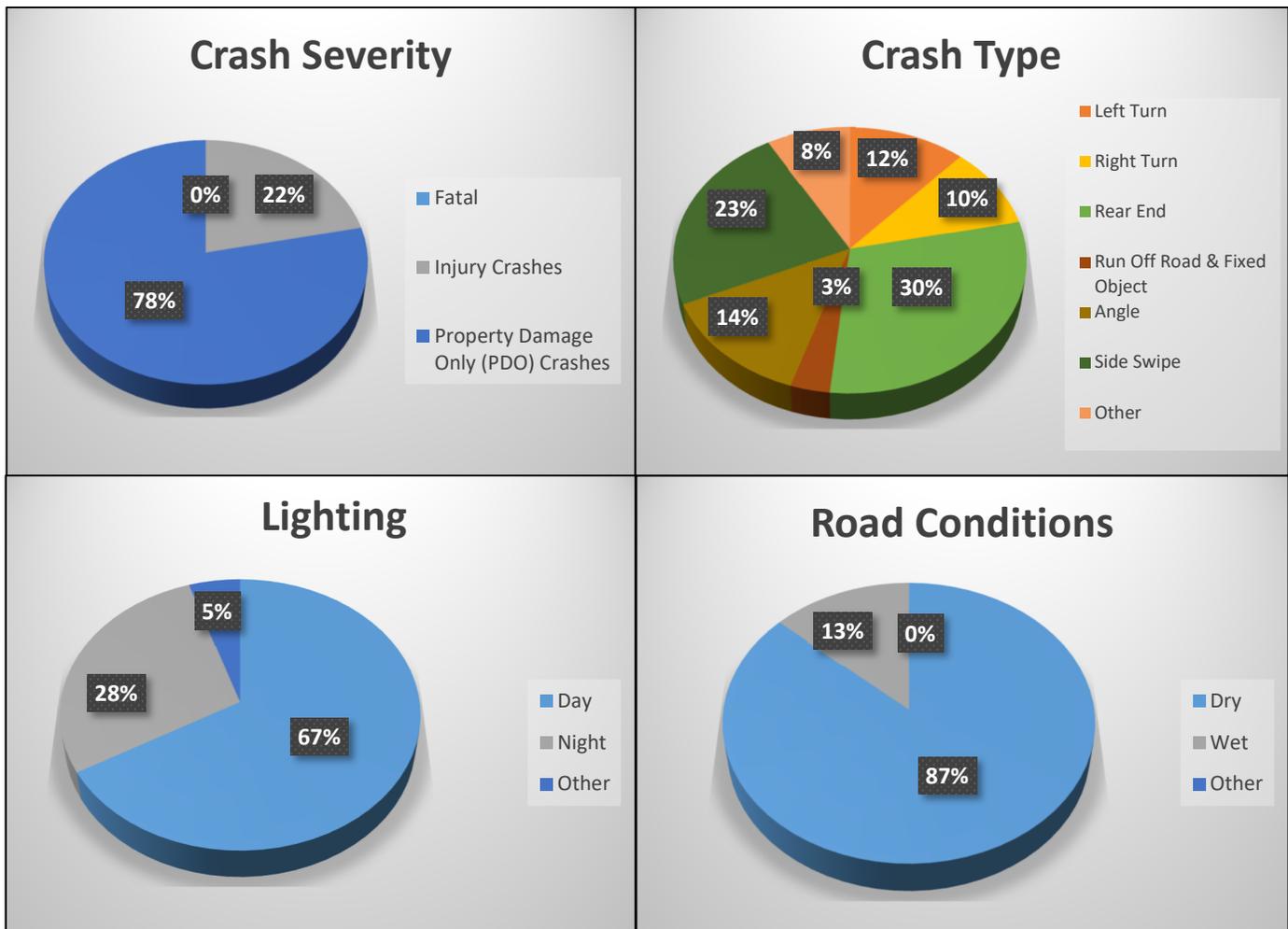


Table 2. Crash Analysis for US 29 Corridor

Location: US 29 from Wayhill Drive to North of Morehead Road								
Category	Type	Number of Crashes						
		2015	2016	2017	2018	2019	2020	Total
Crash Severity	Fatal	0	0	0	0	0	0	0
	Injury Crashes	1	2	5	4	1	0	13
	Property Damage Only (PDO) Crashes	10	11	10	8	8	0	47
	Total	11	13	15	12	9	0	60
Crash Type	Left Turn	1	0	4	1	1	0	7
	Right Turn	1	2	1	1	1	0	6
	Rear End	3	7	2	4	2	0	18
	Run Off Road & Fixed Object	0	0	2	0	0	0	2
	Angle	4	1	0	1	2	0	8
	Side Swipe	1	3	4	4	2	0	14
	Other	1	0	2	1	1	0	5
	Total	11	13	15	12	9	0	60
Lighting	Day	40						
	Night	17						
	Other	3						
	Total	60						
Road Conditions	Dry	52						
	Wet	8						
	Other	0						
	Total	60						
Alcohol/ Drugs Involvement Crashes	Under Influence	2						
	Not Under Influence	58						
	Total	60						
Other Statistics	Annual ADT	22,300						
	Total Vehicle Exposure	27.99 (Million Vehicle Miles Travelled)						
	Equivalent PDO Rate*	558.06						
	Severity Index	2.6						
	Equivalent PDO Crash Index	156.2						
	Estimated Property Damage Total	\$287,050						
	Crash Rates		Segment		Statewide**		Critical Rate**	
	Total Crash Rate*		214.36		315.52		383.11	
	Fatal Crash Rate*		0.00		0.92		6.26	
	Non-Fatal Crash Rate*		46.45		88.03		124.58	
	Night Crash Rate*		60.74		67.01		99.12	
	Wet Crash Rate*		28.58		48.41		75.97	
	*Per 100 Million Vehicle Miles							
** Based on crash rates for Urban US route, divided, with four or more lanes with no access control								

INFERENCES AND RECOMMENDATIONS

Along NC 49 between Ezabella Avenue to D-Stylo Hair Salon Northern Entrance, the presence of multiple driveways coupled with a lack of exclusive right turn lanes and the presence of multiple signalized intersections are the likely causes for rear-end crashes, which is the predominant crash type accounting for 50% of all crashes. Exclusive right turn lanes (wherever feasible), consolidation of access points and improving progression through the signalized intersections are some of the potential mitigation measures to improve traffic safety.

Based on the crash data for the US 29 corridor between Wayhill Drive to 500' northeast of Morehead Road, the crash rates (total, fatal and non-fatal) are lower than the statewide averages. Recommendations to further enhance traffic safety will follow the findings from the operational analysis.

Appendix H – Engineer’s Opinion of Probable Cost

ENGINEER'S OPINION OF PROBABLE COSTS & PROJECT BUDGET
Hwy 49 - Corridor Improvement Project
Town of Harrisburg, NC
09/01/2022

ROADWAY CONSTRUCTION COSTS	Approx Length (ft)	500	2770
	Approx Length (mi)	0.1	0.53
Demolition and Earthwork		\$ 172,800	\$ 957,312
Storm Sewer, Hydraulics, and Stormwater Management		\$ 137,000	\$ 758,980
Pavement		\$ 81,400	\$ 450,956
Curb, Geometric, Pavement Markings, Misc.		\$ 134,670	\$ 746,072
Maintenance of Traffic		\$ 182,980	\$ 182,980
Erosion and Sediment Control / Seeding		\$ 16,808	\$ 93,118
Public Utility Adjustments		\$ 20,800	\$ 115,232
Traffic Signal		\$ 75,000	\$ 415,500
Landscaping		\$ 20,000	\$ 110,800
Sub-Total 1:		\$ 841,458	\$ 3,830,950

OTHER COSTS INCLUDED IN CONSTRUCTION CONTRACT

Mobilization	\$ 221,547
Construction Staking (2%)	\$ 76,619
Construction Materials Testing (2%)	\$ 76,619
Progress Schedule Baseline	\$ 25,000
Progress Schedule Updates	\$ 5,000
Sub-Total 2:	\$ 404,785

Expectect Construction Bid Total (1 + 2) :	\$ 4,235,735
Contingency for Construction Bid Items (30%)	\$ 1,270,721
Budget for Construction Bid Total:	\$ 5,506,456

CN

OTHER PROJECT COSTS AND SERVICES

Engineering Design Services	\$ 1,376,614	PE
Stormwater Registration Fee and Environmental Fees	\$ 19,100	PE
Private Utility Relocations and Adjustments	\$ 382,000	RW
Right-of-Way Acquisitions and Services (By County)	\$ 955,000	RW
Construction Permits / Admin. Fees	\$ 3,820	CN
Construction Engineering & Inspection (CEI)	\$ 95,500	CN
Construction Administration	\$ 19,100	CN
Contingency for PE & RW Phase Items (30%)	\$ 819,814	CN
Sub-Total 3:	\$ 3,670,948	

SUMMARY OF PROJECT BUDGET

Preliminary Engineering (PE)	\$ 1,395,714
Right of Way (RW)	\$ 1,337,000
Construction (CN)	\$ 6,444,690
Recommended Project Budget:	\$ 9,177,404

Notes: All costs provided are based on current NCDOT historical bid pricing. Depending on the year of construction, budget numbers may need to be adjusted accordingly. Based on utility survey provided, no utility impacts are anticipated beyond the potential for an in-plan field adjustment by the contractor.

ENGINEER'S OPINION OF PROBABLE COSTS - DETAILED BREAKDOWN
500' Along Hwy 49 - 1052+00 to 1057+00
Town of Harrisburg, NC

ENGINEER'S OPINION OF PROBABLE COSTS

Item		Unit	Unit Price	Total
Demolition and Earthwork				
015600000-E	Removal of Existing Asphalt Pavement	2,000	SY \$ 20.00	\$ 40,000.00
099500000-E	Pipe Removal	500	LF \$ 15.00	\$ 7,500.00
099600000-N	Pipe Clean Out	2	EA \$ 1,500.00	\$ 3,000.00
000100000-E	Clearing & Grubbing	0.8	AC \$ 42,000.00	\$ 31,500.00
n/a	Saw Cutting	1,500	LF \$ 10.00	\$ 15,000.00
002200000-E	Unclassified Excavation	1,000	CY \$ 50.00	\$ 50,000.00
010600000-E	Borrow Excavation	500	CY \$ 50.00	\$ 25,000.00
005700000-E	Undercut Excavation	100	CY \$ 8.00	\$ 800.00
Sub-Total for Demolition and Earthwork:				\$ 172,800.00
Storm Sewer, Hydraulics, and Stormwater Management				
036600000-E	15" RC Pipe Culverts, Class III	100	LF \$ 110.00	\$ 11,000.00
037200000-E	18" RC Pipe Culverts, Class III	500	LF \$ 125.00	\$ 62,500.00
227500000-E	Flowable Fill	40	CY \$ 50.00	\$ 2,000.00
211000000-E	4" Shoulder Drian Pipe	1,500	LF \$ 30.00	\$ 45,000.00
235200000-N	Frame with Grate, Std 840.14	1	EA \$ 6,500.00	\$ 6,500.00
237400000-N	Frame with Grate & Hood, Std 840.03, Type E	2	EA \$ 5,000.00	\$ 10,000.00
Sub-Total for Storm Sewer and Hydraulics				\$ 137,000.00
Pavement				
130800000-E	Milling Asphalt Pavement, 0" to 2"	2500	SY \$ 12.00	\$ 30,000.00
133000000-E	Incidental Milling	100	SY \$ 25.00	\$ 2,500.00
157500000-E	Asphalt Binder for Plant Mix	10	TON \$ 900.00	\$ 9,000.00
151900000-E	Asphalt Conc Surface Course, Type S9.5B	60	TON \$ 145.00	\$ 8,700.00
150300000-E	Asphalt Conc Intermediate Course, Type I19.0C	20	TON \$ 130.00	\$ 2,600.00
149100000-E	Asphalt Conc Base Course, Type B25.0C	30	TON \$ 120.00	\$ 3,600.00
112100000-E	Agregate Base Course	500	TON \$ 50.00	\$ 25,000.00
Sub-Total for Pavement:				\$ 81,400.00
Curb, Geometric, Pavement Markings, Misc.				
265500000-E	5" Monolithic Concrete Islands (Keyed In)	60	SY \$ 170.00	\$ 10,200.00
468600000-E	Thermoplastic Pavement Marking Lines (4", 120 Mils)	500	LF \$ 5.00	\$ 2,500.00
471000000-E	Thermoplastic Pavement Marking Lines (24", 120 Mils)	24	LF \$ 120.00	\$ 2,880.00
472500000-E	Thermoplastic Pavement Marking Symbol (90 Mils)	2	EA \$ 200.00	\$ 400.00
254900000-E	2'-6" Concrete Curb & Gutter	500	LF \$ 50.00	\$ 25,000.00
254200000-E	1'-6" Concrete Curb & Gutter	1,000	LF \$ 40.00	\$ 40,000.00
261200000-E	6" Concrete Driveway	350	SY \$ 145.00	\$ 50,750.00
410200000-E	Sign Erection, Type E	1	EA \$ 280.00	\$ 280.00
411610000-N	Sign Erection, Relocate Type E (Ground Mounted)	1	EA \$ 250.00	\$ 250.00
423800000-N	Dispose of Sign, D, E or F	1	EA \$ 200.00	\$ 200.00
413800000-N	Dispose of Support, Steel Beam	1	EA \$ 100.00	\$ 100.00
402500000-E	Contractor Furnished, Type E Sign	9	SF \$ 65.00	\$ 585.00
407200000-E	Supports, 3-lb Steel U-Channel	15	LF \$ 35.00	\$ 525.00
404800000-E	Reinforced Concrete Sign Foundations	1	CY \$ 1,000.00	\$ 1,000.00
Sub-Total for Curb, Geometric, Pavement Markings, Misc.:				\$ 134,670.00
Maintenance of Traffic				
440000000-E	Work Zone Signs (Stationary)	32	SF \$ 75.00	\$ 2,400.00
441000000-E	Work Zone Signs (Barricade Mounted)	16	SF \$ 150.00	\$ 2,400.00
440500000-E	Work Zone Signs (Portable)	208	SF \$ 200.00	\$ 41,600.00
441500000-N	Flashing Arrow Board	2	EA \$ 2,750.00	\$ 5,500.00
442000000-N	Portable Changeable Message Sign	2	EA \$ 11,500.00	\$ 23,000.00
443000000-N	Drums	50	EA \$ 200.00	\$ 10,000.00
444500000-E	Barricades (Type III)	32	LF \$ 110.00	\$ 3,520.00
445500000-N	Flagger	200	DAY \$ 240.00	\$ 48,000.00
448000000-N	TMA	2	EA \$ 20,000.00	\$ 40,000.00
451000000-N	Law Enforcement	82	HR \$ 80.00	\$ 6,560.00
Sub-Total for Maintenance of Traffic:				\$ 182,980.00

Erosion and Sediment Control / Seeding					
6084000000-E	Seeding and Mulching	0.25	AC	\$ 7,500.00	\$ 1,875.00
6018000000-E	Seed for Temporary Seeding	12.5	LB	\$ 100.00	\$ 1,250.00
6015000000-E	Temporary Mulching	0.1	AC	\$ 2,000.00	\$ 200.00
6021000000-E	Fertilizer for Temporary Seeding	0.05	TON	\$ 10,000.00	\$ 525.00
6000000000-E	Temporary Silt Fence	500	LF	\$ 10.00	\$ 5,000.00
<i>Construction Entrance</i>					
6006000000-E	Stone for Erosion Control, Class A	0	TON	\$ 100.00	\$ -
3656000000-E	Geotextile for Drainage	0	SY	\$ 20.00	\$ -
<i>Rock Inlet Sediment Trap - Type C</i>					
6042000000-E	1/4" Hardware Cloth	168	LF	\$ 10.00	\$ 1,680.00
6012000000-E	Sediment Control Stone	14	TON	\$ 120.00	\$ 1,735.20
6030000000-E	Silt Excavation	12	CY	\$ 100.00	\$ 1,200.00
<i>Temporary Rock Silt Checks - Type B</i>					
6006000000-E	Stone for Erosion Control, Class B	10	TON	\$ 120.00	\$ 1,156.80
6030000000-E	Silt Excavation	8	CY	\$ 100.00	\$ 800.00
<i>Rock Pipe Inlet Sediment Trap - Type B</i>					
6006000000-E	Stone for Erosion Control, Class A	7	TON	\$ 100.00	\$ 723.00
6012000000-E	Sediment Control Stone	2	TON	\$ 35.00	\$ 63.26
6030000000-E	Silt Excavation	6	CY	\$ 100.00	\$ 600.00
Sub-Total for Erosion and Sediment Control / Seeding:					\$ 16,808.26

Appendix I – 2020 US Census Data

QuickFacts

Harrisburg town, North Carolina; United States

QuickFacts provides statistics for all states and counties, and for cities and towns with a **population of 5,000 or more**.

Table

All Topics	Harrisburg town, North Carolina	United States
Population Estimates, July 1 2021, (V2021)	▲ 19,463	▲ 331,893,745
PEOPLE		
Population		
Population Estimates, July 1 2021, (V2021)	▲ 19,463	▲ 331,893,745
Population estimates base, April 1, 2020, (V2021)	▲ 18,987	▲ 331,449,281
Population, percent change - April 1, 2020 (estimates base) to July 1, 2021, (V2021)	▲ 2.5%	▲ 0.1%
Population, Census, April 1, 2020	18,967	331,449,281
Population, Census, April 1, 2010	11,526	308,745,538
Age and Sex		
Persons under 5 years, percent	▲ 5.0%	▲ 5.7%
Persons under 18 years, percent	▲ 31.6%	▲ 22.2%
Persons 65 years and over, percent	▲ 9.7%	▲ 16.8%
Female persons, percent	▲ 55.2%	▲ 50.5%
Race and Hispanic Origin		
White alone, percent	▲ 64.3%	▲ 75.8%
Black or African American alone, percent (a)	▲ 17.5%	▲ 13.6%
American Indian and Alaska Native alone, percent (a)	▲ 0.7%	▲ 1.3%
Asian alone, percent (a)	▲ 10.3%	▲ 6.1%
Native Hawaiian and Other Pacific Islander alone, percent (a)	▲ 0.0%	▲ 0.3%
Two or More Races, percent	▲ 6.4%	▲ 2.9%
Hispanic or Latino, percent (b)	▲ 6.7%	▲ 18.9%
White alone, not Hispanic or Latino, percent	▲ 60.3%	▲ 59.3%
Population Characteristics		
Veterans, 2016-2020	722	17,835,456
Foreign born persons, percent, 2016-2020	10.4%	13.5%
Housing		
Housing units, July 1, 2021, (V2021)	X	142,153,010
Owner-occupied housing unit rate, 2016-2020	86.3%	64.4%
Median value of owner-occupied housing units, 2016-2020	\$304,300	\$229,800
Median selected monthly owner costs -with a mortgage, 2016-2020	\$1,735	\$1,621
Median selected monthly owner costs -without a mortgage, 2016-2020	\$488	\$509
Median gross rent, 2016-2020	\$1,678	\$1,096
Building permits, 2021	X	1,736,982
Families & Living Arrangements		
Households, 2016-2020	4,695	122,354,219
Persons per household, 2016-2020	3.41	2.60
Living in same house 1 year ago, percent of persons age 1 year+, 2016-2020	87.4%	86.2%
Language other than English spoken at home, percent of persons age 5 years+, 2016-2020	16.4%	21.5%
Computer and Internet Use		
Households with a computer, percent, 2016-2020	98.0%	91.9%
Households with a broadband Internet subscription, percent, 2016-2020	96.1%	85.2%
Education		
High school graduate or higher, percent of persons age 25 years+, 2016-2020	97.4%	88.5%
Bachelor's degree or higher, percent of persons age 25 years+, 2016-2020	51.0%	32.9%
Health		
With a disability, under age 65 years, percent, 2016-2020	5.7%	8.7%
Persons without health insurance, under age 65 years, percent	▲ 5.5%	▲ 10.2%
Economy		
In civilian labor force, total, percent of population age 16 years+, 2016-2020	67.5%	63.0%
In civilian labor force, female, percent of population age 16 years+, 2016-2020	59.2%	58.4%
Total accommodation and food services sales, 2017 (\$1,000) (c)	49,560	938,237,077
Total health care and social assistance receipts/revenue, 2017 (\$1,000) (c)	61,045	2,527,903,275
Total transportation and warehousing receipts/revenue, 2017 (\$1,000) (c)	D	895,225,411
Total retail sales, 2017 (\$1,000) (c)	213,236	4,949,601,481
Total retail sales per capita, 2017 (c)	\$13,553	\$15,224

Transportation

Mean travel time to work (minutes), workers age 16 years+, 2016-2020	30.5	26.9
--	------	------

Income & Poverty

Median household income (in 2020 dollars), 2016-2020	\$112,757	\$64,994
--	-----------	----------

Per capita income in past 12 months (in 2020 dollars), 2016-2020	\$37,818	\$35,384
--	----------	----------

Persons in poverty, percent	▲ 2.9%	▲ 11.4%
-----------------------------	--------	---------

BUSINESSES**Businesses**

Total employer establishments, 2020	X	8,000,178
-------------------------------------	---	-----------

Total employment, 2020	X	134,163,349
------------------------	---	-------------

Total annual payroll, 2020 (\$1,000)	X	7,564,809,878
--------------------------------------	---	---------------

Total employment, percent change, 2019-2020	X	0.9%
---	---	------

Total nonemployer establishments, 2019	X	27,104,006
--	---	------------

All employer firms, Reference year 2017	308	5,744,643
---	-----	-----------

Men-owned employer firms, Reference year 2017	124	3,480,438
---	-----	-----------

Women-owned employer firms, Reference year 2017	S	1,134,549
---	---	-----------

Minority-owned employer firms, Reference year 2017	S	1,014,958
--	---	-----------

Nonminority-owned employer firms, Reference year 2017	216	4,371,152
---	-----	-----------

Veteran-owned employer firms, Reference year 2017	28	351,237
---	----	---------

Nonveteran-owned employer firms, Reference year 2017	231	4,968,606
--	-----	-----------

GEOGRAPHY**Geography**

Population per square mile, 2020	1,681.9	93.8
----------------------------------	---------	------

Population per square mile, 2010	1,273.4	87.4
----------------------------------	---------	------

Land area in square miles, 2020	11.28	3,533,038.28
---------------------------------	-------	--------------

Land area in square miles, 2010	9.05	3,531,905.43
---------------------------------	------	--------------

FIPS Code	3729800	1
-----------	---------	---

[About datasets used in this table](#)**Value Notes**

 Estimates are not comparable to other geographic levels due to methodology differences that may exist between different data sources.

Some estimates presented here come from sample data, and thus have sampling errors that may render some apparent differences between geographies statistically indistinguishable. Click the Quick Info  icon to the left of each row in TABLE view to learn about sampling error.

The vintage year (e.g., V2021) refers to the final year of the series (2020 thru 2021). Different vintage years of estimates are not comparable.

Users should exercise caution when comparing 2016-2020 ACS 5-year estimates to other ACS estimates. For more information, please visit the [2020 5-year ACS Comparison Guidance](#) page.

Fact Notes

- (a) Includes persons reporting only one race
- (c) Economic Census - Puerto Rico data are not comparable to U.S. Economic Census data
- (b) Hispanics may be of any race, so also are included in applicable race categories

Value Flags

- Either no or too few sample observations were available to compute an estimate, or a ratio of medians cannot be calculated because one or both of the median estimates falls in the lowest or upper interval of an open ended distribution.
- F Fewer than 25 firms
- D Suppressed to avoid disclosure of confidential information
- N Data for this geographic area cannot be displayed because the number of sample cases is too small.
- FN Footnote on this item in place of data
- X Not applicable
- S Suppressed; does not meet publication standards
- NA Not available
- Z Value greater than zero but less than half unit of measure shown

QuickFacts data are derived from: Population Estimates, American Community Survey, Census of Population and Housing, Current Population Survey, Small Area Health Insurance Estimates, Small Area Income and Poverty Estimates, State and County Housing Unit Estimates, County Business Patterns, Nonemployer Statistics, Economic Census, Survey of Business Owners, Building Permits.

CONNECT WITH US

[Accessibility](#) | [Information Quality](#) | [FOIA](#) | [Data Protection and Privacy Policy](#) | [U.S. Department of Commerce](#)