Transportation Planning 101

French Broad River MPO
New Member Orientation

French Broad River MPO Orientation

GENERAL MPO OVERVIEW

Purpose

EXIT 4 A
26
19 23 70
UNC Asheville
Weaverville
Woodfin
EAST EAST
240 70
Expwy
EXIT 4 B
Patton Ave
DOWNTOWN
SPEED LIMIT
50

STOP

Purpose

What is a Metropolitan Planning Organization?

"The forum for cooperative transportation decision making for the metropolitan planning area"

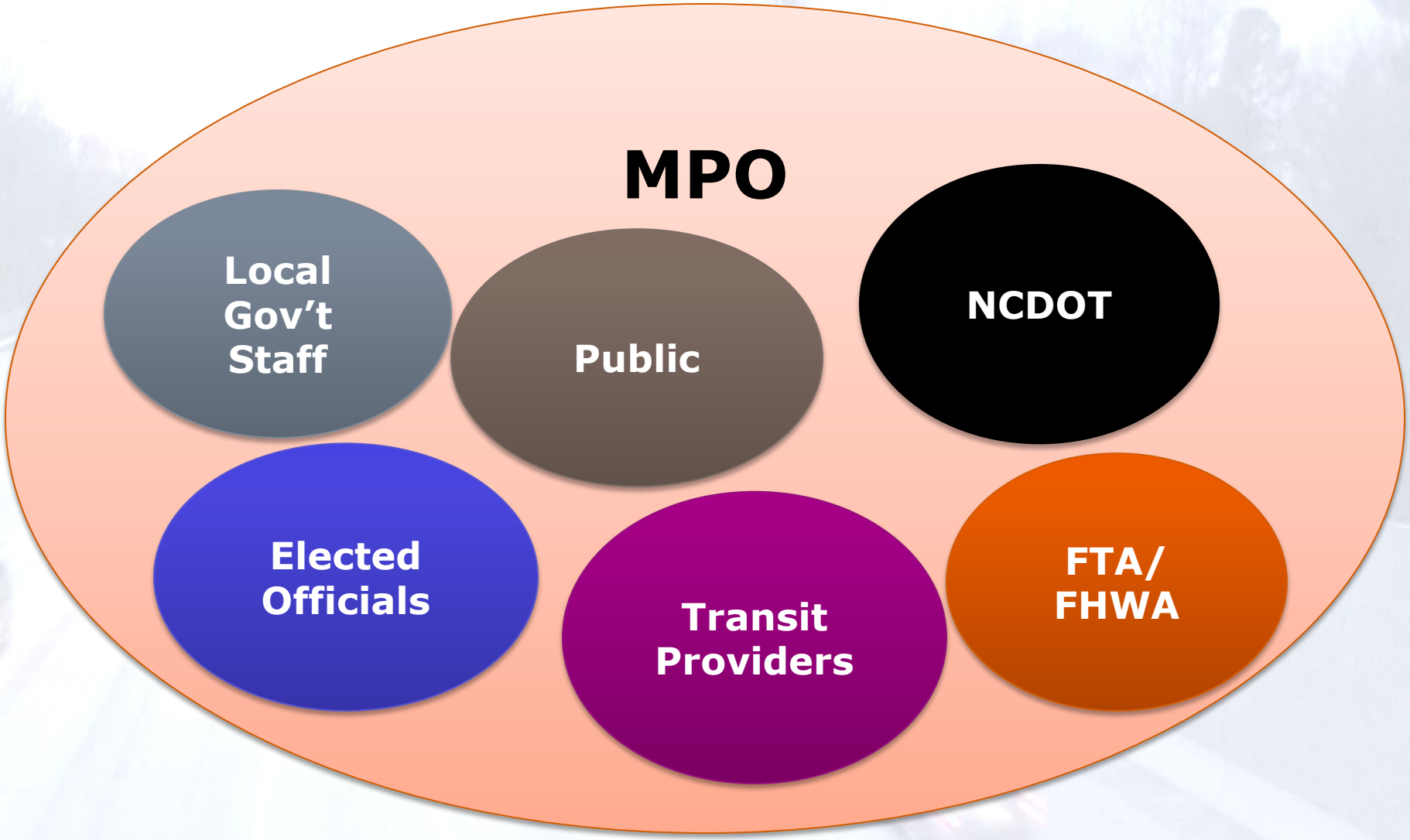
Source: 23 CFR Part 450.104

What is a Metropolitan Planning Organization?

Is the MPO State? Federal? Local?

None of those, but also all of those.

What is an MPO?



What is an MPO?

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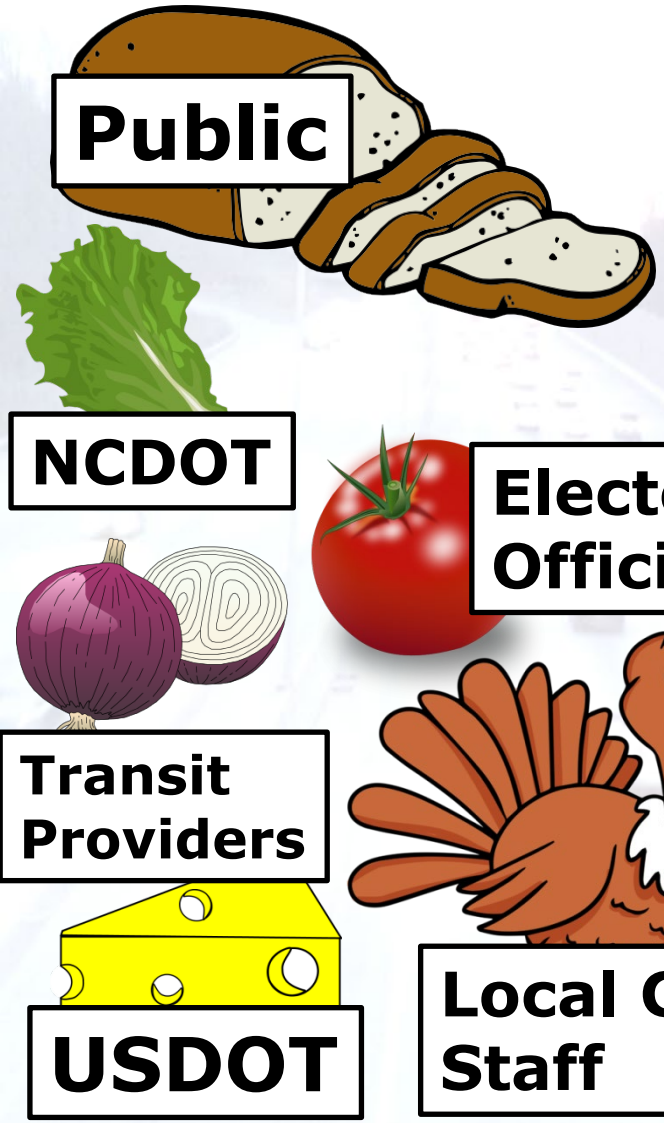

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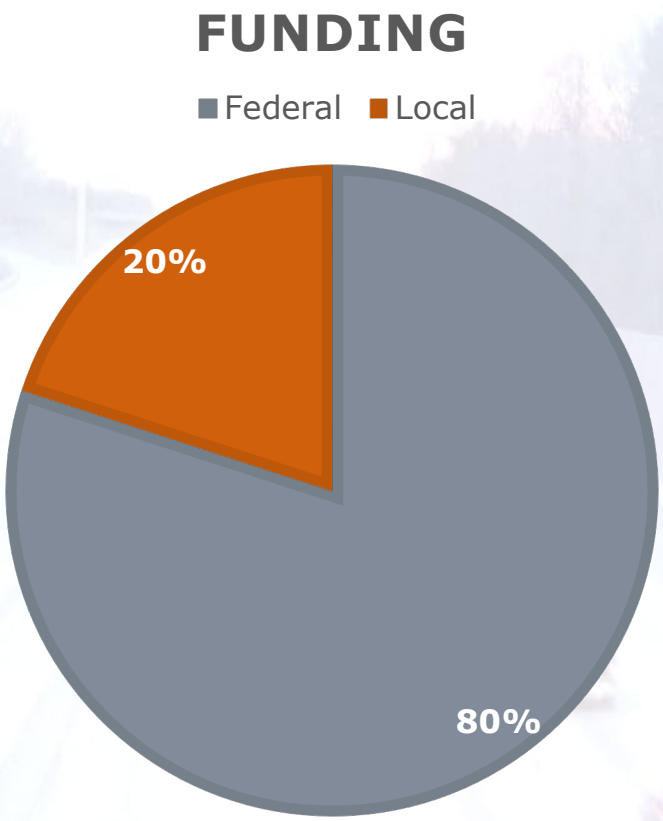
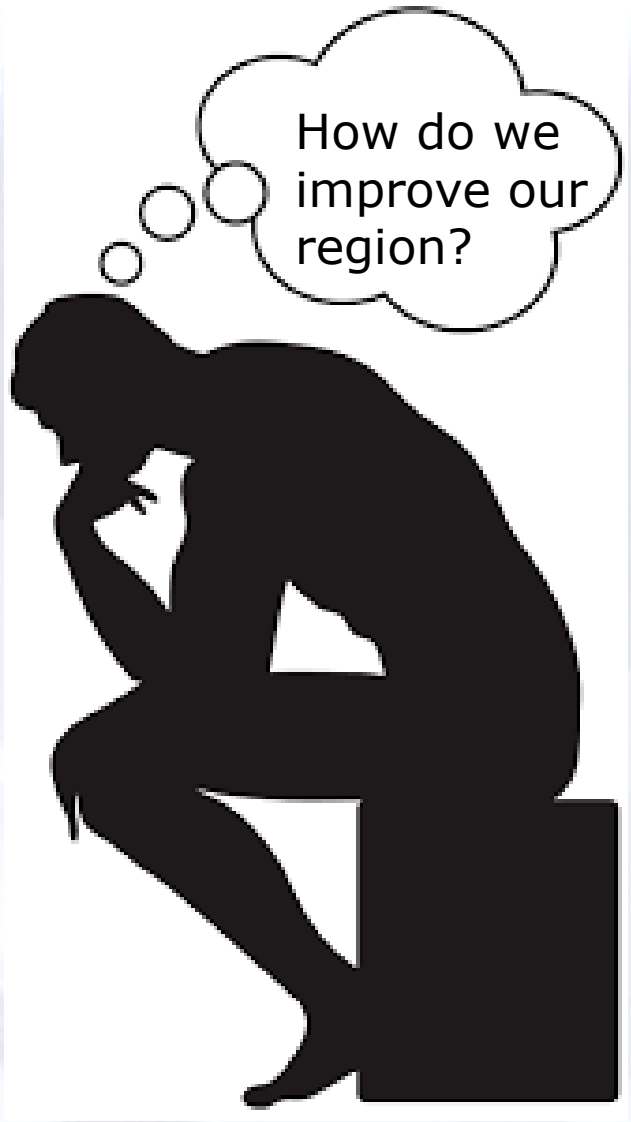
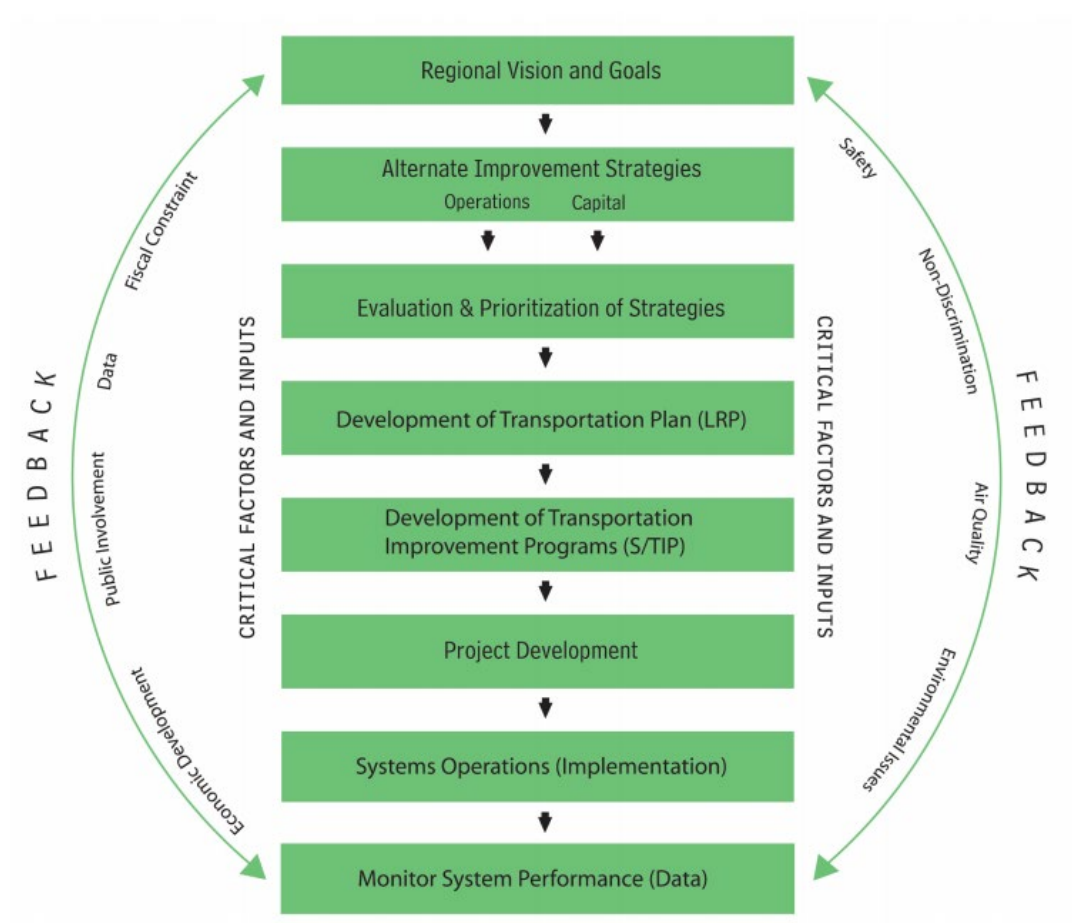




Federal Transportation Planning Process



THE

3

Process

Federal Transportation Planning Process

- Comprehensive
- Cooperative
- Continuous

Federal Transportation Planning Process

- Comprehensive
- Cooperative
- Continuous

Cookies and food are not eligible expenses for MPO PL funds

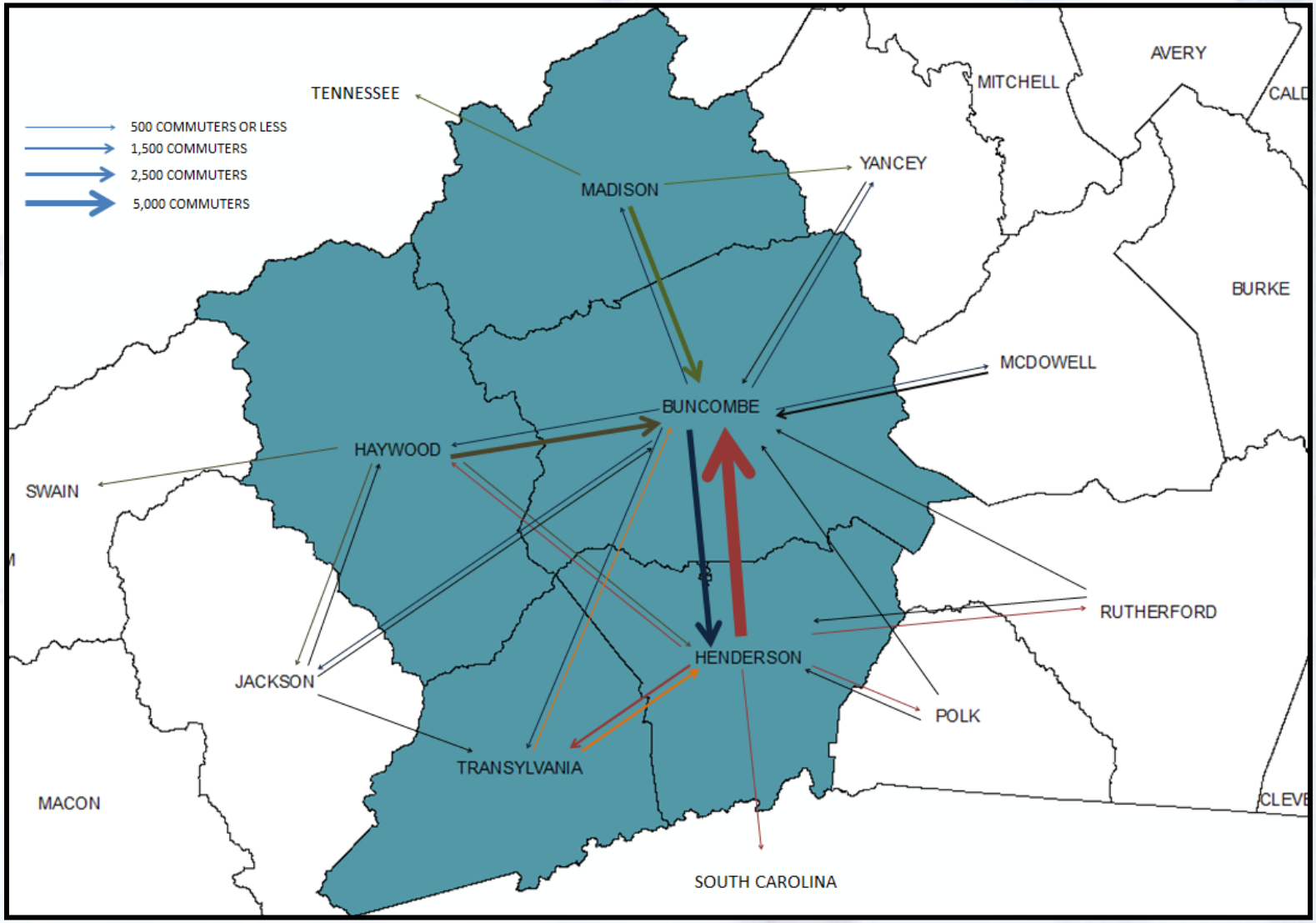
MPO Planning Requirements

- Establish a setting for effective decision-making
- Identify and evaluate transportation improvement options
- Prepare and maintain a Metropolitan Transportation Plan **(MTP)**
- Develop a Transportation Improvement Program **(TIP)**
- Identify performance measure targets and monitor progress
- Involve the public

Why?

- Transportation is regional by nature
- Comprehensive and Cooperative planning doesn’t always happen on its own

Regional Perspective



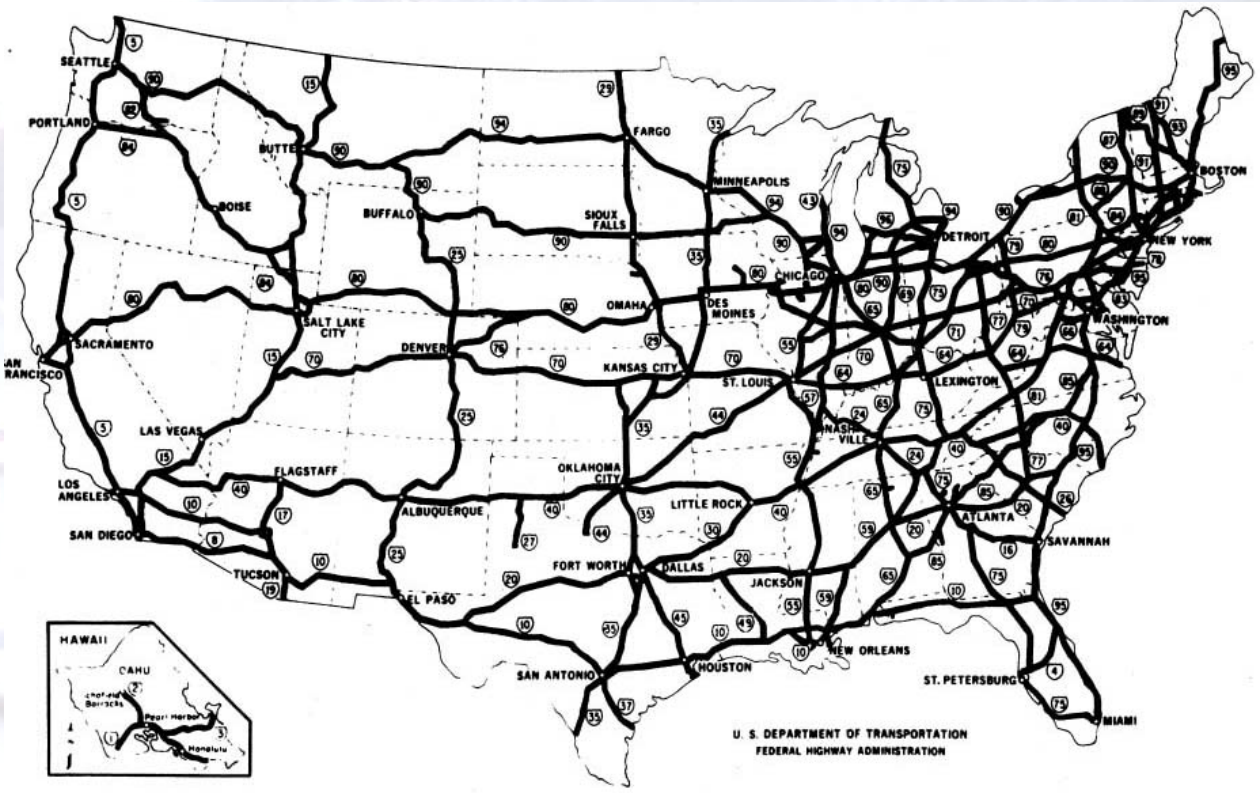
Source: U.S. Census Bureau. 2016. OnTheMap Application. Longitudinal-Employer Household Dynamics Program.

MPOs, a brief history

- Recognized need for regional planning in the 20th Century

MPOs, a brief history

- Boom in highway building after World War II



MPOs, a brief history

- Conflicts between state and local agencies led to a need for better coordination & planning

MPOs, a brief history

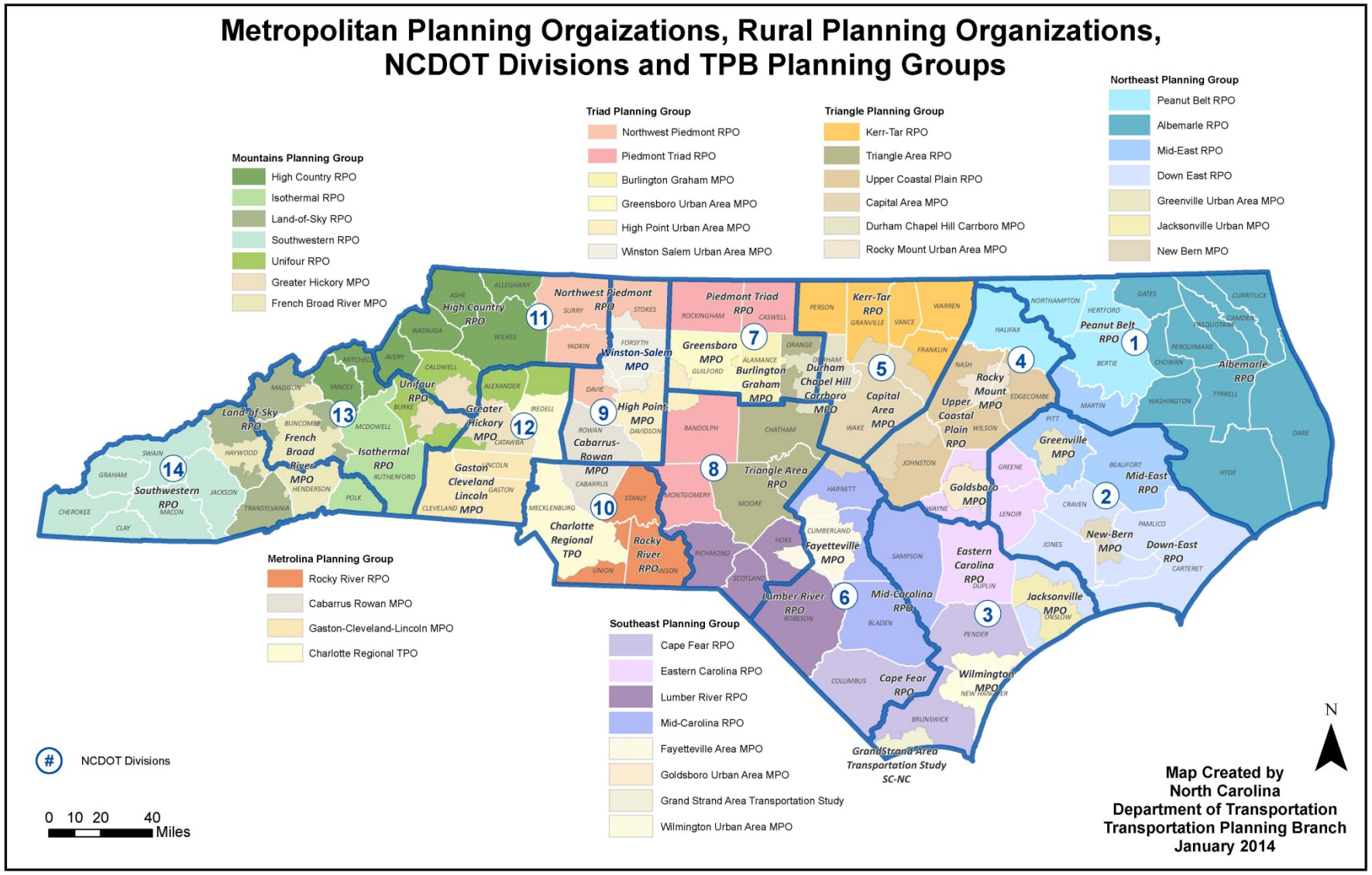
Federal-Aid Highway Act of 1962 created the federal requirement for urban transportation planning

- The Act required transportation projects in urbanized areas of 50,000 or more in population be based on a “3C”, continuing, comprehensive and cooperative planning process if using federal $

MPOs, a brief history

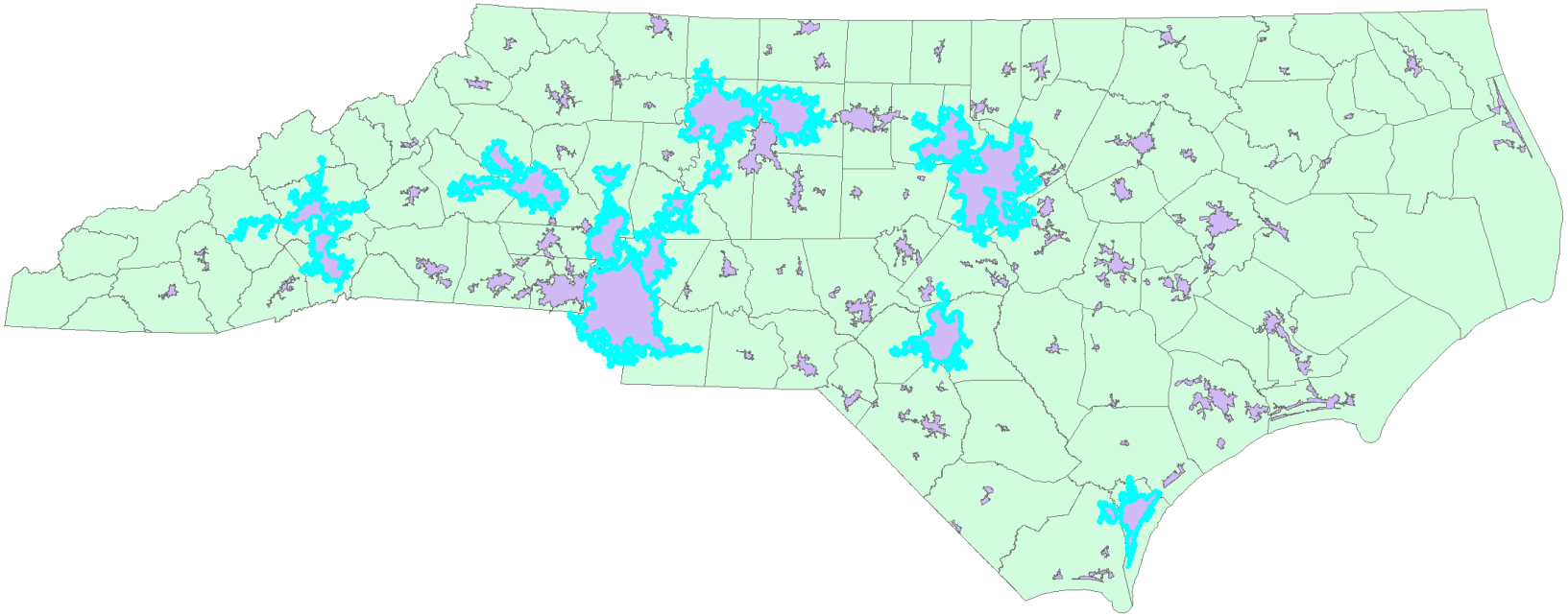
- 1973 Highway Act- dedicated funding to MPOs for every urbanized area over 50,000 in population
- 1975 DOT issues rules governing MPOs (must include local elected officials, establishes the TIP)

Planning Organizations in NC

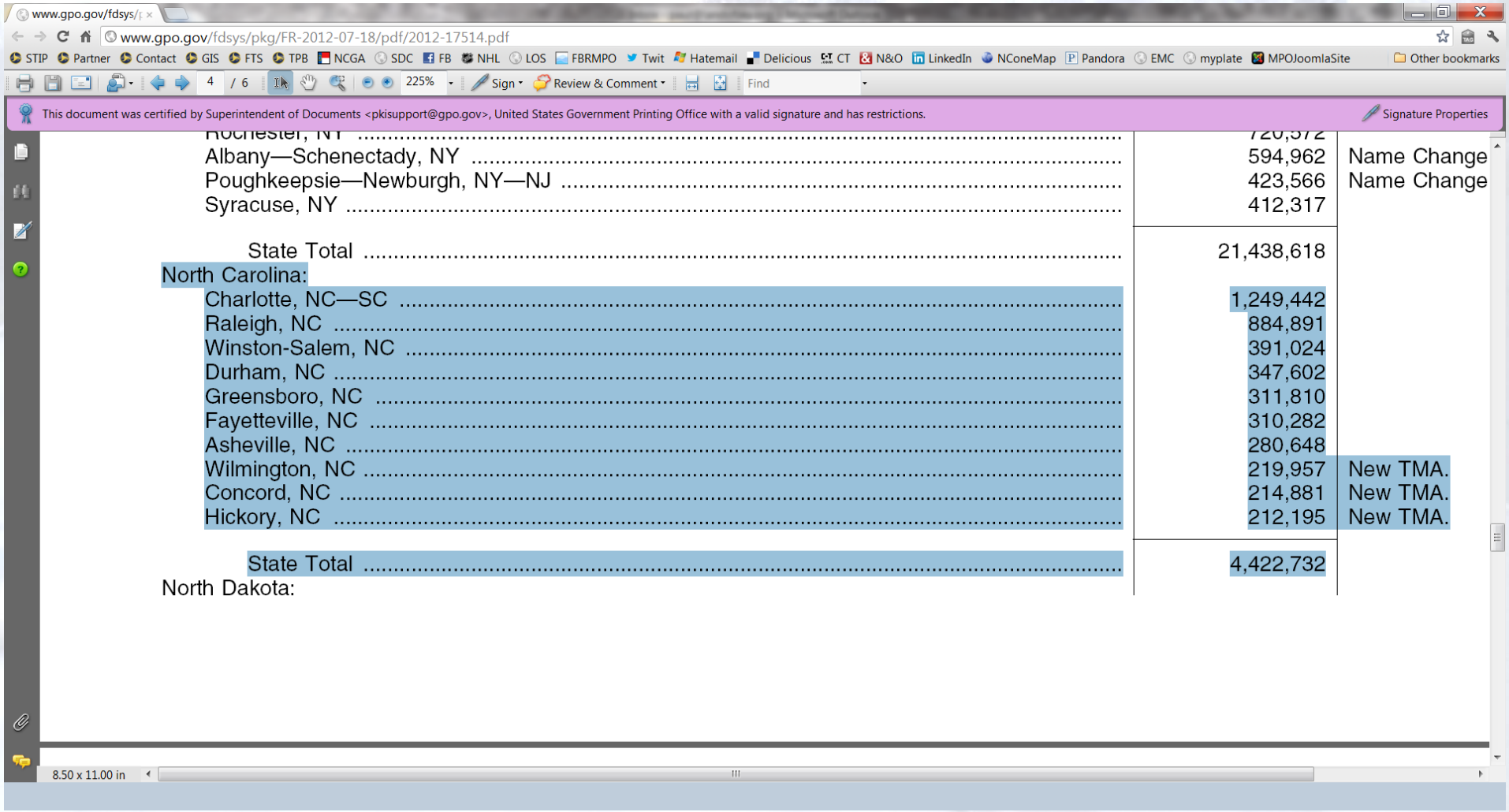


The (Bigger) Kahunas: TMAs
(Transportation Management Areas)

- MPOs over 200,000 in urbanized population get access to additional funds but have greater reporting and planning responsibilities (CMP)



46% of NC in TMAs



www.gpo.gov/fdsys/pkg/FR-2012-07-18/pdf/2012-17514.pdf

This document was certified by Superintendent of Documents <pkisupport@gpo.gov>, United States Government Printing Office with a valid signature and has restrictions.

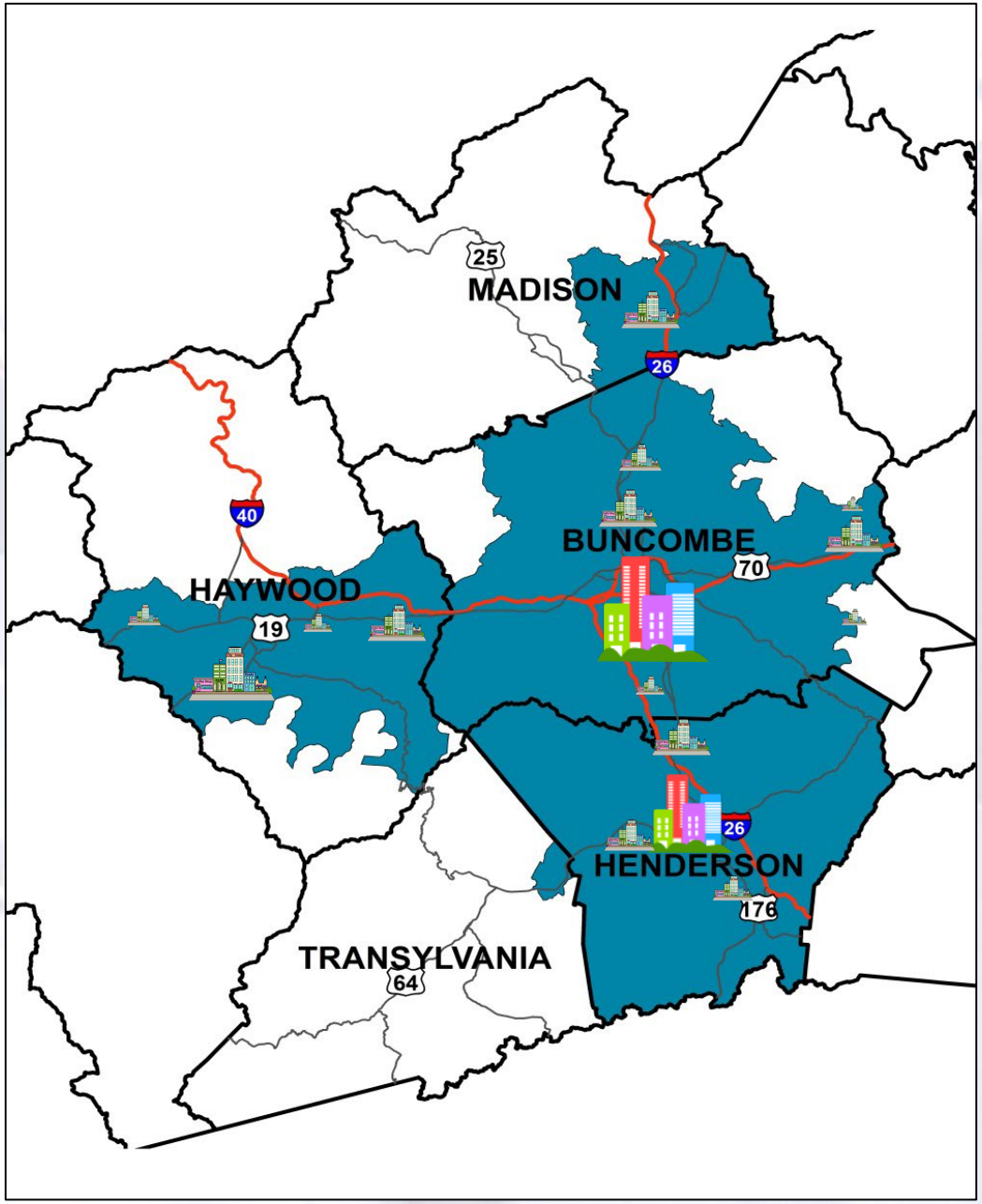
Rochester, NY	720,572	
Albany—Schenectady, NY	594,962	Name Change
Poughkeepsie—Newburgh, NY—NJ	423,566	Name Change
Syracuse, NY	412,317	
State Total	21,438,618	
North Carolina:		
Charlotte, NC—SC	1,249,442	
Raleigh, NC	884,891	
Winston-Salem, NC	391,024	
Durham, NC	347,602	
Greensboro, NC	311,810	
Fayetteville, NC	310,282	
Asheville, NC	280,648	
Wilmington, NC	219,957	New TMA.
Concord, NC	214,881	New TMA.
Hickory, NC	212,195	New TMA.
State Total	4,422,732	
North Dakota:		

French Broad River MPO Orientation

MPO PLANNING AREA

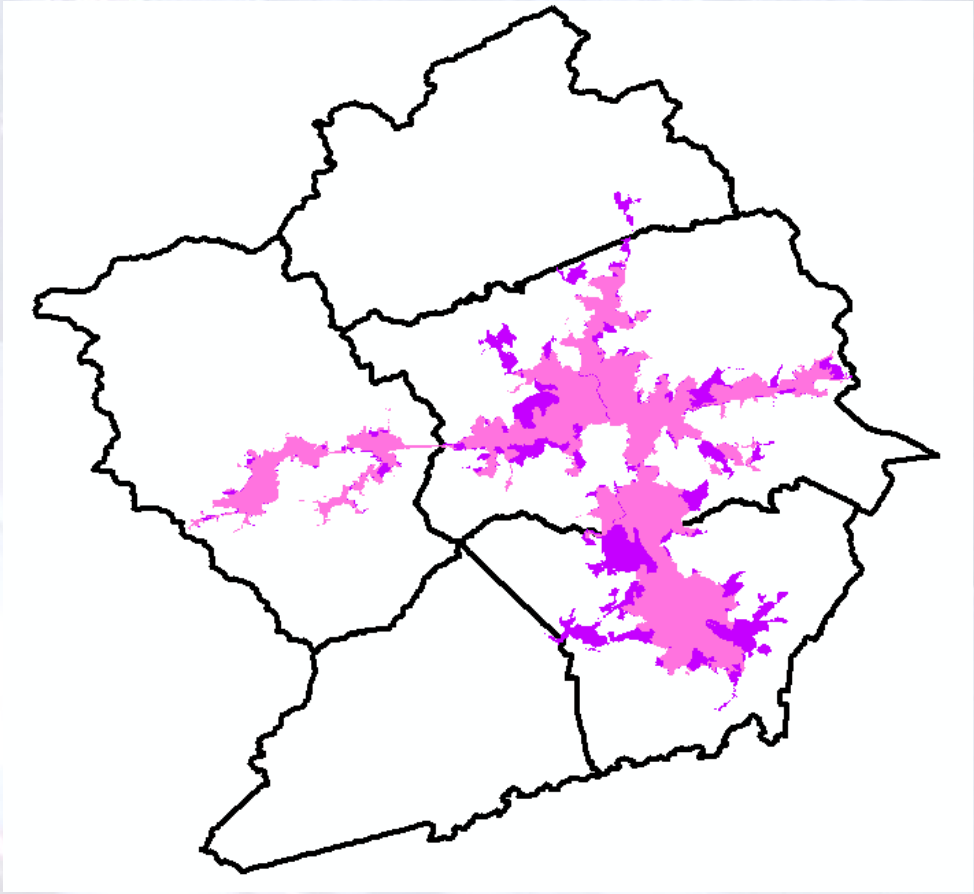
The French Broad River MPO

- Began in 60s
- Centered around Asheville
- Grew to include Henderson & Haywood in 2000, Madison in 2010



Federal Basis-Urbanized Area (UZA)

- *a densely settled core of census tracts and/or census blocks that meet minimum population density requirements,*
- *along with adjacent territory containing non-residential urban land uses*
- *as well as territory with low population density included to link outlying densely settled territory with the densely settled core*.



More on UZA

The French Broad River MPO did not draw these boundaries. They are done by the US Bureau of the Census, and the MPO is bound to do transportation planning for those areas per 23 USC § 134(e)(2)(A):

> *(2) Included area.— Each metropolitan planning area—*
>
> *(A) shall encompass at* ***least the existing urbanized area*** *and the contiguous area expected to become urbanized within a 20-year forecast period for the transportation plan*

The Negotiable Part That Matters: The Metropolitan Planning Area

- In addition to the Census-designated UZA, the MPO is bound to do transportation planning for additional areas per 23 USC § 134(e)(2)(A):

> *(2) Included area.— Each metropolitan planning area—*
>
> *(A) shall encompass at least the existing urbanized area* ***and the contiguous area expected to become urbanized within a 20-year forecast period for the transportation plan***

The French Broad River MPO

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- Centered around Asheville
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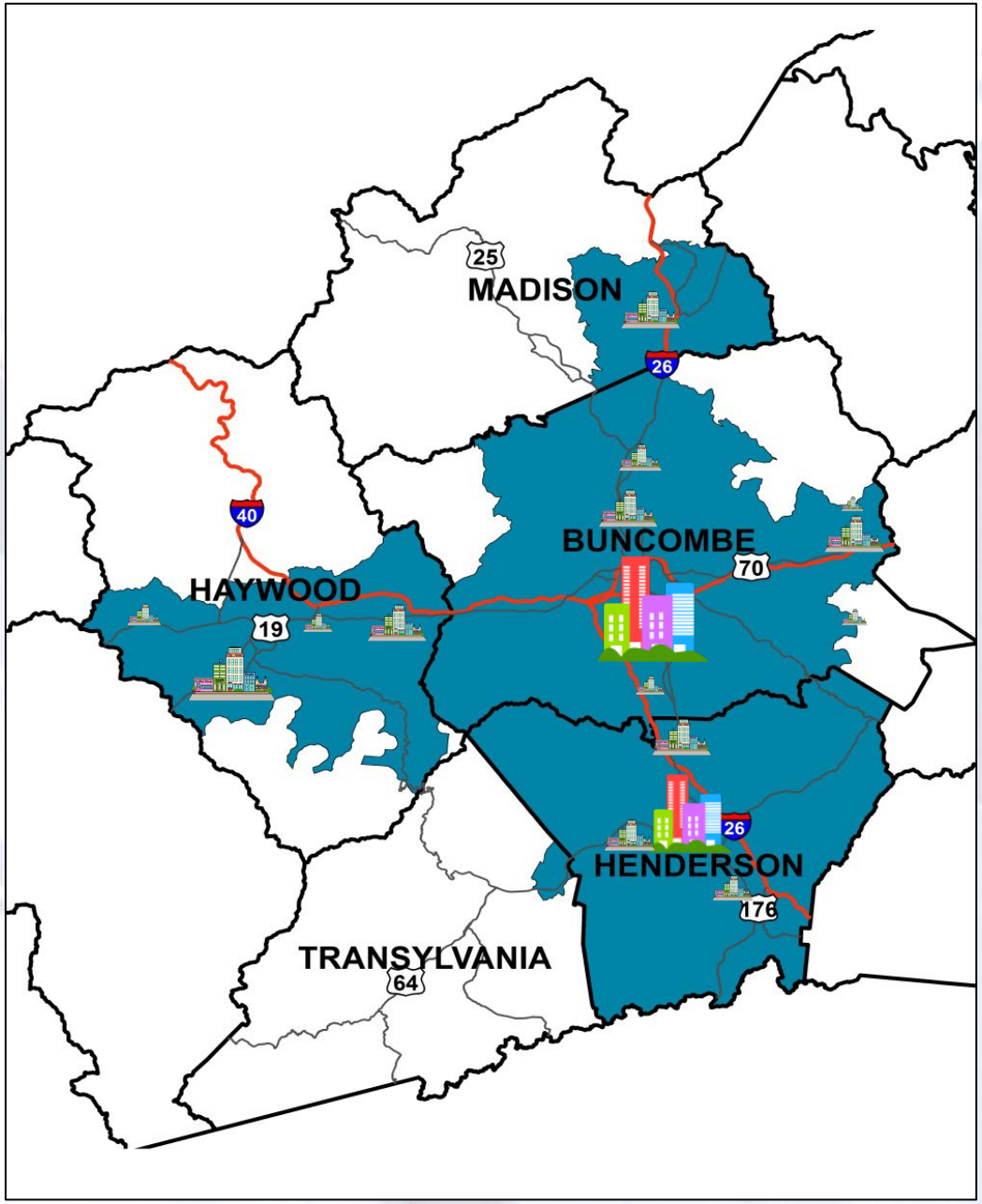
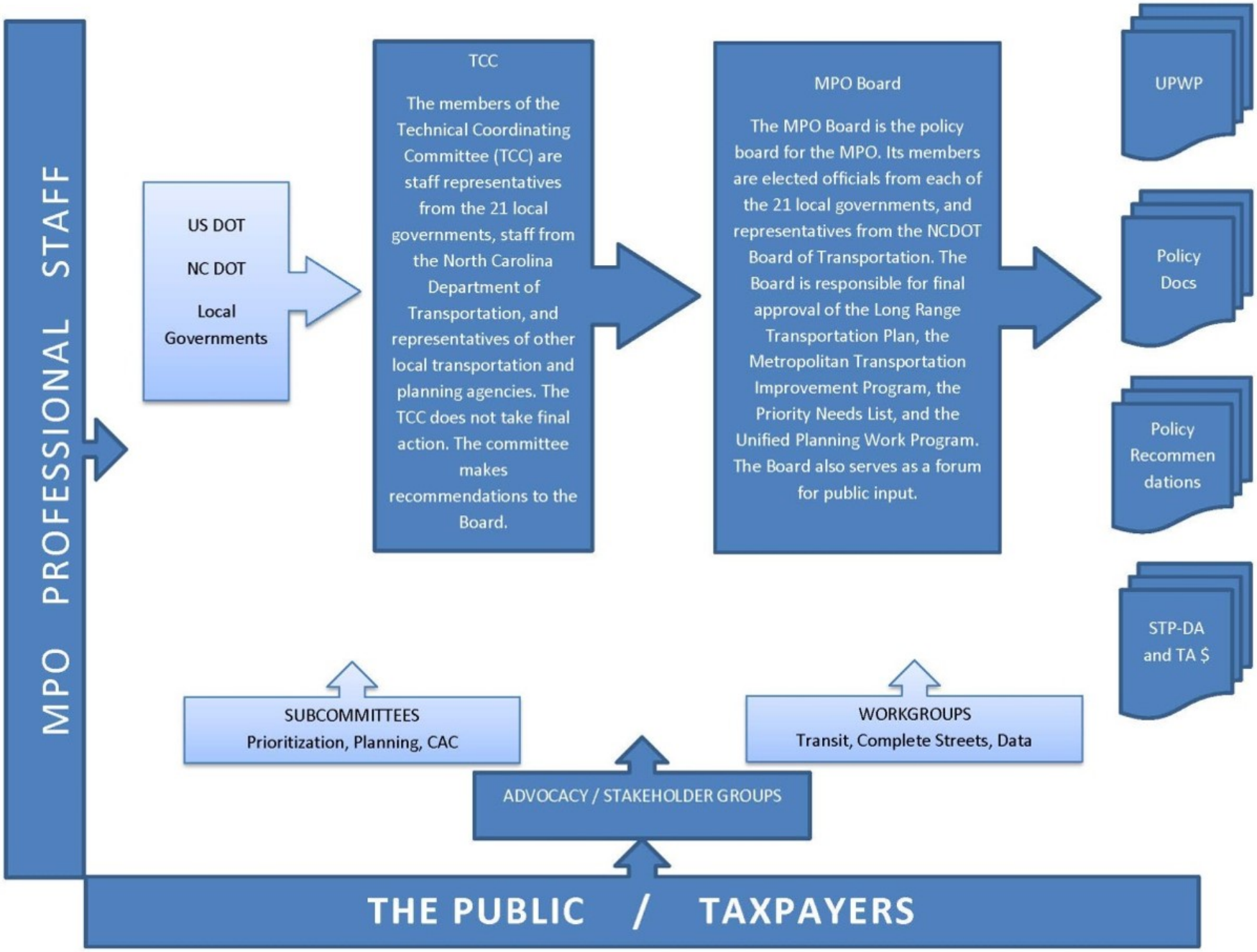


French Broad River MPO Orientation

BOARDS & COMMITTEES


MPO PROFESSIONAL STAFF
US DOT
NC DOT
Local Governments
TCC
The members of the Technical Coordinating Committee (TCC) are staff representatives from the 21 local governments, staff from the North Carolina Department of Transportation, and representatives of other local transportation and planning agencies. The TCC does not take final action. The committee makes recommendations to the Board.
MPO Board
The MPO Board is the policy board for the MPO. Its members are elected officials from each of the 21 local governments, and representatives from the NCDOT Board of Transportation. The Board is responsible for final approval of the Long Range Transportation Plan, the Metropolitan Transportation Improvement Program, the Priority Needs List, and the Unified Planning Work Program. The Board also serves as a forum for public input.
UPWP
Policy Docs
Policy Recommendations
STP-DA and TA $
SUBCOMMITTEES
Prioritization, Planning, CAC
WORKGROUPS
Transit, Complete Streets, Data
ADVOCACY / STAKEHOLDER GROUPS
THE PUBLIC / TAXPAYERS

MPO Board

Membership

- Elected Officials from Member Local Governments
- NC Board of Transportation representatives
- Representatives for Rural and Urban Transit systems

French Broad River MPO Board

Buncombe	Henderson	Haywood	Madison
Buncombe	Henderson	Waynesville	Mars Hill
Asheville	Hendersonville	Canton	
Asheville	Fletcher	Clyde	
Black Mountain	Mills River	Maggie Valley	
Woodfin	Flat Rock		
Weaverville	Laurel Park		Rural Transit
Biltmore Forest	BOT Division 13	BOT Division 14	Urban Transit
Montreat			

State Ethics Requirements for MPO Board Members

- Every voting MPO Board and RPO TAC member is required to file a **Statement of Economic Interest by April 15th** of each year
- New Board members must file prior to participating in the first meeting
- http://www.ethicscommission.nc.gov/sei/blankForm.aspx?type=MPO_RPO

MPO TCC

Membership

- Appointed Staff from Member Local Governments
- NCDOT Division staff
- Staff from Transit Systems in the region

Responsibilities

- Advise the MPO Board on upcoming decisions
- **COORDINATE WITH YOUR MPO BOARD MEMBER!!!**

Other Subcommittees

Prioritization

- Project Prioritization & Steering Committee for Regional Plans
- "Nitty-Gritty Subcommittee"
- 3 MPO Board members, 4 MPO TCC members

Citizens Advisory Committee

- Advises on public outreach strategies
- Meets quarterly
- Interested Citizens from the region

Transit Operators

- Advises on regional transit issues
- Staff from transit agencies in the region (Asheville, Henderson County, Haywood County, Madison County)

Other Subcommittees

ADVISE THE TCC & BOARD

Prioritization

- Project Prioritization & Steering Committee for Regional Plans
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MPO Staff

- Support the MPO Board, TCC, subcommittees
- Plan development and prioritization
- Policy research and recommendations
- Public outreach
- Data maintenance to support the above
- Land of Sky Regional Council is the Local Planning Agency

FBRMPO Administrative Documents

- **Memorandum of Understanding-** agreement between member governments on the make-up and general governance of the MPO (included in Orientation Notebook)

- **Bylaws**- determines voting, membership and procedures for administering MPO responsibilities (included in Orientation Notebook)

- **UPWP**- work tasks for MPO staff for the year

Unified Planning Work Program (UPWP)

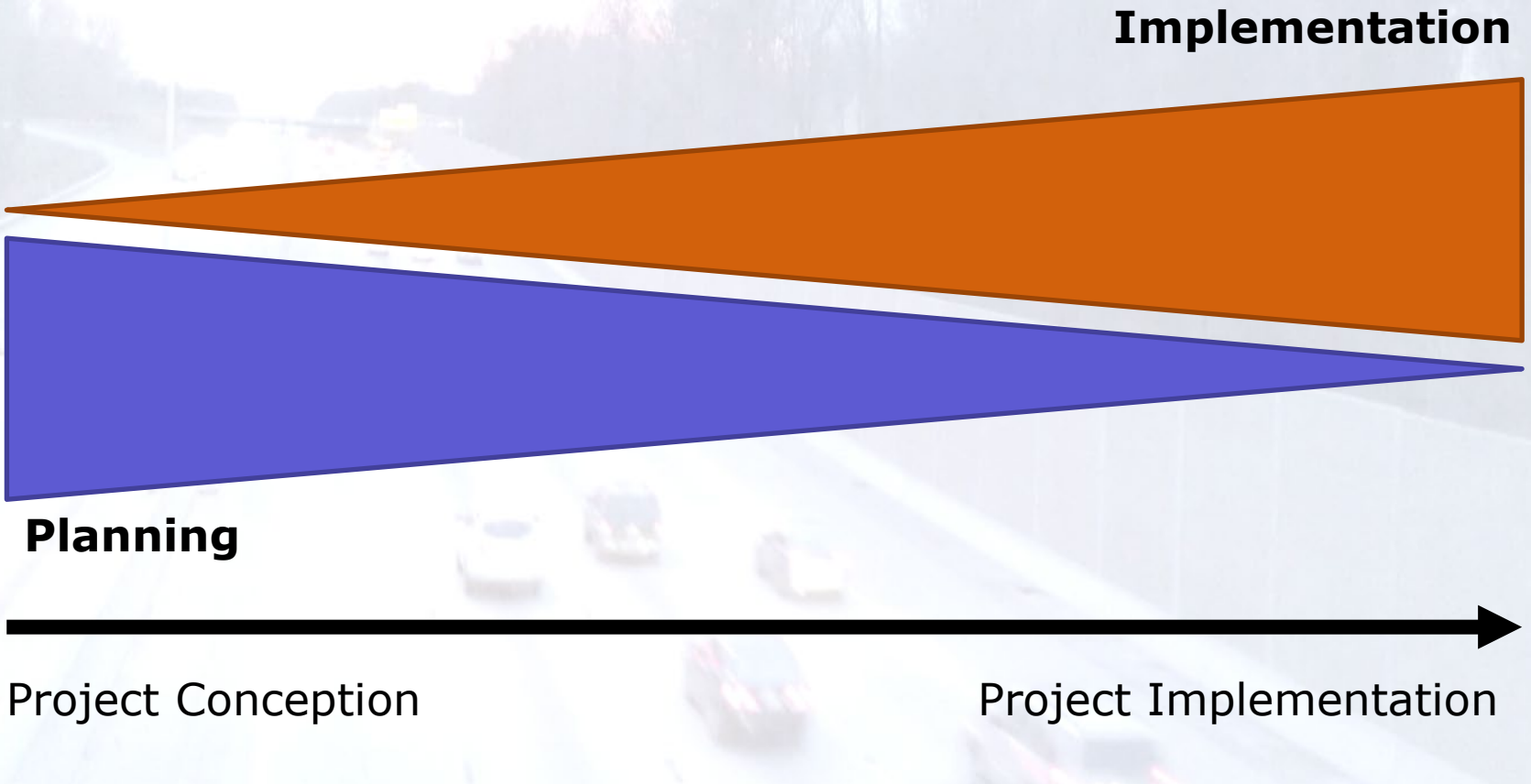
- FBRMPO Budget for the appropriate fiscal year
- Describes tasks for staff to undertake or administer (including local planning studies)
- Includes budgeted amounts for planning tasks
- FTA (transit) component housed at the City of Asheville

Public Involvement is Critical!

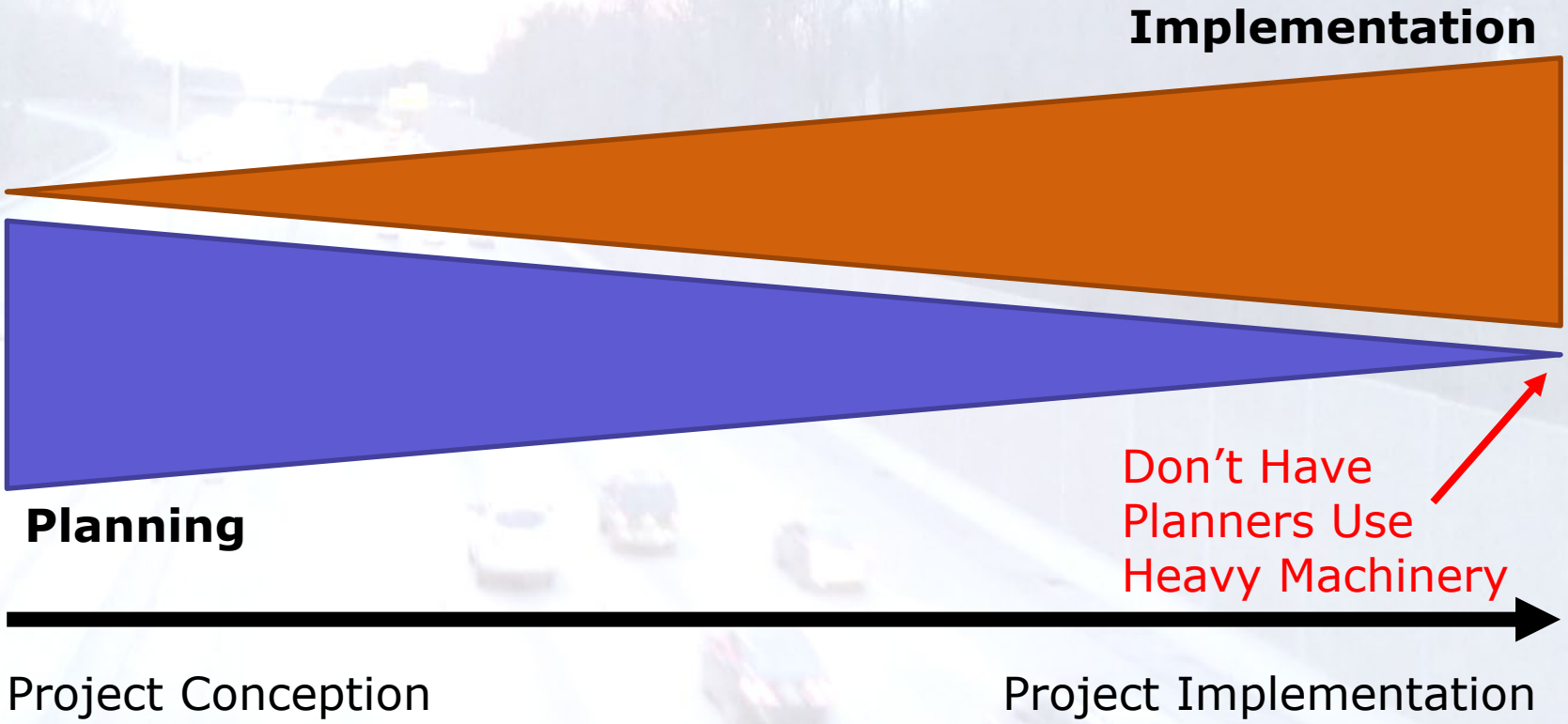
French Broad River MPO Orientation

GENERAL ROLES IN TRANSPORTATION

General Roles



General Roles



Planning Partners

Federal Highway Administration

FTA

Programming and Prioritization

Divisions 13 & 14

Transportation Planning Branch

Public Transportation Division

Bicycle and Pedestrian Division

Planning Partners

- Provides planning guidance and resources
- Administers the MPO Certification Review
- Non-Voting member of the MPO Board

Planning Partners

- Provides planning guidance and resources
- Administers the MPO Certification Review
- Provides assistance to FTA grant direct-recipients (City of Asheville)

Planning Partners

- Provides planning assistance
- Responsible for implementing (most) projects
- Divisions submit Local Input Points and Projects to SPOT

MPO vs. RPO

MPO

- Federally required program for urbanized areas with more than 50,000 people
- Maintains transportation planning documents (TIP, MTP, others)
- Larger MPOs (TMAs) receive Direct Allocations of funding for projects

RPO

- Covers rural areas of the state not covered by MPOs; also serves as a forum for transportation decision-making
- Not federally-required
- No TIP, MTP, etc.
- Equal role in project prioritization

. . .We Just
Want to
Know About
Projects. . .

French Broad River MPO Orientation

PROJECT DEVELOPMENT PROCESS

TWO IMPORTANT THINGS TO KNOW ABOUT TRANSPORTATION PROJECTS

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Projects Don’t Happen Overnight

TWO IMPORTANT THINGS TO KNOW ABOUT TRANSPORTATION PROJECTS

Projects Don’t Happen Overnight

There Is No Project That Will Make Everyone Happy

Life of a Transportation Project

2040 Plan	•Statewide Vision •Strategic Corridors
CTP	•30+ Years •No $ Constraint
MTP	•25 Years, Used for AQ Determinations •Based on Revenue Forecast
SPOT	•Scores Projects for Effectiveness •Results go into STIP/TIP
STIP/TIP	•0-5 and 6-10 Years •Specific Funding Sources Identified
NEPA/Design	•Project alternatives are assessed •Final project design and cost
Construction	•Project Let, Built •Facility Opened

CMP-informs the middle 3

Identifying Needs

COMPREHENSIVE TRANSPORTATION PLAN (CTP)

CTP Overview

- Codified in NCGS 136-66.2; it also specifies that an area must have a land development plan
- CTPs show highway, transit/rail, and bicycle/pedestrian modes; Specifics on access controls for highways (is it a freeway, expressway, boulevard, etc.)
- Mutual MPO and BOT Adoption
- No financial constraint, but must meet NEPA "Problem Statement" threshold

CTP Overview

C28 Kanuga Road (SR 1127) – US 25 Bus (Church Street) to Little River Rd (SR 1123)

Purpose and Need

Most trips to and from the southwestern portion of the county rely on this 2-lane facility. Furthermore, Henderson County plans identify the intersection of Kanuga and Price Roads as a commercial center. Geographic features and existing development constrain both the width and alignment of this facility. However, volumes already exceed practical capacity at some locations, and are predicted to grow from 12,400 vpd in 2005 to 14,100 vpd in 2030. In addition, three locations included in this project are averaging ten or more crashes per year.

Recommendation

Add turn lanes, widen shoulder and improve geometrics and intersection operations as appropriate.

Coordinate with highway projects C19, C26, C27, and C29 and bicycle projects C13 and C16.

C29 Erkwood Drive (SR 1164) – Kanuga Road (SR 1127) to NC 225 (Greenville Highway)

Purpose and Need

Erkwood Drive forms one segment of what is functionally an "inner loop" around central Hendersonville, comprised of a series of 2-lane streets. Listed in clockwise order from the north, they are:

- Berkeley Road
- East Duncan Hill Road
- Dana Road
- Tracy Grove Road
- Airport Road
- Shepard Street
- Erkwood Drive
- State Street
- Hebron Street
- West Lake Avenue
- Blythe Street

Additional/alternative segments include:

- Shows purpose and need of projects in the region
- Little detail- starting point for planning specific projects

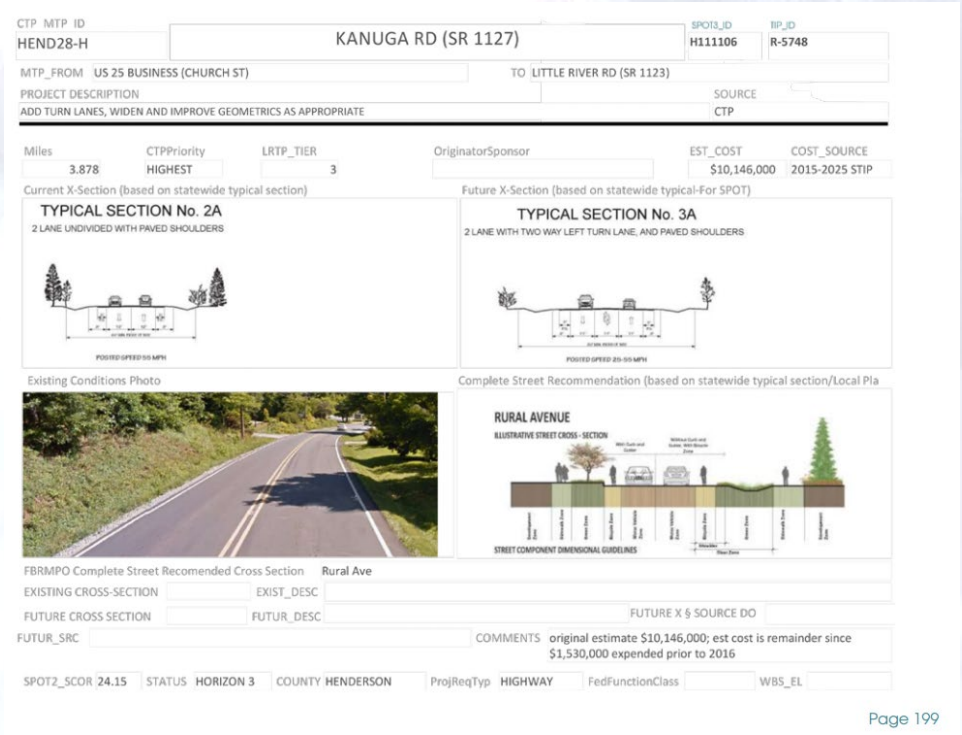
French Broad River MPO Orientation

METROPOLITAN TRANSPORTATION PLAN (MTP)

MTP Overview

- Takes the list of CTP Projects and filters it through a budget of available funds.
- Projects that make the cut are put into a construction time frame over 25 years.
- This plan is a federal requirement and is also used when a region is not meeting federal air quality standards; the plan must show that the projects in plan will help improve air quality.
- One of the most important parts of the MTP is the Travel Demand Model—the output informs the project "purpose and need" for federal requirements and the design team will use it to scope the scale of the project.

MTP Overview



CTP_MTP_ID: HEND28-H | KANUGA RD (SR 1127) | SPOT3_ID: H111106 | IIP_ID: R-5748

MTP_FROM: US 25 BUSINESS (CHURCH ST) TO: LITTLE RIVER RD (SR 1123)

PROJECT DESCRIPTION: ADD TURN LANES, WIDEN AND IMPROVE GEOMETRICS AS APPROPRIATE | SOURCE: CTP

Miles	CTPPriority	LRTP_TIER	OriginatorSponsor	EST_COST	COST_SOURCE
3.878	HIGHEST	3		$10,146,000	2015-2025 STIP

Current X-Section (based on statewide typical section)

TYPICAL SECTION No. 2A

2 LANE UNDIVIDED WITH PAVED SHOULDERS

Future X-Section (based on statewide typical-For SPOT)

TYPICAL SECTION No. 3A

2 LANE WITH TWO WAY LEFT TURN LANE, AND PAVED SHOULDERS

Existing Conditions Photo

Complete Street Recommendation (based on statewide typical section/Local Pla

RURAL AVENUE

ILLUSTRATIVE STREET CROSS - SECTION

STREET COMPONENT DIMENSIONAL GUIDELINES

FBRMPO Complete Street Recomended Cross Section: Rural Ave

EXISTING CROSS-SECTION | EXIST_DESC

FUTURE CROSS SECTION | FUTUR_DESC | FUTURE X § SOURCE DO

FUTUR_SRC | COMMENTS: original estimate $10,146,000; est cost is remainder since $1,530,000 expended prior to 2016

SPOT2_SCOR: 24.15 | STATUS: HORIZON 3 | COUNTY: HENDERSON | ProjReqTyp: HIGHWAY | FedFunctionClass | WBS_EL

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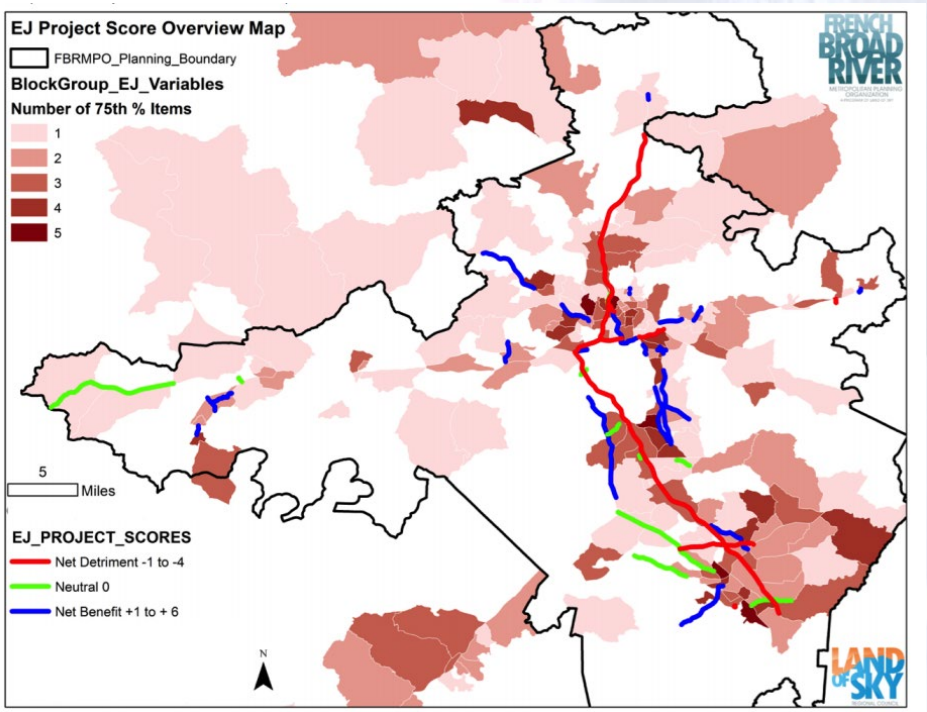
- Greater detail of expected outcomes
- Cost estimates
- Projects can only be included if we think there's money for them- FINANCIAL PLANNING

MTP Overview



- Takes a comprehensive view of the region and incorporates required planning factors
- How is the region affected by ALL projects, not just areas around individual projects

Planning Factors

Economic Vitality & Global Competitiveness

Increase the Safety of the Transportation System

Increase the Security of the Transportation System

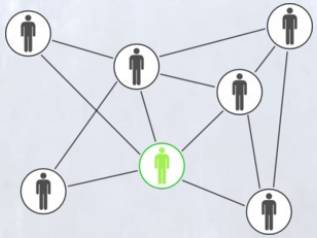
Increase Accessibility and Mobility for People and Freight

Protect & Enhance the Environment; promote consistency between transportation improvements and local planned growth

Promote energy conservation.

Planning Factors

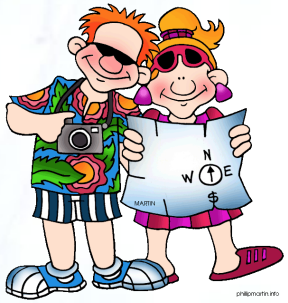
Improve quality of life for the community



Enhance the integration and connectivity of the transportation system

Promote efficient system management and operation

Emphasize the preservation of the existing transportation system



Enhance travel and tourism

Improve the resiliency and reliability of the transportation system

Transportation Performance Measures

What is Transportation Performance Management (TPM)

A strategic approach that uses system information to make investment and policy decisions to achieve transportation system performance goals

MAP-21 (2012) established the Federal framework for TPM and the FAST Act (2015) codified the process and requirements for USDOT, State DOTs, transit providers, and MPOs.

Strategic Direction

TPM-Related Rules	Regulatory Chapter
Statewide and Non-Metropolitan Planning; Metropolitan Planning	23 CFR 450 & 771, 49 CFR 613
Safety Performance Measures (PM1)	23 CFR 490 (Subpart A & B)
Highway Safety Improvement Program (HSIP)	23 CFR 924
Highway Asset Management Plans for NHS	23 CFR 515 & 667
Pavement and Bridge Condition Measures (PM2)	23 CFR 490 (Subpart A, C & D)
Performance of the NHS, Freight, and CMAQ Measures (PM3)	23 CFR 490 (Sub. A, E, F, G, H)
Transit Asset Management Rule	49 CFR 625, 630

Establishes goals and TPM framework

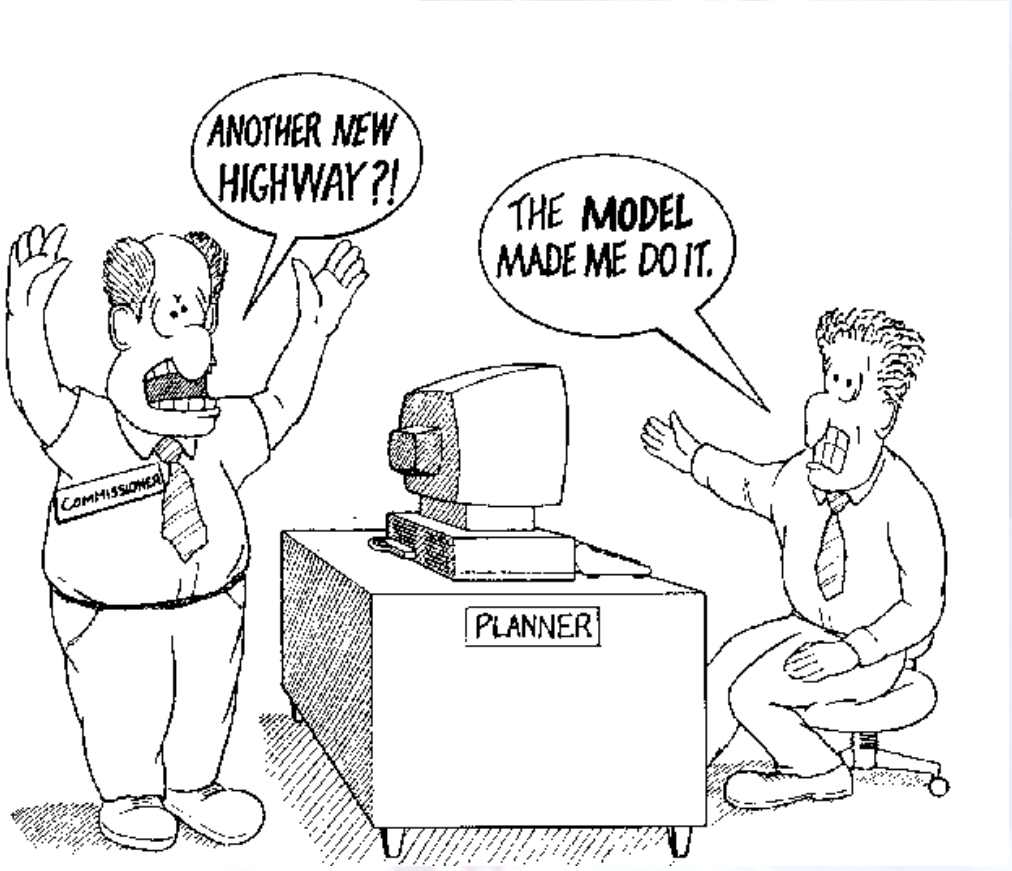
Highway Safety:
Data collection, reporting, target setting and programming approach

Highway Assets:
Data collection, reporting, target setting and programming approach

System Performance:
Reporting and target setting for highway mobility, freight, and emissions

Transit Assets:
Data collection, reporting, target setting and programming for FTA recipients

Consequences on Project Design



MTP Overview

§450.330(a) “The FHWA and the FTA shall jointly find that each metropolitan TIP is consistent with the current Metropolitan Transportation Plan. . .”

How Do We Address Congestion?

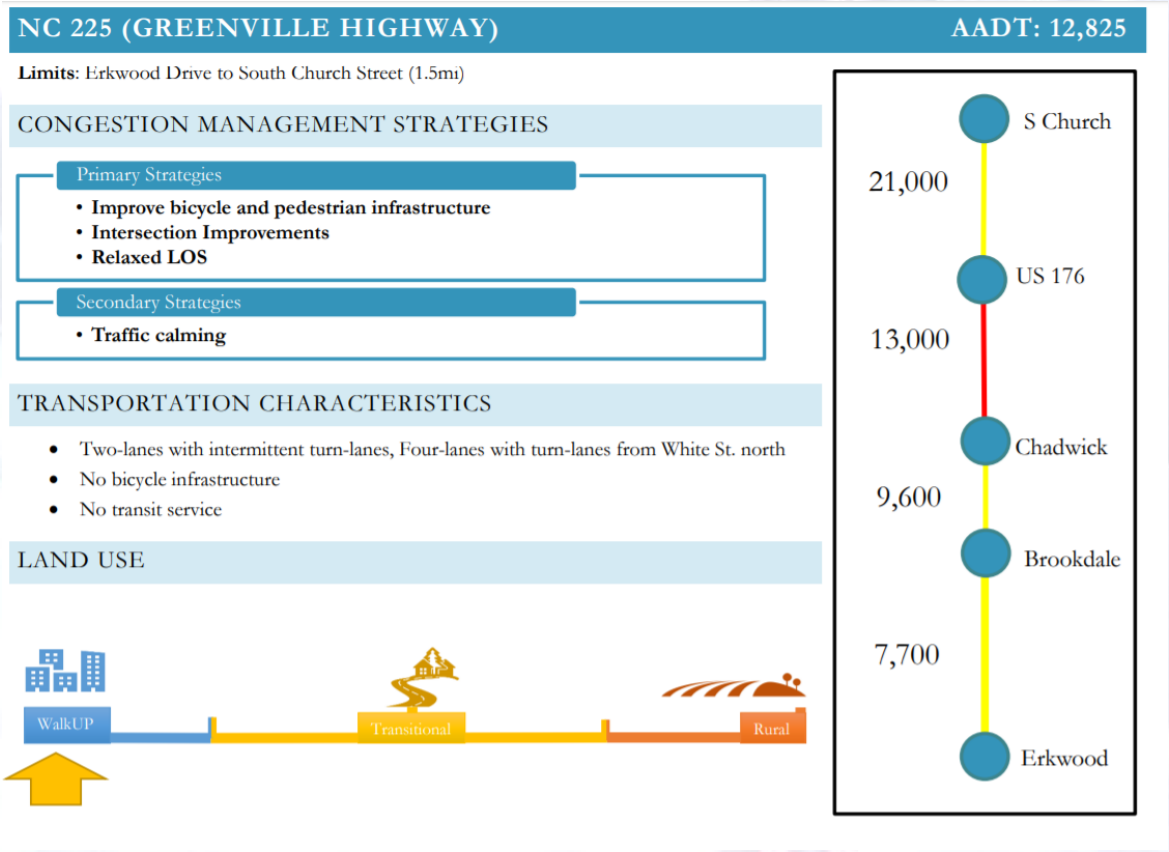
CONGESTION MANAGEMENT PROCESS (CMP)

Congestion Management Plan (CMP)

Federal requirement from TEA-21 (1998), originally auto-centric; SAFETEA-LU (2005) made it multi-modal. The essential elements of CMP include:

- Measuring multi-modal transportation system performance;
- Identifying the causes of congestion;
- Assessing alternative actions;
- Implementing cost-effective actions;
- Considering management and operations strategies; and
- Evaluating the effectiveness of implemented actions

CMP Overview



- **Identifies transportation strategies to mitigate congestion along select routes**
- **Routes and strategies are generally recommended by the local context and roadway function**

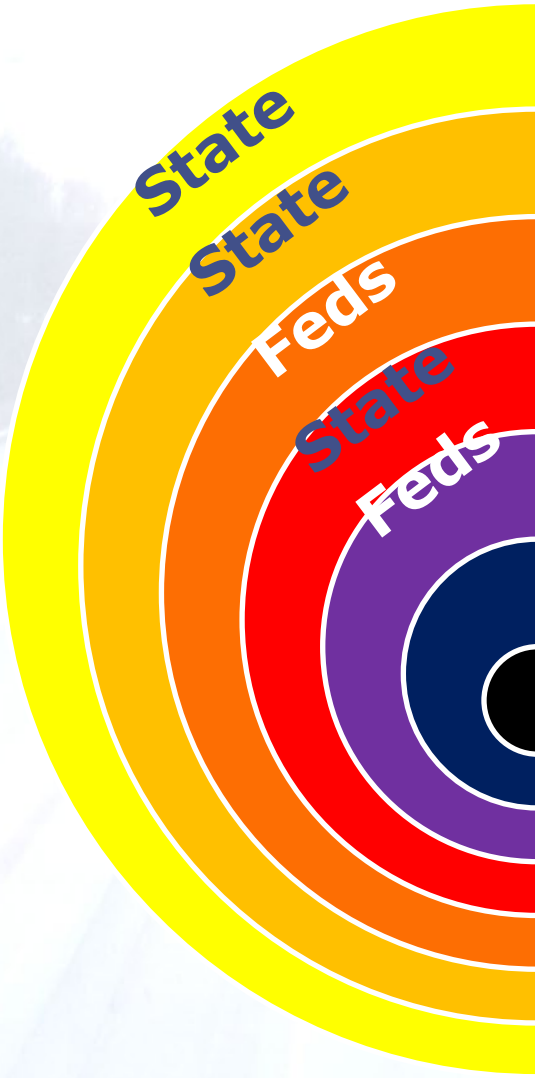
How We Determine What Projects Get Funded

PRIORITIZATION

Strategic Transportation Investment (STI)

Governor McCrory signed House Bill 817, the Strategic Transportation Investments, into law on June 26, 2013 to replace the "Equity Formula"

Prioritization: Adding Projects to the TIP/STIP



2040 Plan

CTP

MTP

SPOT

STIP/TIP

NEPA/Design

Construction

- Statewide Vision
- Strategic Corridors

- 30+ Years
- No $ Constraint

- 25 Years, Used for AQ Determinations
- Based on Revenue Forecast

- Scores Projects for Effectiveness
- Results go into STIP/TIP

- 0-5 and 6-10 Years
- Specific Funding Sources Identified

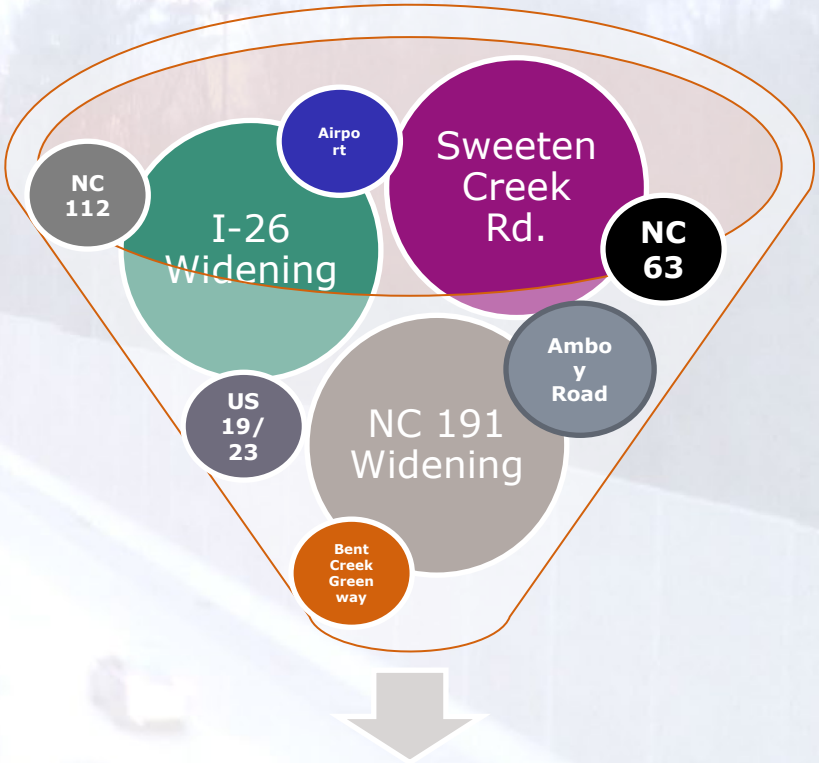
- Project alternatives are assessed
- Final project design and cost

- Project Let, Built

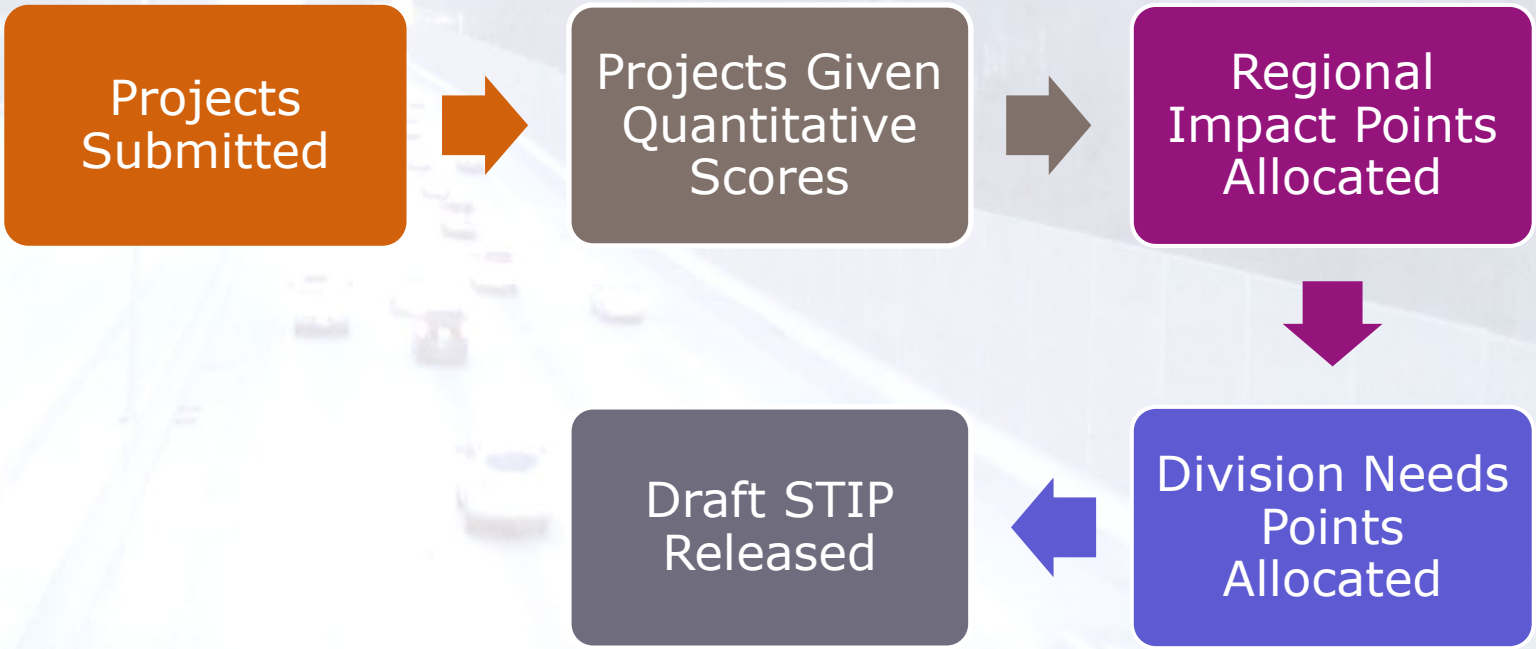
CMP-informs the middle 3

Prioritization/SPOT Process

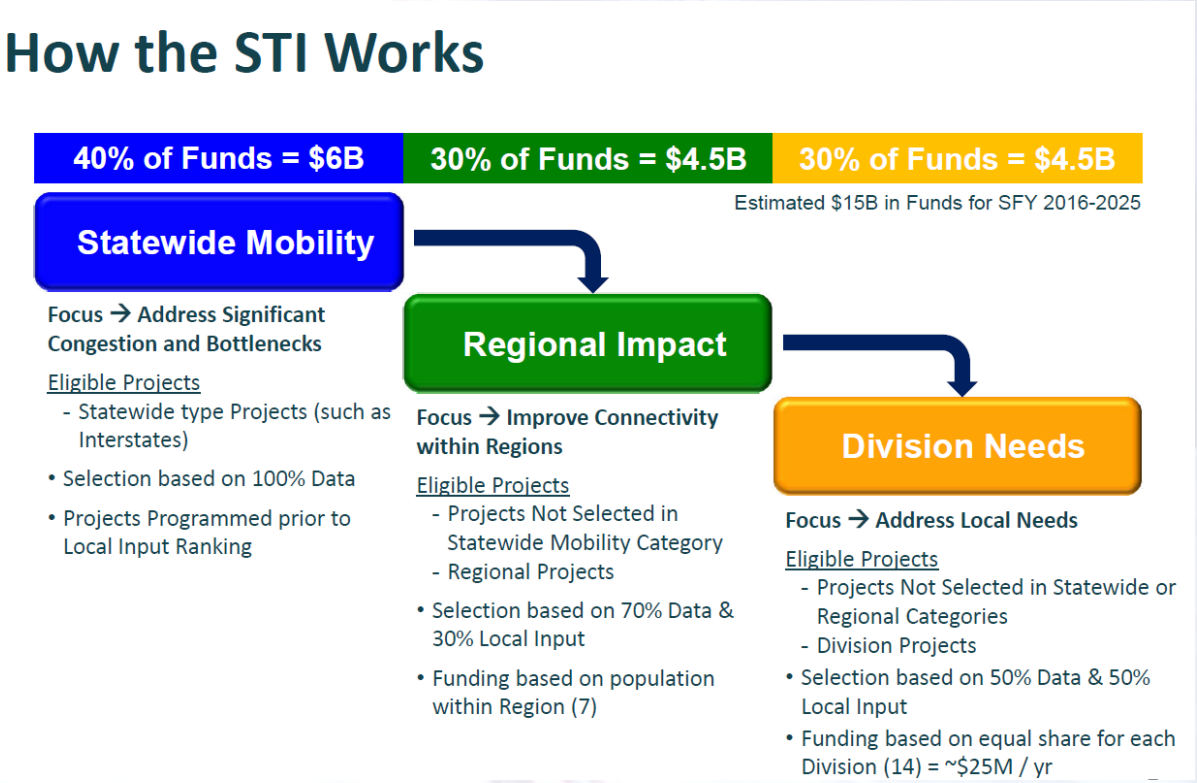
- Process ranks projects based on a data-driven score, with different criteria for 3 levels of facility (statewide, regional, and division)
- Strategic Transportation Investments (STI) Law gives SPOT process further legitimacy



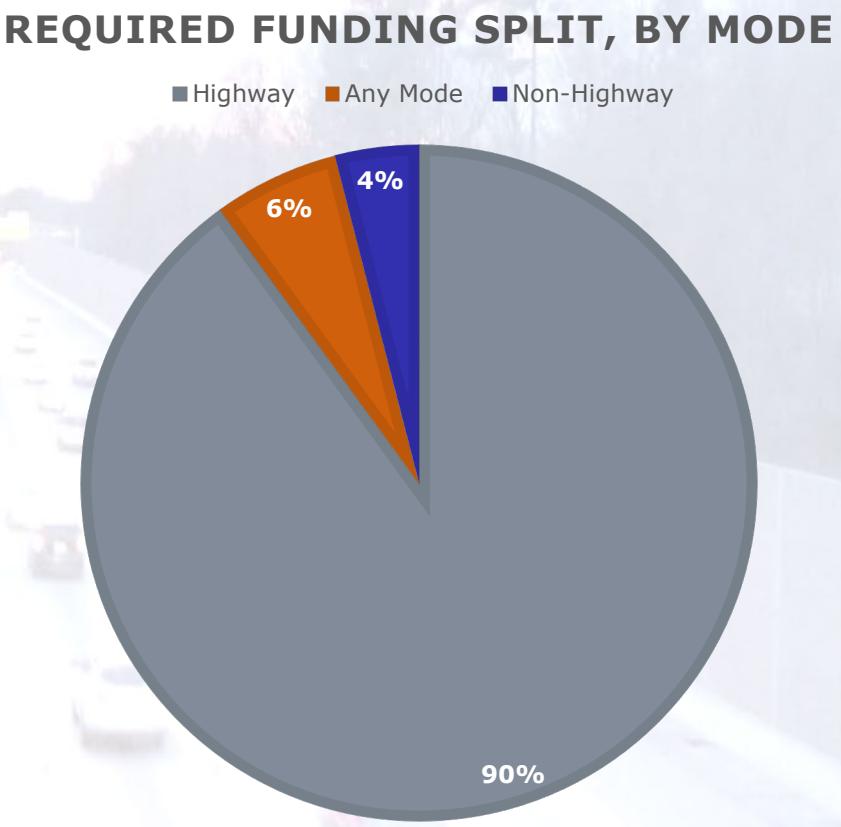
Project Prioritization (AKA SPOT)



Prioritization/SPOT Process



Prioritization



Keeping Track of Funded Projects

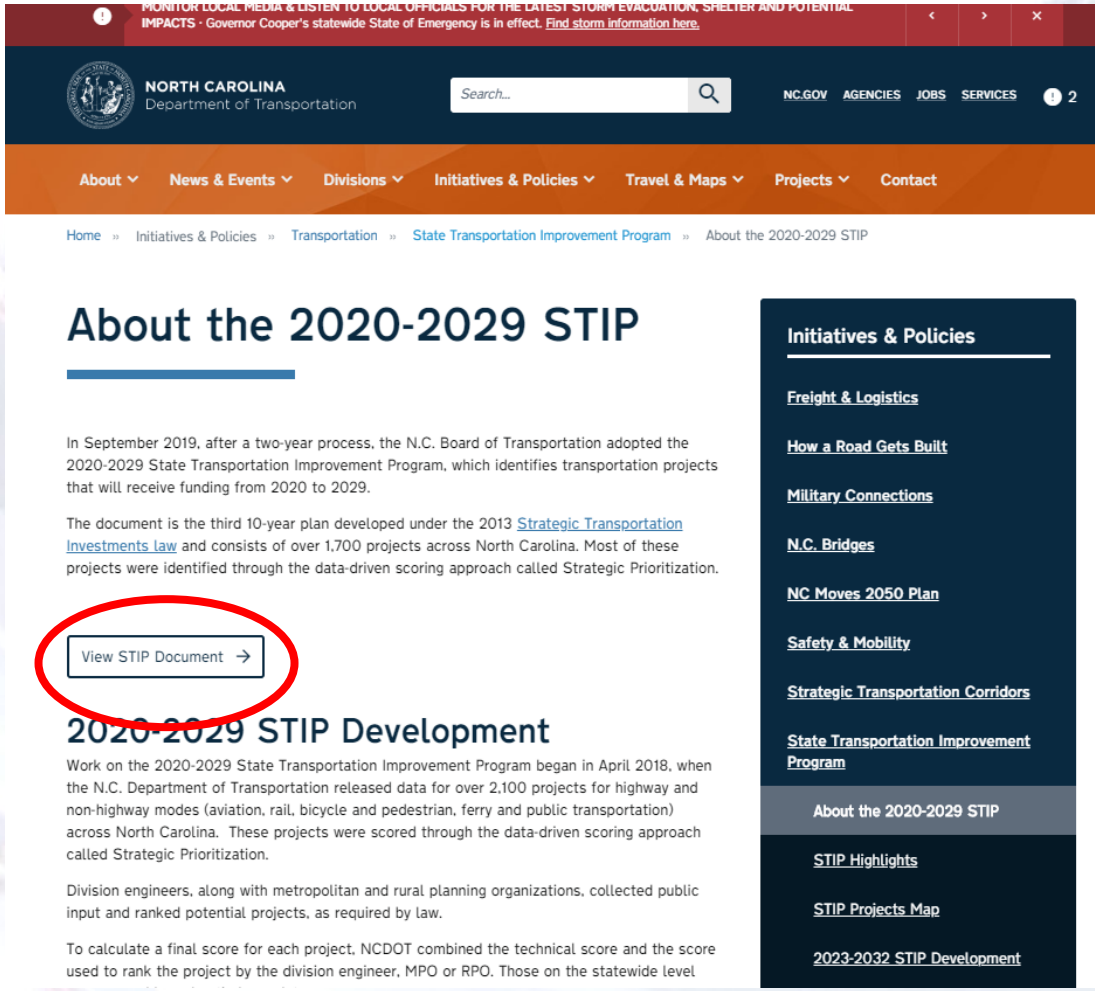
TRANSPORTATION IMPROVEMENT PROGRAM (TIP)

Transportation Improvement Program (TIP)

- Assigns specific funding to implement a project
- Covers 4-10 years
- Approved by MPO Board and Governor

STIP

- 1,700 State and federally-funded transportation projects over next 10 years
  - Output of funded Prioritization/SPOT projects
- Multimodal
- Current STIP approved by NCBOT in September 2019



https://www.ncdot.gov/initiatives-policies/Transportation/stip

TIP

- FBRMPOs subset of the STIP
  - Maintained by MPO in coordination with NCDOT
  - Match exactly in projects, schedule, scope
  - Developed from approved MTP
  - Updated every 2 years; most recently adopted October 2019

Frenchbroadrivermpo.org/tip

FRENCH BROAD RIVER METROPOLITAN PLANNING ORGANIZATION
HIGHWAY PROGRAM

TYPE OF WORK / ESTIMATED COST IN THOUSANDS / PROJECT BREAKS

ROUTE/CITY / COUNTY	ID NUMBER	LOCATION / DESCRIPTION	LENGTH (Miles)	TOTAL PROJ COST (THOU)	PRIOR YEARS COST (THOU)	FUNDS	DELIVERABLE PROGRAM FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	DEVELOPMENTAL PROGRAM FY 2026	FY 2027	FY 2028	FY 20
INTERSTATE PROJECTS																
I-40 HAYWOOD SW	I-6051	MILEMARKER 20 TO MILEMARKER 27. PAVEMENT REHABILITATION.	7.0	4200		NHPIM								C 4200		
I-40 BUNCOMBE	I-5889	MILE MARKER 45.25 TO MILE MARKER 50. REHABILTATE PAVEMENT AND PRESERVE BRIDGES.	4.0	16123	10123	NHFP NHPIM			C 3750 B C 2250 B							
						SW A	MILE MARKER 46 TO MILE MARKER 50. PRESERVE BRIDGES. - UNDER CONSTRUCTION									
						SW B	MILE MARKER 45.25 TO MILE MARKER 50. REHABILITATE PAVEMENT.									
I-40 BUNCOMBE	I-5888	MILE MARKER 37 TO MILE MARKER 44. REHABILIATE PAVEMENT AND BRIDGES.	6.5	17099	12099	NHPIM	C 5000 B									
						SW A	MILE MARKER 37 TO MILE MARKER 44. REHABILITATE PAVEMENT AND BRIDGES. - UNDER CONSTRUCTION									
						SW B	MILE MARKER 37 TO MILE MARKER 44. REHABILITATE BRIDGES.									
I-40 HAYWOOD SW	I-5834	MILE MARKER 27 TO MILE MARKER 34. PAVEMENT AND BRIDGE REHABILITATION.	7.0	10330	5000	NHPIM		C 2665	C 2665							
I-40 BUNCOMBE HAYWOOD	I-6054 H171816	US 74 (SMOKY MOUNTAIN EXPRESSWAY) TO SR 1224 (MONTE VISTA ROAD). ADD ADDITIONAL LANES.	16.5	332910	10	NHP NHP NHP NHP NHP NHP NHP NHP NHP									R 11 U 5	
						A	US 74 (SMOKY MOUNTAIN EXPRESSWAY) TO NC 215 (CHAMPION DRIVE). ADD ADDITIONAL LANES.									
						B	NC 215 (CHAMPION DRIVE) TO SR 1200 (WIGGINS ROAD). ADD ADDITIONAL LANES.									
						REG C	SR 1200 (WIGGINS ROAD) TO SR 1224 (MONTE VISTA ROAD). ADD ADDITIONAL LANES.									
I-40 BUNCOMBE TRN	I-5108	MILE MARKER 45 TO MILE MARKER 50. PAVEMENT REHABILITATION.	5.0	7539	7027	NHP	CG 512									
							COMPLETE - GARVEE BOND FUNDING $4.67 MILLION; CONSTRUCTION - PAYBACK FY 2009-2020									
I-240 BUNCOMBE SW	I-5901	MILEMARKER 4 TO MILEMARKER 9. PAVEMENT REHABILITATION.	5.0	8150	10	NHPIM			C 4070	C 4070						

DIV - Division Category EX - Exempt Category SD - State Dollars (Non STI)
HF - State Dollars (Non STI) REG - Regional Category

COST AND SCHEDULES ARE PRELIMI
SIGNIFICANT CHANGE AS MORE INFORM

TYPE OF WORK / ESTIMATED COST IN THOUSANDS / PROJECT BREAKS

ROUTE/CITY / COUNTY	ID NUMBER	LOCATION / DESCRIPTION	LENGTH (Miles)	TOTAL PROJ COST (THOU)	PRIOR YEARS COST (THOU)	FUNDS	DELIVERABLE PROGRAM FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	DEVELOPMENTAL PROGRAM FY 2026	FY 2027	FY 2028	FY 2029	UNFUNDED FUTURE YEARS
I-26	I-4400	US 25 (EXIT 54) TO NC 280 (EXIT 40).	13.6	346634	184482	NHP								R 2000 A			
BUNCOMBE		WIDEN TO ADD ADDITIONAL LANES.				NHP											C 78000 A
HENDERSON						T					R 3000 BA	R 3000 BA					
						T								C 5850 BA	C 5850 BA	C 5850 BA	C 5850 BA
						NHP	CG 3768 BB	CG 3768 BB	CG 3768 BB	CG 3768 BB	CG 3768 BB	CG 3768 BB	CG 3768 BB	CG 3768 BB	CG 3768 BB	CG 3768 BB	CG 15072 BB

REG A H090019-A US 25 (EXIT 54) TO US 64 (EXIT 49)
SW BA H090019-B US 64 (EXIT 49) INTERCHANGE
SW BB H090019-B US 64 (EXIT 49) TO US 25 BUSINESS (EXIT 44) - UNDER CONSTRUCTION
REG C H090019-C US 25 BUSINESS (EXIT 44) TO NC 280 (EXIT 40) - UNDER CONSTRUCTION

Specific funding source

Work Type(Activity)

Project Breaks

Deliverable - "Committed"
vs.
Developmental – "Not Committed"

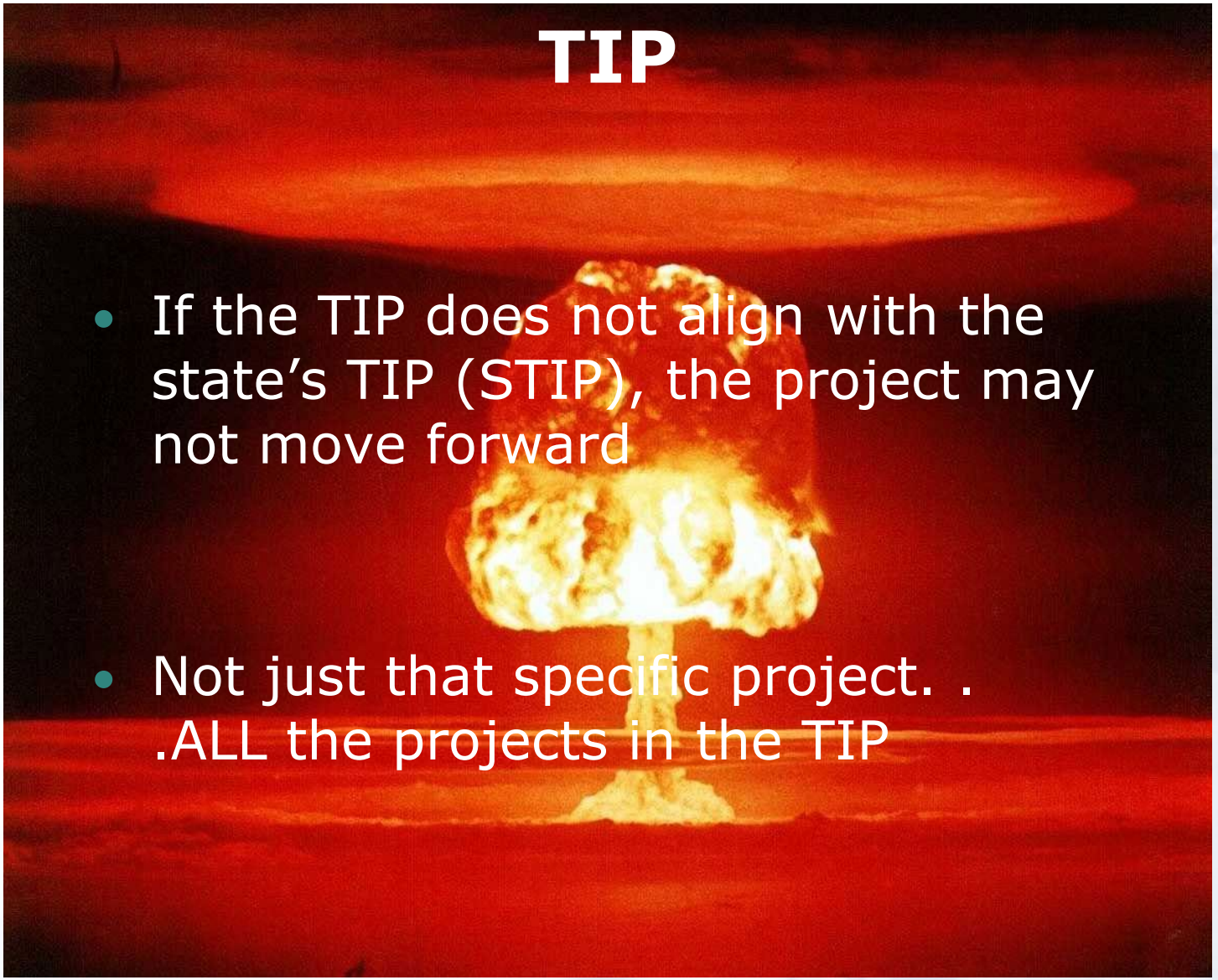
TIP Amendments

PROJECT	ROUTES	DIVISIONS	COUNTIES	DESCRIPTION	TIP Amendment Detail	TOTAL COST (in thousands)	ACTIVITY	FUNDING	Cost in Thousands										
									2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	POST YEARS
U-5105	Erkwood Drive (NC 225/SR 1164) @ Shepherd Street (SR 1779)	14	Henderson	Hendersonville, NC 225/SR 1164 (Erkwood Drive)/SR 1779 (Shephard Street) in Hendersonville. Improve Intersection.	Delay right-of-way from FY 16 to FY 17 to allow additional time for planning.	$2,350	ROW	STBG		200									
								STBG			2,150								
U-5872	US 25 (Hendersonville Road)	14	Henderson	US 25 (Hendersonville Road), SR 1545 (Cane Creek Road) to SR 1006 (Howard Gap Road). Construct Roadway Improvements.	Delay Right-of-Way from FY 16 to FY 17 to allow additional time for design.	$2,162	PE	STBGDA	154										
								L	39										
							ROW	STBGDA		20									
								L		5									
							CST	STBGDA		1,555									
								L		389									

Specific funding source

Funding schedule

TIP

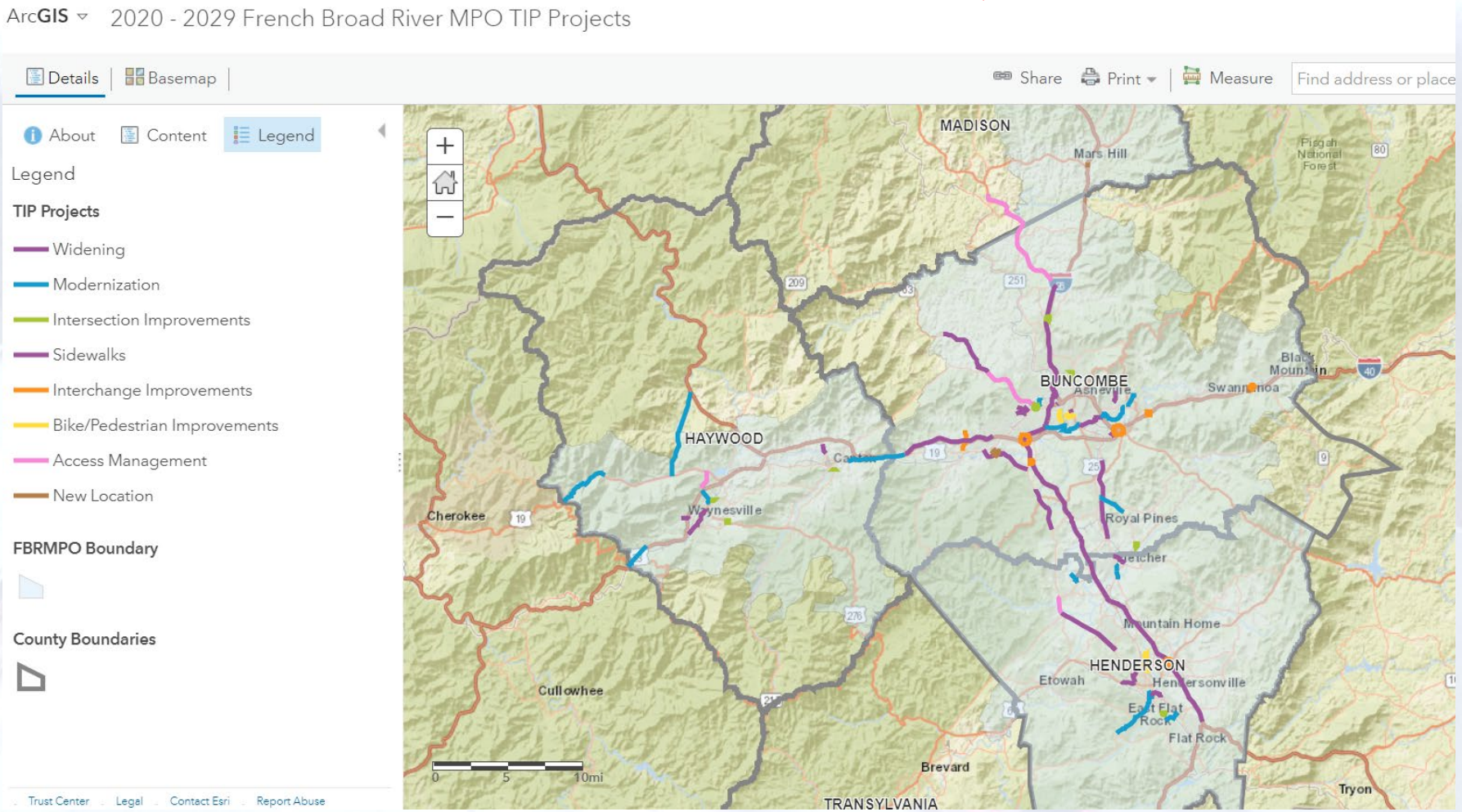


- If the TIP does not align with the state's TIP (STIP), the project may not move forward
- Not just that specific project. . .ALL the projects in the TIP

MPO TIP Map

http://arcg.is/1XHiL8

TIP "Tip": Use this map!



Daniel Sellers, NCDOT Transportation Planning Division

HOW BIG SHOULD THIS ROAD BE?

North Carolina
DEPARTMENT OF TRANSPORTATION

Traffic Planning Orientation for New Board Members

Daniel Sellers, P.E.

May 22, 2020

Agenda

- Transportation Planning Division
- Traffic Forecast
  - The Purpose of a Traffic Forecast
  - General Forecast Information
  - Data vs. Statistics
  - Data Gathered from Community
- Travel Demand Models
  - The Purpose of a Travel Model
  - Limits of Travel Demand Models

Transportation Planning Division

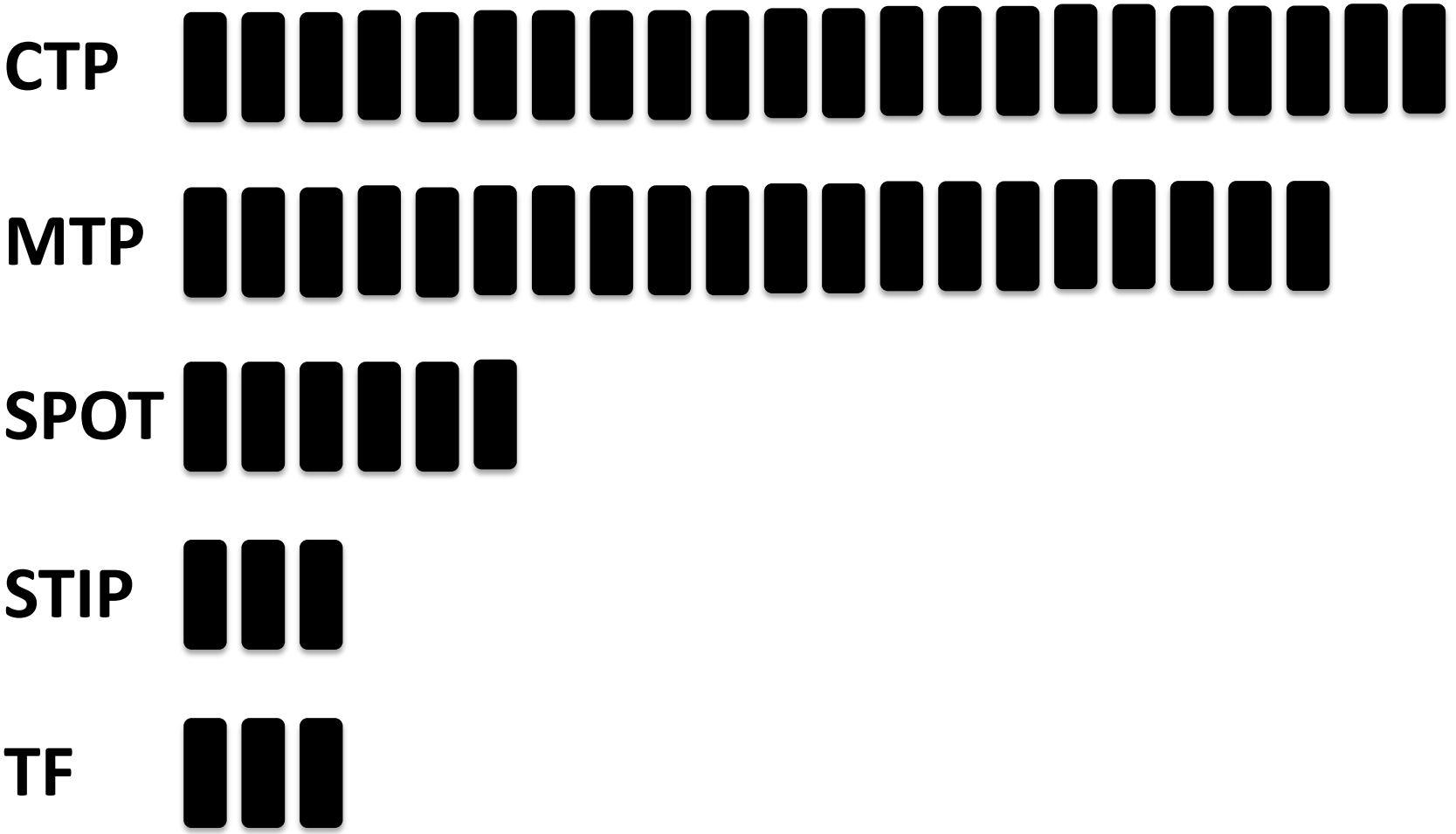
- Collect Traffic Data
  - Coverage Counts, Truck Counts, Turning Movements, Weigh-In-Motion, Continuous Counts
- Analyze Traffic Data
  - Seasonal Factors, AADT, VMT, HPMS, Traffic Factors
- Project Traffic Data
  - Traffic Forecast, Travel Demand Model, CTPs, MTPs
- Liaison between
  - Planning Organizations, SPOT, Congestion Management, Feasibility Studies, Safety, FHWA, State Legislators

The Purpose of a Forecast

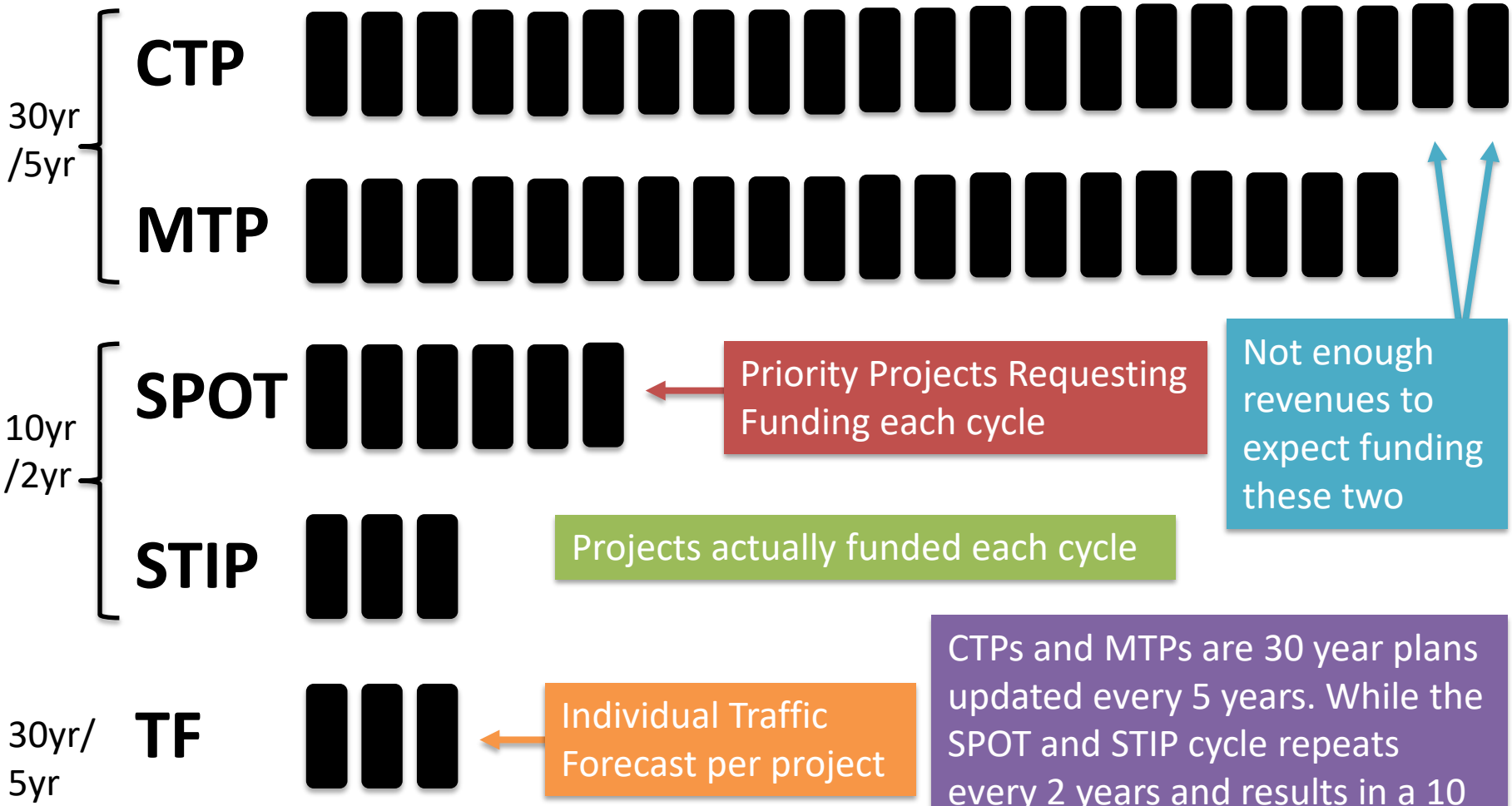
The Purpose of a Forecast

- A forecast is a tactical document containing traffic demand projections, characteristics, and composition in order to facilitate individual project design
- This differs from the strategic analysis done for CTPs and MTPs to identify deficiencies and propose solutions.
- Both rely on similar data,
  - but forecast err on the side of what will happen/is happening
  - and planning goes for what we think will happen.
- Plans (MTP, CTP) are done every 5 years for a region, forecast are good for 5 years for a funded project

Example: Projects Per Plan



Example: Projects Per Plan

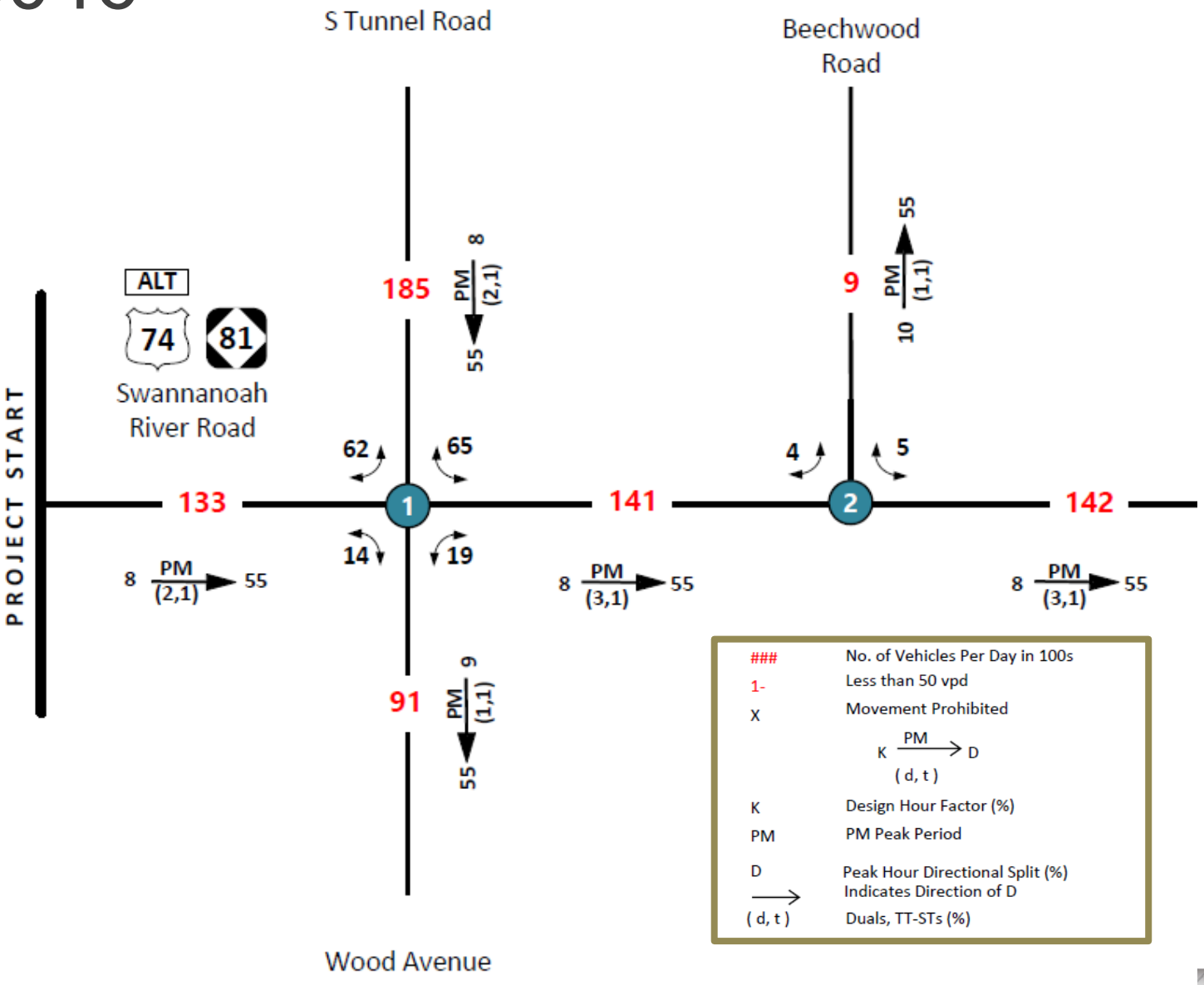


General Forecasting Information

General Forecast Information

- A forecast is prepared for any project expected to cause a change or shift in travel demand
- Objectively developed independent of project needs
- Reviewed and approved centrally to ensure consistency across state
- Proactively done for projects when they enter the STIP

U-6046


S Tunnel Road
Beechwood Road
ALT
74
81
Swannanoah River Road
PROJECT START
185
PM (2,1)
8
55
9
PM (1,1)
55
10
62
65
4
5
133
1
141
2
142
14
19
8 PM (2,1) 55
8 PM (3,1) 55
8 PM (3,1) 55
91
PM (1,1)
9
55
Wood Avenue
No. of Vehicles Per Day in 100s
1- Less than 50 vpd
X Movement Prohibited
K PM D (d, t)
K Design Hour Factor (%)
PM PM Peak Period
D Peak Hour Directional Split (%) Indicates Direction of D
(d, t) Duals, TT-STs (%)

General Forecast Information

- Requires significant data
  - Current traffic counts
  - Historic AADT data
  - Growth trends
  - Land use patterns
  - Known developments
  - Understanding of current traffic patterns
  - Travel demand model knowledge
  - Seasonal Variation
- Produces significant statistics
  - Base Year AADT
  - Future AADT
  - Turning Movements
  - Design Factors
    - Peak Hour Factor (AM/PM)
    - Directional Splits
  - Heavy Vehicle Percentages

Data vs. Statistics

Data vs. Statistics: Definitions

Definitions courtesy of M-W.com

- Data – facts or information used usually to calculate, analyze, or plan something
- Statistic – a number that represents a piece of information; a collection of quantitative data

- In general, a statistic provides information about data.
- Statistics are only as accurate as the data they are based on and data is very hard to gather with 100% accuracy.
- Transportation planning generally reports statistics

Data Gathered from Community

Data Gathered from Community

While forecasters can collect much of the data concerning traffic counts, they will also contact local governments and agencies to collect non-traffic data. What they are looking for includes:

- Growth trends, to confirm data
- Land use patterns, deviations from plans
- Known developments, only permitted ones can be included
- Understanding of current traffic patterns, odd behaviors
- Seasonal variation, make sure we are using the right paradigm

Travel Demand Models

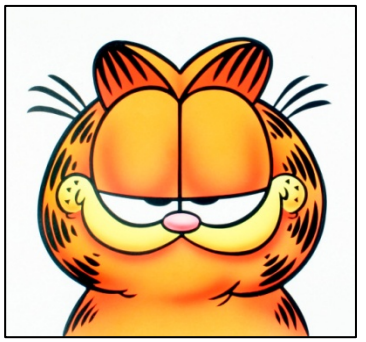
Travel Demand Models:

The Purpose of a Travel Model

What is a Model?

- A representation of a real object or system that accounts for its relevant properties.

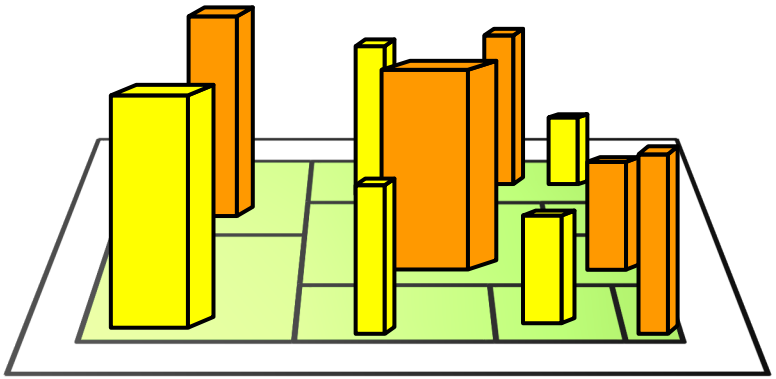
Real World "Object"



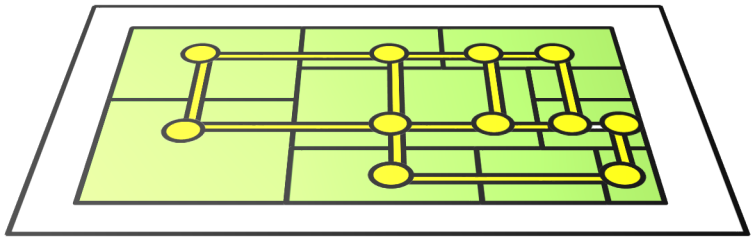
Model

What is a Transportation Model?

A systematic process for translating land use and transportation supply into projections of travel demand



Land-Use



Transportation Network

Forecast Data:
Future Socio-Economic Projections

NCDOT does not prepare socio-economic projections.

Socio-economic projections must be produced locally.

Forms the basis of future year trip tables

Forecast Data: Land-Use/Density

Density can impact capacity and free flow speed.

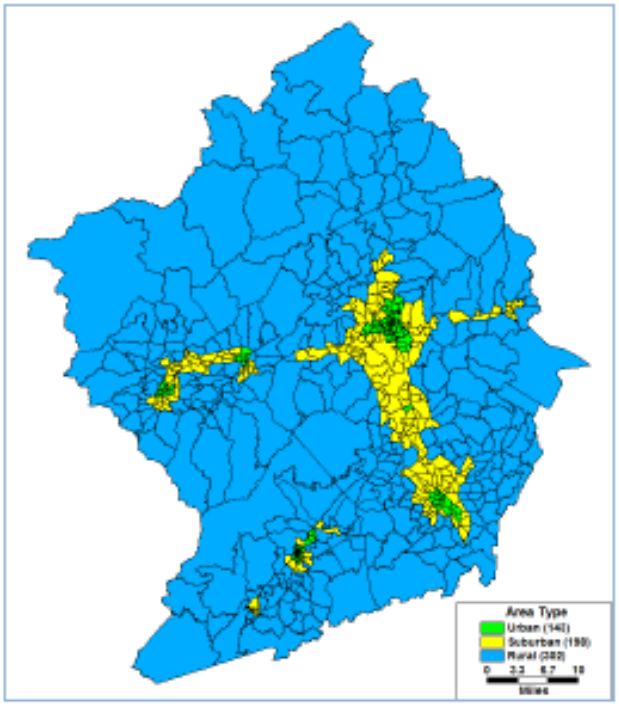
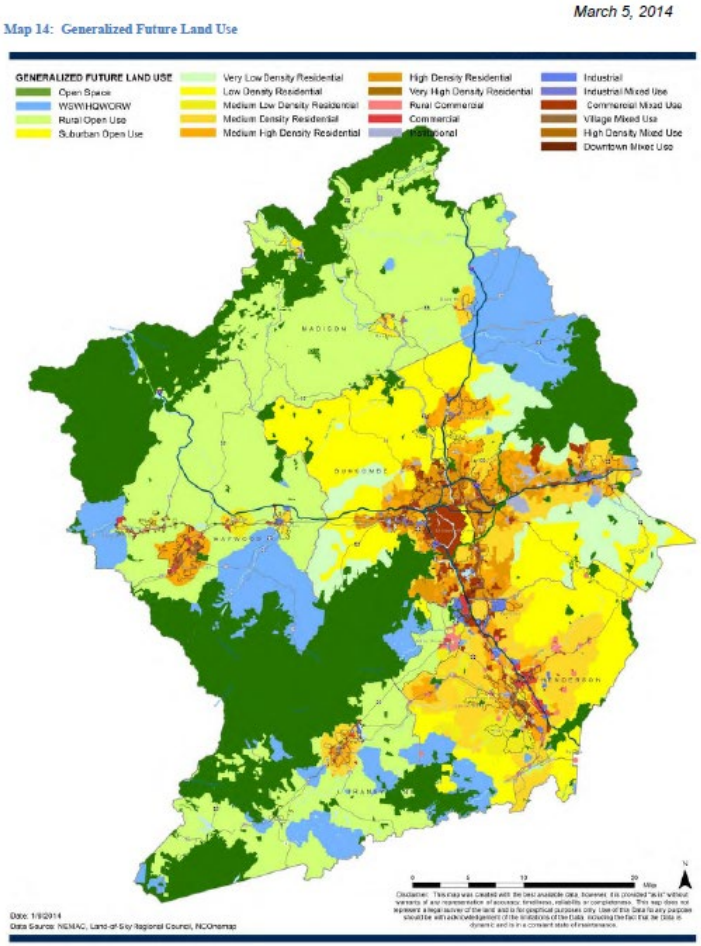


Figure 3 FBRMPO Traffic Analysis Zones by Area Type



Travel Demand Models:

Limits of Travel Demand Models

Travel Demand Models: Limits of Travel Demand Models

- There are limits and trade-offs to accuracy and precision
- Forcing one can have a negative impact on the other
- Travel demand models do not have all facilities or take in to account all aspects of the road
- Models are only as good as their inputs (SE Data, Project List, network roads, and calibration data)
- Model volumes are never used directly in the forecast. The rates, total growth, and patterns are applied to existing data and statistics to draw conclusions about most likely future traffic volumes and patterns
- All models area wrong, but some are useful

Travel Demand Models: Limits of Travel Demand Models

All models are wrong, but some are useful!

Travel Demand Models: Limits of Travel Demand Models

All models are wrong, but some are useful!

https://en.wikipedia.org/wiki/All_models_are_wrong

Travel Demand Models:
Purpose and Limits of Travel Demand Models

"Any mathematical model is necessarily a simplification of reality and is thus unlikely to be complete and perfect in every possible way. But perfection is not its job. Its job is to be more useful than no model."

Scott K. Johnson, ArcTechnica, 4/13/2020

"First, we guess it. Then we compute the consequences of the guess."

Richard Feynman, Caltech, Nobel Prize in Physics (1965)

"All models are perfect"

Average Citizen, after hearing an engineer present

Questions?

Daniel Sellers, P.E.
dcsellers1@ncdot.gov

Steve Williams, NCDOT

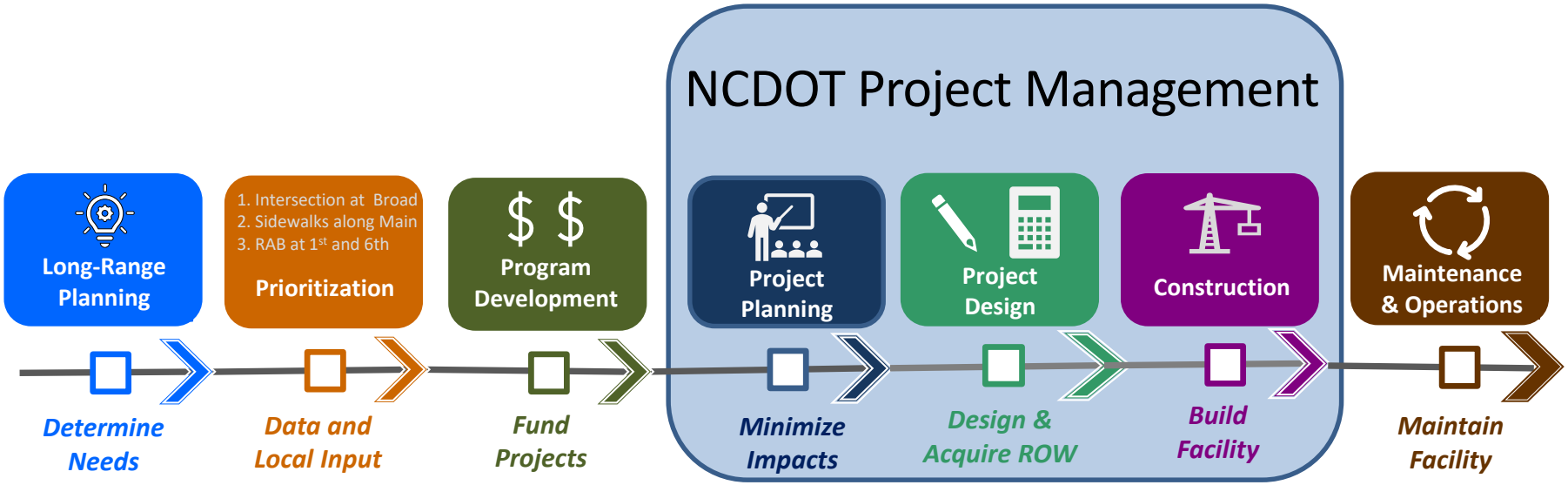
SO YOUR PROJECT IS FUNDED, NOW WHAT?

NORTH CAROLINA
Department of Transportation

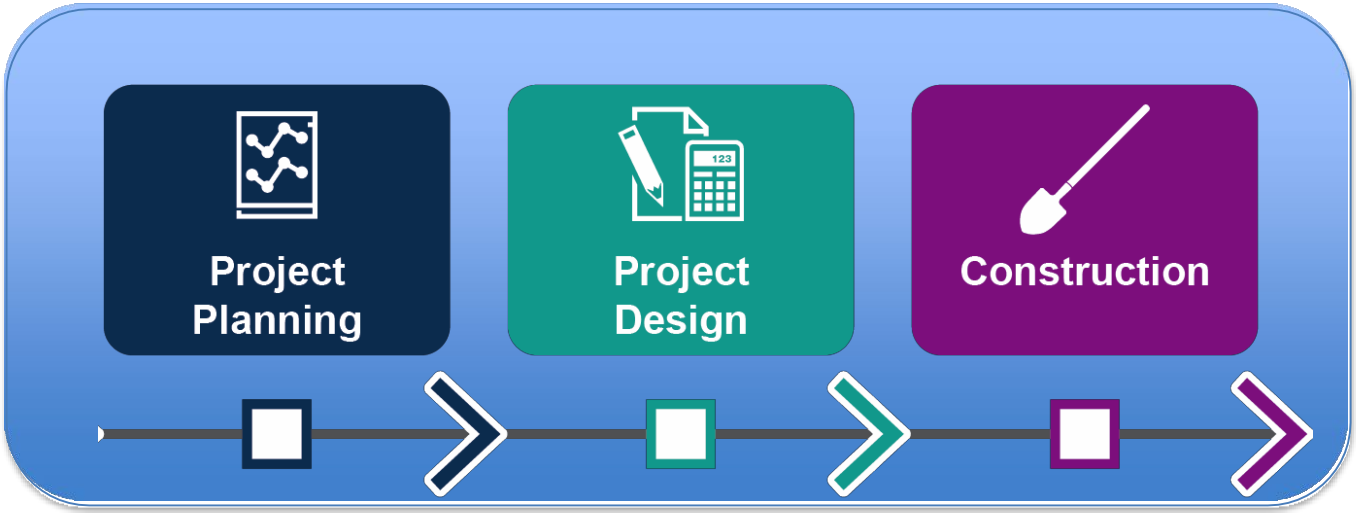
So Your Project Made it into the STIP, Now What?

Steve Williams
DPE, NCDOT Division 14
2020

Project Life Cycle



Project Development

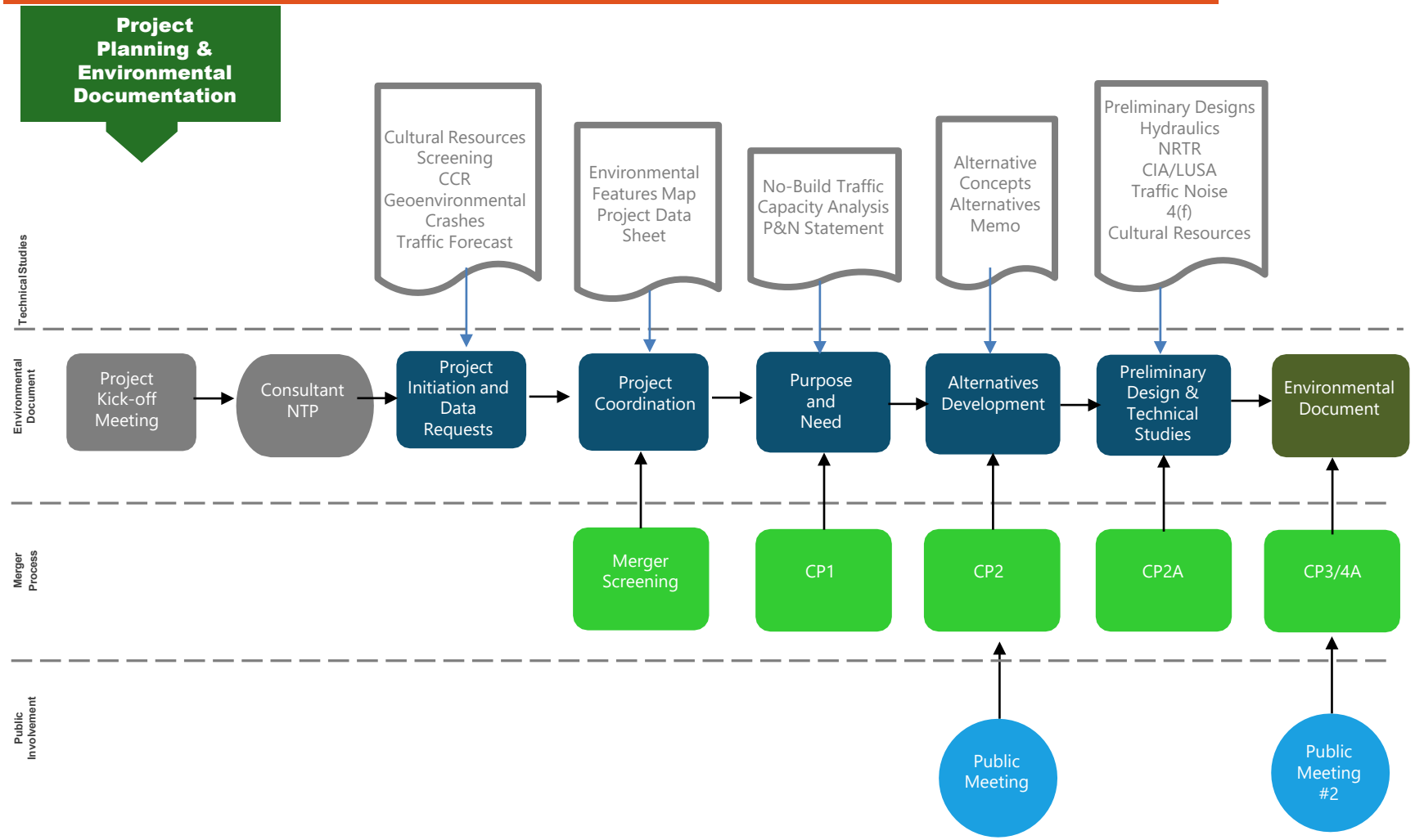


Project Managers (Division & Central)

(Constant communication, coordination, and reporting)

- Programming
- Contracting
- Roadway Design
- Mapping
- Structures
- Right of Way
- Stakeholder Engagement
- Scoping
- Environmental
- Hydraulics
- Geotechnical Engineering
- Utilities
- Traffic
- Construction

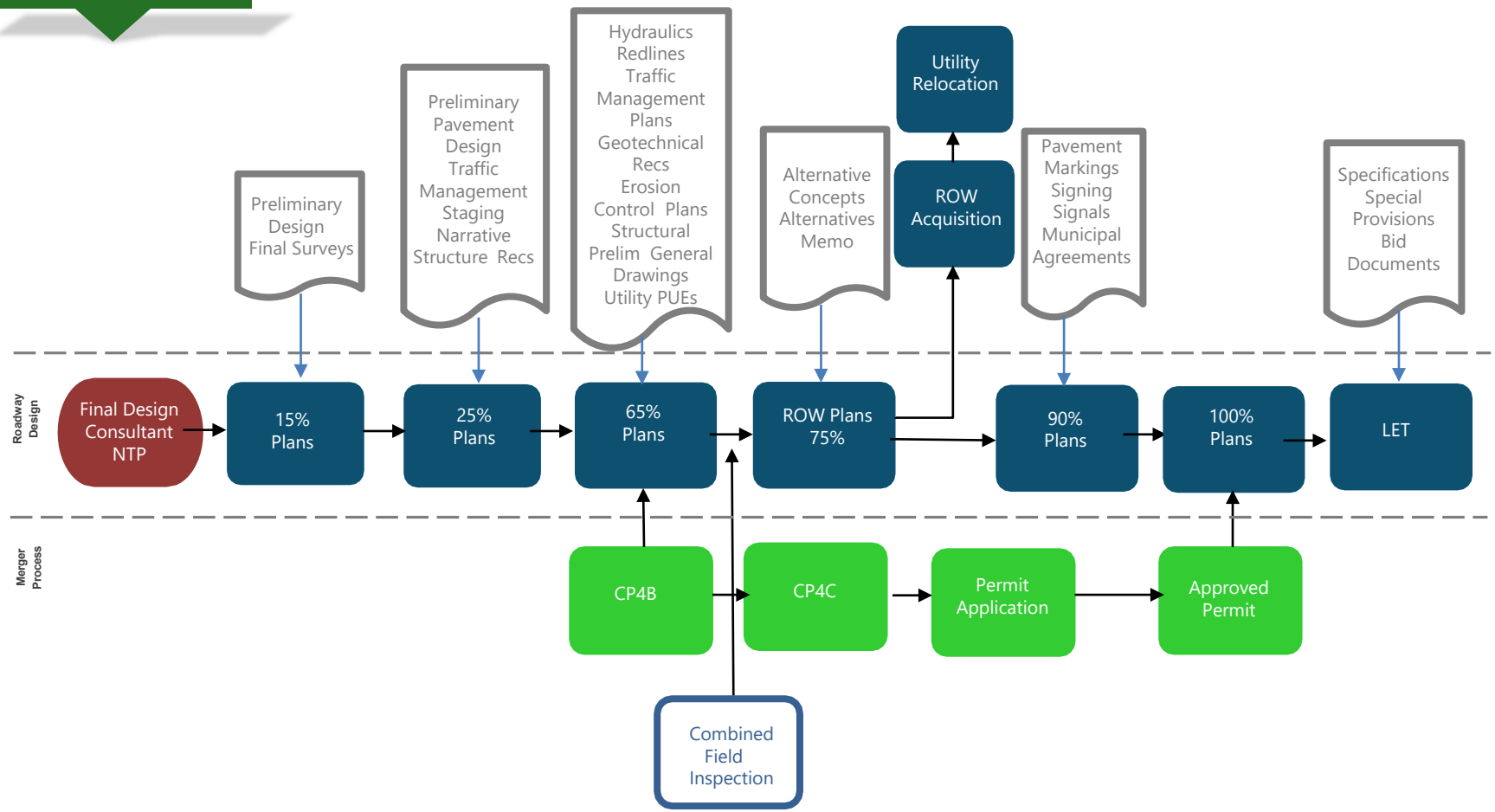
Project Development Process Maps



NOTE: ALL PROJECTS SHOULD BE EVALUATED TO DETERMINE APPLICABLE STEPS

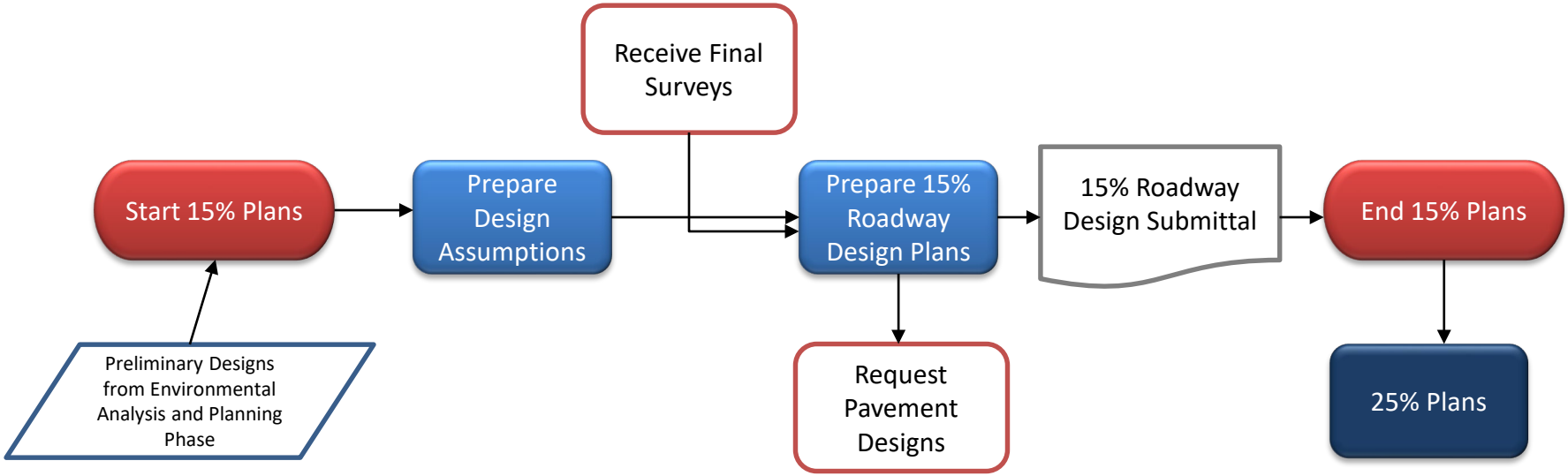
Project Development Process Maps

Final Design



NOTE: ALL PROJECTS SHOULD BE EVALUATED TO DETERMINE APPLICABLE STEPS

15% Plans



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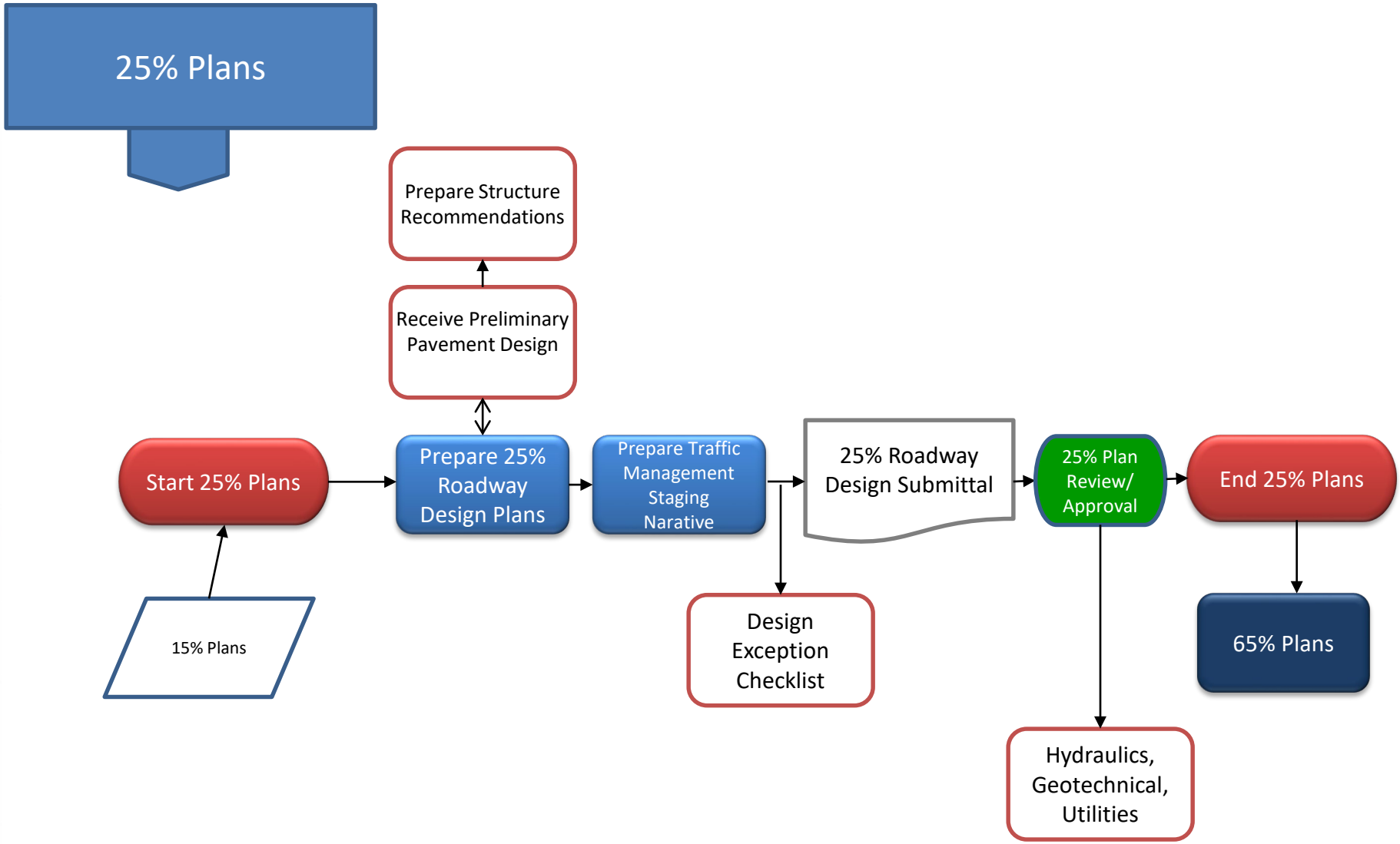

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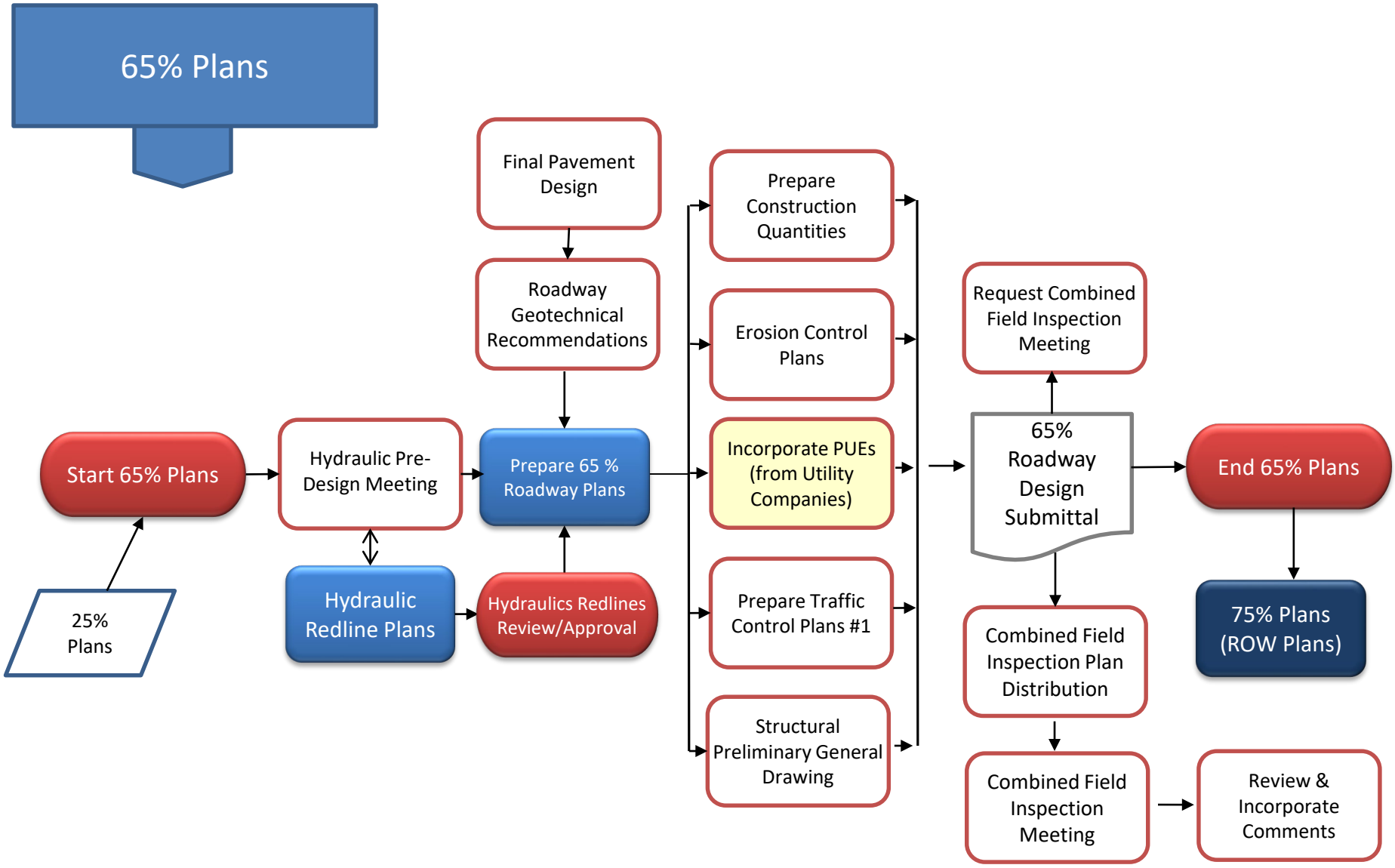

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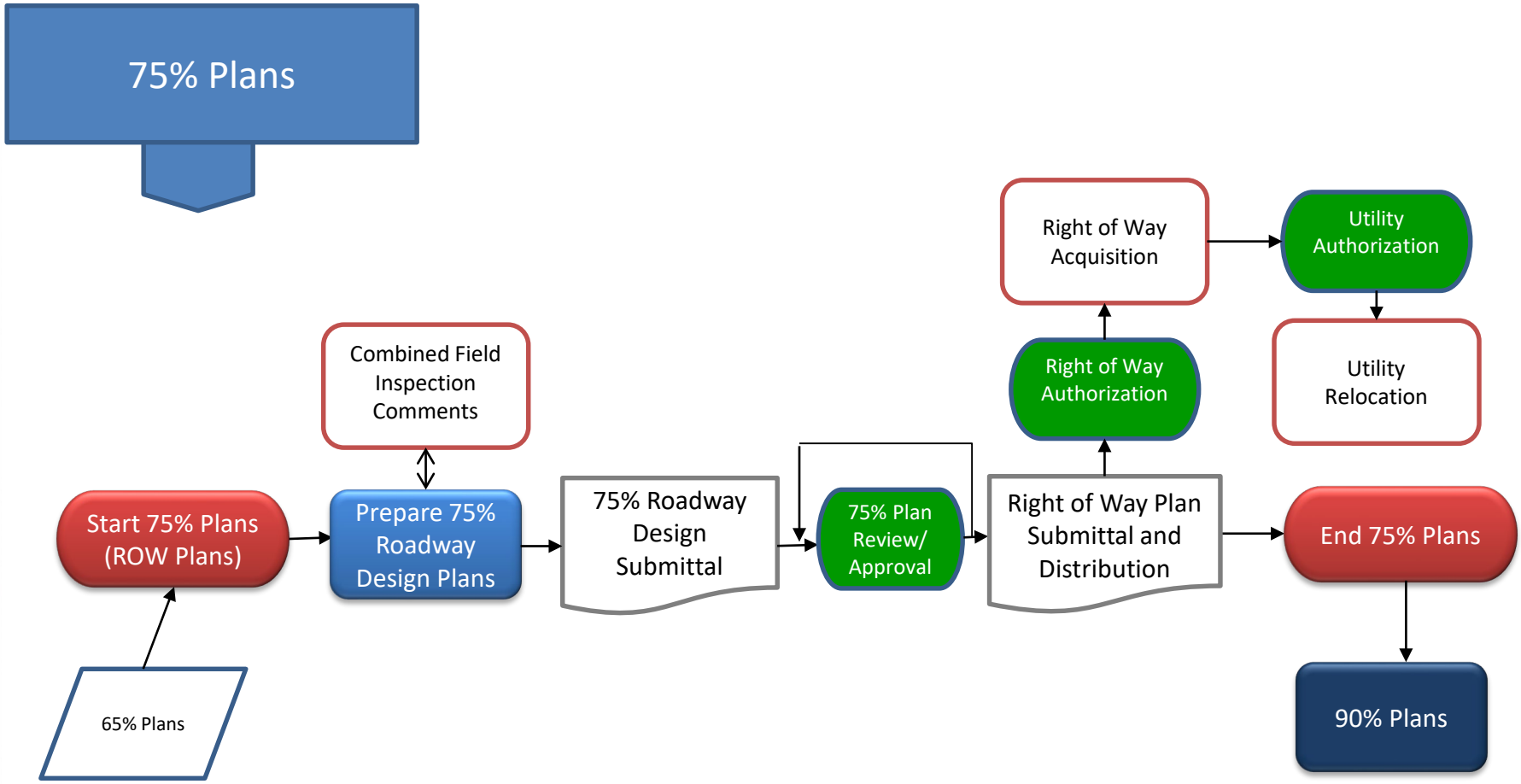
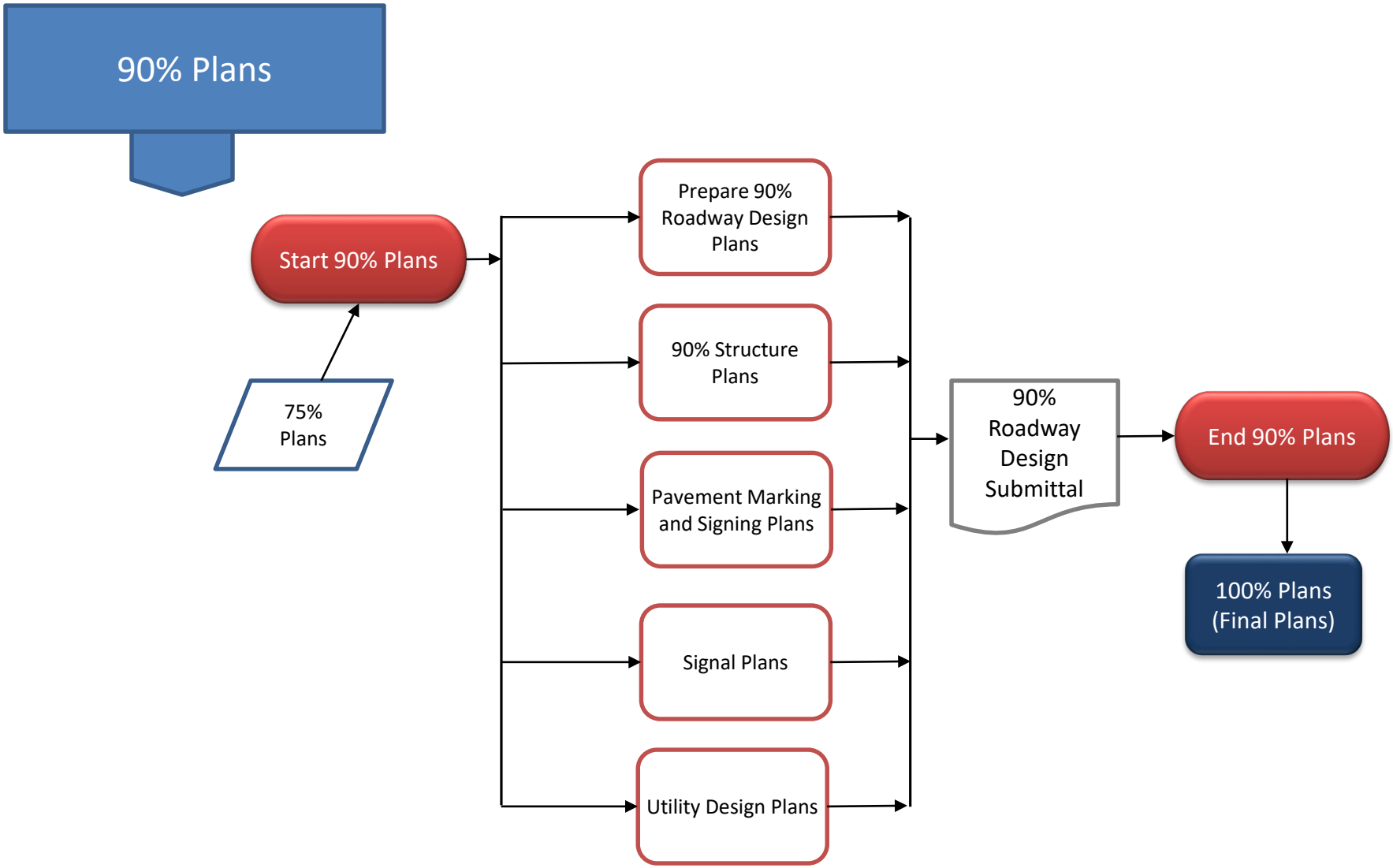
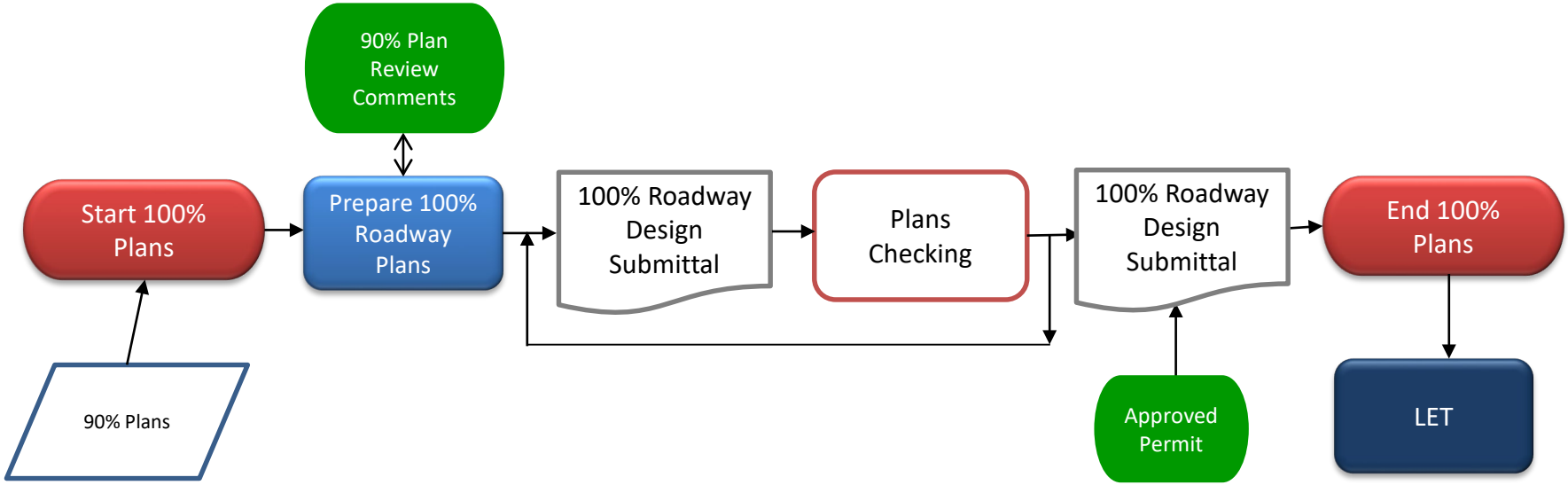


NOTE: ALL PROJECTS SHOULD BE EVALUATED TO DETERMINE APPLICABLE STEPS



NOTE: ALL PROJECTS SHOULD BE EVALUATED TO DETERMINE APPLICABLE STEPS

100% Plans



NOTE: ALL PROJECTS SHOULD BE EVALUATED TO DETERMINE APPLICABLE STEPS

WHY?

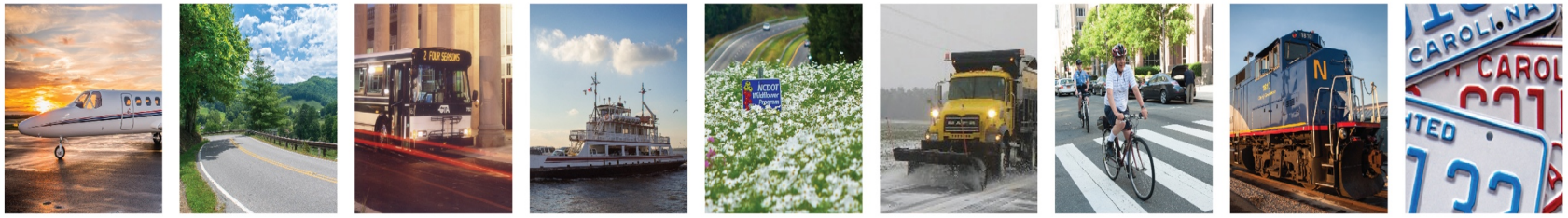
- Deliver Quality Plans
  - Accurate Bids
  - Deliver Intended Project
  - Reduce Construction Cost Over-Runs
  - Minimize Construction Time
  - Construction Zone Safety
  - Accurately Identify Environmental Resources/Impacts
  - Community Involvement
  - Transparency

IPD
INTEGRATED
PROJECT DELIVERY
Design

Steve Cannon, NCDOT

NCDOT'S COMPLETE STREETS POLICY

NORTH CAROLINA
Department of Transportation



Complete Streets Policy Update: What You Need to Know

2020

NCDOT Complete Streets

- Adopted by BOT August 2019
- Implementation Guidance released August 2019
- Tie to other policy efforts
- FUN FACT:
  If each North Carolinian walked or biked 1 mile/week instead of driving, it would eliminate 218,000 Tons of CO_2 from the air every year*

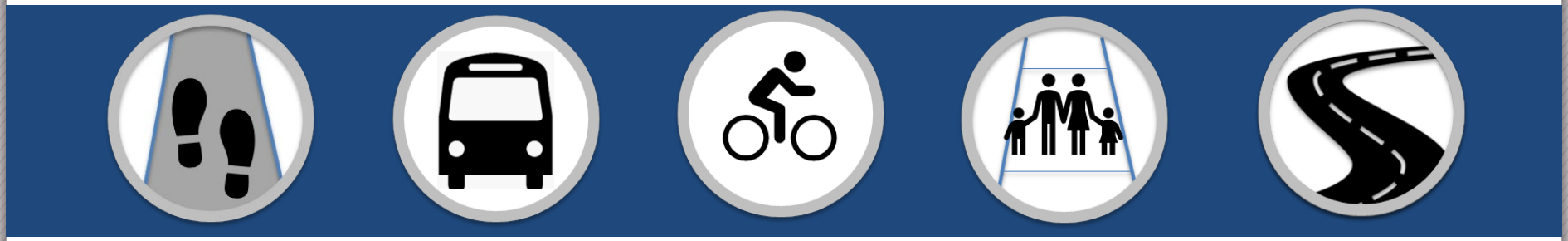
*Source: EPA vehicle emissions guide

Complete Streets Policy Highlights

- NCDOT is committed to providing an efficient multi-modal transportation network in North Carolina such that the **access, mobility, and safety needs** of motorists, transit users, bicyclists, and pedestrians **of all ages and abilities** are safely accommodated.

- This policy requires NCDOT planners and designers **consider and incorporate multimodal facilities in** the design and improvement of **all** appropriate **transportation projects** in North Carolina.

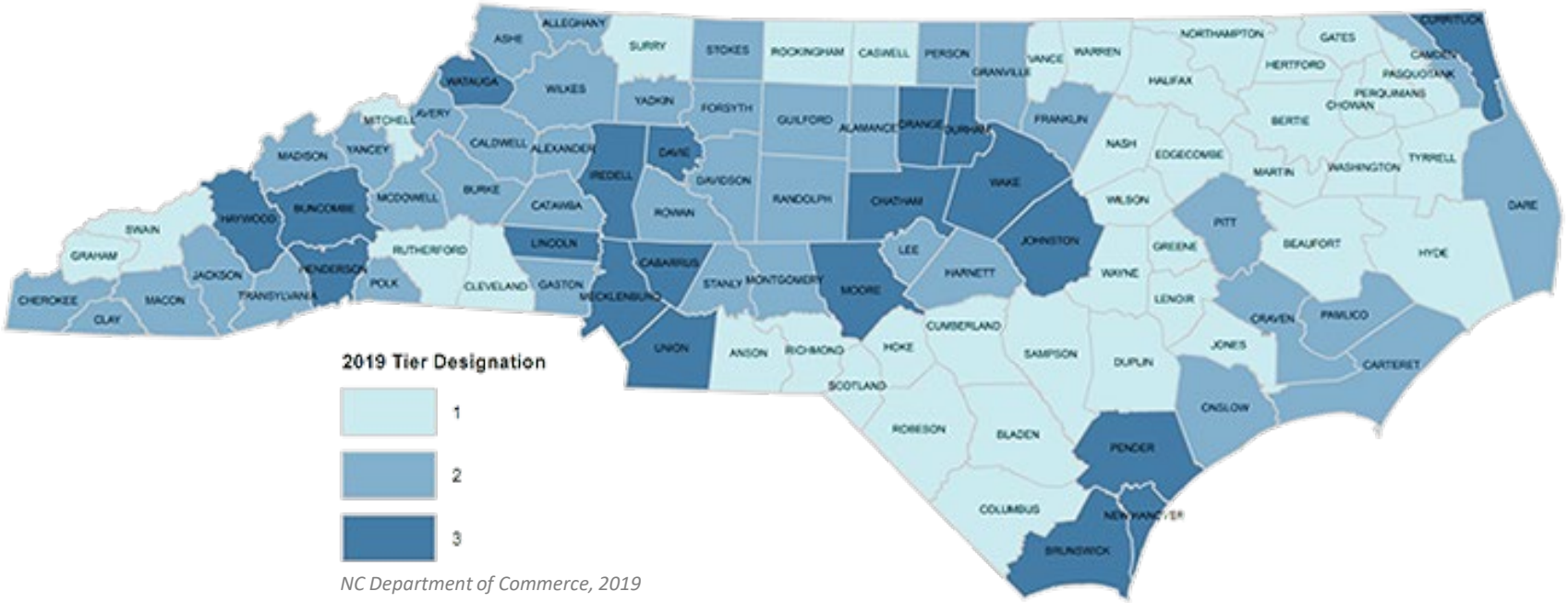
- The Department is committed to **collaborate with cities, towns, and communities** to ensure pedestrian, bicycle, transit and evolving transportation technology options are included as an integral part of their total transportation vision.



Why? The Landscape of Mobility is Changing

Why? North Carolina is Changing

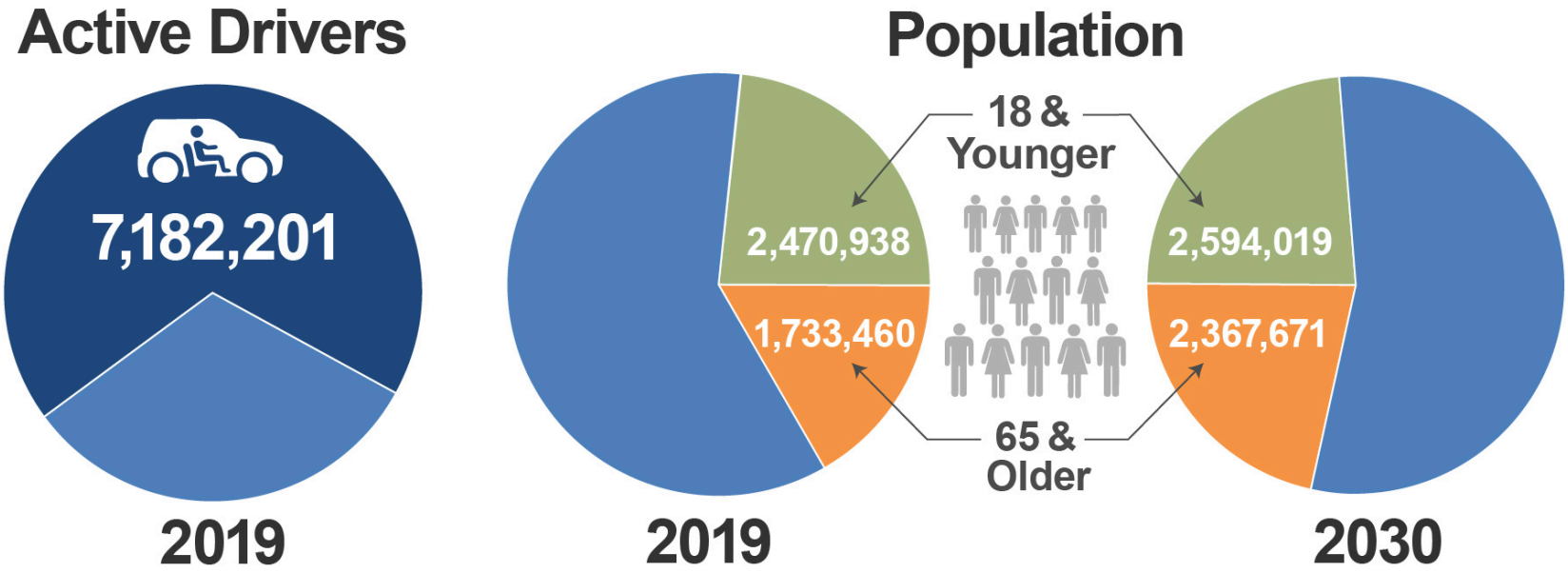
- Growing Population Centers
- Aging in Place
- Economic Restructuring
- Rapid Population Growth



NC Department of Commerce, 2019

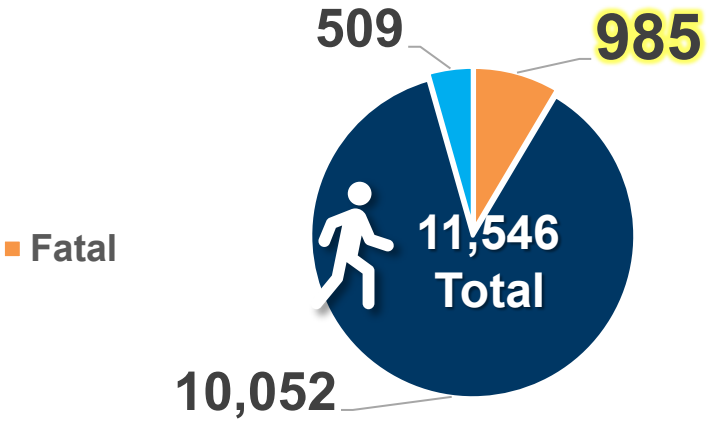
Why? North Carolina's Population is Changing

NC's current population of 10.5M is expected to top 12M by 2035



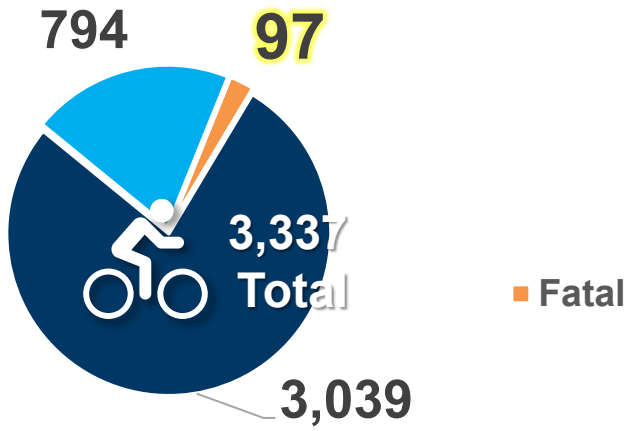
Why? Improve Road User Outcomes for All

Pedestrian Crashes, 2014-2018



NC 7th highest total pedestrian fatalities by state

Bicycle Crashes, 2014-2018



NC 8th highest rate of bicycle fatalities per capita

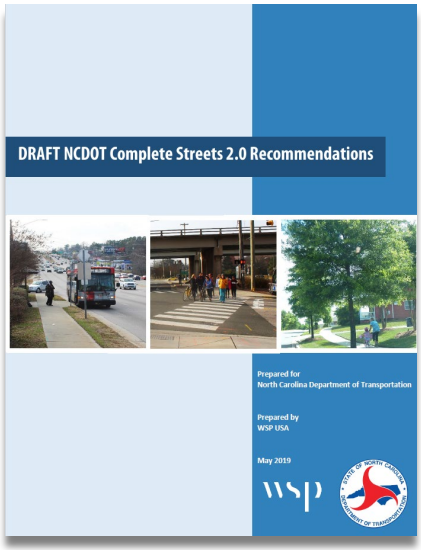
Previous Resources

Complete Streets Policy (July 2009)

Complete Streets Planning and Design Guidelines (July 2012)

New Resources

- NCDOT Complete Streets 2.0 Recommendations – Action Plan
- Complete Streets Policy (August 2019)
- Complete Streets Implementation Guide (Updated)
- Frequently Asked Questions (FAQs)



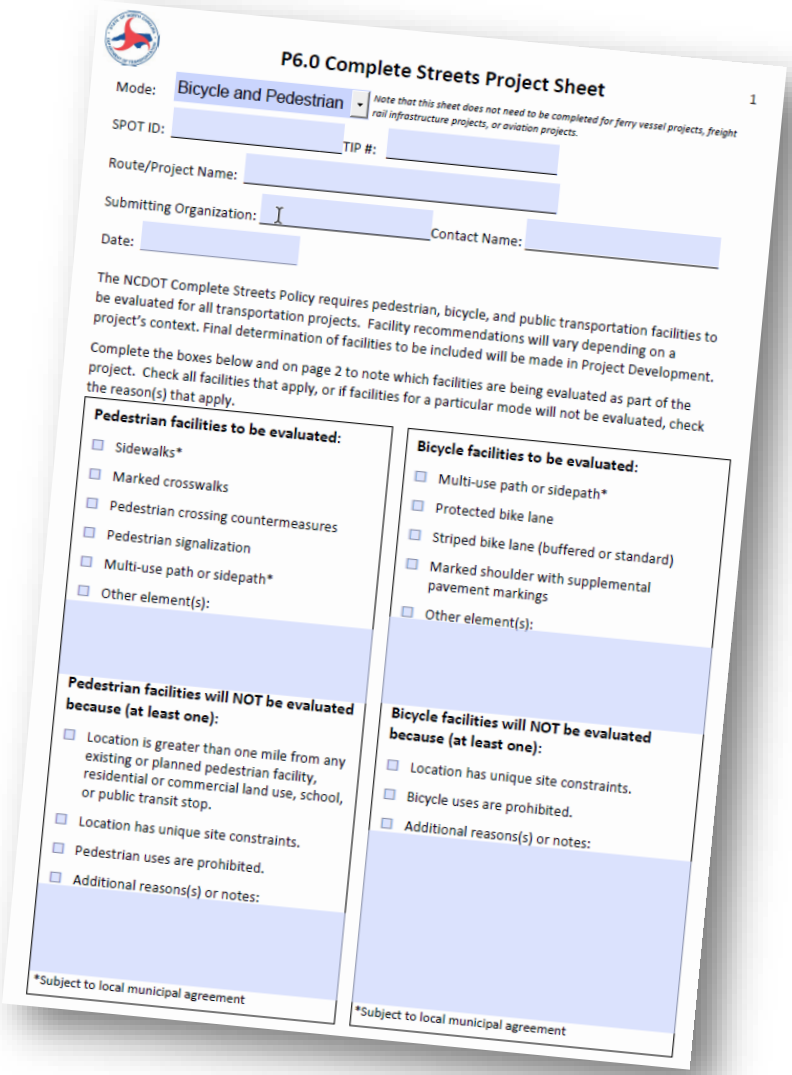
What's New? Documentation

Complete Streets Project Sheet

- Comprehensive Transportation Plans
- Strategic Prioritization 6.0
- Key Document in ATLAS Workbench

Policy Exceptions

- Unique site constraints
- Distance from existing/planned facilities
- Bike/Peds prohibited
- No existing/planned transit service
- Evaluated by Complete Streets Review Team



P6.0 Complete Streets Project Sheet

Mode: Bicycle and Pedestrian — Note that this sheet does not need to be completed for ferry vessel projects, freight rail infrastructure projects, or aviation projects.

SPOT ID: TIP #:

Route/Project Name:

Submitting Organization: Contact Name:

Date:

The NCDOT Complete Streets Policy requires pedestrian, bicycle, and public transportation facilities to be evaluated for all transportation projects. Facility recommendations will vary depending on a project's context. Final determination of facilities to be included will be made in Project Development.

Complete the boxes below and on page 2 to note which facilities are being evaluated as part of the project. Check all facilities that apply, or if facilities for a particular mode will not be evaluated, check the reason(s) that apply.

Pedestrian facilities to be evaluated:

- Sidewalks*
- Marked crosswalks
- Pedestrian crossing countermeasures
- Pedestrian signalization
- Multi-use path or sidepath*
- Other element(s):

Pedestrian facilities will NOT be evaluated because (at least one):

- Location is greater than one mile from any existing or planned pedestrian facility, residential or commercial land use, school, or public transit stop.
- Location has unique site constraints.
- Pedestrian uses are prohibited.
- Additional reasons(s) or notes:

*Subject to local municipal agreement

Bicycle facilities to be evaluated:

- Multi-use path or sidepath*
- Protected bike lane
- Striped bike lane (buffered or standard)
- Marked shoulder with supplemental pavement markings
- Other element(s):

Bicycle facilities will NOT be evaluated because (at least one):

- Location has unique site constraints.
- Bicycle uses are prohibited.
- Additional reasons(s) or notes:

*Subject to local municipal agreement

What's New? Linking Planning and Project Development

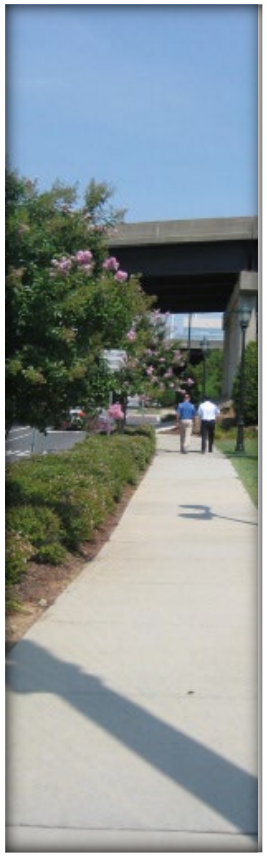
- **Project in adopted plan**
  - CTP primary
- Project scoping and development
- Bridge replacements and refurbishments
- Equal or better performance of a facility

What's New? Cost Share

NCDOT

- Pedestrian Facility
- Bicycle Facility
- Side Path
- Greenway Crossing
- Bus Pull Out
- Bus Stop (pad only)

In Plan	• NCDOT pays full cost
Not in Plan, but Need Identified	• Cost Share
Betterment	• Local pays full cost



NCDOT

What's New? Resurfacing and Maintenance Process

- Coordination between NCDOT's Operations Program Management Unit and Integrated Mobility Division
- Consistent roadway resurfacing procedures with local governments
- Process documentation currently underway

Belmont

Map data © 2014, Google, North Carolina

Charlotte

FHWA / Ken Tippette, City of Charlotte

Action Plan

Launch Internal and External Training

Establish Metrics And Reporting

Roadway Design Manual Update

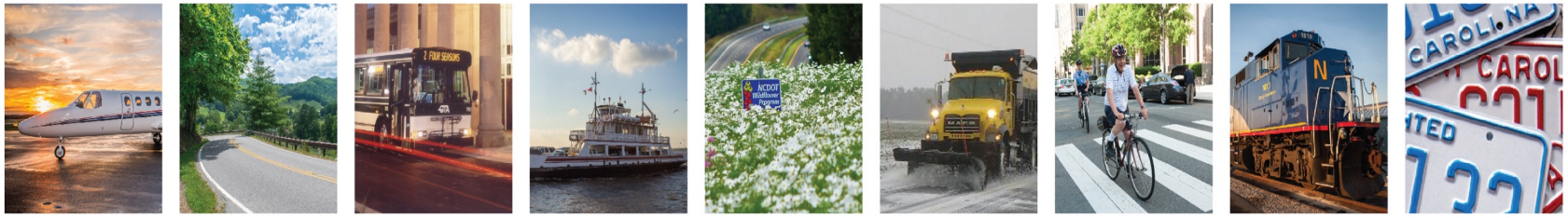
Name Complete Streets Coordinator

Identify Additional Policy Revisions

Structures Management Policy Update

Maintenance Process Documentation

NORTH CAROLINA
Department of Transportation



Complete Streets Policy Update: What You Need to Know

2020

French Broad River MPO Orientation

REGIONAL TRENDS & CHALLENGES

French Broad River MPO Orientation

MAJOR PROJECTS

828.251.6622 | mpo@landofsky.org

FRENCH BROAD RIVER
METROPOLITAN PLANNING ORGANIZATION

ABOUT | PROGRAMS | PLANS | AGENDAS AND MINUTES | RESOURCES | CONTACT US

- Data and Maps
- Major Projects
- Recent Events and Resources
- UPWP (Budget)
- Governance and Policies
- FAQ

Major Projects

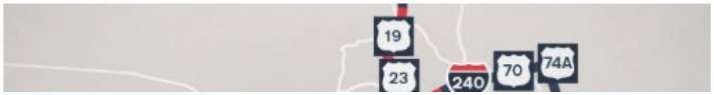
Home / Major Projects

These are some of the ongoing projects presenting regional impacts and a link to regularly updated NCDOT project pages. Contact us for updates on other projects.

I-26 Widening

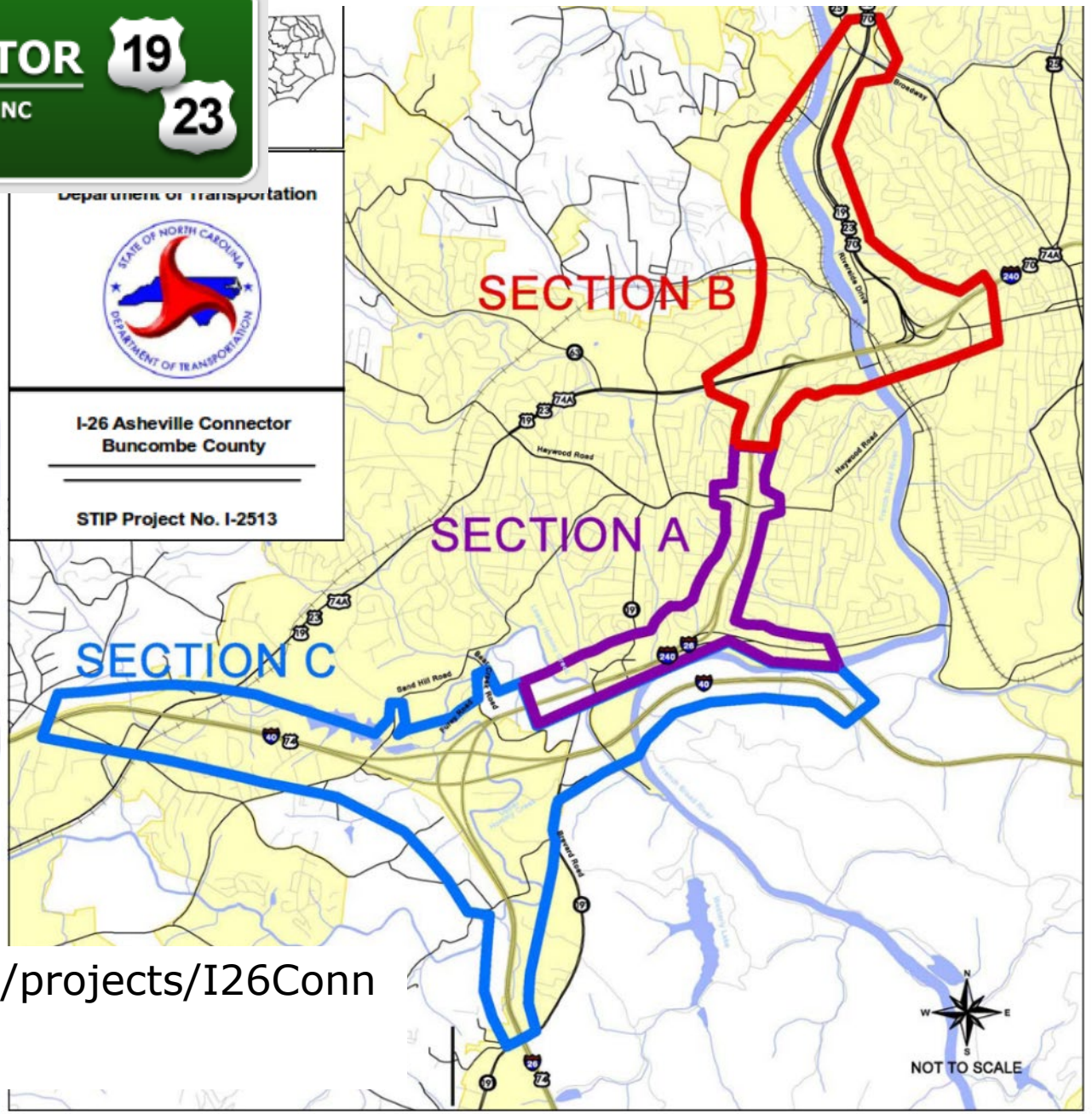
Description: Planning, development, and construction is underway on approximately 22.2 miles of I-26 from U.S. 25, near Hendersonville, to I-40/240, south of Asheville.

Project Page »



On the MPO website

I-26 Connector



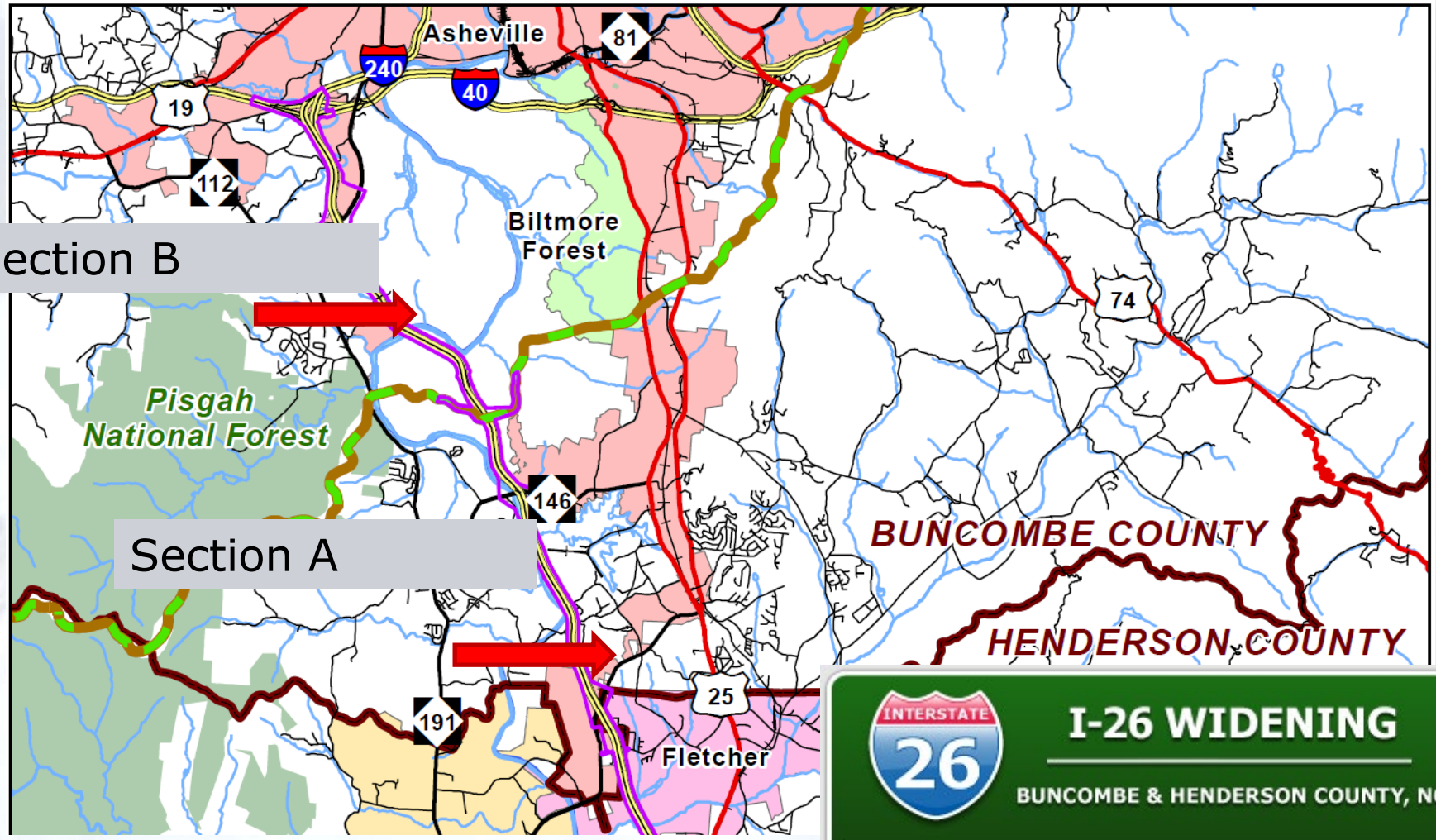
https://www.ncdot.gov/projects/I26Connector/

I-26 Connector (I-2513)

I-4700 – I-26 Widening – 7.8 MI Total - $263 M

Section A: NC 280 (Ex 40) to NC 146 Long Shoals Rd

Section B: NC 146 Long Shoals Road (Ex 37) to I-40

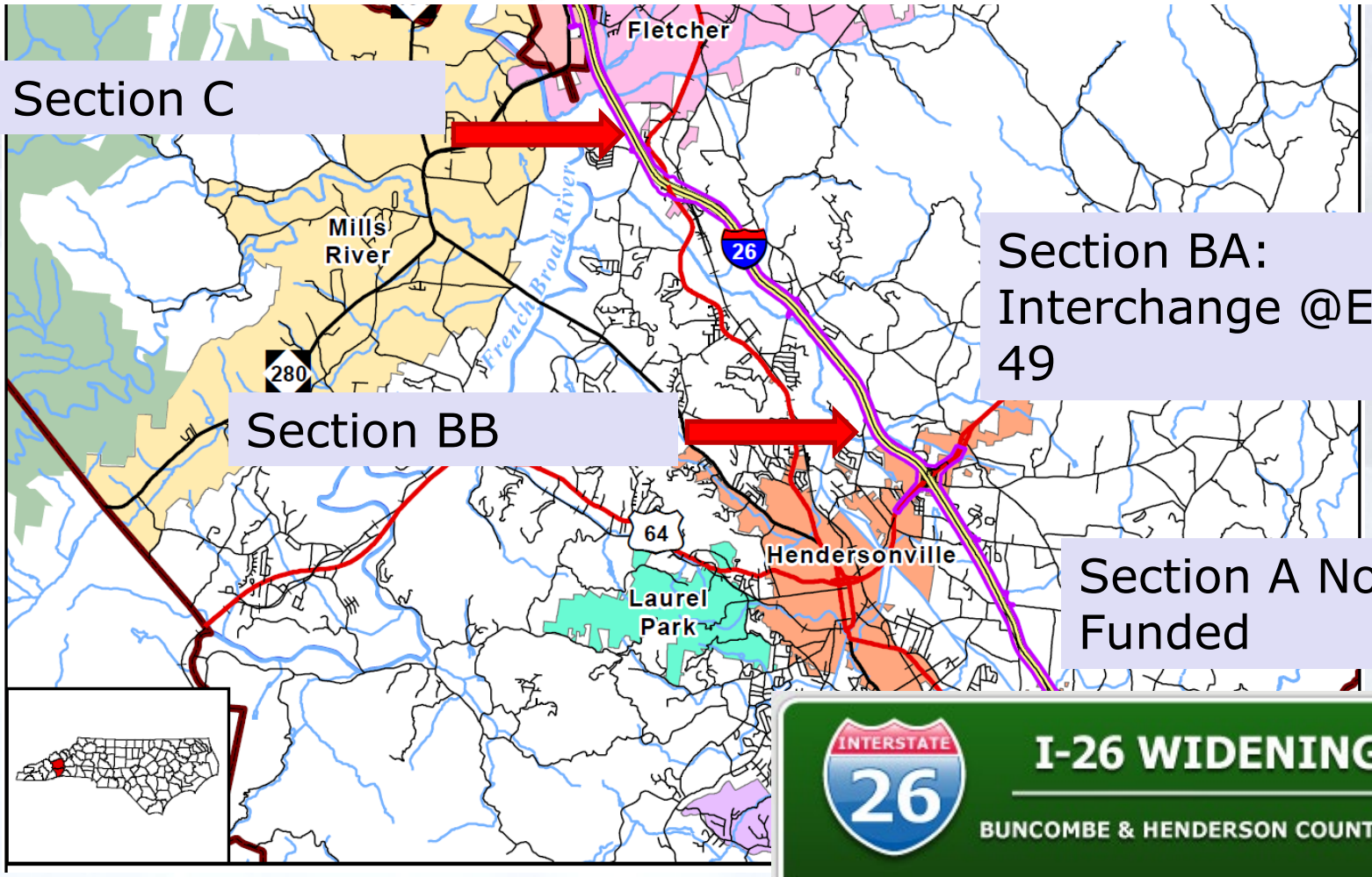


I-4400 – 9.1 Mi - $ 271M

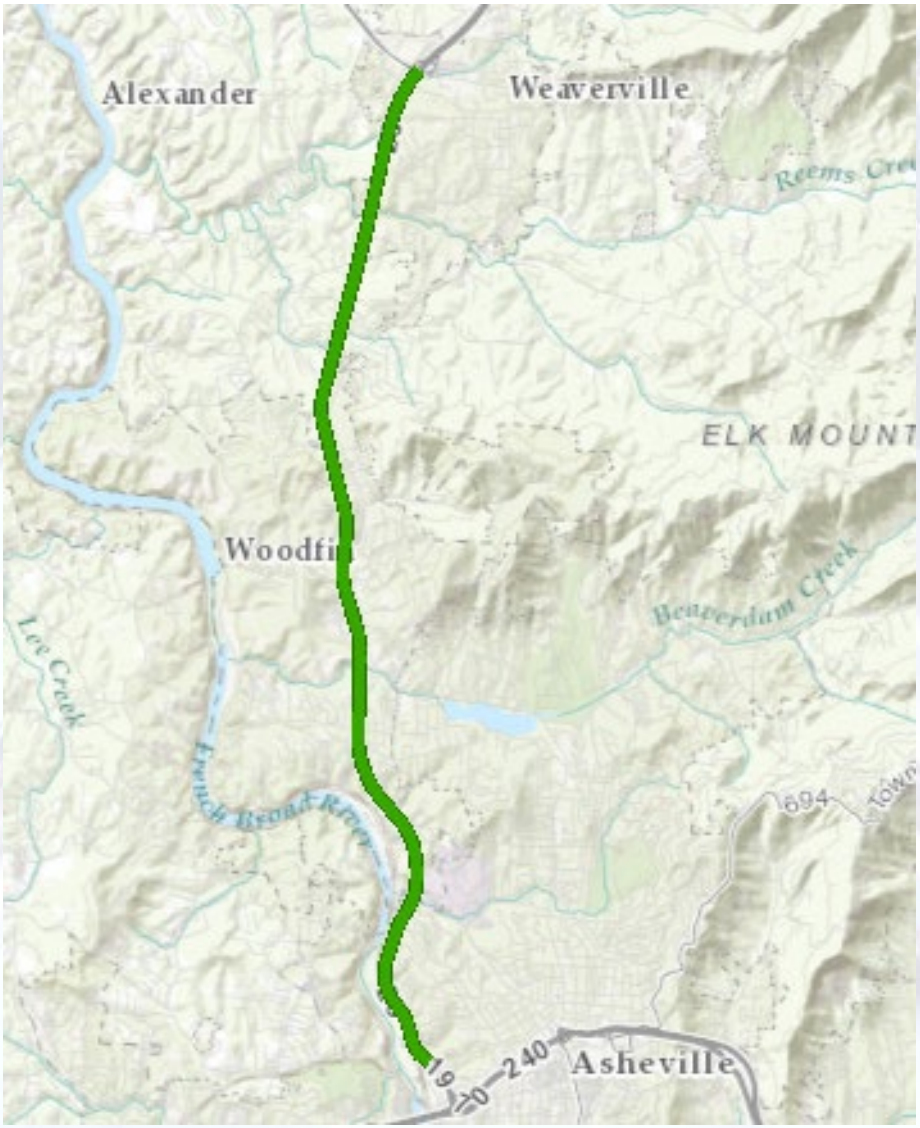
Section C: US 25 BUS (Ex 44) to I-40 (Ex 40) Funded, CST in 2019;

Section BB: US 64 (Ex 49 to US 25 BUS(Ex 44) Funded; CST in 2019

Section BA: Interchange @US 64 (Exit 49), CST in 2025



A-0010 AA Future I-26 Widening: Broadway to US 25



- **ESTIMATED PROJECT COST**: $151,000,000
- **PRIORITIZATION STATUS**: Regional Impact Tier/ Committed
- **CONSTRUCTION START DATE**
- *Delayed May 2020*

  2024 ROW

  2027 CST

I-4759 Liberty Road Interchange

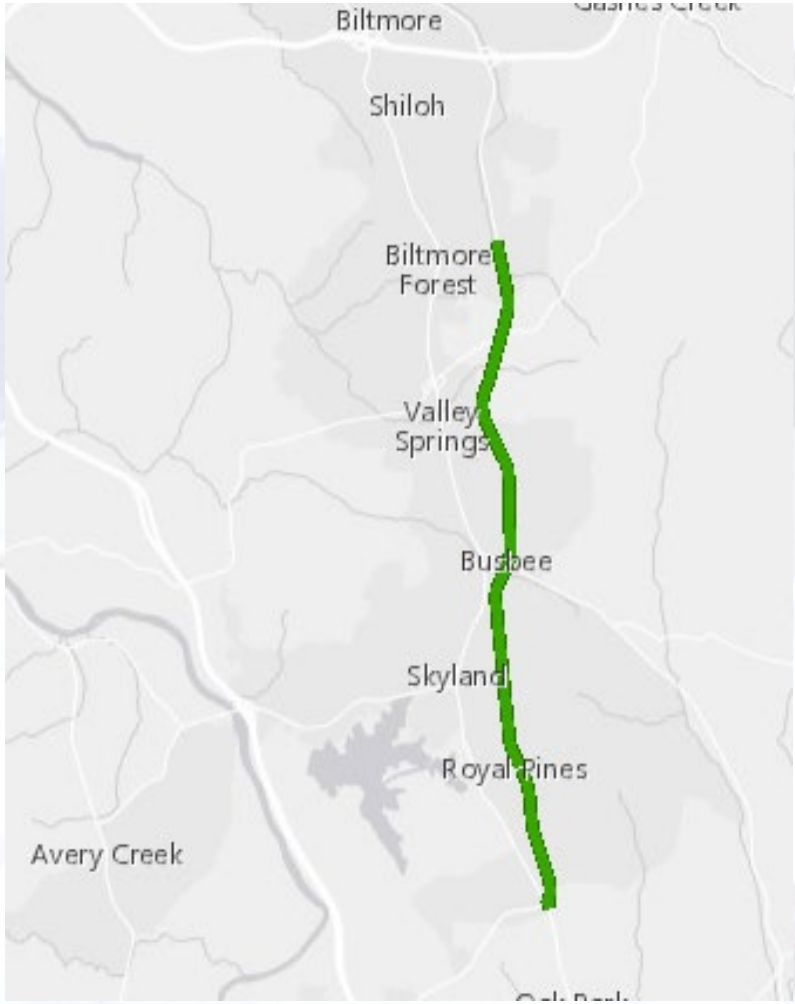
I-4409, Blue Ridge Road Interchange

Downtown Black Mountain (Ex. 64)

Ingles Market

Proposed Blue Ridge Road Interchange

U-2801 Sweeten Creek Road Widening (US 25 to Rock Hill)

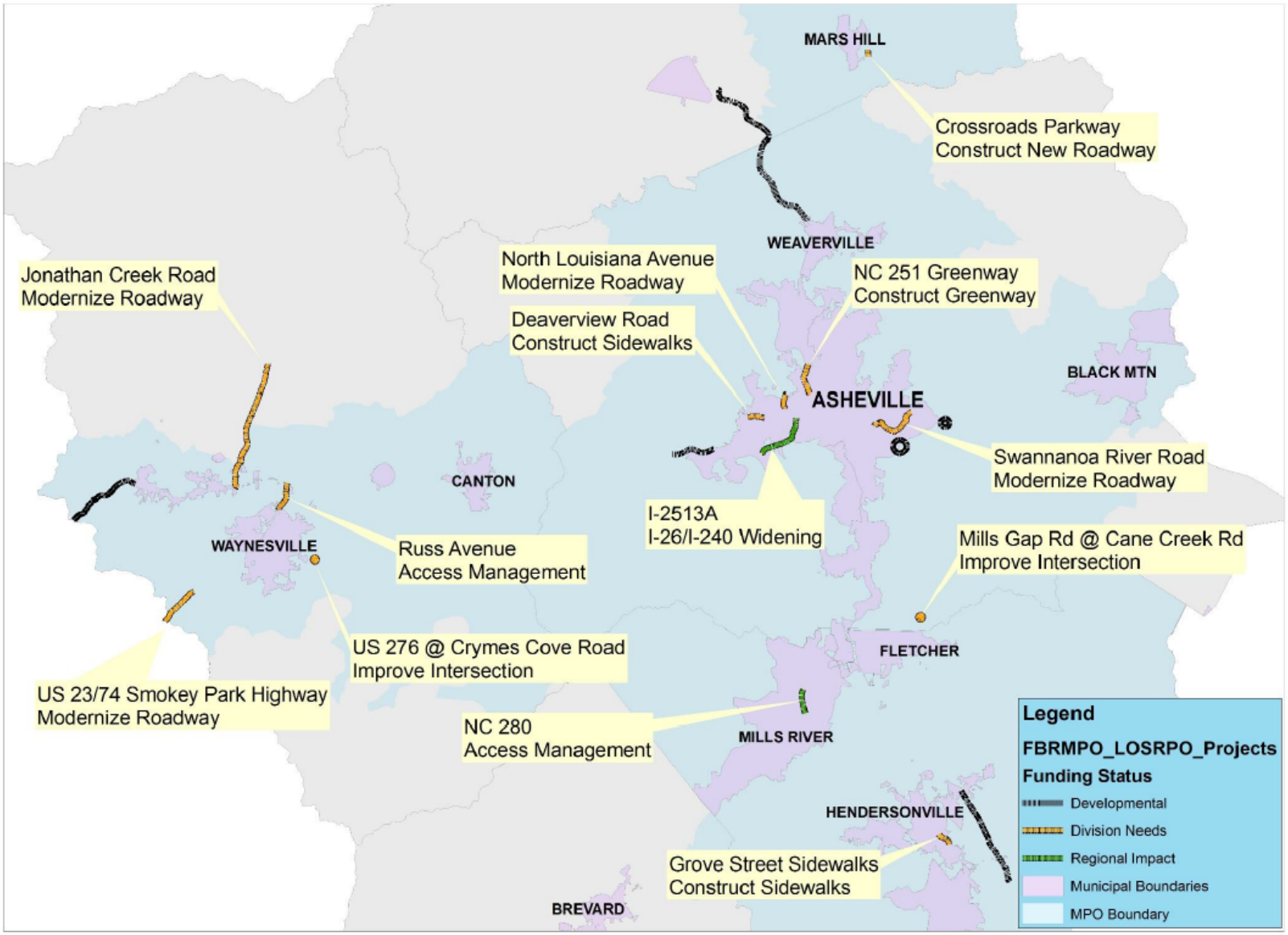


- **LOCAL GOVERNMENTS**: Buncombe County, City of Asheville
- **ESTIMATED PROJECT COST**: $49.5 million
- **PRIORITIZATION STATUS**: Regional Impact Tier/ Committed
- **AGENCY RESPONSIBLE**: NCDOT Division 13
- **CONSTRUCTION EXPECTED START DATE:**
- 2023 (ROW 2021)

U-3403B NC 191 Widening Ledbetter to Blue Ridge Parkway

- **LOCAL GOVERNMENTS**: Buncombe County, City of Asheville
- **ESTIMATED PROJECT COST**: $22,100,000*
- **PRIORITIZATION STATUS:** Regional Impact Tier, Committed after SPOT 4
- **AGENCY RESPONSIBLE**: NCDOT Division 13
- **CONSTRUCTION EXPECTED START DATE**:
- 2024 (ROW in 2027)

FBRMPO Projects Funded in P 5.0



NC-280 ACCESS MANAGEMENT

FROM NC 191 TO NC 191

LOCAL GOVERNMENTS DIRECTLY IMPACTED: TOWN OF MILLS RIVER, HENDERSON COUNTY

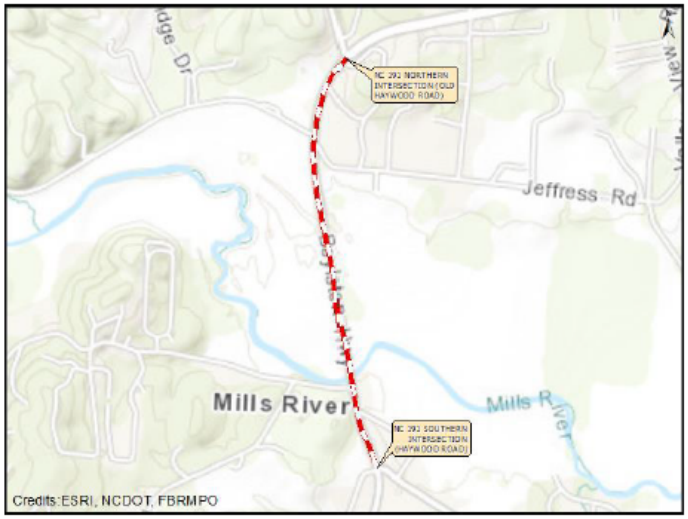
PRIMARY GOALS	SECONDARY GOALS
Improve Safety	Address Congestion and Bottlenecks
Improve Non-Motorized Transportation	Improve Safe Freight Movements

Project Submitted By: NCDOT Division 14

NCDOT Division Local Input Points: Yes

FBRMPO Local Input Points: Yes

Funding Tier: Regional Impact



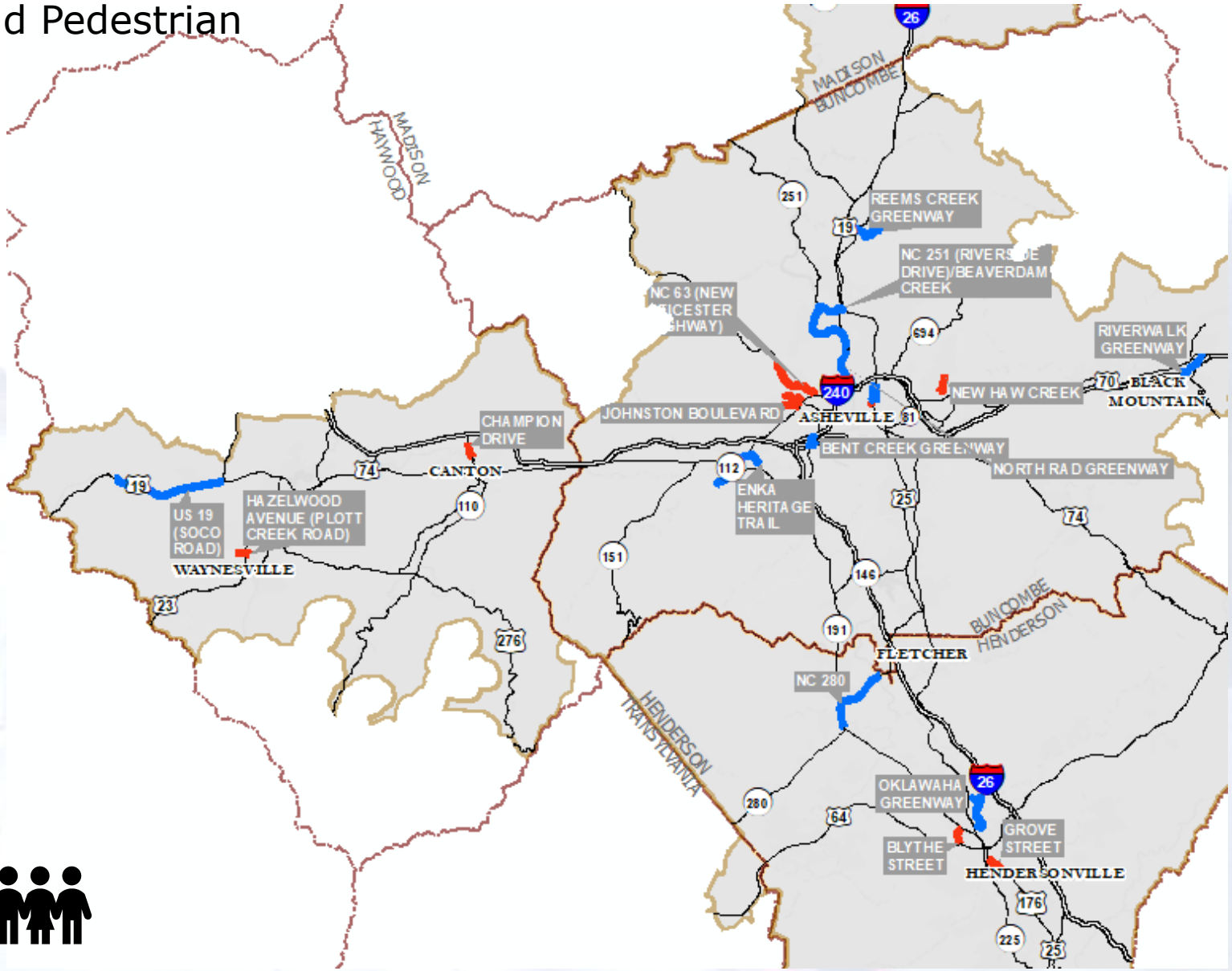
Previous Planning Efforts

- FBRMPO Comprehensive Transportation Plan
- FBRMPO Congestion Management Process (2018) recommends access management (a median) and bike/ped accommodations
- The NC 280 Multi Use Path Feasibility Study
- Blue Ridge Bike Plan

Multimodal Expectations

- Multi-Use Path for the length of the project on the north side of the roadway
- No fixed-route transit service currently
- Potential for sidewalks on the south side of the roadway
- Access Management (i.e., median)

Bicycle and Pedestrian Projects*

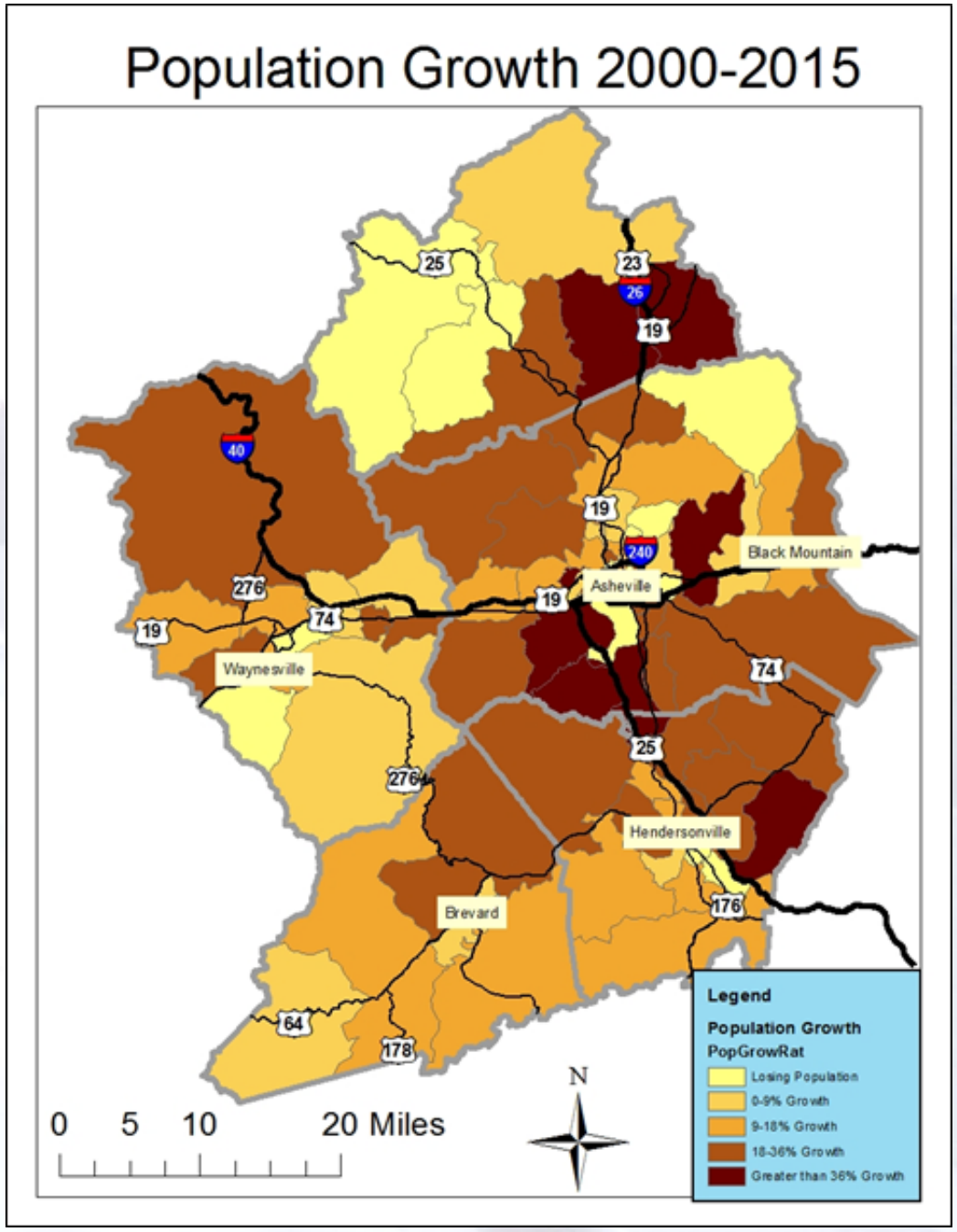


*List of standalone projects – not including ones as part of highway projects

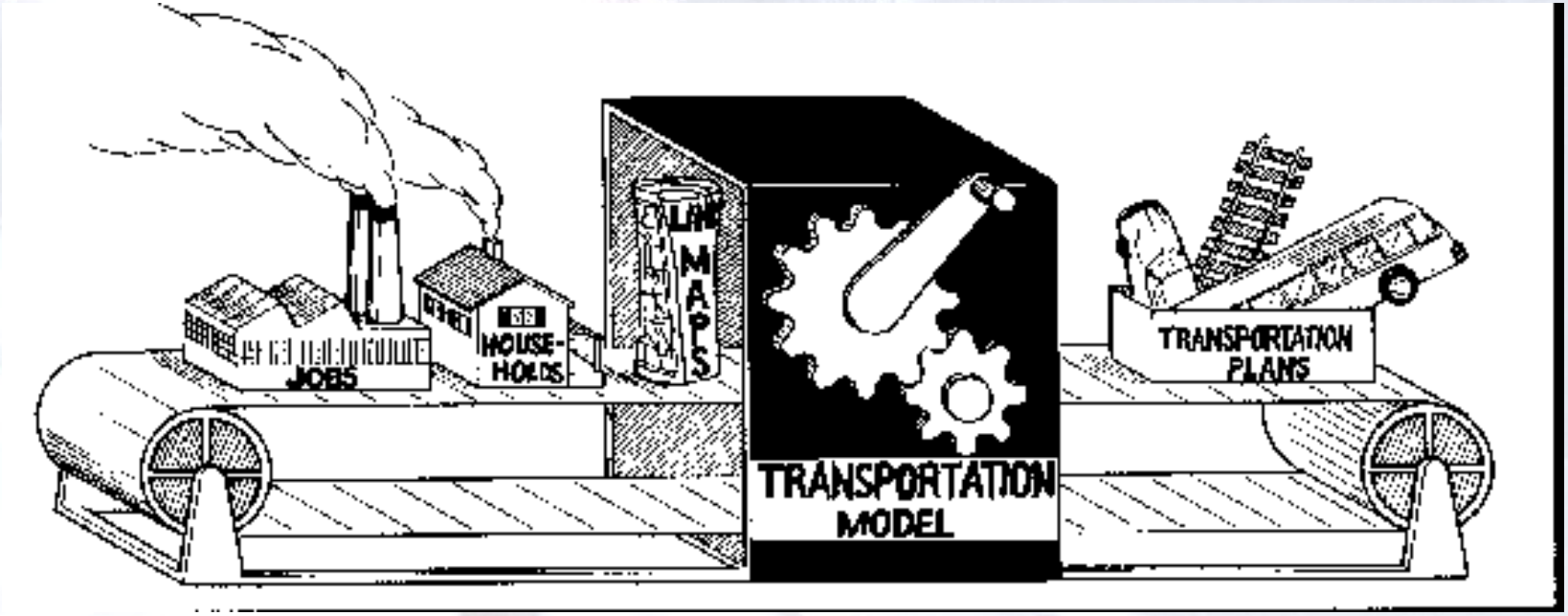
French Broad River MPO Orientation

GROWTH & DEVELOPMENT

We Are a Growing Region

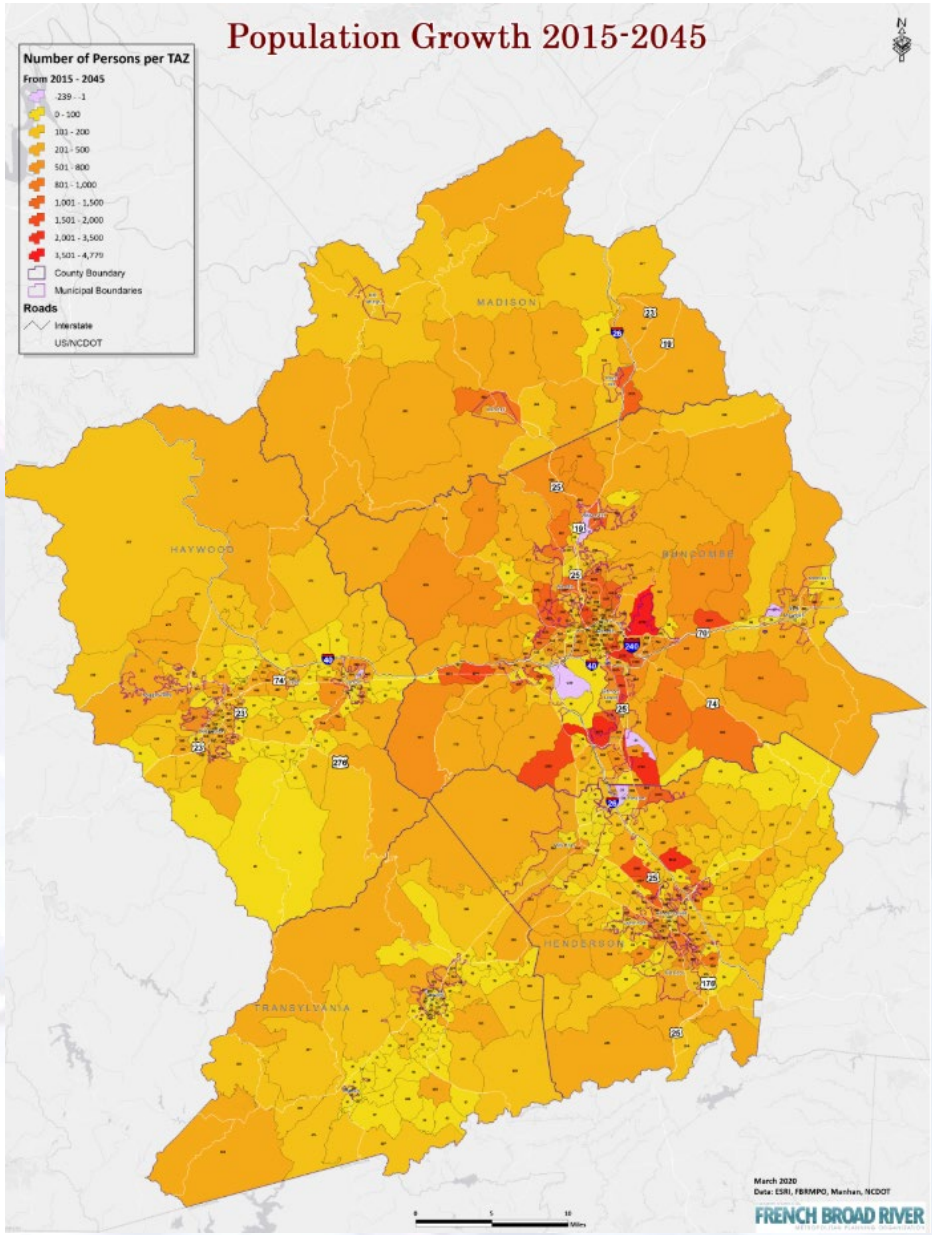


Growth & Development



2045 Projections

- Anticipate Continued Growth
- MPO Adopted the Growth Scenario in January, 2020
- Three Scenarios Offered, One Selected as the Region's Preferred Growth Scenario

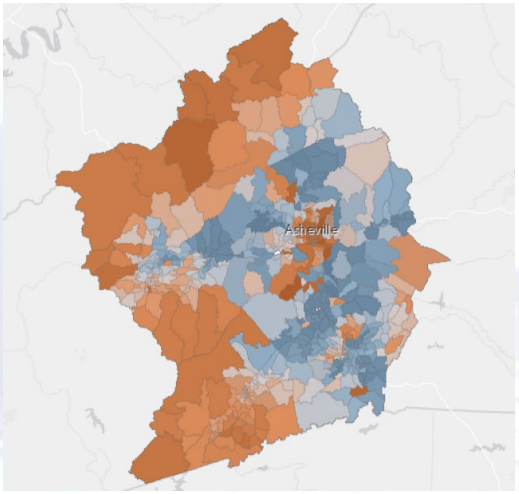


Projected Growth

Household Population		
County/City	**Year 2015 Base**	**2045 Preferred Growth Scenario**
BUNCOMBE	247,277	352,887
HAYWOOD	59,812	84,917
HENDERSON	110,993	153,454
MADISON	19,754	26,146
TRANSYLVANIA	32,676	42,282
Grand Total	**470,513**	**659,686**

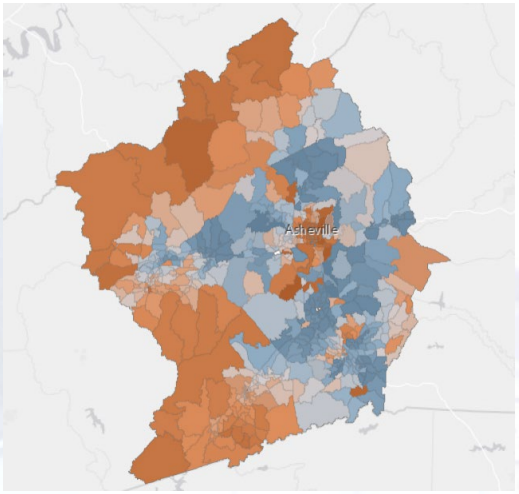
189,000 New Residents in 30 Years

Why Projections?



Pop & Emp Projections

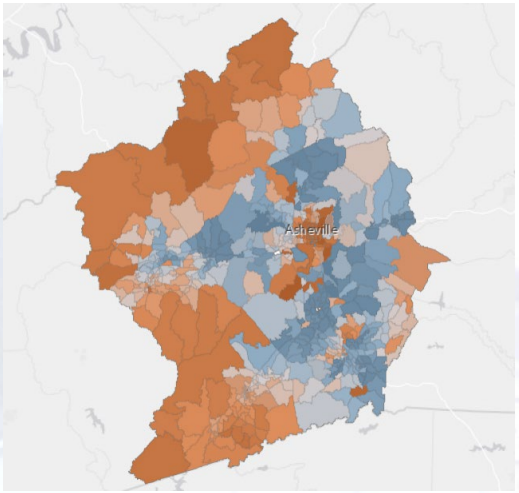
Why Projections?



Pop & Emp Projections

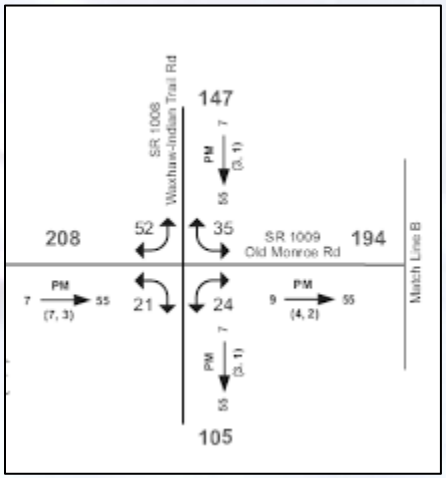
Travel Demand Model

Why Projections?



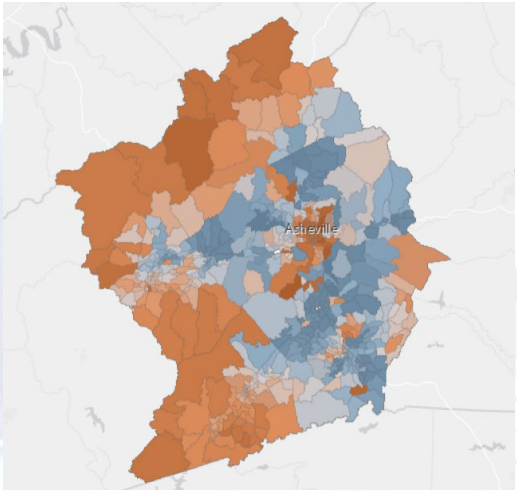
Pop & Emp Projections

Travel Demand Model



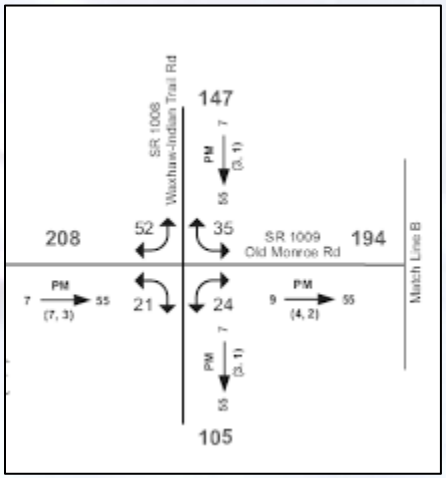
Traffic Forecasts

Why Projections?



Pop & Emp Projections

Travel Demand Model

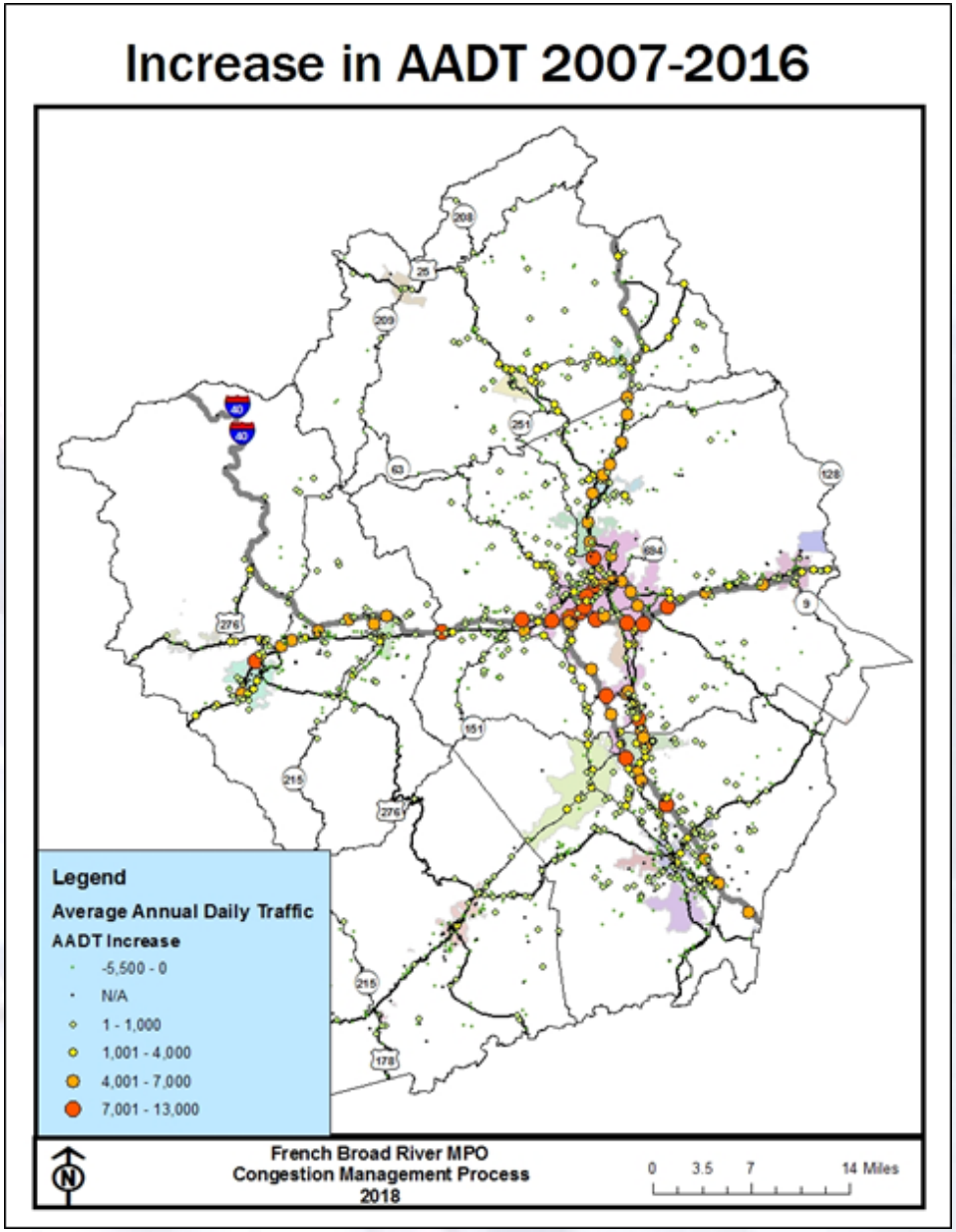


Traffic Forecasts

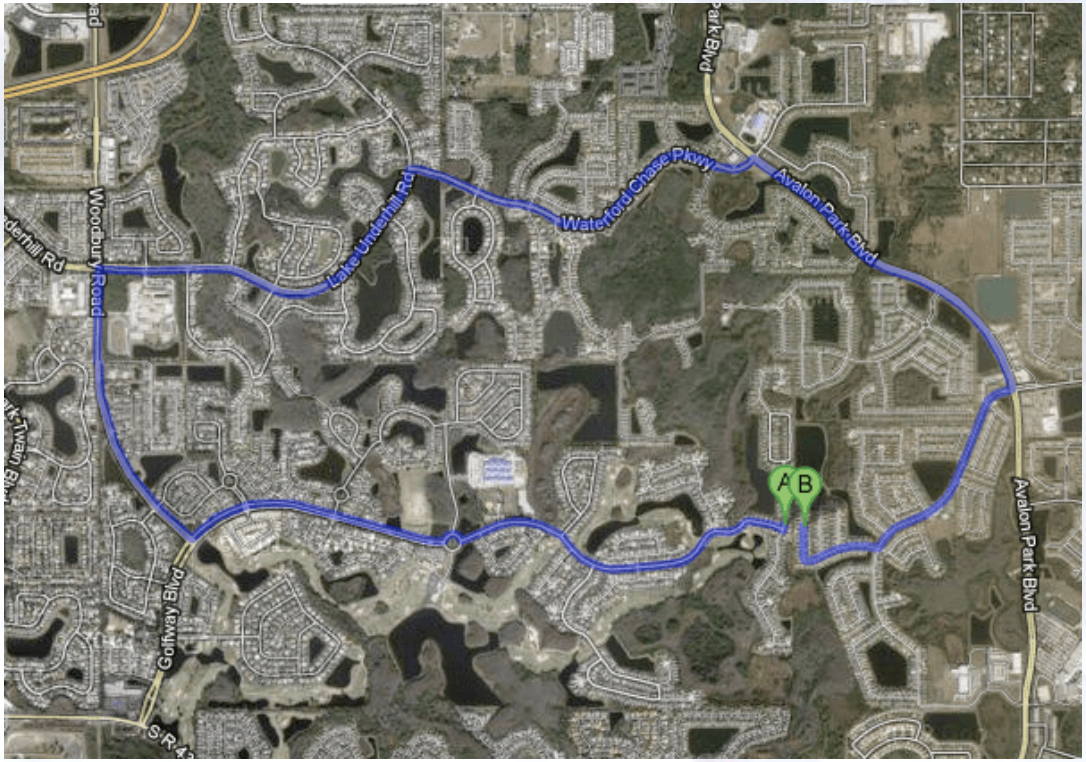
We Need More Lanes!

Traffic & Growth

Volumes are Increasing



Roadway Connectivity



Strongly Correlated With:

- Walkability
- VMT (inversely)
- Transit Access

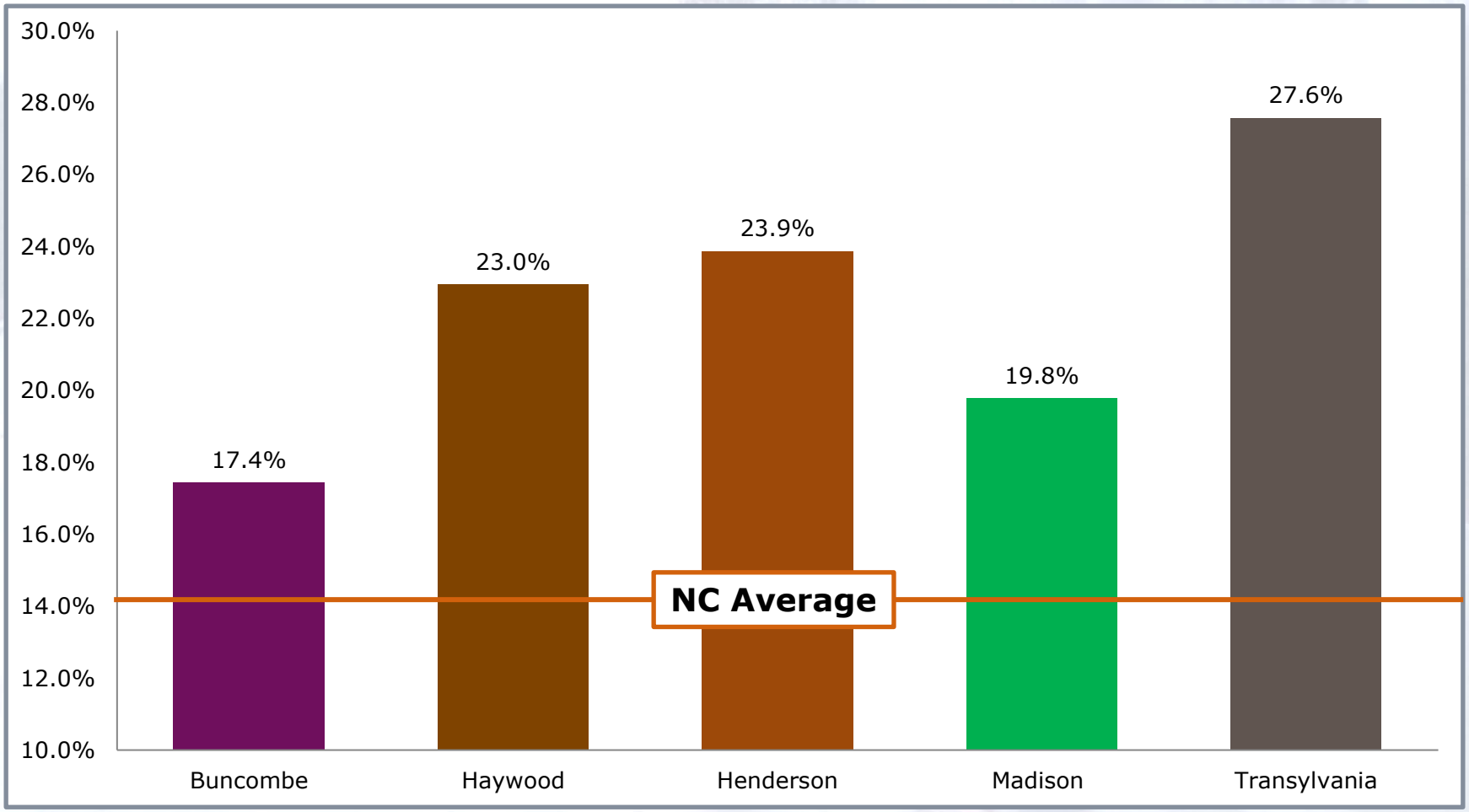
Roadway Connectivity

- What deals with congestion better?
- Spreading out residences and destinations?
- Or Dense Urban Environments?

Roadway Connectivity

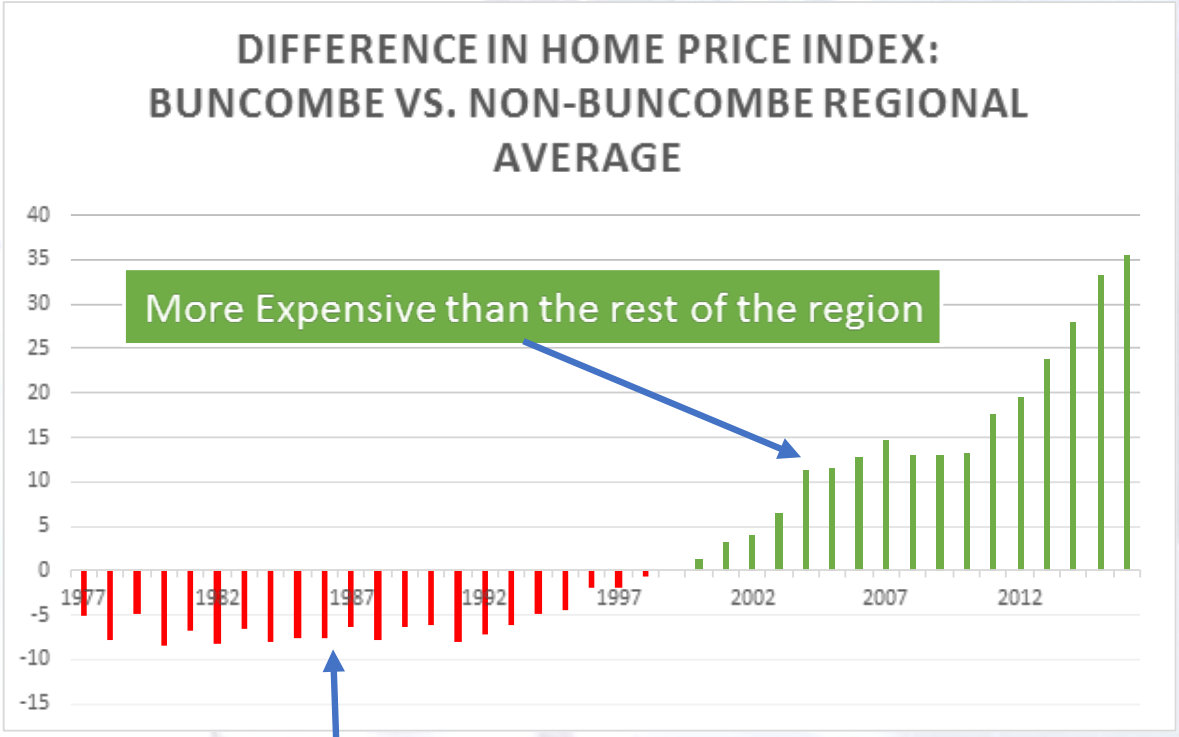
- What deals with congestion better?
- ~~Spreading out residences and destinations?~~
- ~~Or Dense Urban Environments?~~
  - **AREAS WITH GOOD ROADWAY CONNECTIVITY**

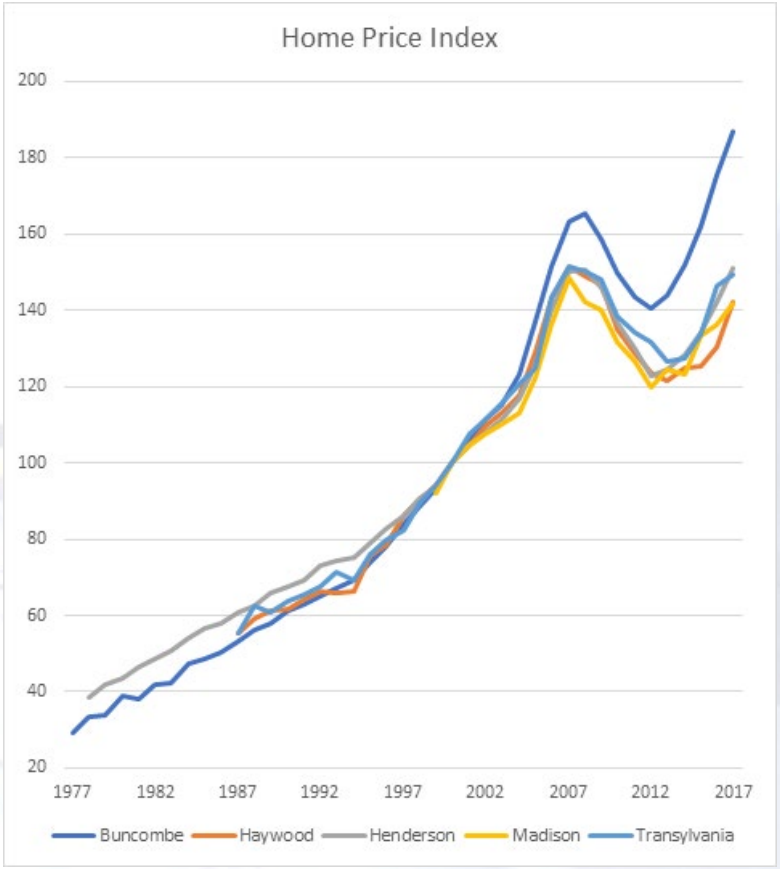
Regional Perspective



% of Residents 65 Years or More

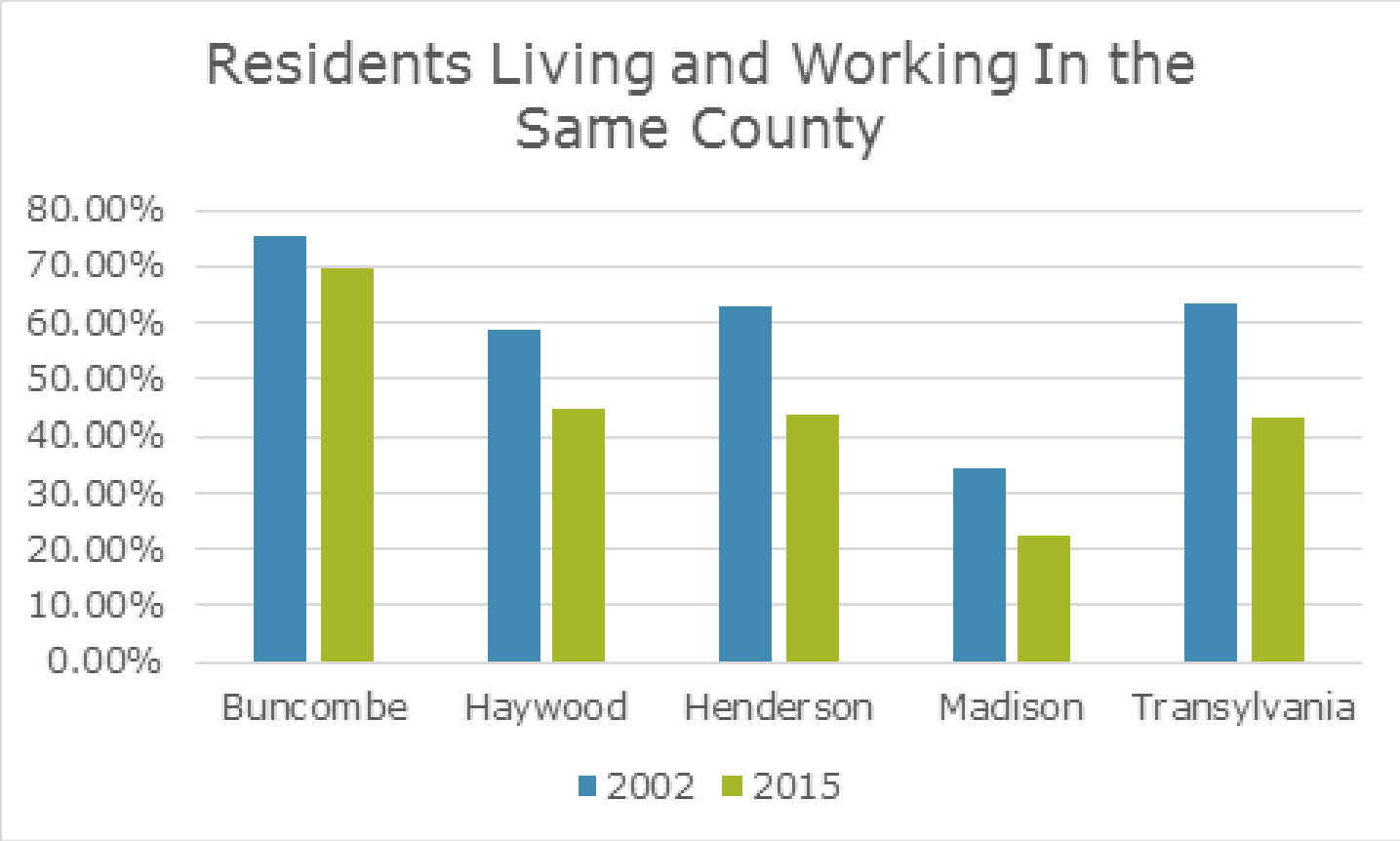
Home Prices are Rising





Home Prices Are Rising

Commuting is Changing

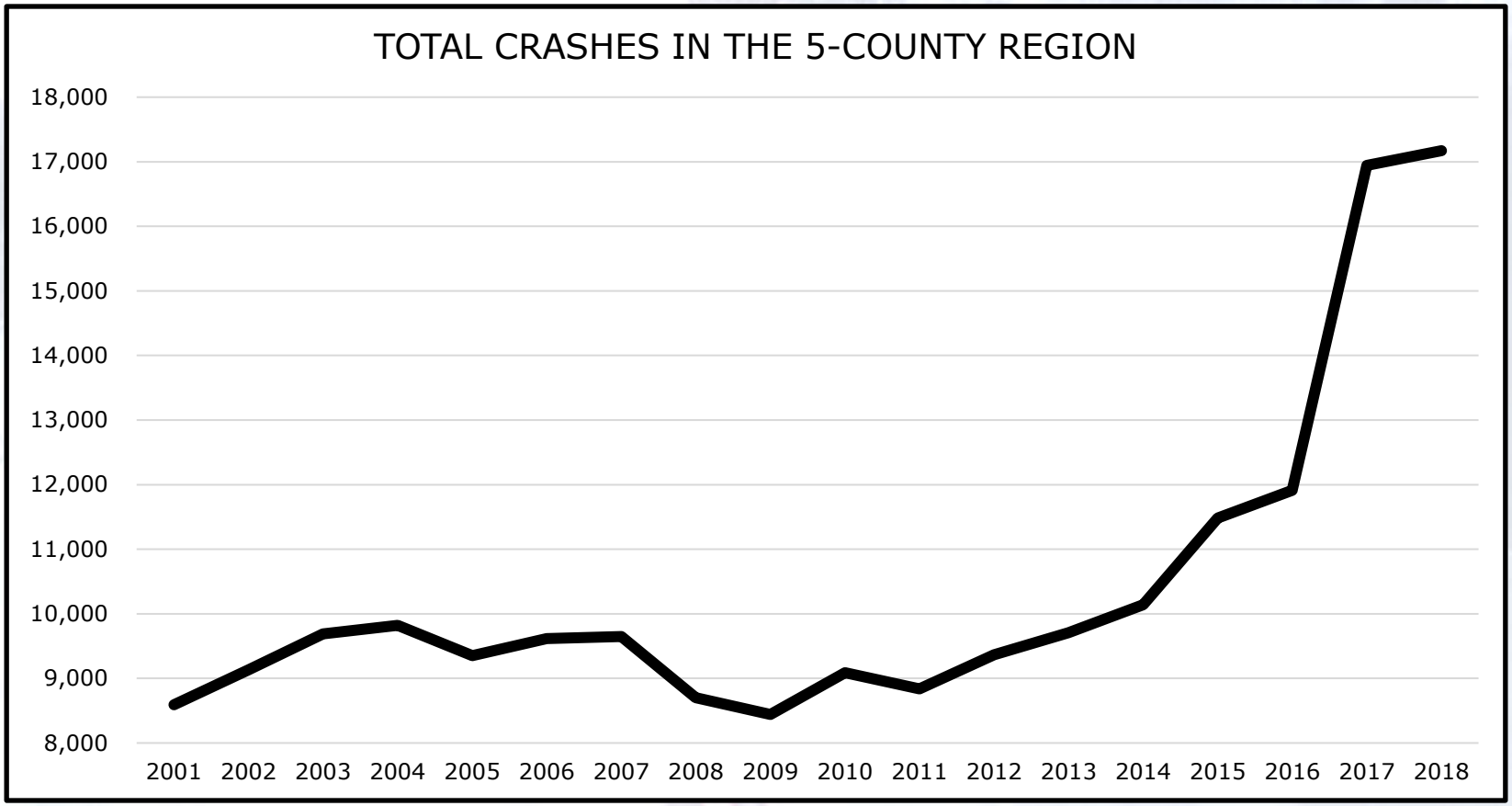


Telecommuting

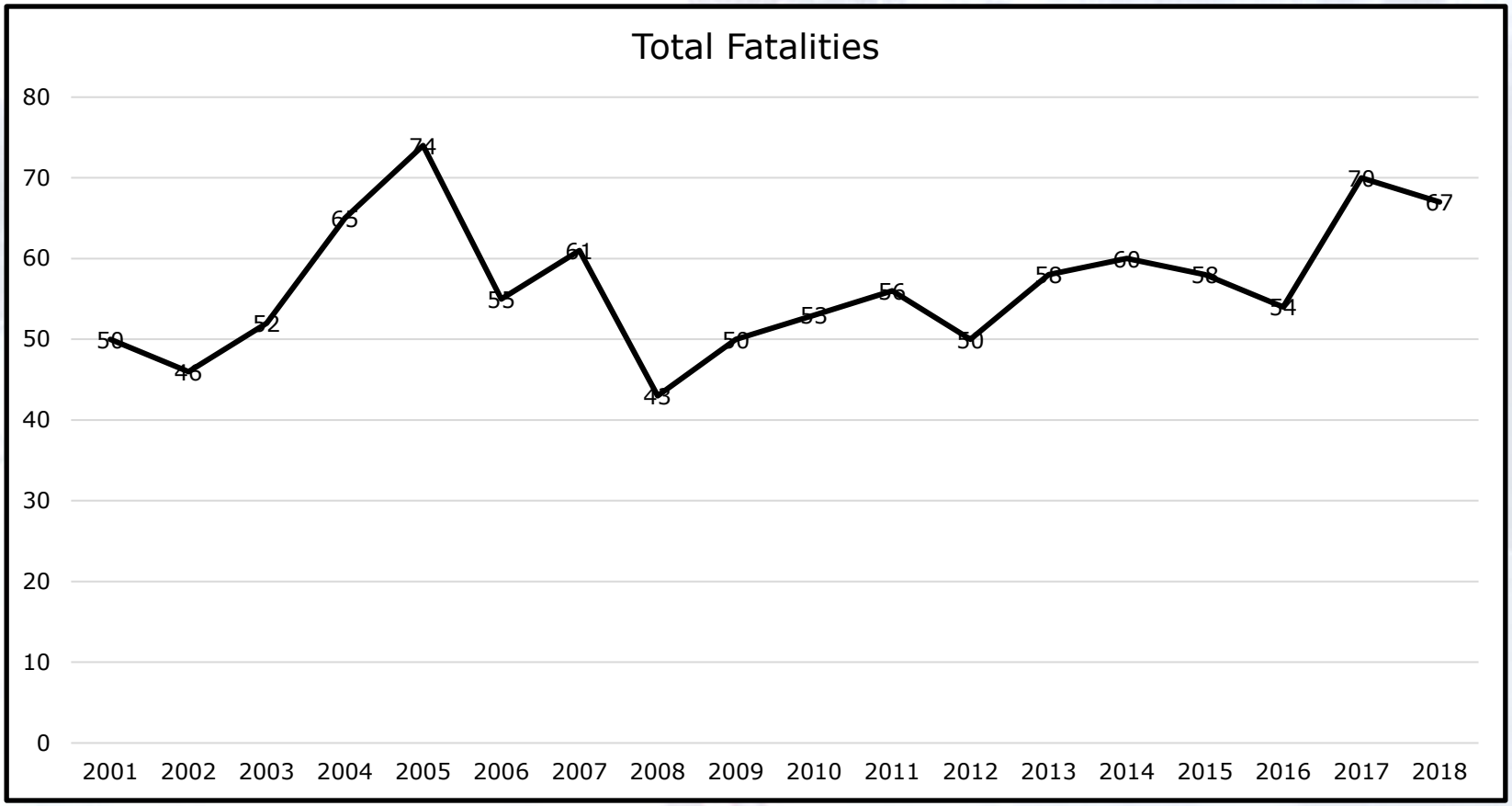
Asheville Metro Has The 6th Highest Percentage of Commuters in the USA

Metro Area	Percent of Workforce "Working from Home"
Boulder, Colorado	12.3%
Bend-Redmond, Oregon	11.5%
Fort Collins, Colorado	10.3%
Santa Fe, New Mexico	9.8%
Kingston, New York	9.5%
Asheville, North Carolina	*9.3%*

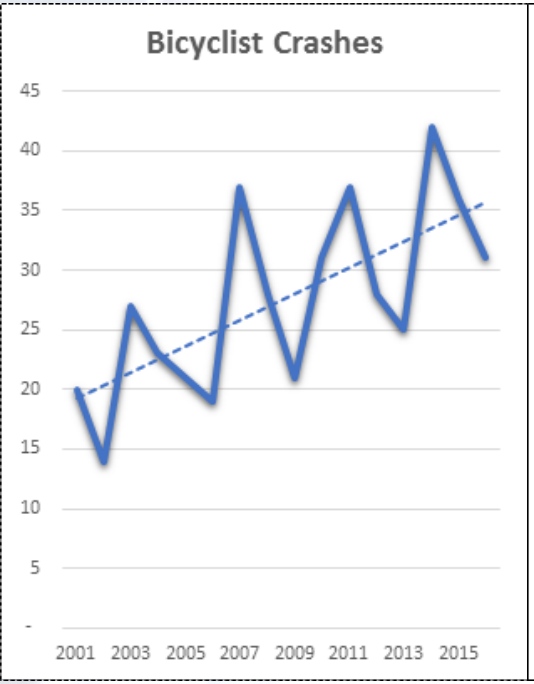
Crashes Are Increasing

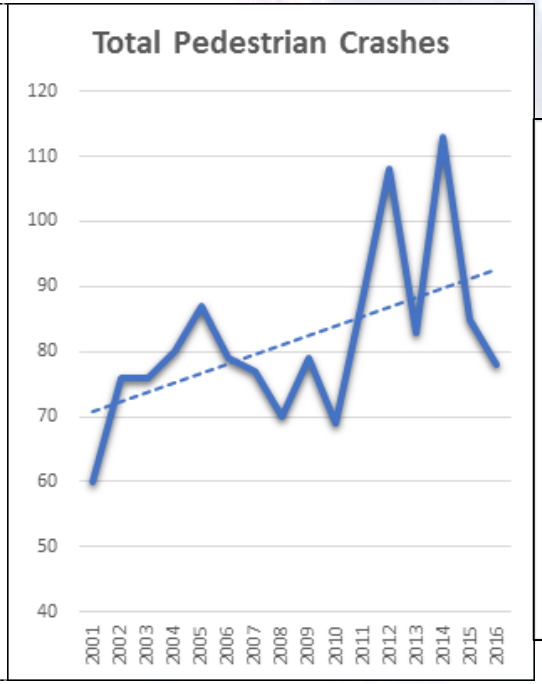


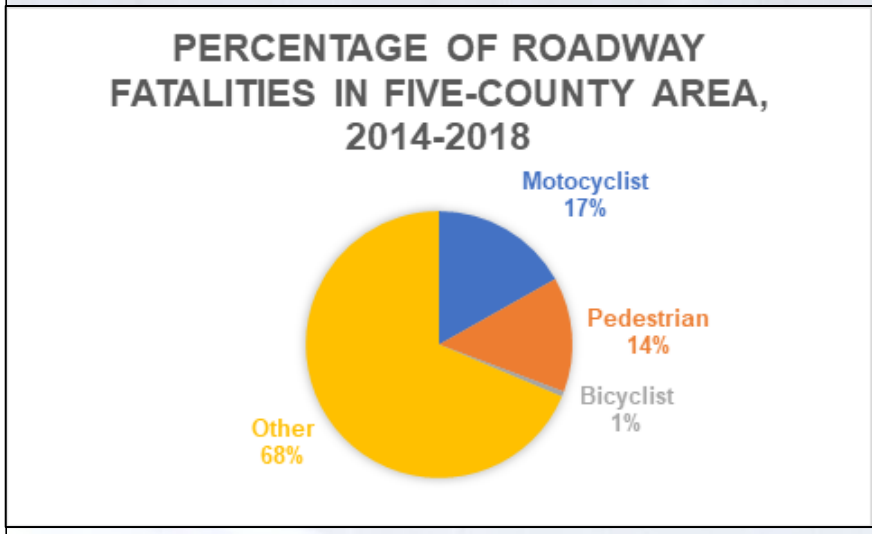
Roadway Fatalities Are *Slightly* Increasing



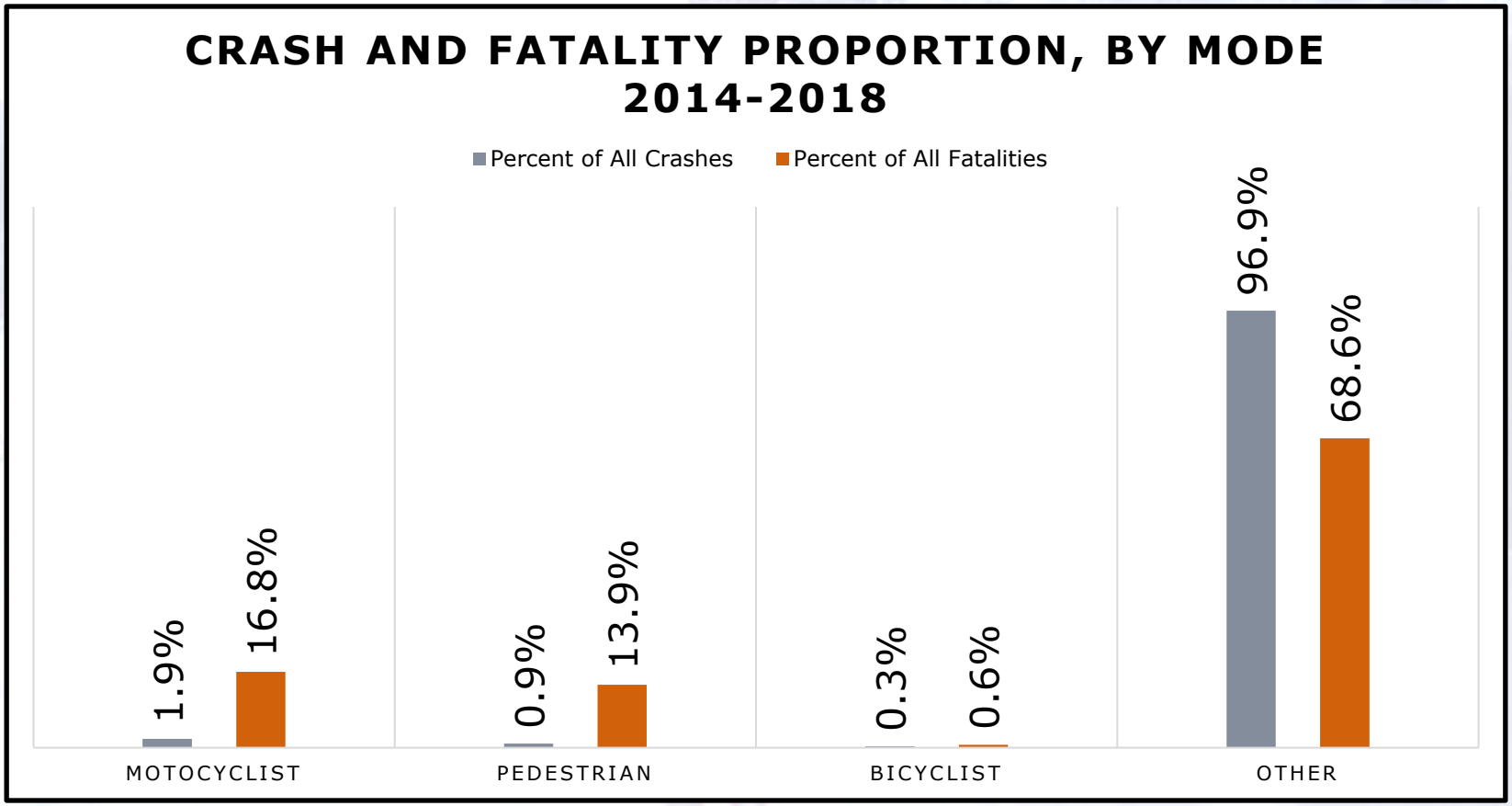
Vulnerable Users Aren't Doing Great in Our Region







Vulnerable Users



French Broad River MPO Orientation

PUBLIC TRANSIT & OTHER FUNDS

Transit Funding Works Differently

5307 (Urban Transit Formula Funds)

- Capital
- Operating
- Goes from FTA to the City of Asheville to Transit Operators

5311 (Rural Transit Formula Funds)

- Capital
- Operating
- Goes from FTA to NCDOT to Transit Operators

5310 (Seniors & Individuals w/Disabilities)

- Capital
- Operating
- Goes from FTA to the City of Asheville to Transit Operators/Non-Profits

Transit Funding Works Differently

5307 (Urban Transit Formula Funds)

- Capital
- Operating
- Public Transit Operators Eligible (unless funded by JARC)

$3,000,000

5311 (Rural Transit Formula Funds)

- Capital
- Operating
- Public Transit Operators Eligible (or designated non-profits)

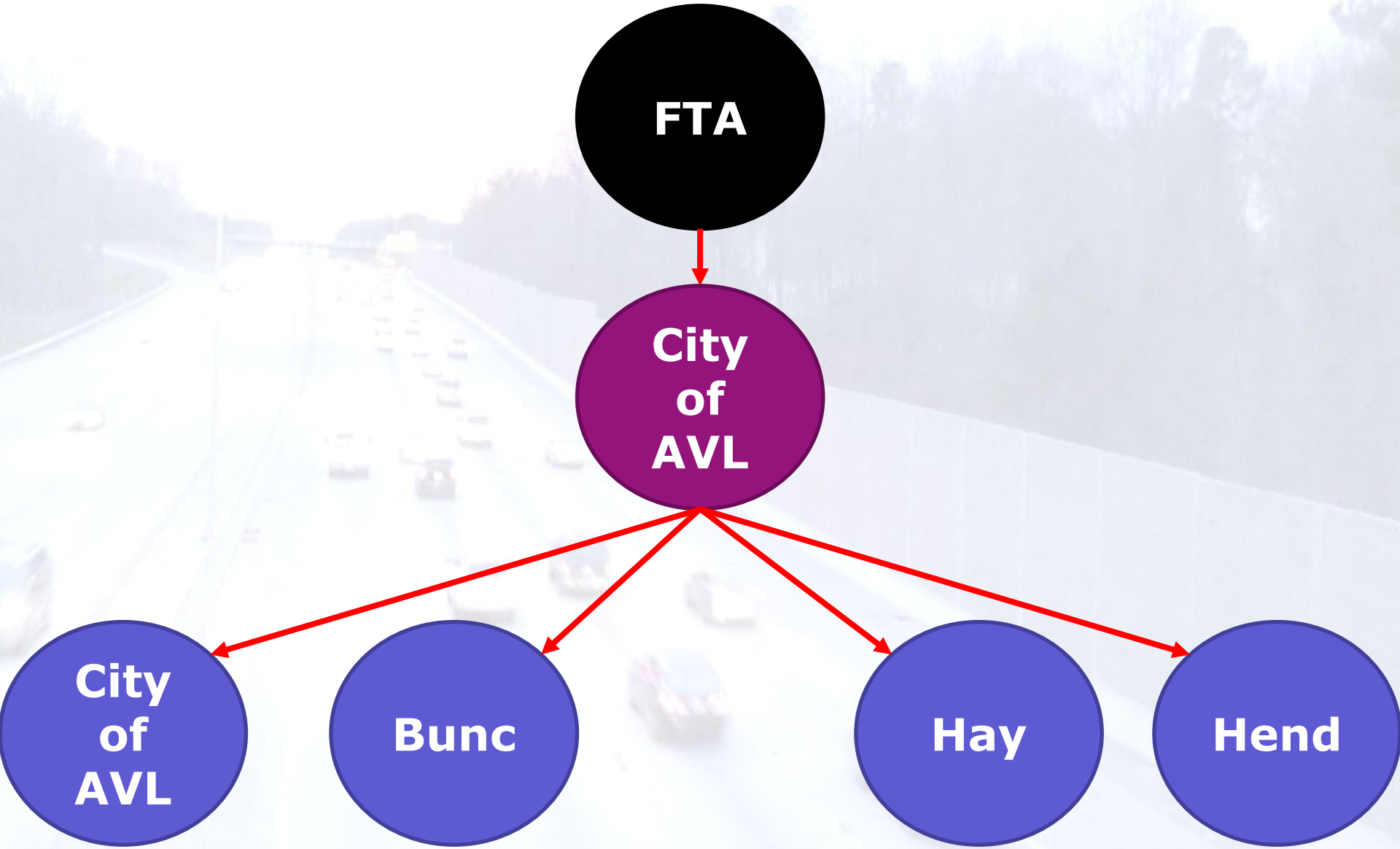
$33,000,000 (for all NC)

5310 (Seniors & Individuals w/Disabilities)

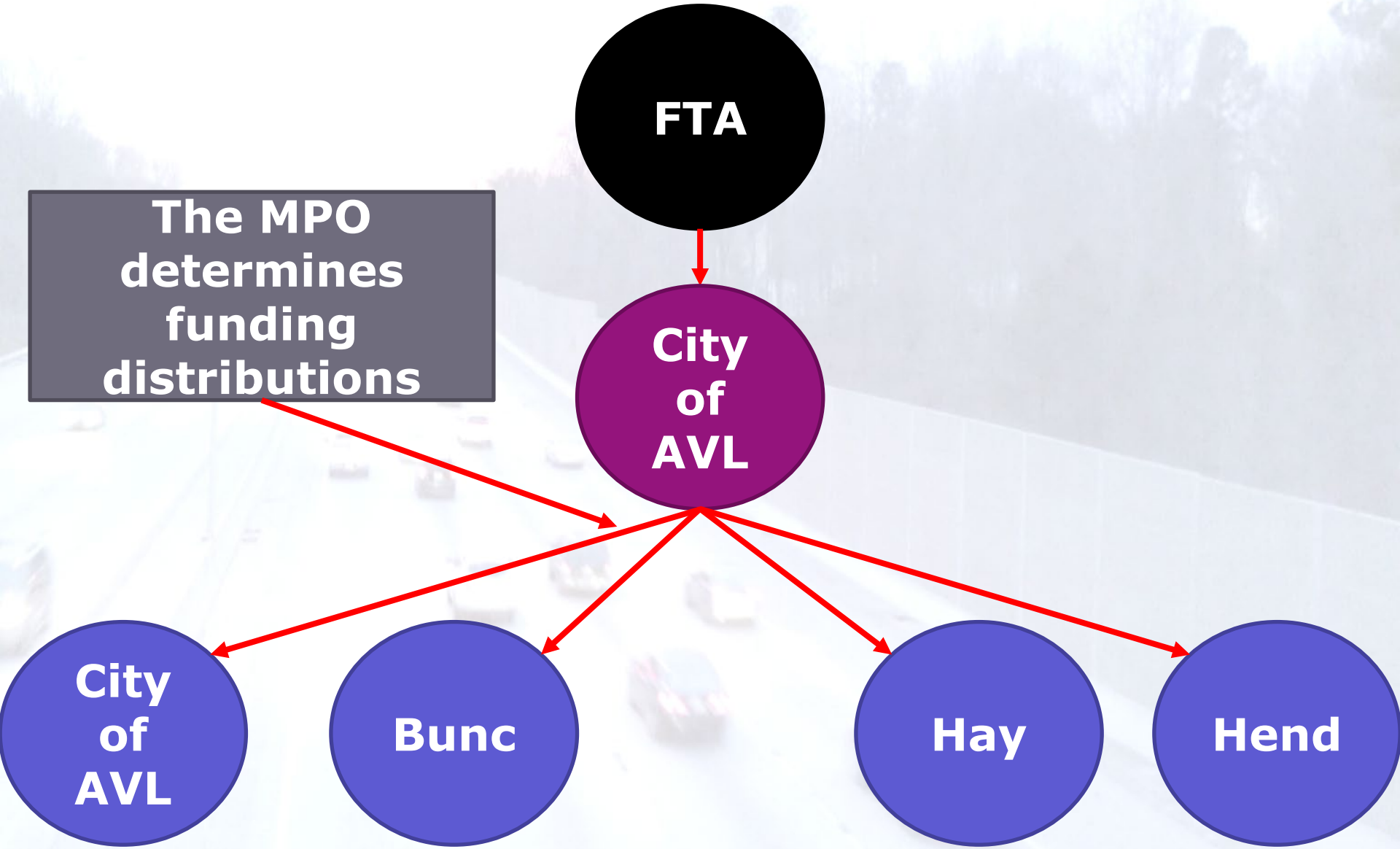
- Capital
- Operating
- Public Transit Operators or Non-Profits Eligible

$330,000

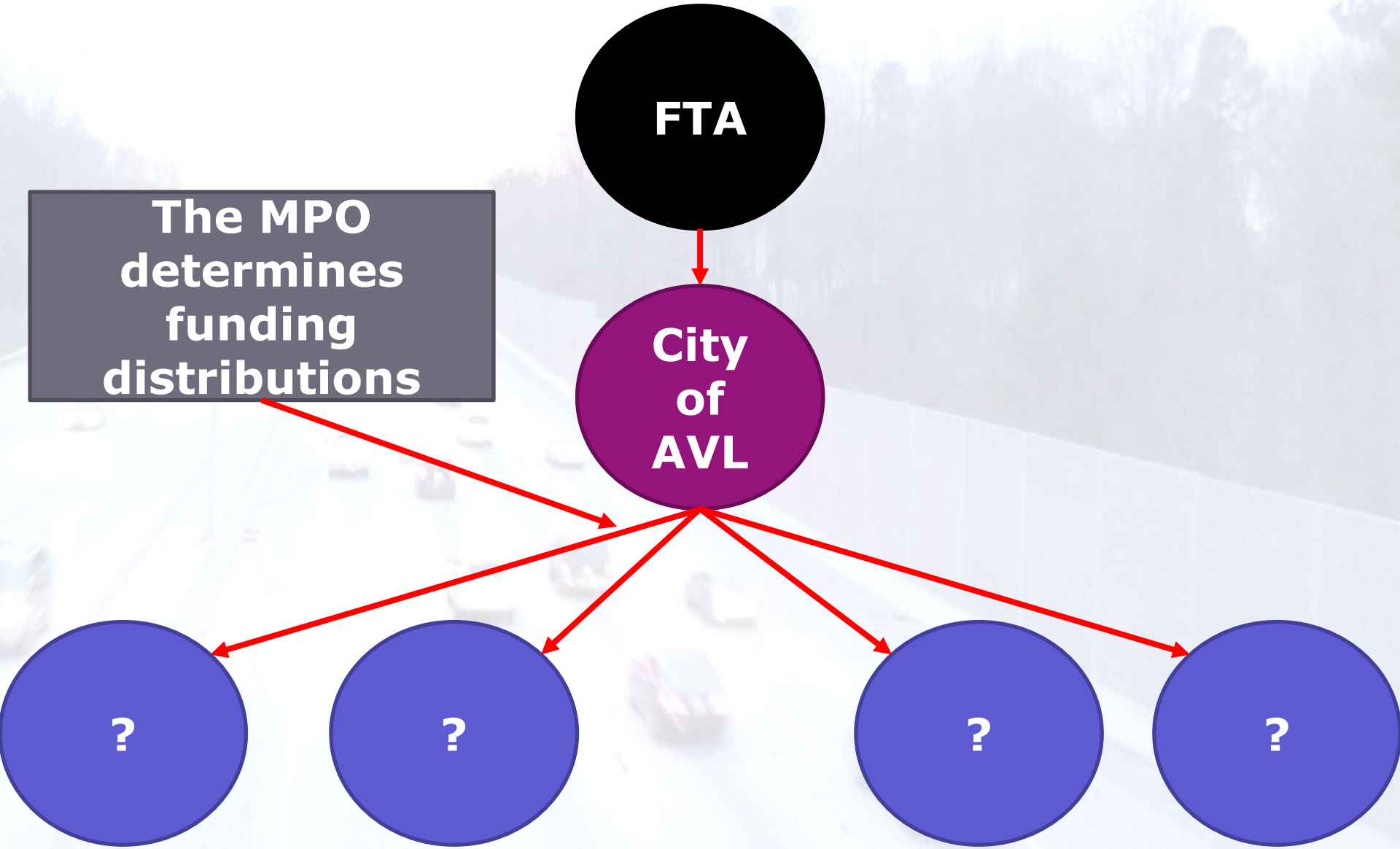
Transit Funding- 5307



Transit Funding- 5307



Transit Funding- 5310



Other Funds

MPO Surface Transportation Block Grant & Transportation Alternatives
$4,500,000/Year

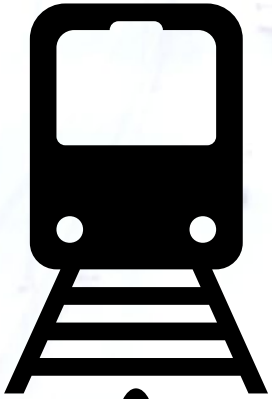
Division High Impact Low-Cost

Safety Funds (Federal HSIP or State SPOT Safety)

Economic Development/ARC Funds

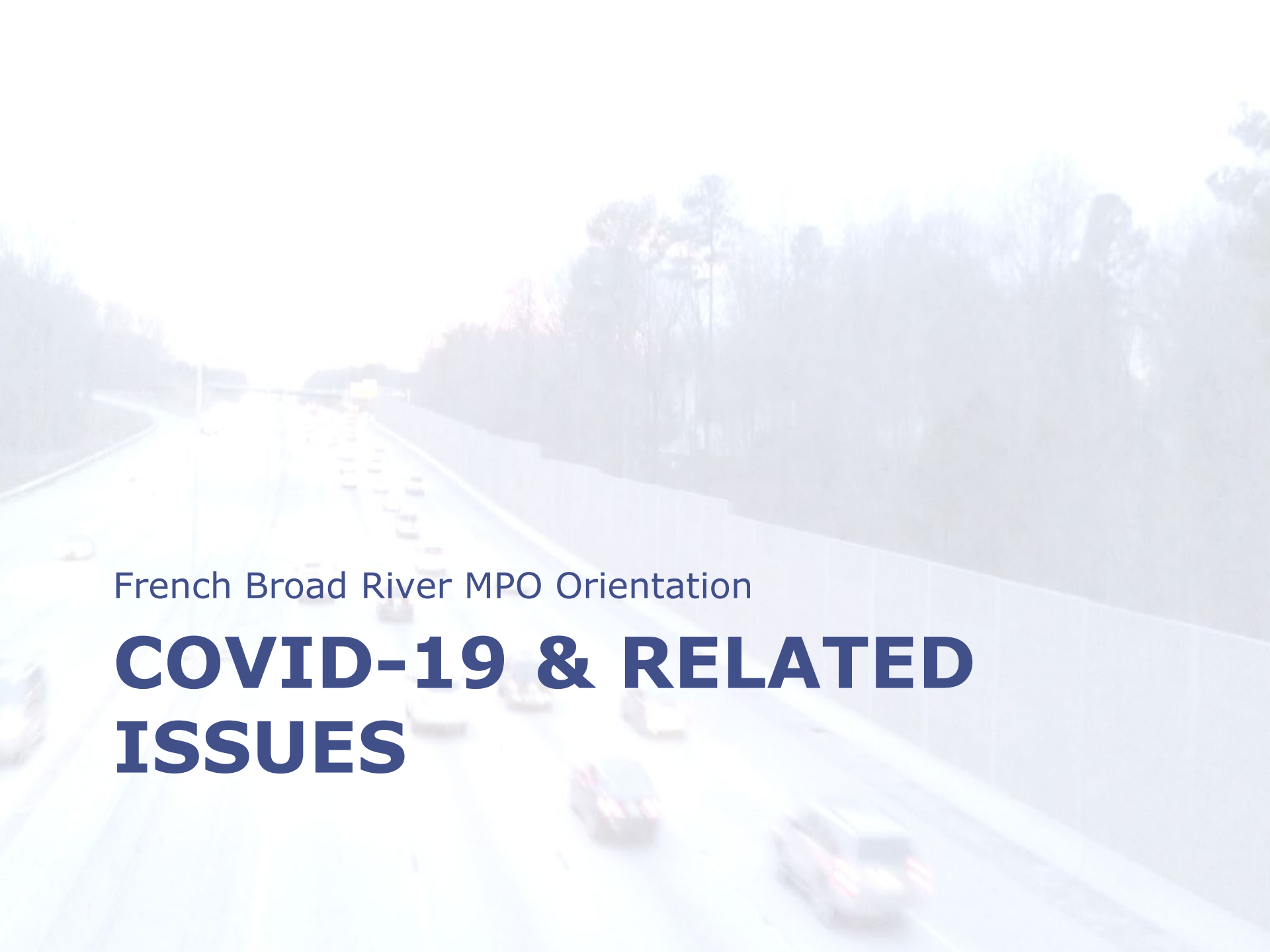
Other Funds

USDOT BUILD or Fast-Lane Grant



FTA New-Starts

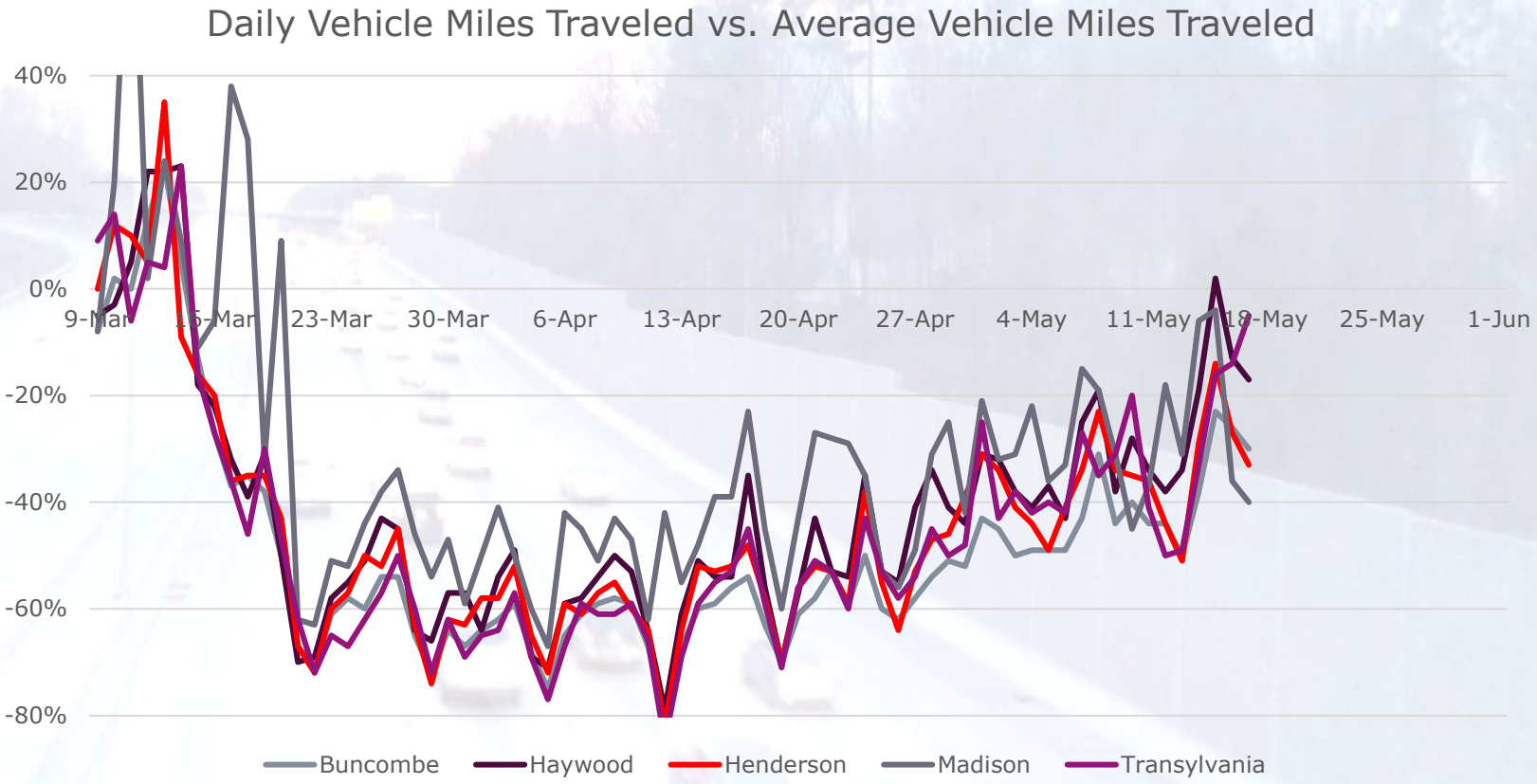
FAA (Variety of Grants for Airports)



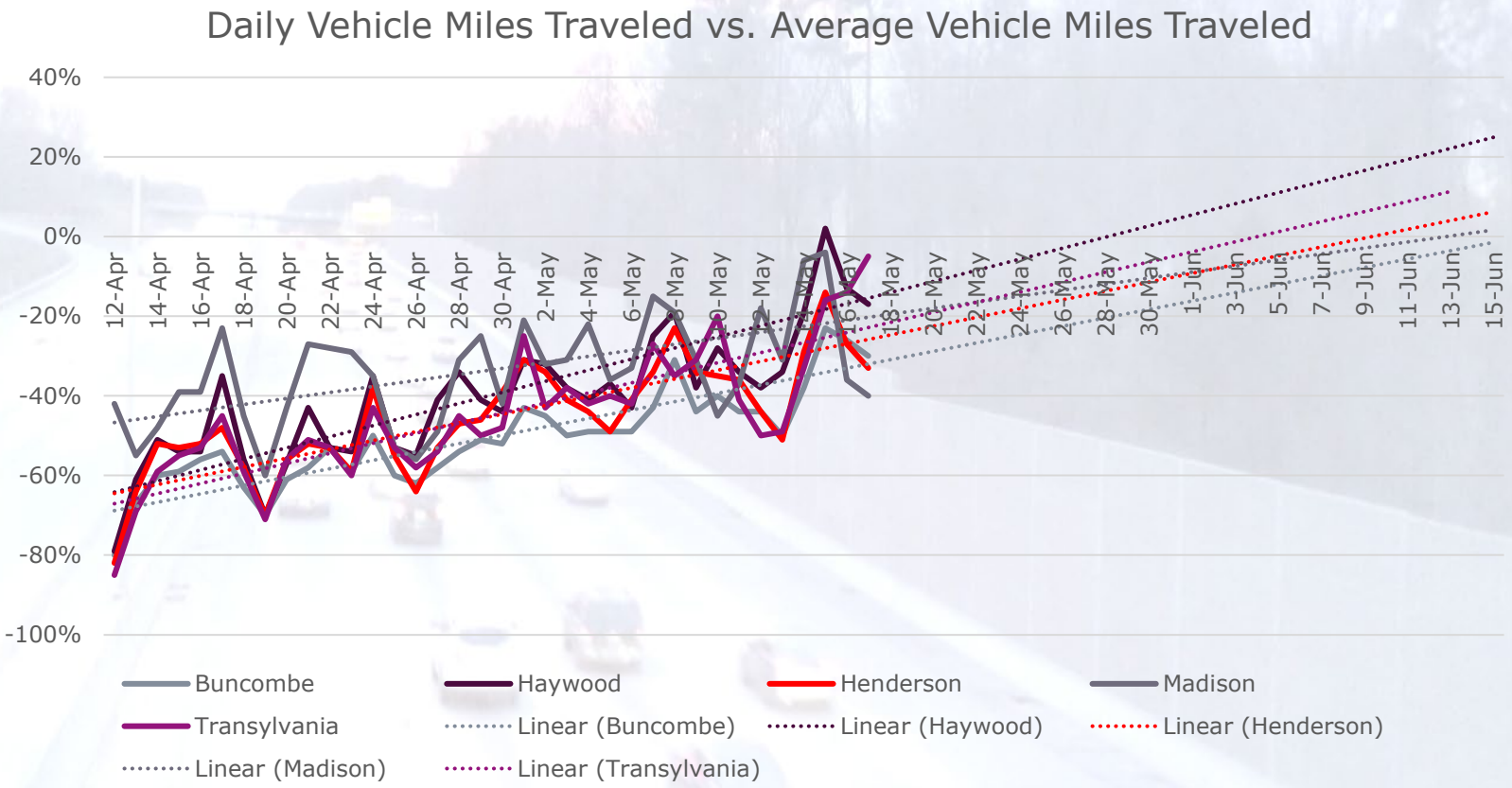
French Broad River MPO Orientation

COVID-19 & RELATED ISSUES

COVID-19 and Vehicular Travel



COVID-19 and Vehicular Travel

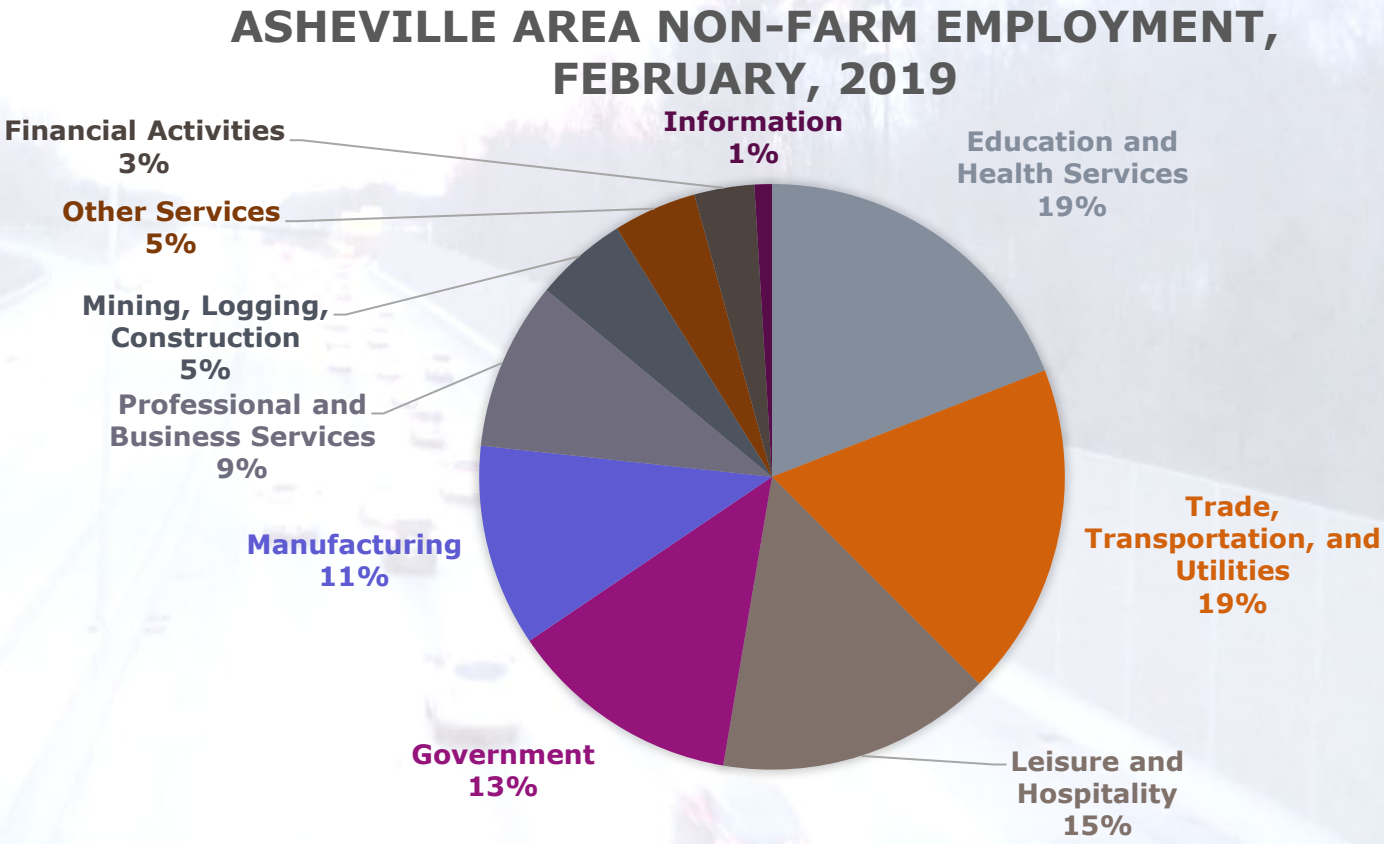


NCDOT Cash Balance Crisis

As NCDOT cash runs low, employees and projects are in jeopardy

By Richard Stradling The (Raleigh) News & Observer May 6, 2020

COVID-19 and Employment



Open Questions & Discussion