

a program of Land of Sky

FRENCH BROAD RIVER
METROPOLITAN PLANNING ORGANIZATION

FRENCH BROAD RIVER MPO ORIENTATION

2024

OVERVIEW & AGENDA

1. History & Purpose
 2. How the MPO Works
 3. Transportation Planning
 4. Transportation Funding
- (BREAK)
5. Early Engineering & Complete Streets (Hannah Smith, NCDOT Division 13)
 6. Travel Demand Model & Traffic Forecasts (Daniel Sellers, NCDOT Transportation Planning Division)
 7. Project Implementation (Steve Williams, NCDOT Division 14)

HISTORY & PURPOSE

MPO Orientation 2024

WHAT IS A METROPOLITAN PLANNING ORGANIZATION?



WHAT IS A METROPOLITAN PLANNING ORGANIZATION?

**“The forum for cooperative
transportation decision
making for the
metropolitan planning
area”**

Source: 23 CFR Part 450.104



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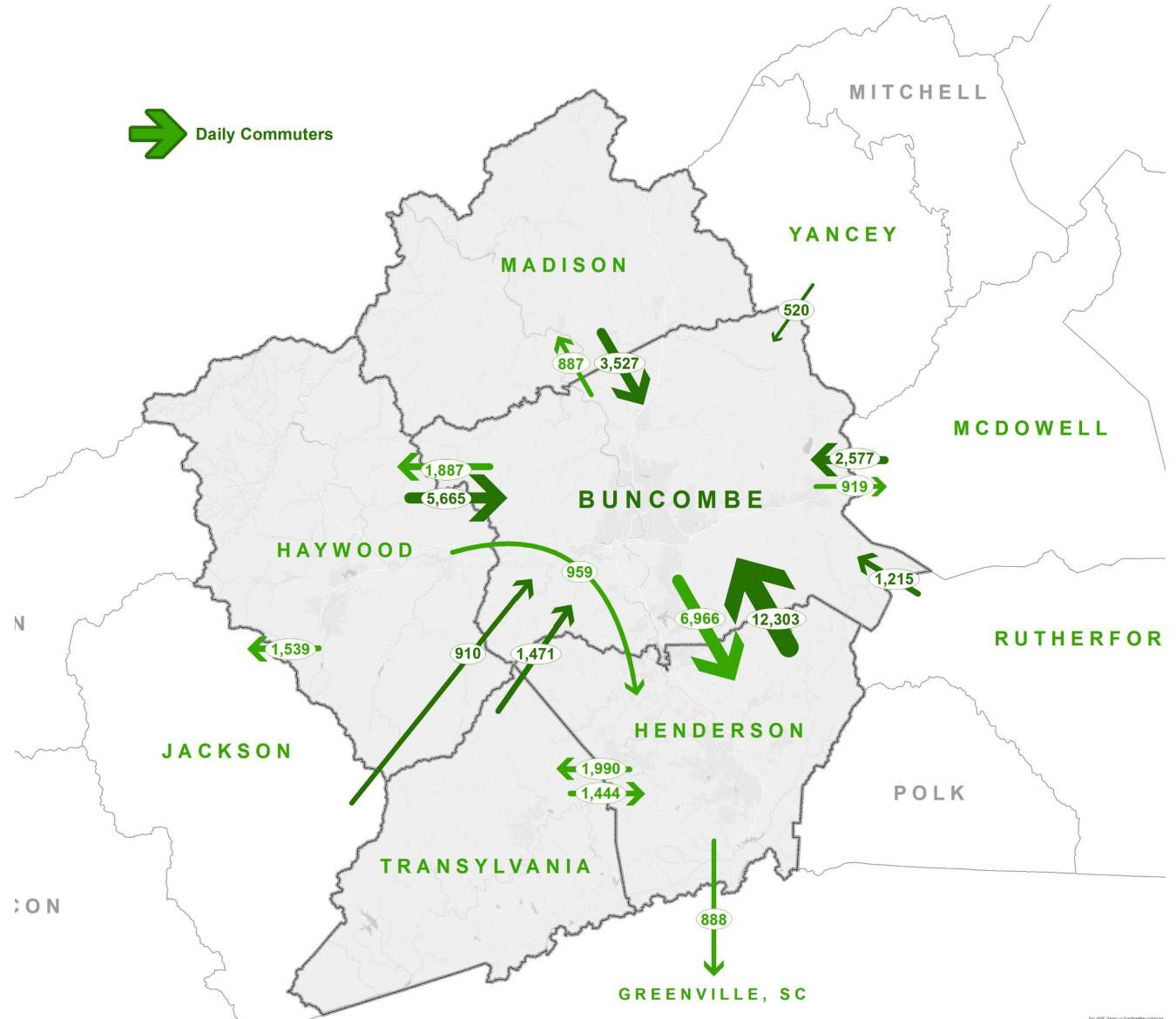
MPOS HISTORY/ORIGINS

- Recognition that transportation considerations have been more regional
- The federal government wants to make sure its funds were being put towards regional priorities IN A PLAN
- Lots of needs, limited funding -> regions need to prioritize

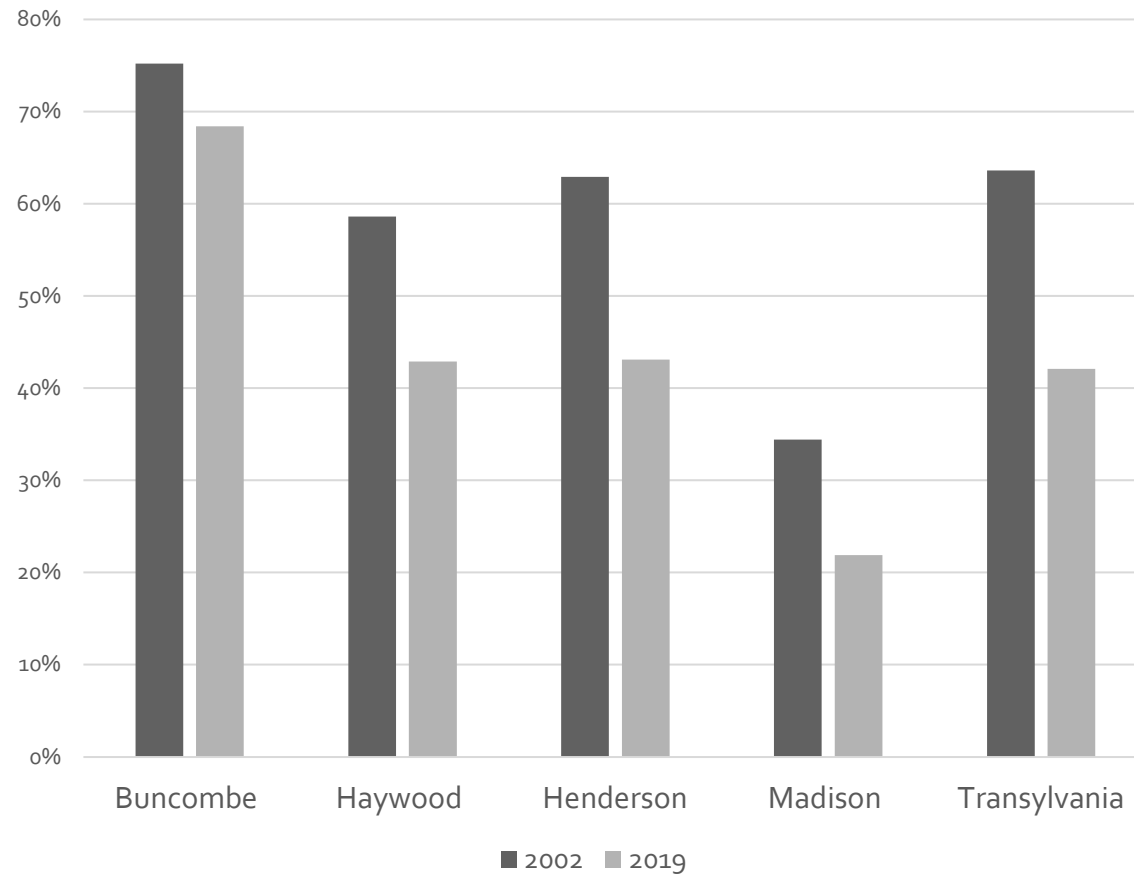


REGIONAL CONSIDERATIONS ARE NEEDED

- Economic ties and needs for services go beyond jurisdictional boundaries



Percent of Residents Working and Living in the
Same County, 2002 v 2019



REGIONAL
CONSIDERATIONS
ARE NEEDED

MPOS, A BRIEF HISTORY

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

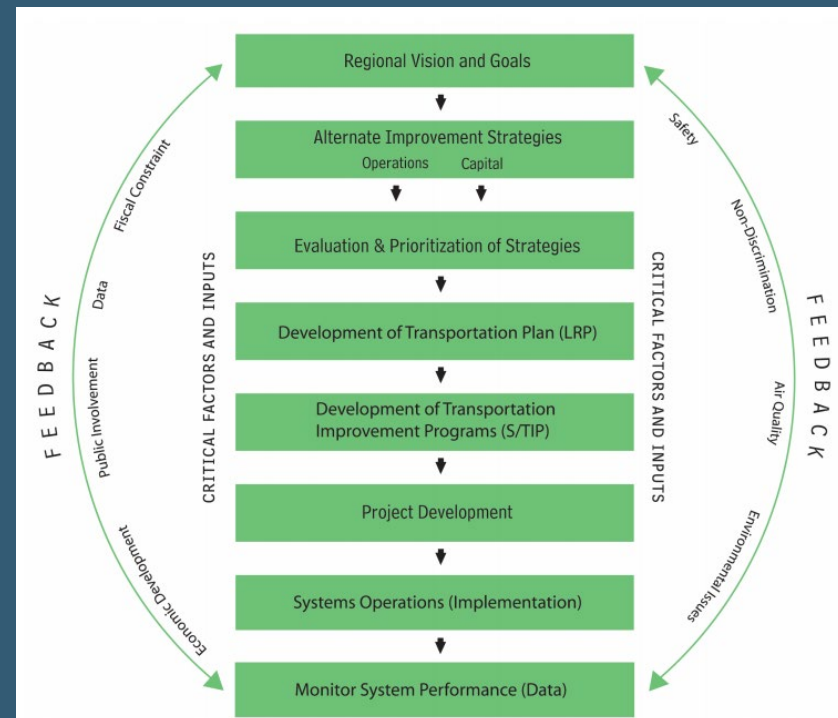


MPOS, LEGAL ORIGIN



- 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”, Continuous, Comprehensive and Cooperative planning process if using federal \$

FEDERAL TRANSPORTATION PLANNING PROCESS



THE
3



Process

FEDERAL TRANSPORTATION PLANNING PROCESS



COMPREHENSIVE



COOPERATIVE



CONTINUOUS

FEDERAL TRANSPORTATION PLANNING PROCESS

**Cookies and food are
not eligible expenses
for MPO funds**



COMPREHENSIVE



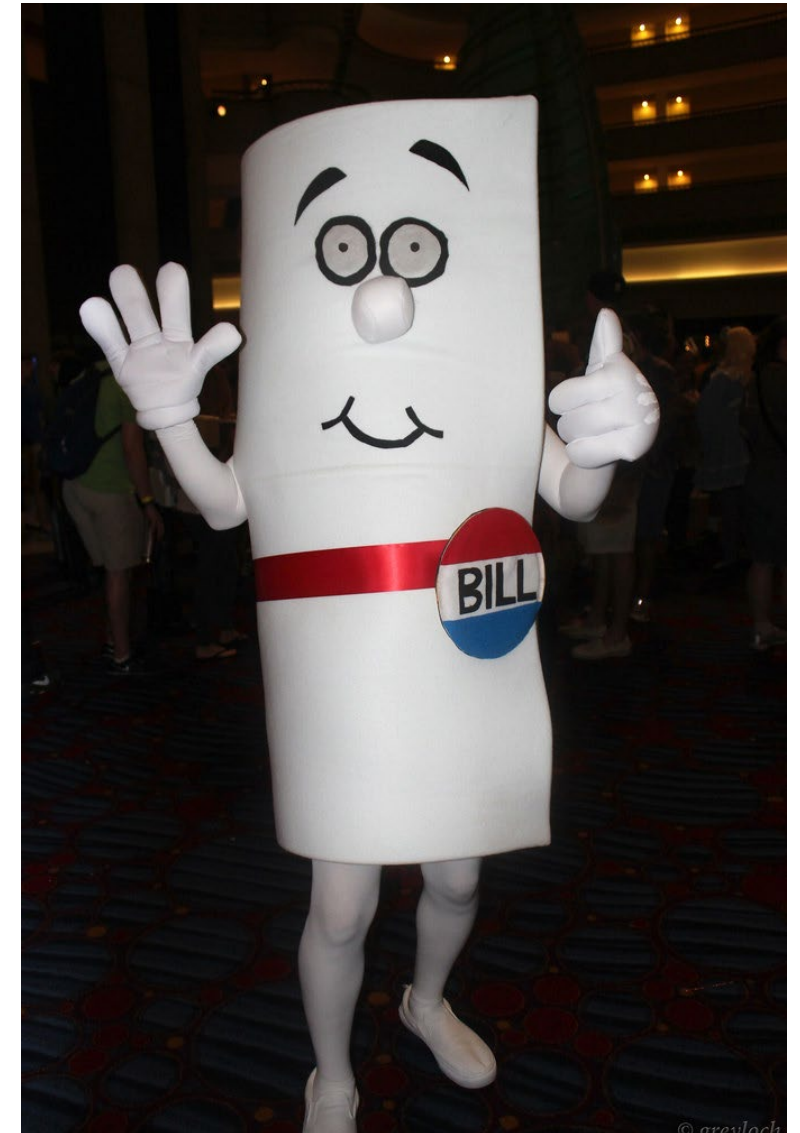
COOPERATIVE



CONTINUOUS

MAJOR LAWS SINCE 1990

- **1991: ISTEA (Intermodal Surface Transportation Efficiency Act)**
- 1998: TEA-21 (Transportation Equity Act- 21st Century)
- **1999: North Carolina mandates Comprehensive Transportation Plans (CTPs)**
- 2000: MPOs recognized in State Law (NCGS 136.200.1)
- 2001: recognizes MPOs as regional planning entity for MPO area (NCGS 136.66.2(a))
- 2005: SAFTEA-LU (Safe, Accountable, Flexible Transportation Equity Act- Legacy for Users)
- 2012 MAP-21 (Moving Ahead for Progress in the 21st Century)
- **2015: FAST Act (Fixing America's Surface Transportation)**
- **2021: Infrastructure Investment and Jobs Act**



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





WHAT IS AN MPO?

- An organization that:
- Determines Transportation Planning Priorities
- Certifies the Federal Planning Process is Being Followed
- Engages the Public
- Provides a Forum for Decision-Making

THE MPO'S PRIMARY PRODUCTS

UPWP

- Unified Planning Work Program
- Determine the Tasks Needed to Plan the Transportation Network

MTP

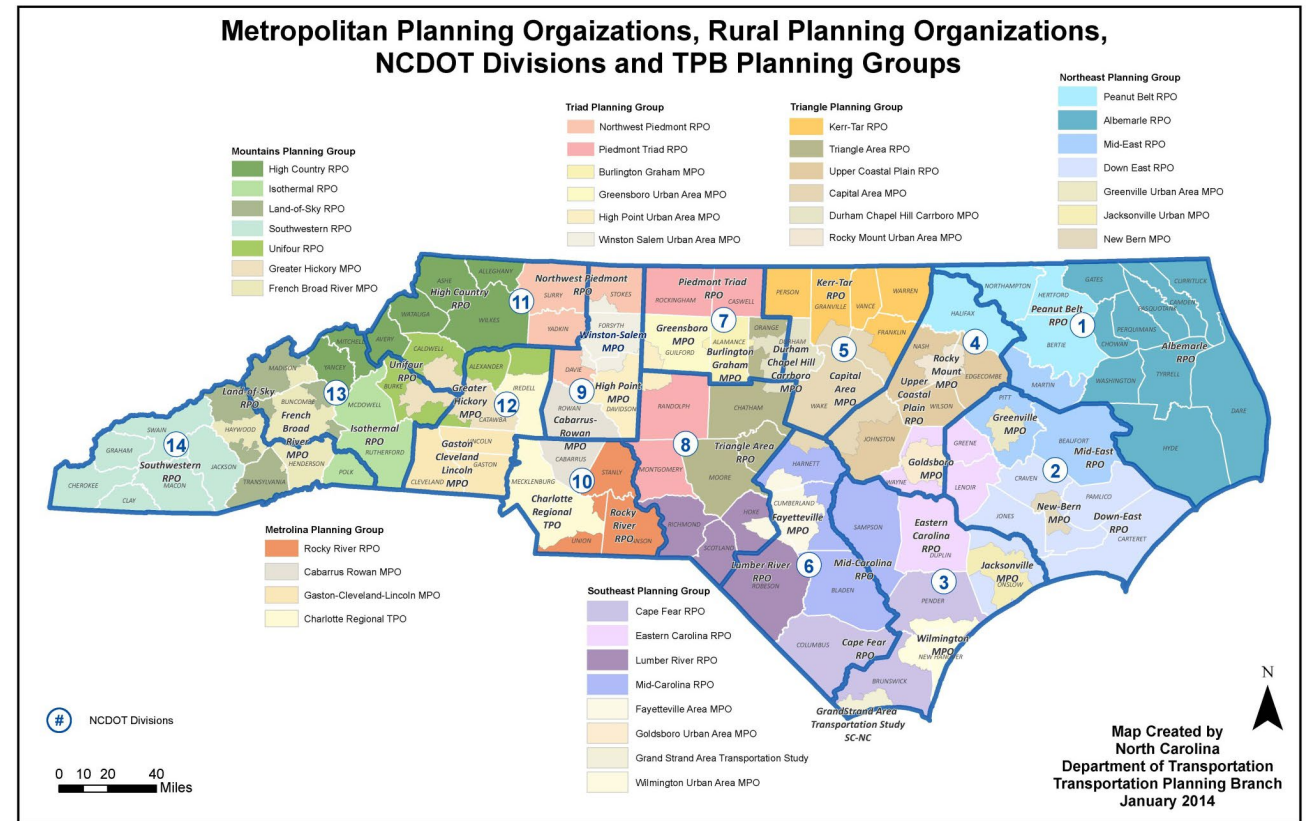
- Metropolitan Transportation Plan
- Determine Long-Range Goals and Priorities (Projects) for the Transportation Network

TIP

- Transportation Improvement Program
- Determine the best use of available transportation funding for the region

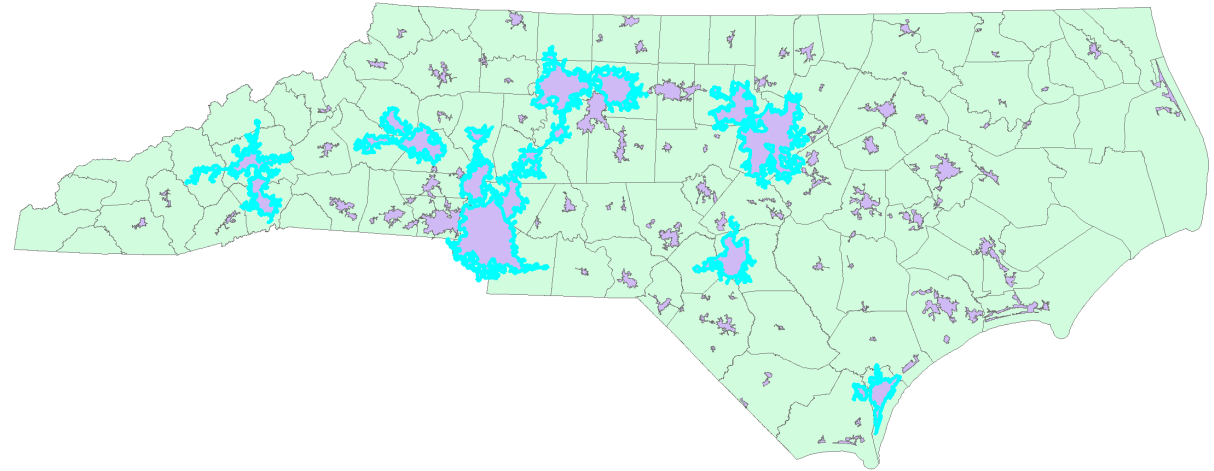
PLANNING ORGANIZATIONS IN NC

- 19 MPOs in North Carolina (one is mostly in South Carolina) + New MPO in Pinehurst



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)



NAME	POP
Charlotte, NC	1,379,873
Raleigh, NC	1,106,646
Winston-Salem, NC	420,924
Durham, NC	396,118
Greensboro, NC	338,928
Fayetteville, NC	325,008
Myrtle Beach--North Myrtle Beach, SC--NC	298,954
Asheville, NC	285,776
Concord, NC	278,612
Wilmington, NC	255,329
Hickory, NC	201,511

51% OF NC
LIVES IN TMAS

HOW THE MPO WORKS

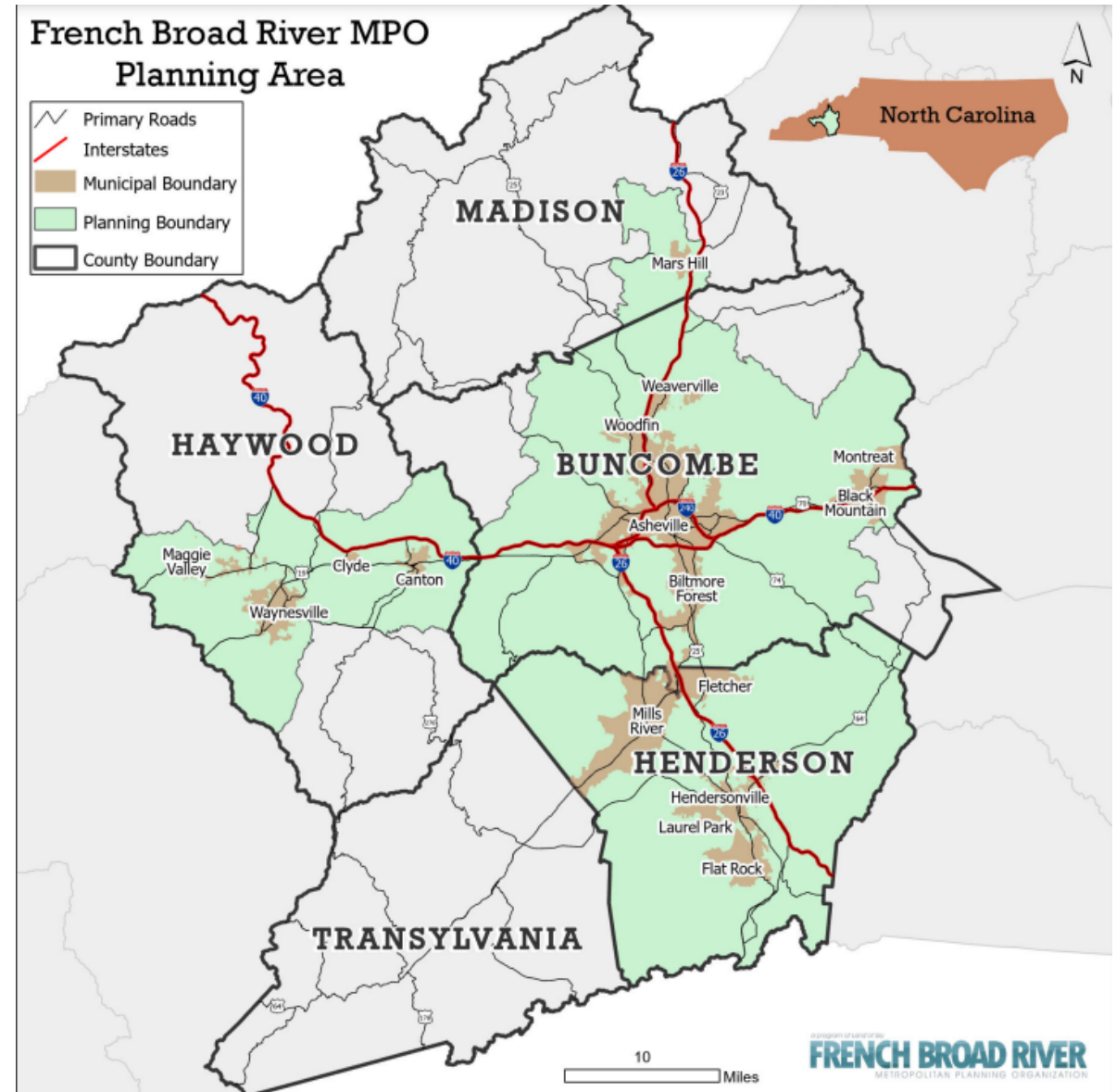
MPO Orientation 2024

French Broad River MPO
Orientation

MPO PLANNING AREA

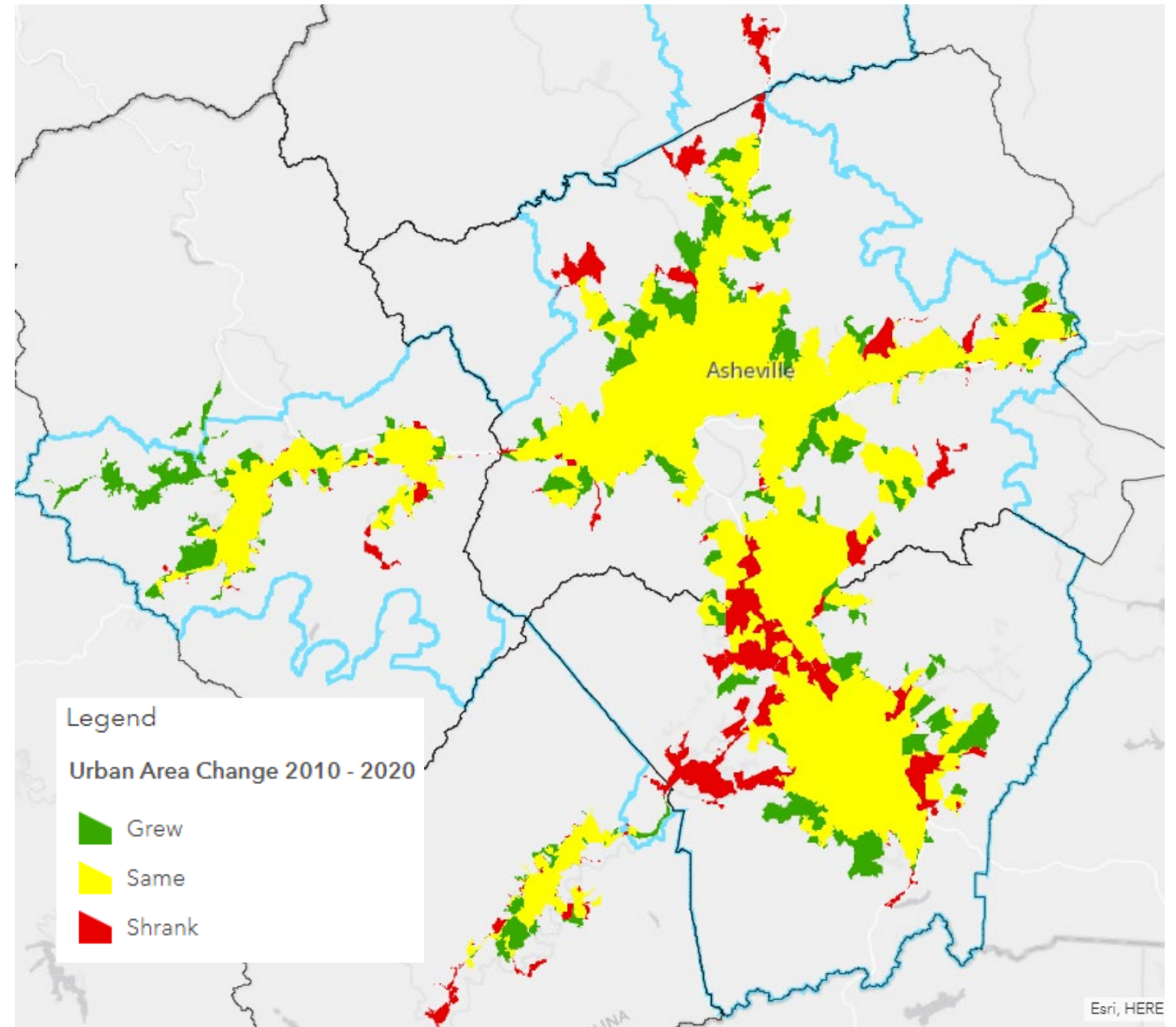
FRENCH BROAD RIVER MPO

- Began in 1966
- Centered around Asheville
- Grew to include Henderson & Haywood in 2000, Madison in 2010



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 THE UZA & PLANNING AREA

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

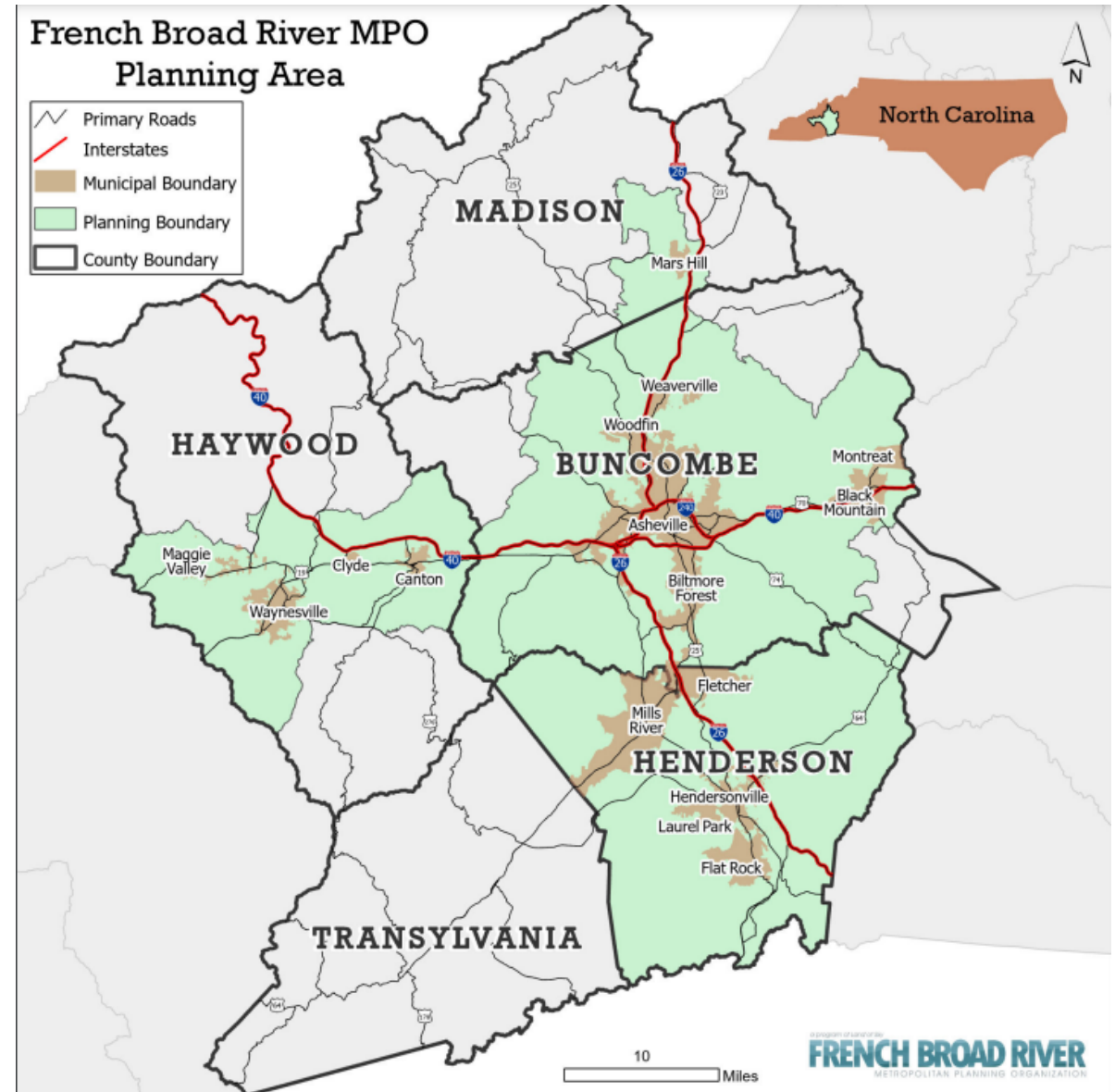
- In addition to the Census-designated UZA, the MPO is bound to do transportation planning for additional areas per 23 USC § 134(e)(2)(A):

(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

FRENCH BROAD RIVER MPO

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Criteria	2010 Census Criteria	2020 Census Criteria
Identification of Initial Urban Area Cores	Census tracts and blocks meeting population density, count, and size thresholds. Use of land cover data to identify territory with a high degree of impervious land cover.	Census block or aggregation of census blocks with a housing unit density of 425. Use of land cover data to identify territory with a high degree of impervious land cover.
Qualifying Urban Areas	Based on a minimum threshold of 2,500 people.	Based on a minimum threshold of 2,000 housing units <u>or</u> 5,000 people.
Urban Area Type	Urbanized areas and urban clusters identified using a 50,000-population threshold.	Urban areas are no longer distinguished as either an “urbanized area” or an “urban cluster.” All qualifying areas are designated as an “urban area.”

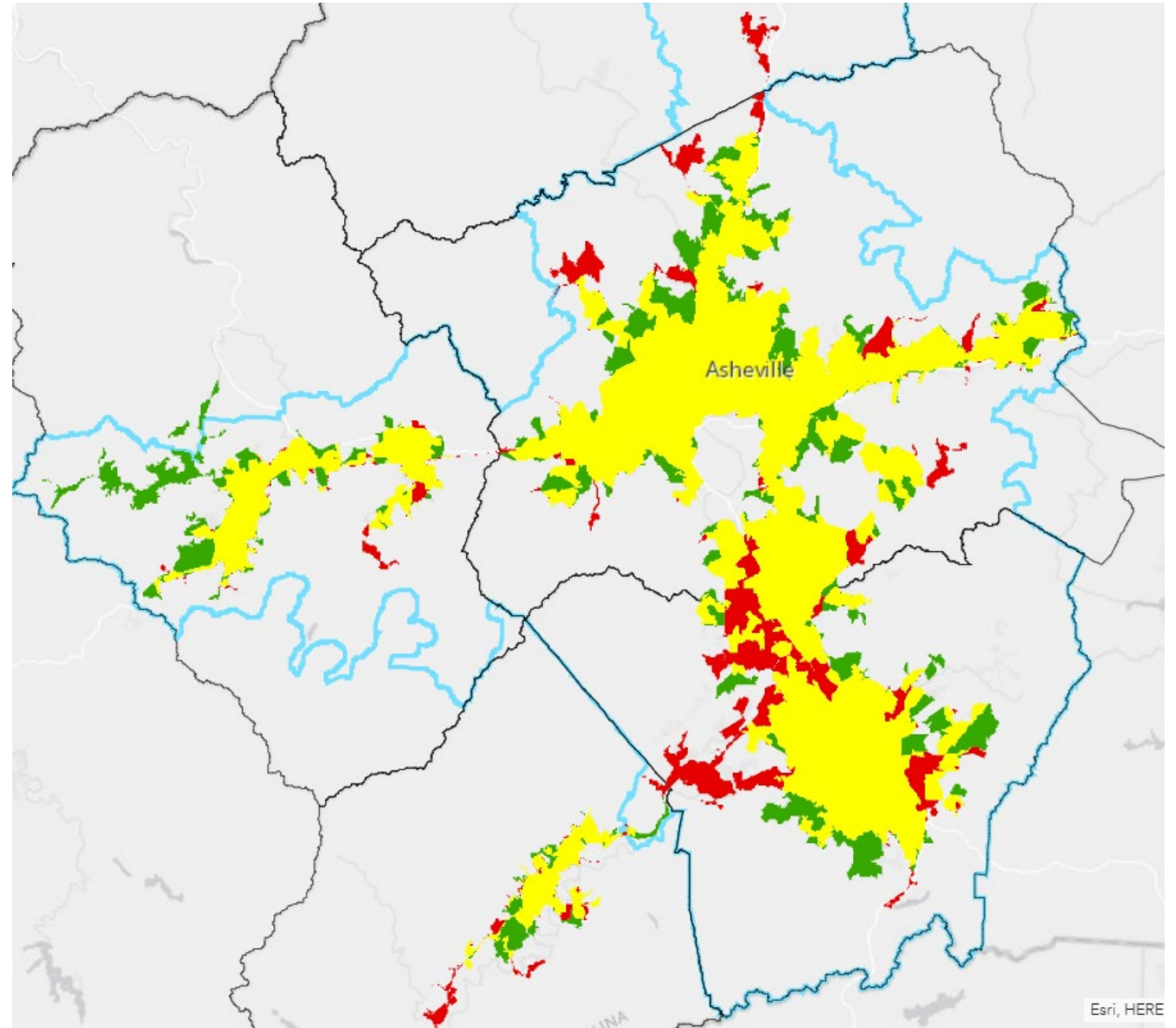
CHANGES TO THE 2020 URBANIZED AREA CRITERIA

Inclusion of Noncontiguous Territory via Hops and Jumps	Maximum hop distance 0.5 miles, maximum jump distance 2.5 miles. Intervening low-density jump corridor blocks included in urban area.	Maximum hop distance 0.5 miles, maximum jump distance 1.5 miles. Intervening low-density jump corridor blocks not included in urban area.
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CHANGES TO THE 2020 URBANIZED AREA CRITERIA

CHANGES IN THE URBAN AREAS

- <https://www.arcgis.com/home/webmap/viewer.html?webmap=bdoe7dcb4bf44f8694e1f10obco44ff9&extent=-83.7275,35.0026,-81.6992,36.0964>



ASHEVILLE UZA

- 1.83% increase in urbanized population

	2010	2020
Population	280,648	285,776
Square Miles	264.88	248.58

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	2010	2020
Population	280,648	285,776
Square Miles	264.88	248.58
MPO Population	414,000	440,041

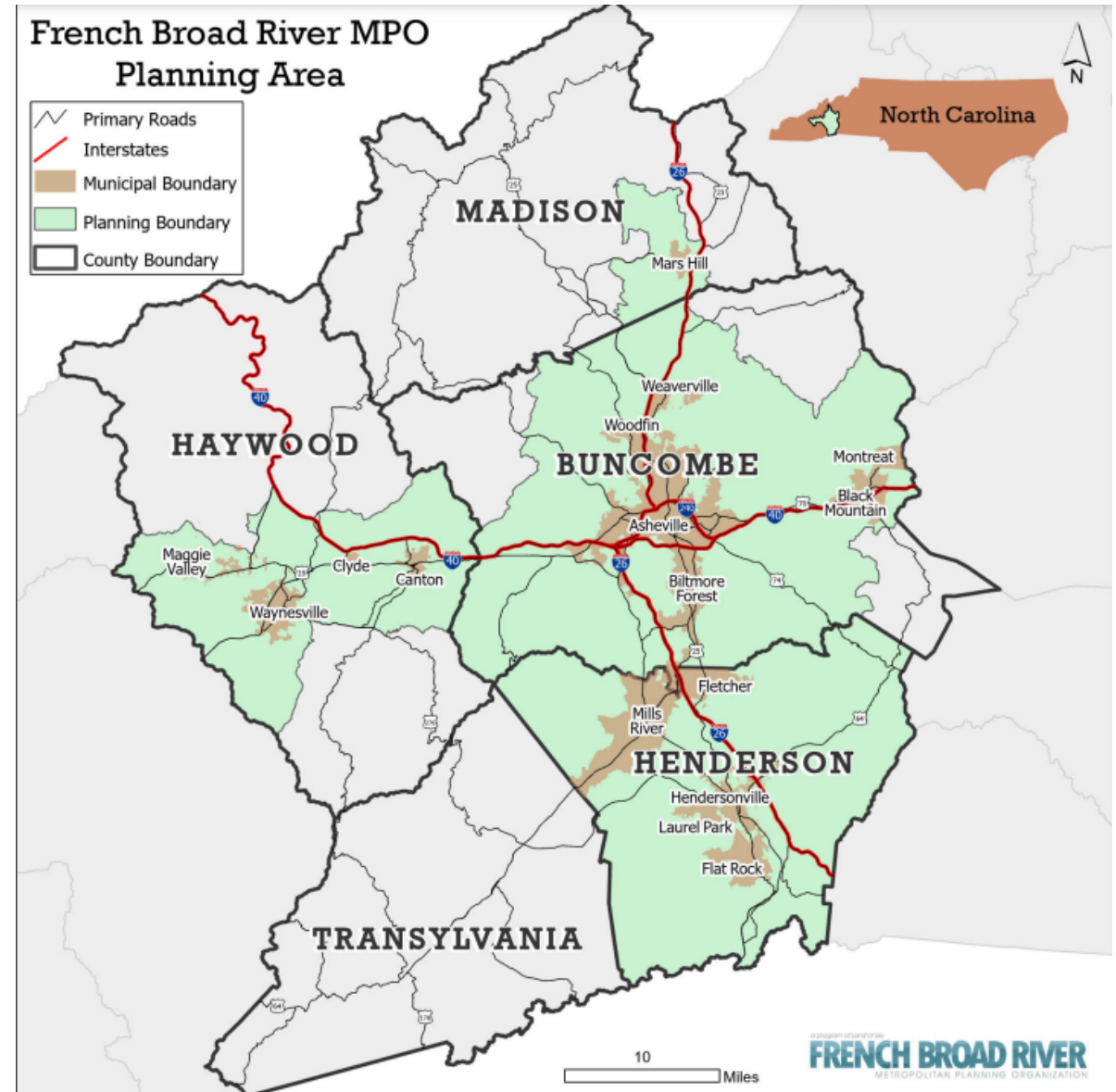
NC URBANIZED POPULATION

- 10.52% increase in urbanized population

	2010	2020
Urbanized Population	6,301,756	6,964,727
Urbanized % of Total Population	66.1%	66.7%

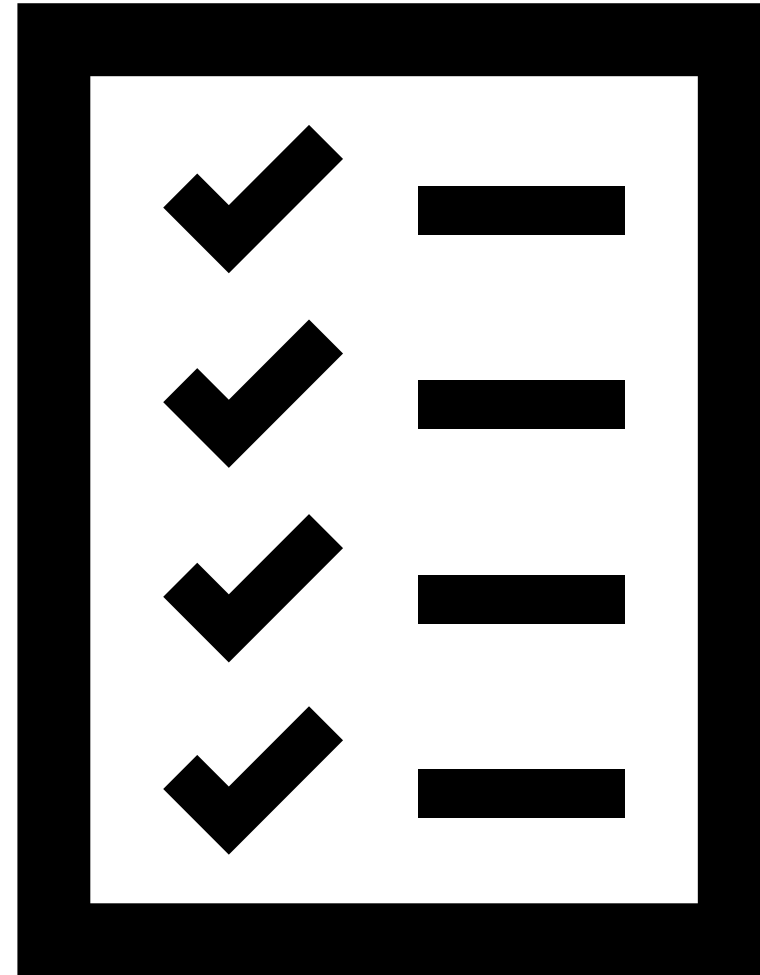
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FBRMPO ADMINISTRATIVE DOCUMENTS

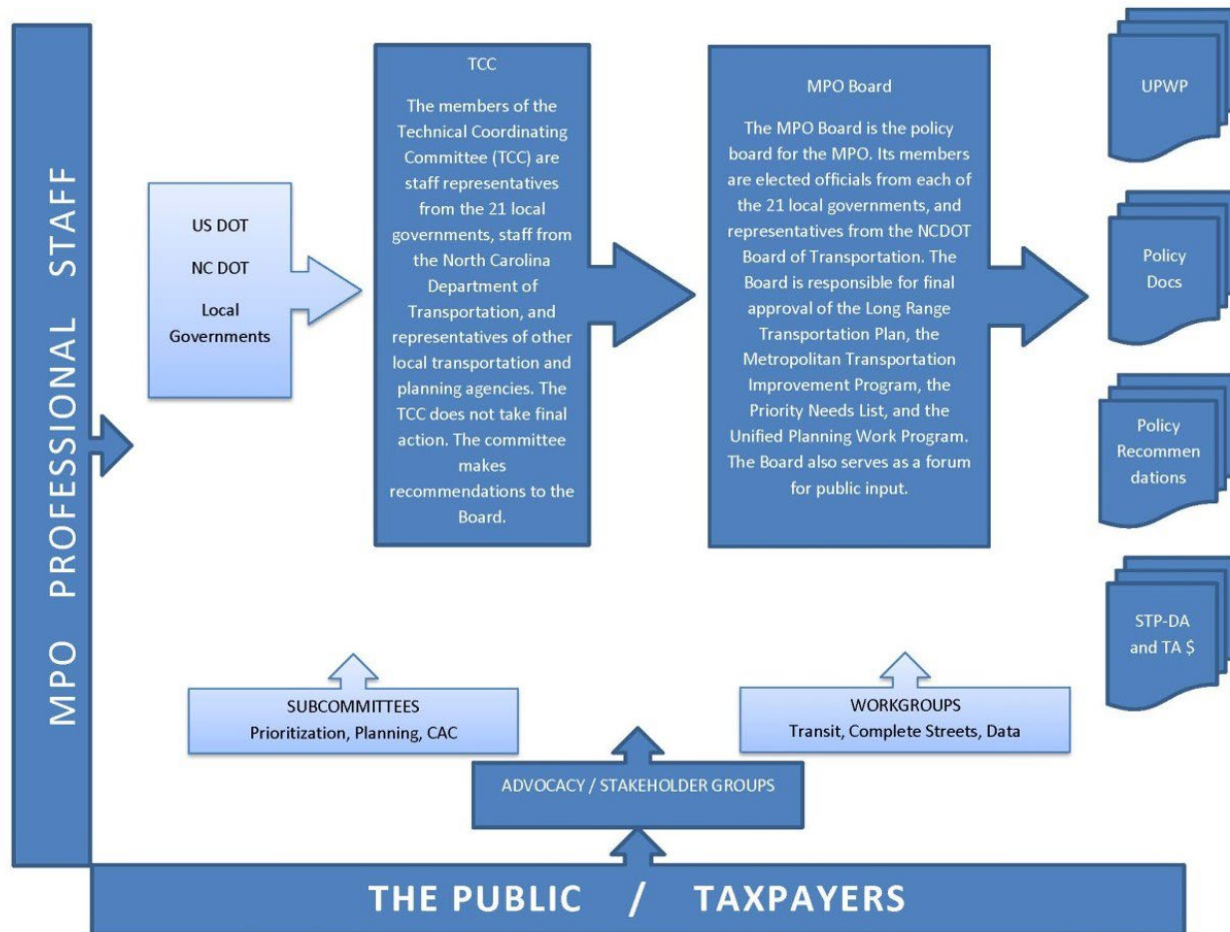
- **Memorandum of Understanding-** agreement between member governments on the make-up and general governance of the MPO
- **Bylaws-** determines voting, membership and procedures for administering MPO responsibilities
- **Public Involvement Policy-** sets the minimal amount of public involvement required for MPO tasks



WHO IS THE MPO? WHAT'S MY ROLE?

- The MPO is a partnership-
the MPO is YOU!
- We rely heavily on local governments to provide input on the local perspective, relay information to get people involved, NCDOT to provide technical input and State perspective, transit agencies, and the public





MPO STRUCTURE

MPO BOARD

- Membership
- Elected Officials from Member Local Governments (Every Local Government has a Board Seat)
- NC Board of Transportation representatives
- Representatives for Rural and Urban Transit systems
- Formerly Known as Transportation Advisory Committee (TAC)





Urban
Transit

Rural
Transit

NCDOT
Board
Div. 13

NCDOT
Board
Div. 14

FRENCH BROAD RIVER MPO BOARD

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!!!**

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

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
- Take part in NEPA/Merger discussions



FEDERAL & STATE REQUIREMENTS

FBRMPO Orientation 2024

FEDERAL REQUIREMENTS

Determines Funding Eligibilities, Allocations, Distribution, etc.

Determined by Federal Law (IIJA) and Regulations

- Three-C Process
- Planning Factors
- Performance Based Planning

THREE-C PLANNING

Continuous

- MTPs updated every 5 years
- TIPs updated every 4 years
- UPWPs updated every year

Comprehensive

- Include planning factors in federally required documents
- Look at internal/external, local/regional/extra-regional factors

Cooperative

- Maintain a setting that facilitates input from local governments, State agencies, Federal agencies, the public, and other impacted groups

PLANNING FACTORS

Increase the Safety of
the Transportation
System

Increase the Security of
the Transportation
System

Increase Accessibility &
Mobility for People &
Freight

Protect & Enhance the
Environment

Promote Energy
Conservation

Economic Vitality &
Global
Competitiveness

Improve Quality of Life
for the Community

Enhance the
Integration &
Connectivity of the
Transportation System

Emphasize the
Maintenance of the
Existing Transportation
System

Promote Efficient
Operations and
Management

Enhance Travel &
Tourism

Improve System
Resiliency and
Reliability

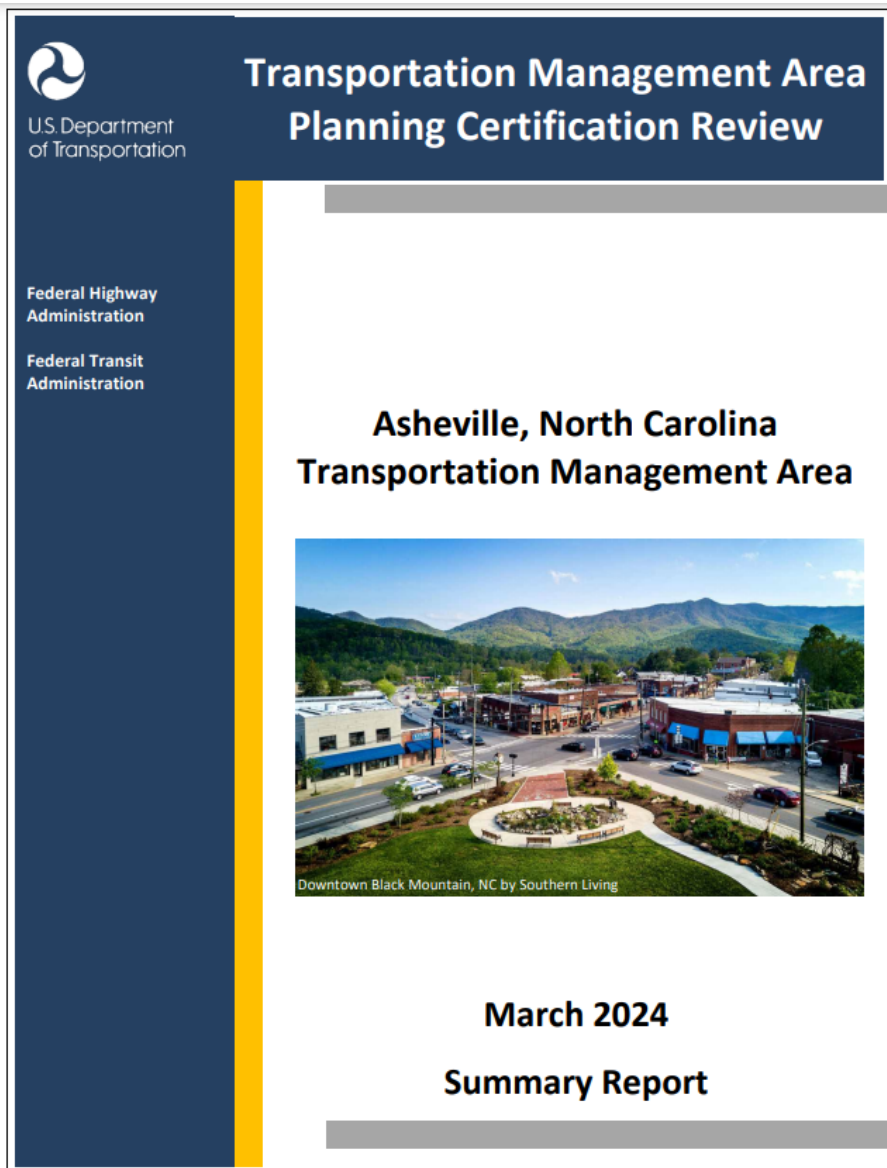
Promote Consistency
Between
Transportation and
Housing Patterns



TPM-Related Rules	Regulatory Chapter	
Statewide and Non-Metropolitan Planning; Metropolitan Planning	23 CFR 450 & 771, 49 CFR 613	Establishes goals and TPM framework
Safety Performance Measures (PM1)	23 CFR 490 (Subpart A & B)	Highway Safety: Data collection, reporting, target setting and programming approach
Highway Safety Improvement Program (HSIP)	23 CFR 924	
Highway Asset Management Plans for NHS	23 CFR 515 & 667	Highway Assets: Data collection, reporting, target setting and programming approach
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)	System Performance: Reporting and target setting for highway mobility, freight, and emissions
Transit Asset Management Rule	49 CFR 625, 630	Transit Assets: Data collection, reporting, target setting and programming for FTA recipients

PERFORMANCE BASED PLANNING

Greenhouse Gas Emissions – COMING IN 2024!



CERTIFICATION REVIEW

- Required every four years
- Process that reviews the MPO's work by FHWA and FTA to make recommendations, commendations, and findings
- Last certification review completed. .
.LAST WEEK!

TMA REQUIREMENTS

- Maintain a Congestion Management Process to develop metrics for identifying, monitoring, and addressing congestion in the TMA
- Recommends what corridors should have more or less tolerance for congestion



PLANNING FOR PLANNING

The Unified Planning Work Program (UPWP)

THE MPO'S PRIMARY PRODUCTS

UPWP

- Unified Planning Work Program
- Determine the Tasks Needed to Plan the Transportation Network

MTP

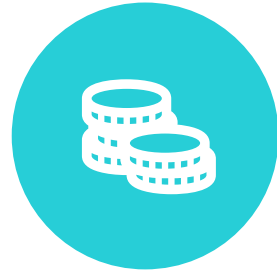
- Metropolitan Transportation Plan
- Determine Long-Range Goals and Priorities (Projects) for the Transportation Network

TIP

- Transportation Improvement Program
- Determine the best use of available transportation funding for the region



MPO staff planning tasks
and amount of funding
allocated per task



MPO funding sources



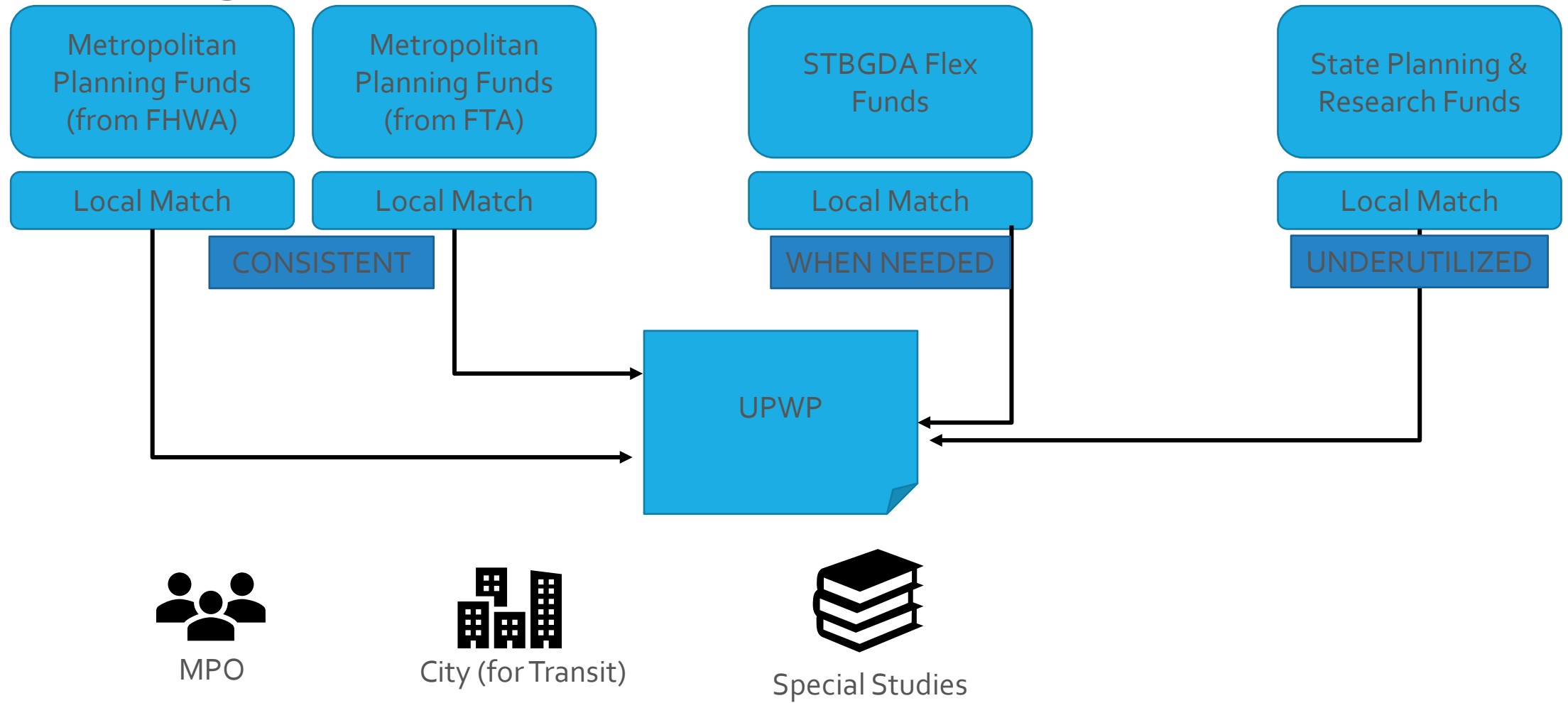
Special Studies



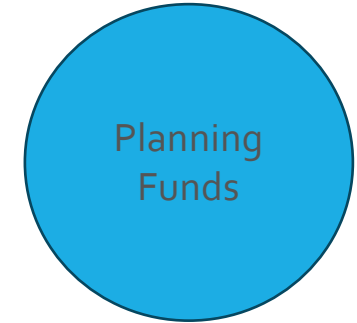
Corridor Studies Program

UPWP

Funding



MPO Planning Funds

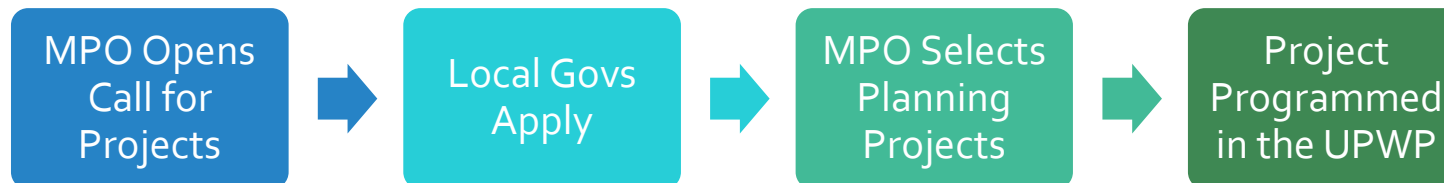


Eligibilities

- Up to 10% Engineering on Feasibility Studies
- Bike/Ped Plans
- Socio-Economic Projections
- Corridor Studies
- Small Area Plans
- Environmental Justice Studies
- Traffic Studies
- Economic Impact Studies

Requirements

- 20% Local Match (of the total)
- MPO & NCDOT staff participation
- Must follow the scope as programmed in the MPO's UPWP
- Follow MPO, State, Federal procurement



Transportation Studies (80%
Federal Funds, 20% Local
Funds)

Feasibility Studies

Corridor Studies

Small Area Plans

Community
Transportation Plans

Other Transportation-
Related Studies

- Recently Funded Studies
- Oklawaha Greenway Extension
- Mud Creek Greenway
- Bent Creek Greenway
- Asheville Transit Master Plan
- Richland Creek Greenway
- Biltmore/McDowell Corridor Study
- Regional Socio-Economic Projections to 2045
- Close the GAP Plan
- Patton Avenue Study
- Reed Creek Greenway Extension
- Ridgecrest Greenway Connector Study
- Woodfin-Weaverville Greenway Study

SPECIAL STUDIES

OTHER PLANNING FUNDS

- NCDOT Bike/Ped Planning Grants
- NCDOT Feasibility Studies
- Some FHWA & FTA Discretionary Grants

MPO BOARD CONSIDERATIONS

- Is the UPWP providing the resources needed to advance projects and enhance planning efforts?

TRANSPORTATION PLANNING

MPO Orientation 2024

TWO IMPORTANT THINGS TO KNOW ABOUT TRANSPORTATION PROJECTS

TWO IMPORTANT THINGS TO
KNOW ABOUT
TRANSPORTATION PROJECTS

Projects
Don't
Move
Quickly



TWO IMPORTANT THINGS
TO KNOW ABOUT
TRANSPORTATION
PROJECTS

No
Project
Makes
Everyone
Happy





LONG RANGE PLANS

Life of a Transportation Project

	2050 Plan	<ul style="list-style-type: none"> Statewide Vision Strategic Corridors
	CTP	<ul style="list-style-type: none"> 30+ Years No \$ Constraint
	MTP	<ul style="list-style-type: none"> 25 Years, Used for AQ Determinations Based on Revenue Forecast
	SPOT	<ul style="list-style-type: none"> Scores Projects for Effectiveness Results go into STIP/TIP
	STIP/TIP	<ul style="list-style-type: none"> 0-5 and 6-10 Years Specific Funding Sources Identified
	NEPA/Design	<ul style="list-style-type: none"> Project alternatives are assessed Final project design and cost
	Construction	<ul style="list-style-type: none"> Project Let, Built Facility Opened

CMP-informs the middle 3

NC MOVES 2050



NORTH CAROLINA
Department Of Transportation

- Establishes a long-term vision for the state and an outline with specific goals/strategies for how that vision will be achieved, taking into account growth, funding, and technologies.
- Provides for the development and integrated management/operation of transportation systems and facilities.
- Includes public involvement.



BUT HOW DO SPECIFIC PROJECTS GO
FROM PLANNING TO CONSTRUCTION?

LIFE OF TRANSPORTATION PROJECT

Comprehensive Transportation Plan (CTP)

30+ Years



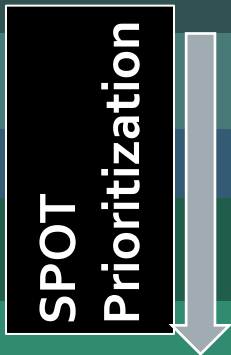
Metropolitan Transportation Plan (MTP)

25 Years



(State) Transportation Improvement Program (S)TIP

10 Years



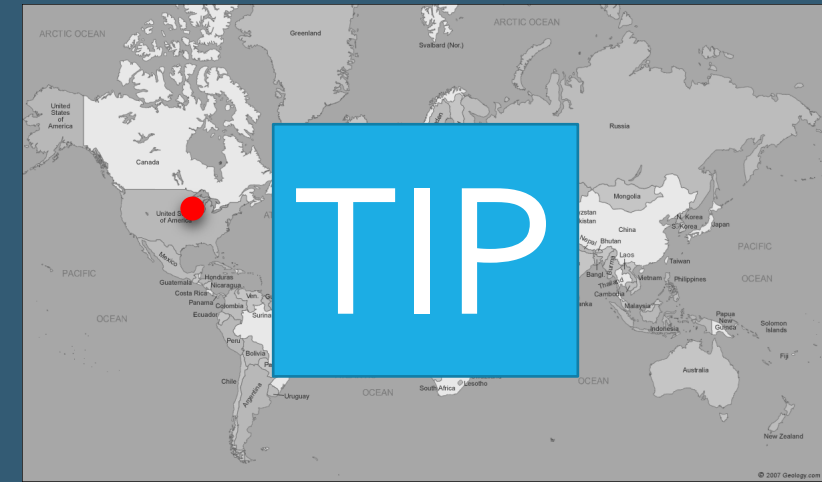
BUREAUCRACY SIMPLIFIED

- Identify Needs
- Prioritize Needs
- Execute Priorities



BUREAUCRACY SIMPLIFIED

- Identify Needs
- Prioritize Needs
- Execute Priorities



COMPREHENSIVE TRANSPORTATION PLAN (CTP)

- 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

COMPREHENSIVE TRANSPORTATION PLAN (CTP)

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:

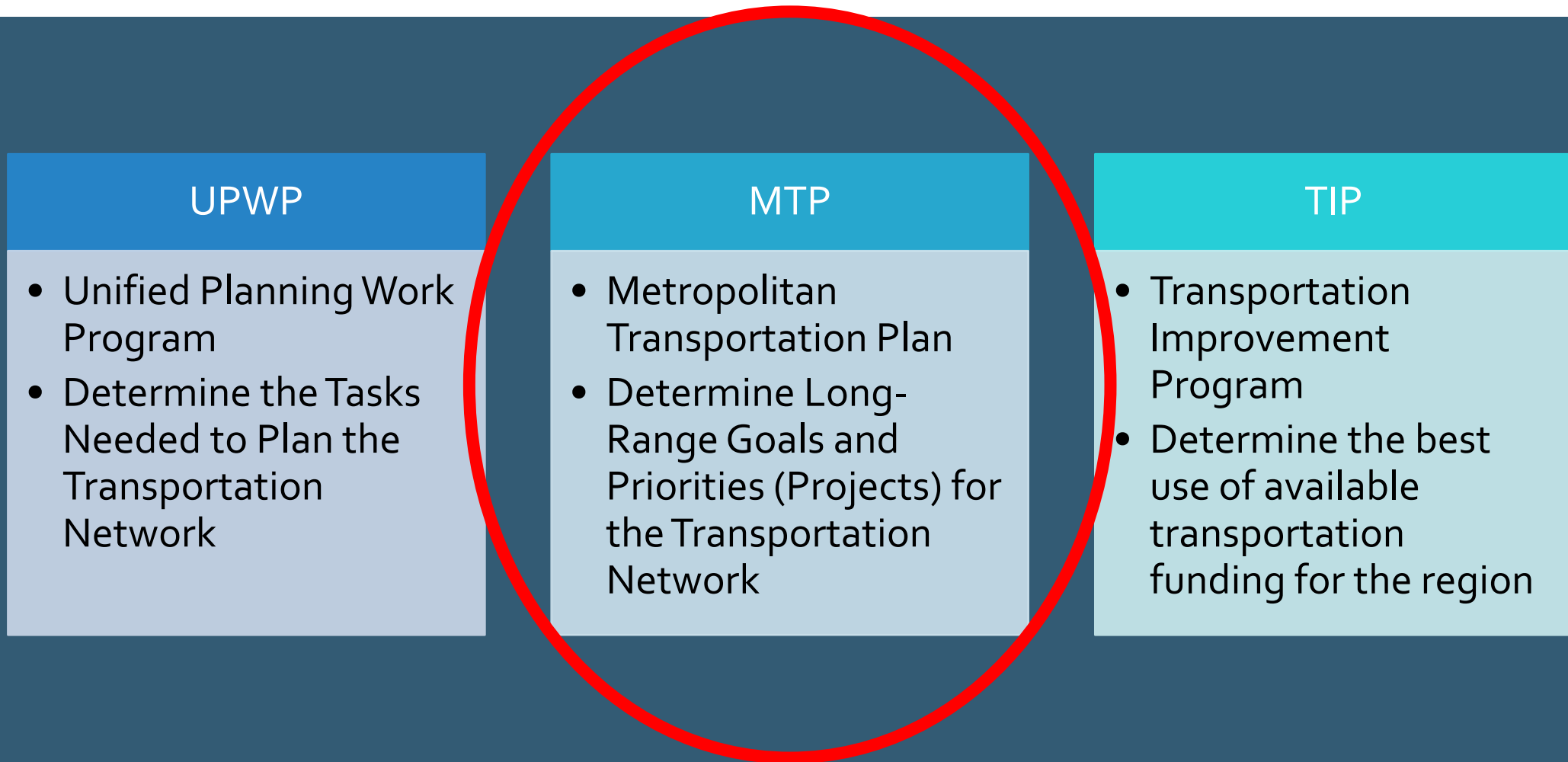
- Shows purpose and need of projects in the region
- Little detail- starting point for planning specific projects

METROPOLITAN TRANSPORTATION PLAN (MTP)

Long-range transportation plan
that focuses on current and
future needs.

The FBRMPO's 2045 MTP looks
at the 25 year planning horizon
and serves as a regional blueprint
for creating a network of road,
bicycle and pedestrian, transit,
and rail connections to meet the
needs of a growing region.

THE MPO'S PRIMARY PRODUCTS

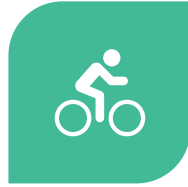




MISSION, VISION,
GOALS, AND
OBJECTIVES



GROWTH TRENDS;
LAND USE,
POPULATION &
EMPLOYMENT,
TRAVEL & ECONOMIC
ACTIVITY
ASSUMPTIONS;
RESILIENCY AND
CHALLENGES



ANALYSIS OF
TRANSPORTATION
NETWORK INCLUDING
SAFETY, FREIGHT,
CONGESTION,
MAINTENANCE,
BICYCLE/PEDESTRIAN,
TRANSIT, RAIL, AND
AVIATION.



FINANCIAL PLANNING
COMPONENT FOR ALL
IMPROVEMENTS
ANTICIPATED
THROUGH FUNDING
YEAR 2045.



PROJECT IMPACTS



PUBLIC INPUT

WHAT IS IN AN MTP?

MTP REQUIREMENTS

ALL FEDERALLY FUNDED
PROJECTS OR PROJECTS
THAT NEED FEDERAL
ACTIONS ARE REQUIRED TO
BE IN THE MTP

PLANNING FACTORS

Increase the Safety of
the Transportation
System

Increase the Security
of the Transportation
System

Increase Accessibility
& Mobility for People
& Freight

Protect & Enhance the
Environment

Promote Energy
Conservation

Economic Vitality &
Global
Competitiveness

Improve Quality of
Life for the
Community

Enhance the
Integration &
Connectivity of the
Transportation
System

Emphasize the
Maintenance of the
Existing
Transportation
System

Promote Efficient
Operations and
Management

Enhance Travel &
Tourism

Improve System
Resiliency and
Reliability



FINANCIAL PLANNING



MODELING

Travel Demand Model

MTP- BOARD CONSIDERATIONS

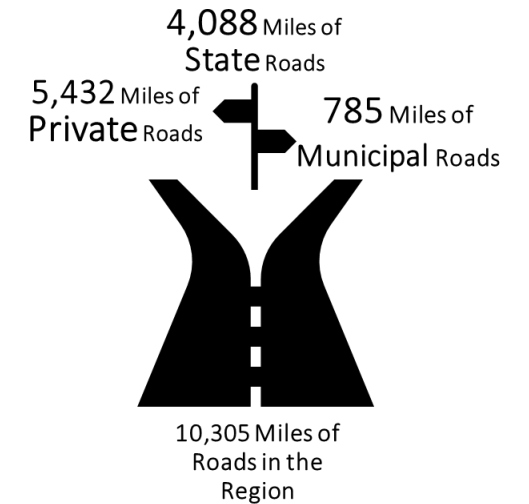
- Is this project/are these projects the priorities for our region?

TRANSPORTATION FUNDING

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QUICK CONTEXT

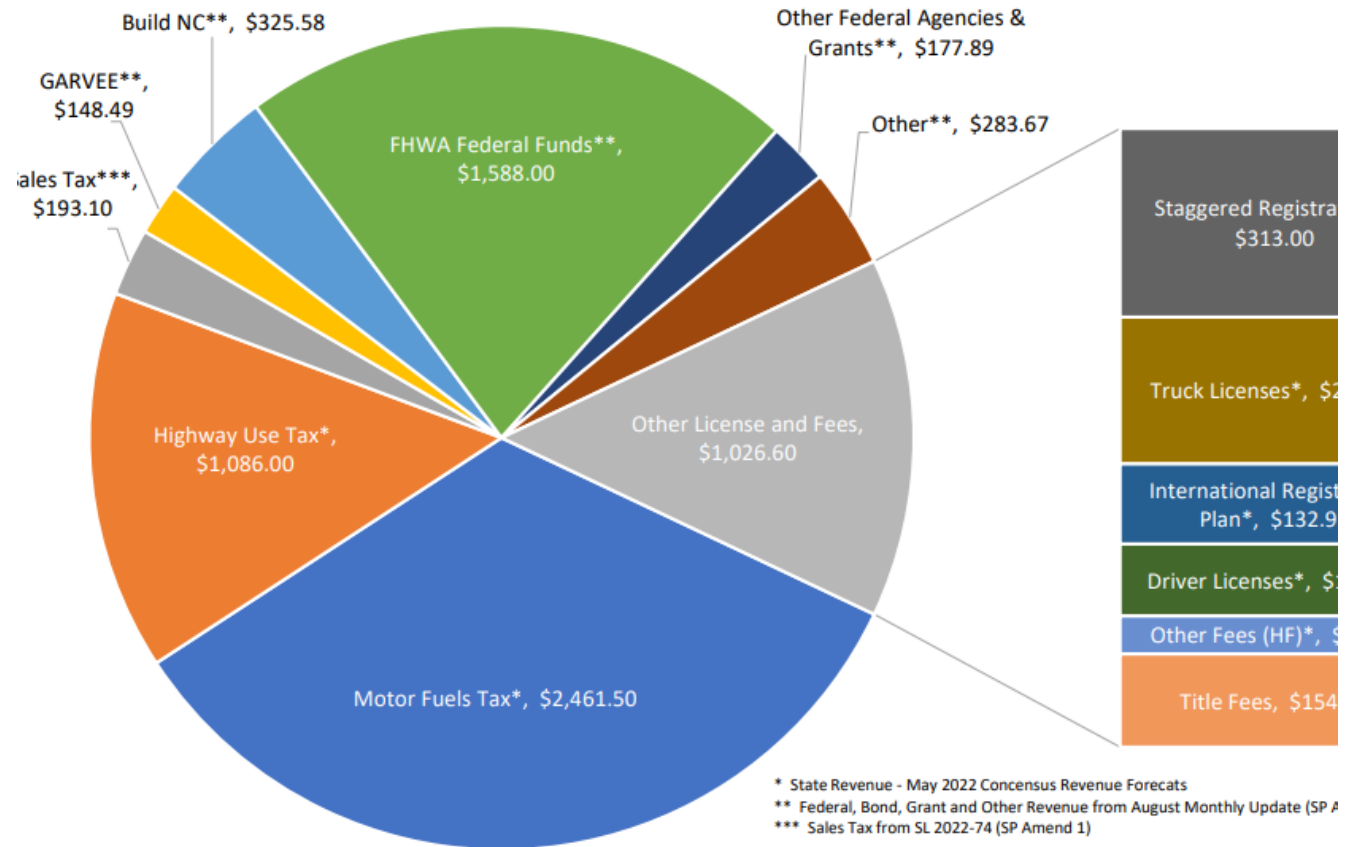
- There are NO County Roads in North Carolina (with a couple of exceptions)
 - NCDOT took over county roads in 1931
 - Second largest road network in the country (behind Texas)
- State funding is not allowed to go towards stand-alone bicycle & pedestrian projects (STI law)



FUNDING SOURCES

- About 75% of funding comes from State sources
- About 25% of funding comes from Federal sources

Transportation Revenue Sources
SFY 2023 - \$7.29 Billion



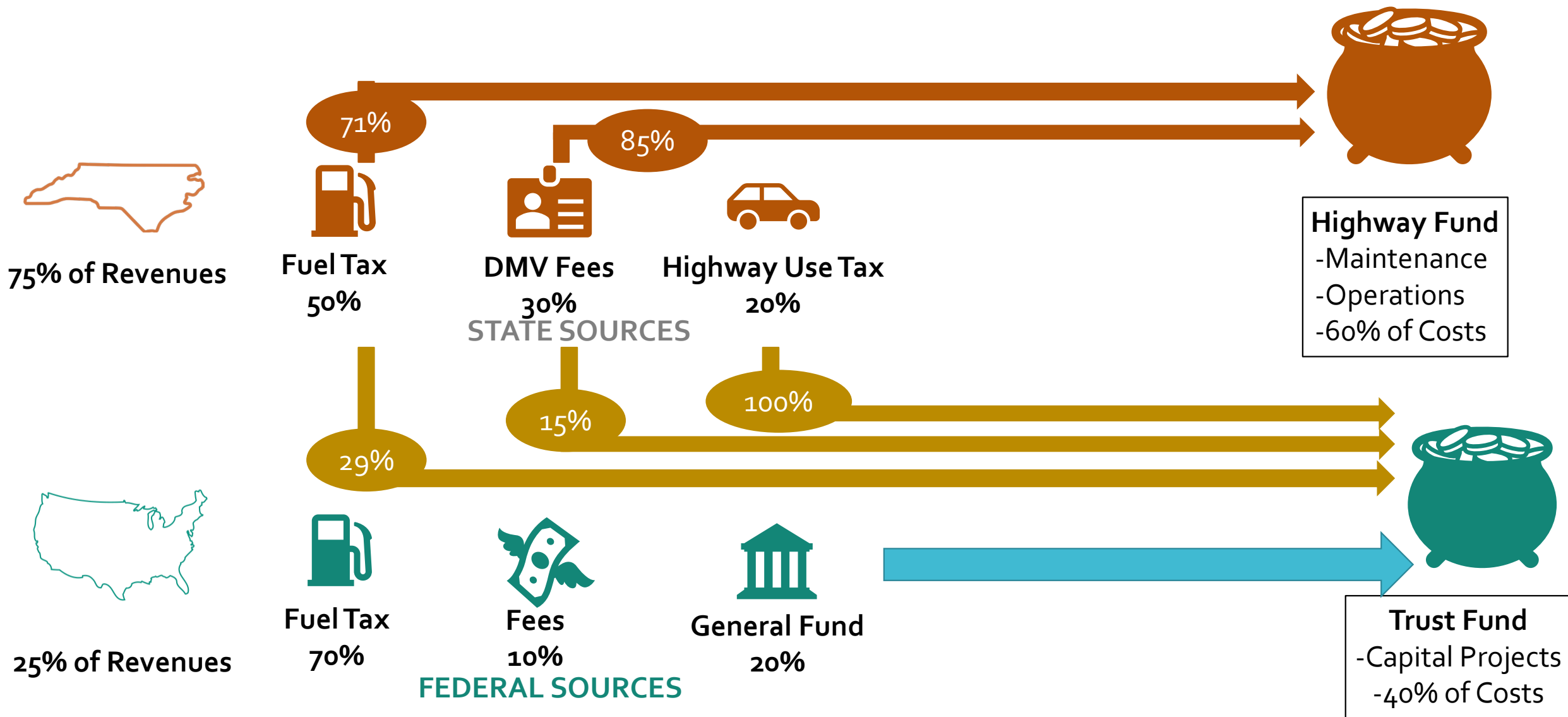
HIGHWAY FUNDING

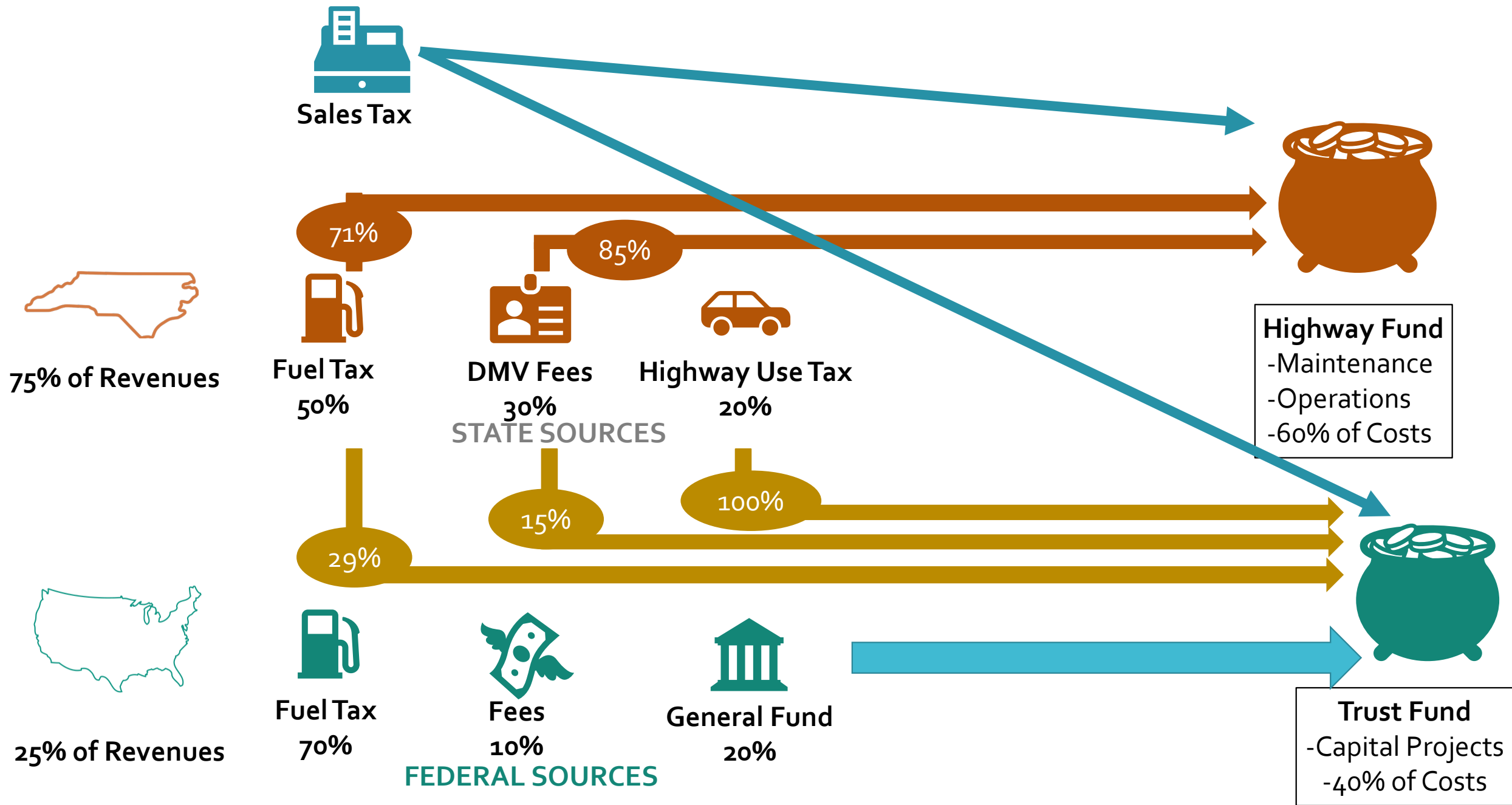
Highway Fund

- Focuses on maintenance activities: bridge replacements, resurfacing, paving unpaved roads, etc.
- Provides Powell Bill Funding annually to municipalities with a municipal road network

Highway Trust Fund

- Focuses on Capital Improvements programmed through STI/Prioritization





TIP/STIP

French Broad River MPO Orientation 2024

THE MPO'S PRIMARY PRODUCTS

UPWP

- Unified Planning Work Program
- Determine the Tasks Needed to Plan the Transportation Network

MTP

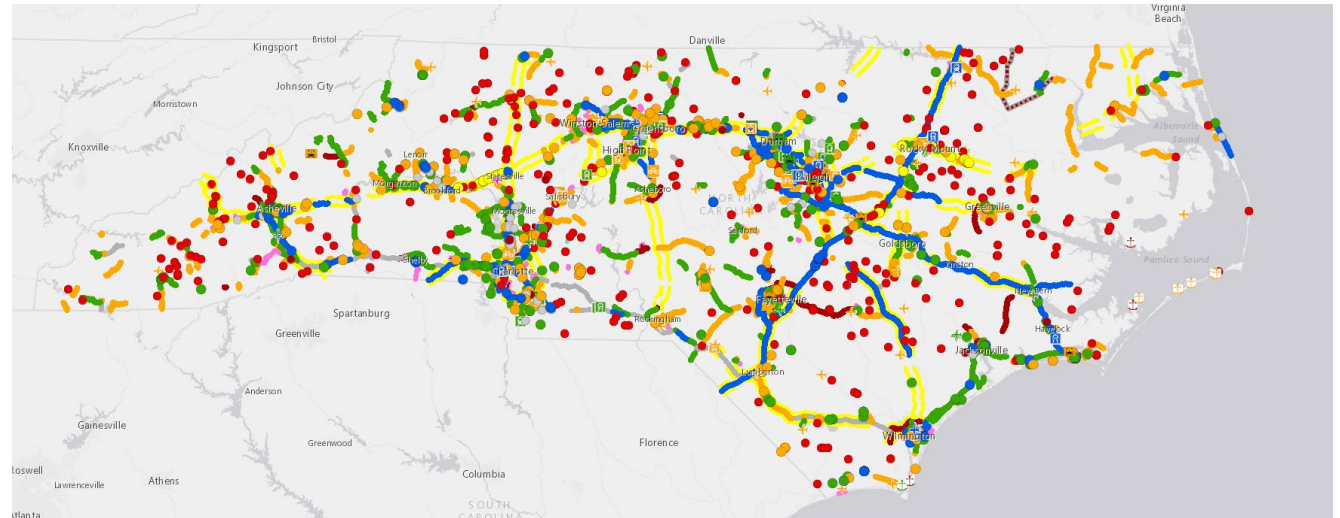
- Metropolitan Transportation Plan
- Determine Long-Range Goals and Priorities (Projects) for the Transportation Network

TIP

- Transportation Improvement Program
- Determine the best use of available transportation funding for the region

STATEWIDE TRANSPORTATION IMPROVEMENT PROGRAM (STIP)

- A 10-year State and Federal-mandated plan that identifies the construction funding for and scheduling of transportation projects throughout the state.
- NOTE: the federal requirement is for four-years, NCDOT uses a ten-year document



STATEWIDE TRANSPORTATION IMPROVEMENT PROGRAM (STIP)

- **The STIP (and TIP) include funding, scope, and schedules for the following modes and programs:**
 - Highways
 - Aviation
 - Bicycle & Pedestrian
 - Ferry
 - Public Transportation
 - Rail
 - Governor's Highway Safety and statewide programs
- **The STIP is organized by 14 transportation divisions**



TRANSPORTATION IMPROVEMENT PROGRAM (TIP)

- The TIP is the MPO's subset of the STIP
 - Maintained by the MPO
 - Must MATCH the STIP in projects, schedule, scope
 - Developed from the MTP
 - Updated every 2 years



- Assigns specific funding to implement a project
- Covers 4-10 years
- Approved by MPO Board and Governor
- Reflects all regionally-significant projects

[illegible]

TIP “CHANGES”

- The TIP must match the STIP in projects, schedule, and scope.
- Amendments are substantial changes made by the request of DOT or the MPO, which are brought before the MPO's TCC and Board on a quarterly basis
- Modifications are mostly minor or administrative changes made by DOT or the MPO and the Board/TCC is notified of the changes
 - Rolling notifications, included in both quarterly basis as well as other monthly meetings

TIP AMENDMENTS

STIP DELETIONS					
* B-5992	- FRENCH BROAD RIVER METROPOLITAN	SR 1620 (FLETCHER MARTIN ROAD), REPLACE BRIDGE	RIGHT-OF-WAY	FY 2022 -	\$67,000 (BGOFF)
BUNCOMBE	PLANNING ORGANIZATION	100007 OVER FRENCH BROAD RIVER AND SOUTHERN	UTILITIES	FY 2022 -	\$543,000 (BGOFF)
PROJ.CATEGORY		RAILROAD.	CONSTRUCTION	FY 2024 -	\$3,462,000 (BGOFF)
DIVISION		<u>REMOVE PROJECT AT THE REQUEST OF THE</u>		FY 2025 -	\$3,417,000 (BGOFF)
		<u>STRUCTURES MANAGEMENT UNIT.</u>		FY 2026 -	\$622,000 (BGOFF)
					\$8,111,000

- If a substantial change is made to the TIP:
 - Addition or deletion of federally funded or state funded project to the first 4 years of the tip
 - Shifts project schedule, ROW or construction dates in/out of the 4-year window.
 - Change in scope that changes the termini, project type, purpose, or number of lanes
 - Change in cost greater than \$2million and 25% original cost
 - Change in federally or state-funded transit , bicycle, or pedestrian project greater than 1 million or 25%
 - Modification to project scope that will cause a revision of NEPA documentation or alter NEPA determination
- Requires 20-day public comments. Before MPO Board approval.
 - Public Comments can be presented to the Boards at the meeting before adoption.

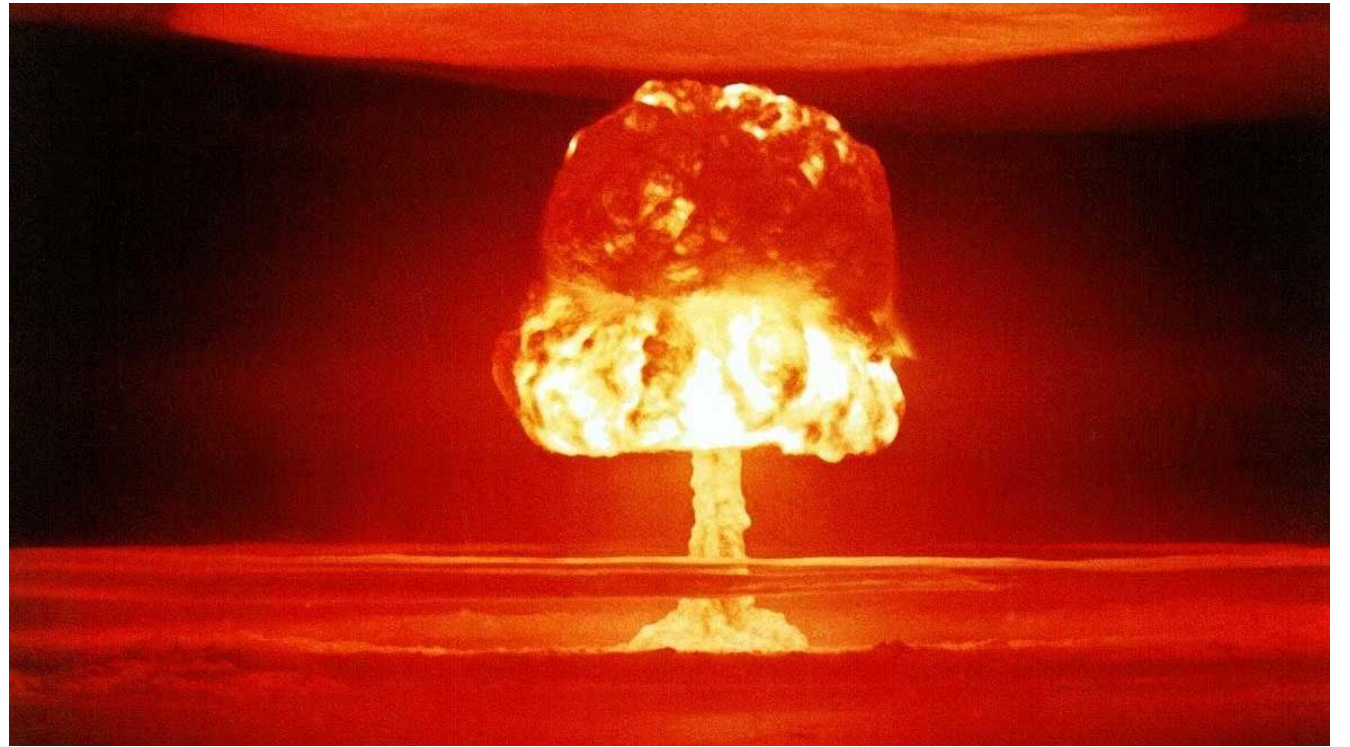
TIP MODIFICATION

STIP MODIFICATIONS						
* HL-0014	- FRENCH BROAD RIVER METROPOLITAN	SR 3214 (BILTMORE AVENUE), WHITE FAWN DRIVE	ENGINEERING	FY 2022 -	\$28,000	(BGANY)
BUNCOMBE	PLANNING ORGANIZATION	INTERSECTION. INSTALL A TRAFFIC SIGNAL AND		FY 2022 -	\$32,000	(BGDA)
PROJ.CATEGORY		CONSTRUCT PEDESTRIAN IMPROVEMENTS.		FY 2022 -	\$15,000	(L)
DIVISION		<u>ADD RIGHT-OF-WAY NOT PREVIOUSLY PROGRAMMED</u>	RIGHT-OF-WAY	FY 2022 -	\$20,000	(BGANY)
		<u>AT THE REQUEST OF THE DIVISION.</u>		FY 2022 -	\$5,000	(L)
			CONSTRUCTION	FY 2023 -	\$272,000	(BGANY)
				FY 2023 -	<u>\$68,000</u>	(L)
					\$440,000	

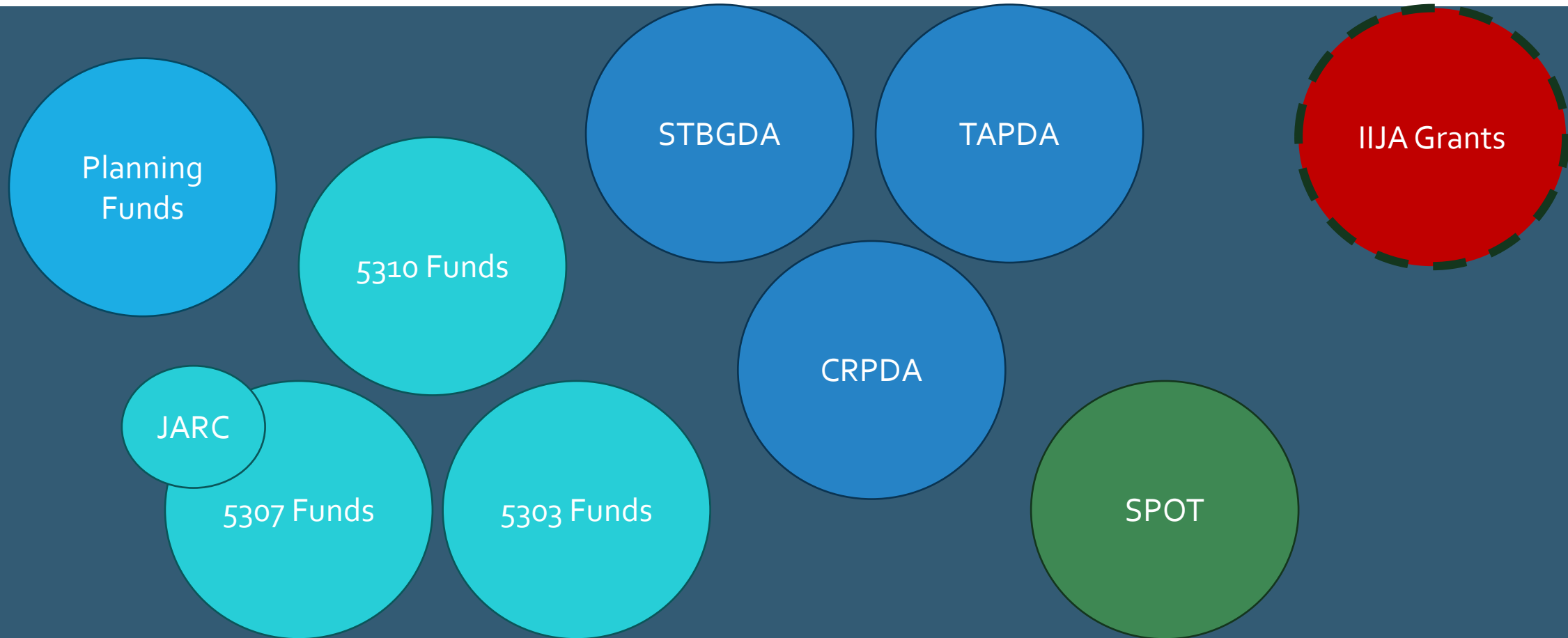
- The MPO Board will be notified about TIP Modifications for information purposes, but they will not need to be approved by the Board.
- Public hearing and public notice are not required
- Modifications include:
 - Changes in projects 5 years or beyond.
 - Minor change to scope, sponsor funding, descriptions.
 - Sub \$2 million/\$1 million or less than 25% changes in project costs.
 - Changes to locally funded projects, traditionally funded (CMAQ/5307), or emergency relief funds.
 - Corrections top data entry/typographical errors.
 - modifications do not materially change the project's intended function, nature, costs or environmental impact

TIP

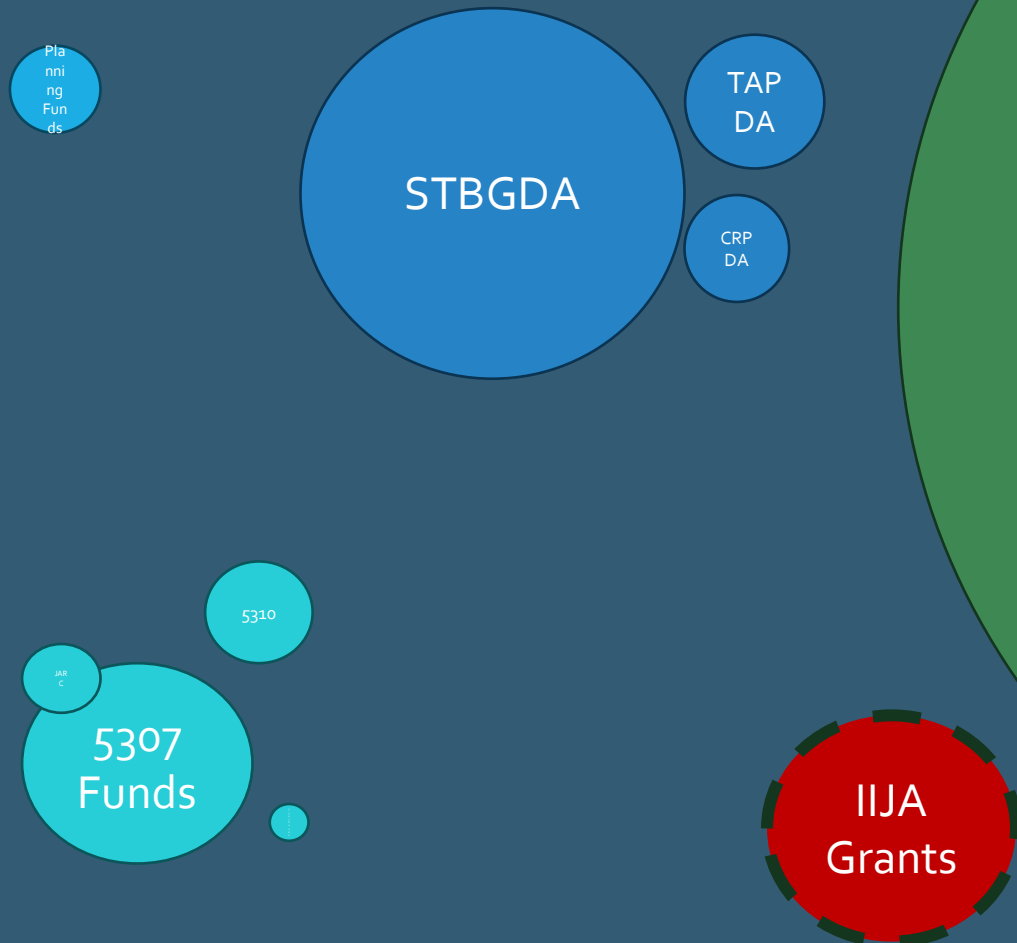
- If the TIP does not align with the state's TIP (STIP), the project may not move forward
- Not just that specific project. . .ALL the projects in the TIP



FUNDING OVERVIEW

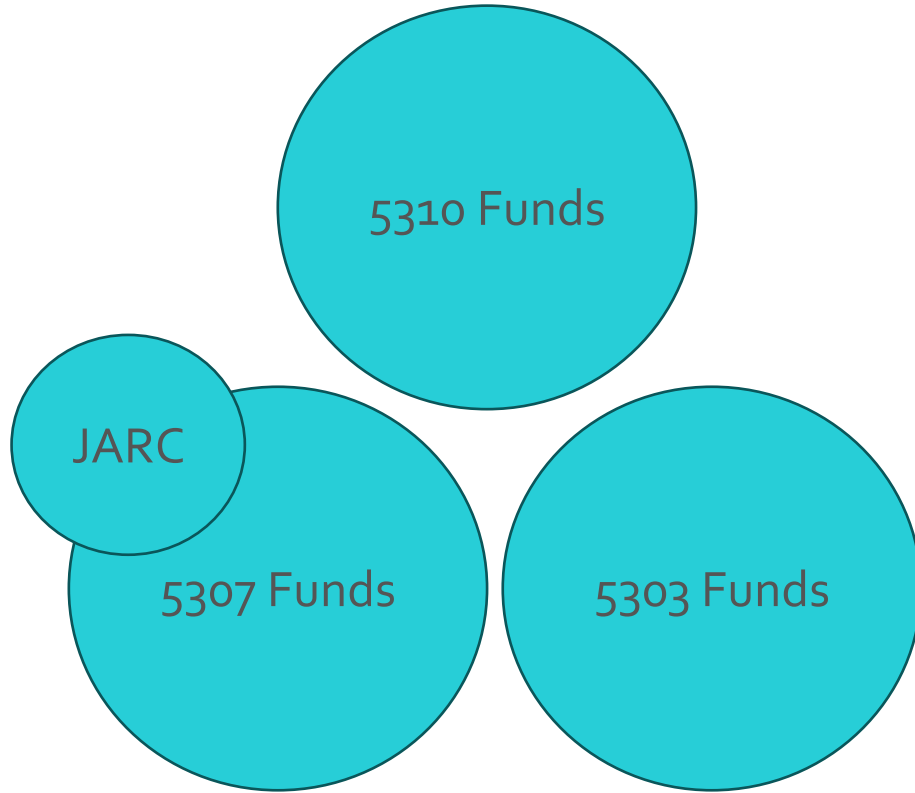


FUNDING OVERVIEW



SPOT

Semi-Proportionate to Funding



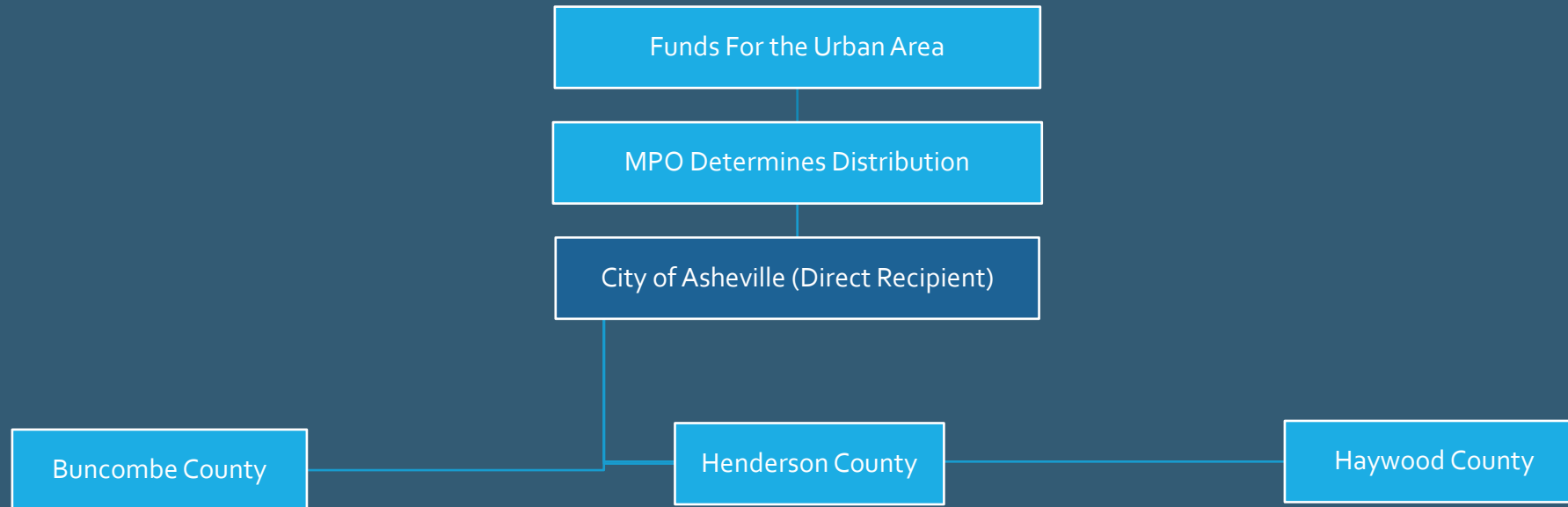
TRANSIT FUNDS

5307 FUNDS

JAR
C

5307 Funds

- Urban Transit Formula Funds provided through FTA



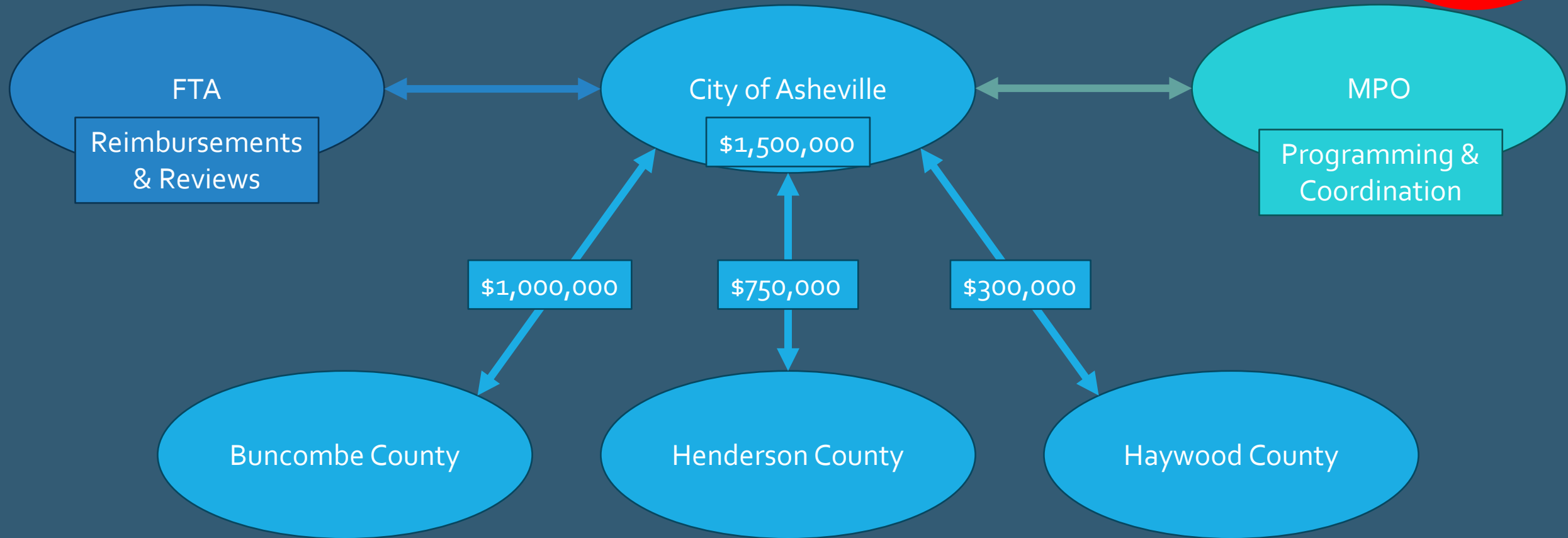
Largest Transit Funding Program (by far)

- Can be used for Capital, Operations, Planning

5307 FUNDS

JAR
C

5307 Funds



JAR
C

5307 Funds

JARC SET-ASIDE

- JARC = Job Access Reverse Commute
- 10% of Regional 5307 Funds are Set-Aside for JARC Projects
 - Allows non-profits to apply
 - The vast majority has historically gone to Asheville (Route 170)



5310 FUNDING

5310 Funds

- FTA Program Focusing on Seniors and Individuals with Disabilities
- Relatively Small Amount of Funding (About \$500,000/year)
- Non-Profits, Local Governments, Transit Agencies are eligible
- 10% of funding set-aside for administration (City of Asheville)



WHAT'S IN IT FOR THE DESIGNATED RECIPIENT? 5303 FUNDS

5303 Funds

- 5303 are Regional Planning Funds for Metropolitan Areas
- Asheville Receives \$150,000-\$200,000/year in 5303 funds (sole recipient)
- Asheville pays 10% match (80% federal, 10% state)



OTHER TRANSIT FUNDS

- 5339 (Bus Program Funding- Recurring Regional Funds -> 100% to the City of Asheville)
- All Stations Accessibility Program
- Capital Investments Program (Former New Starts)
- Other IIJA Funds

LOCALLY ADMINISTERED PROJECTS

STBGDA

TAPDA

CRPDA

LOCALLY ADMINISTERED PROJECTS

STBGDA

TAPDA

CRPDA

- Surface Transportation Block Grant (\$4,700,000/Year)
 - Road Projects (on functionally classified roads)
 - Bike/Ped Projects
 - Transit Capital Projects
- Transportation Alternatives Program (\$500,000/Year)
 - Primarily Bike/Ped Projects
- Carbon Reduction Program (\$300,000/Year)
 - Bike/Ped Projects
 - Transit Capital Projects
 - EV Projects



LOCALLY ADMINISTERED PROJECTS

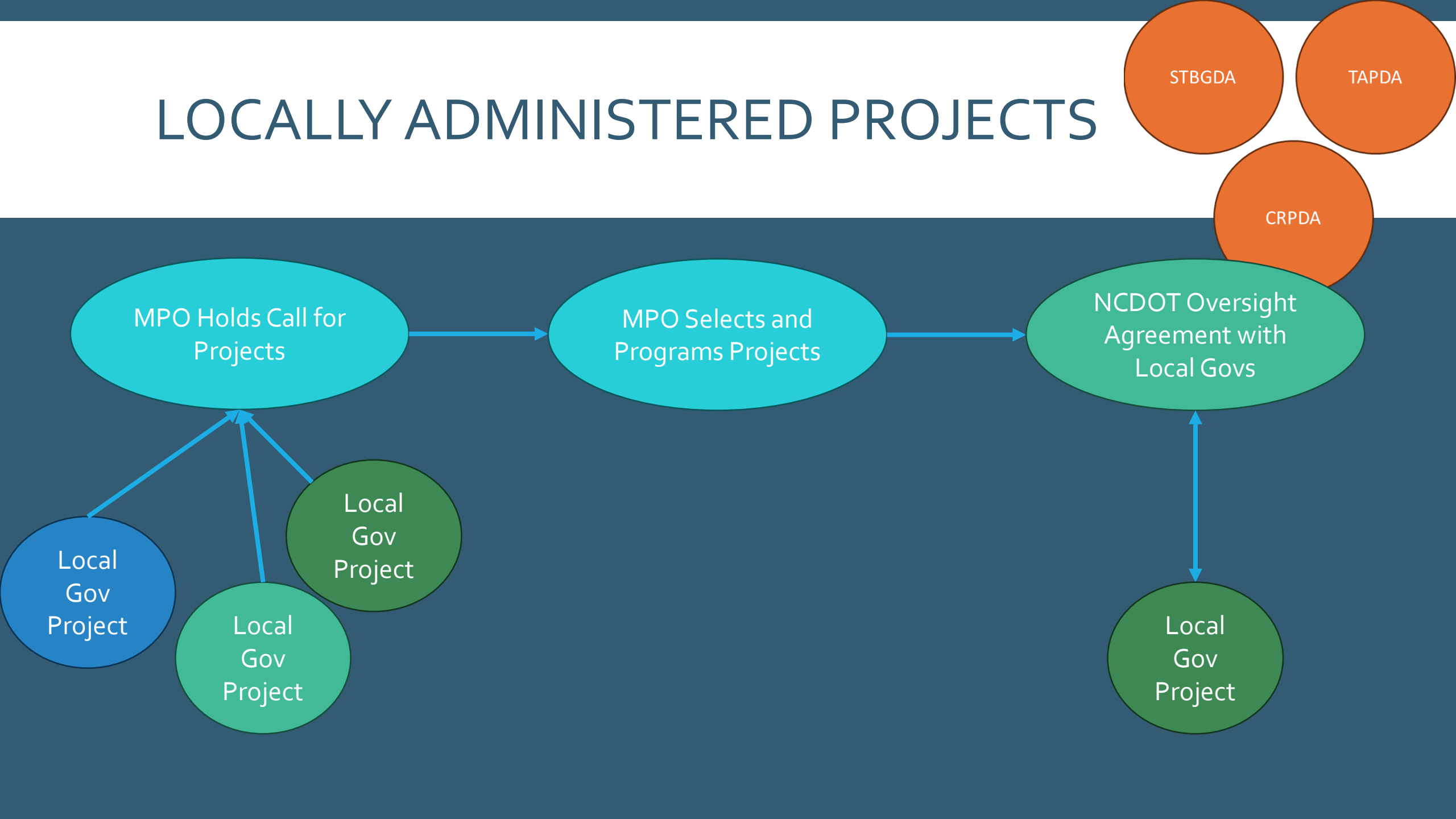
STBGDA

TAPDA

CRPDA

- Requirements
- 20% local match (of the total)
- Competitive Selection Process at the MPO
- Lots of Federal Requirements
- NCDOT oversight of local projects is considerable
 - NCDOT management of projects recommended

LOCALLY ADMINISTERED PROJECTS



LOCALLY ADMINISTERED PROJECTS EXAMPLES

STBGDA

TAPDA

CRPDA

Examples

- **Hendersonville Road Sidewalks**
- **FBR West Greenway**
- Johnston Blvd Sidewalks
- Onteora Drive Sidewalks
- New Haw Creek Sidewalks
- Nasty Branch Greenway
- Greenway Connectors
- NC 110 Roundabout
- Woodfin Greenways
- Riverwalk Greenway

More Examples

- Coxe Avenue Improvements
- Biltmore Avenue @ White Fawn Drive Intersection Improvements
- Bus Purchases
- North RAD Greenway
- Safe School Crossings
- **New Leicester Highway Sidewalks**
- **Broadway Street Sidewalks (NCDOT Admin)**
- **Enka Heritage Trail**

More Examples

- **Charlotte Street/I-240 Pedestrian Signals (NCDOT Admin)**
- Riceville Road Sidewalks (NCDOT Admin)
- Haywood Road Bike/Ped Improvements (NCDOT Admin)
- Ecusta Trail
- Soco Road Pedestrian Improvements
- Heart of Fletcher Improvements

SPOT

AKA Prioritization, AKA P 7.0

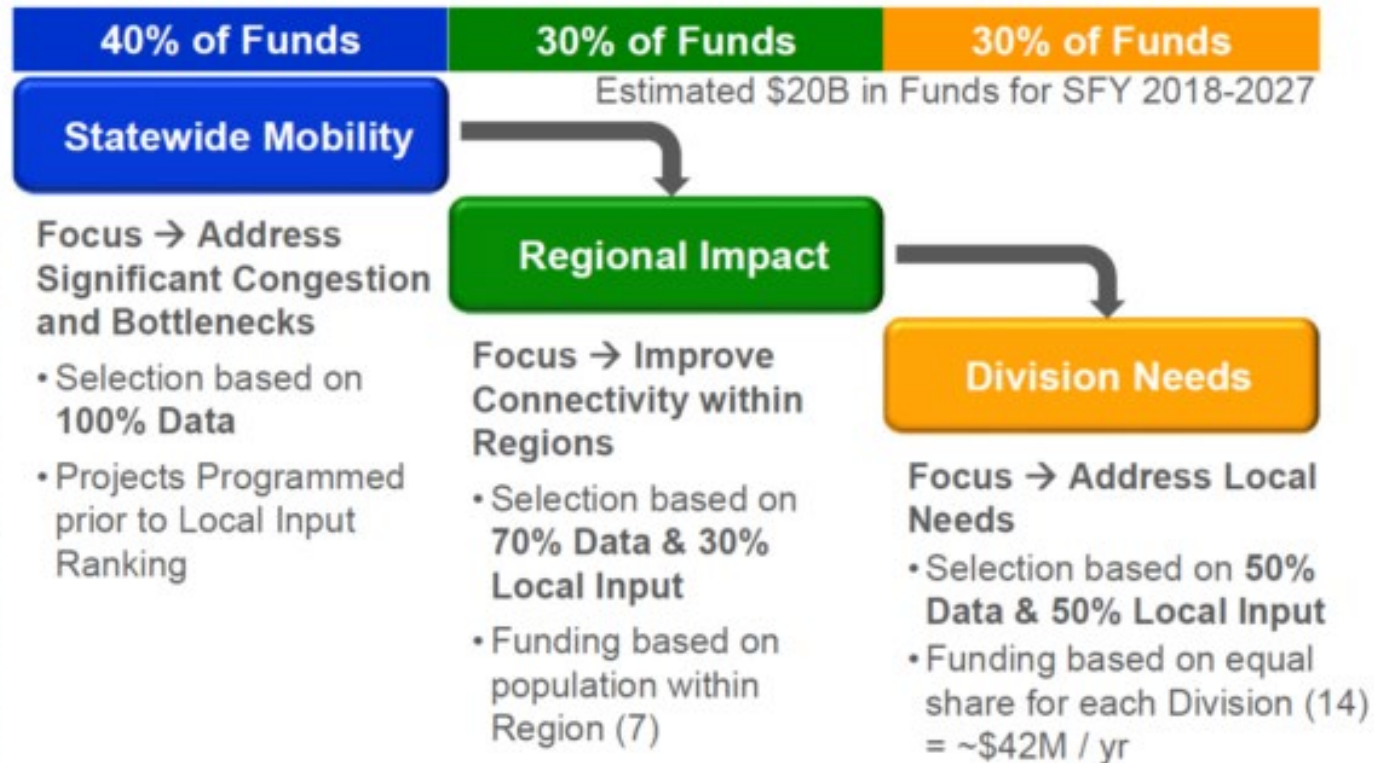
SPOT



SPOT

- SPOT = Strategic Prioritization Office of Transportation
- How NCDOT Programs the Majority of Federal & State Transportation Funds
- Determined by the Strategic Transportation Investments Act of 2012
- Funding for Bike/Ped & Transit Capital Projects (6-10% of funding goes to non-highway projects)
- Where Nearly Every Highway Improvement Project is Funded

How STI Works



PRIORITIZATION

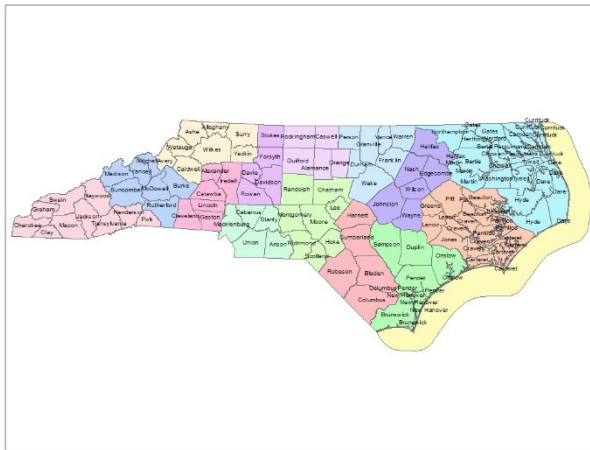
FUNDING DISTRIBUTIONS

SPOT

40%

Statewide Mobility

Projects Selected
Across the State By
Quantitative Score



30%

Regional Impact

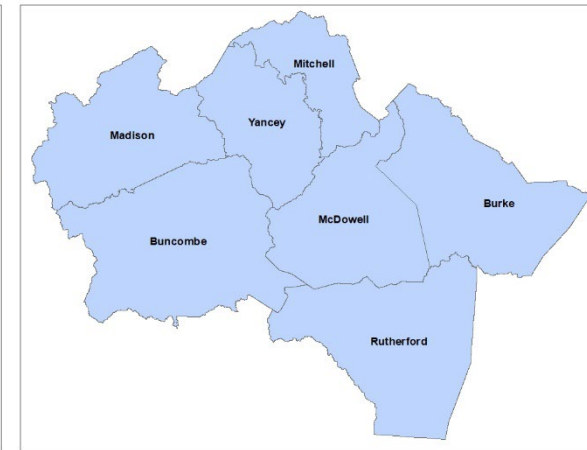
Funding Distributed to
7 Regions By
Population (8.6% for
Region G)



30%

Division Needs

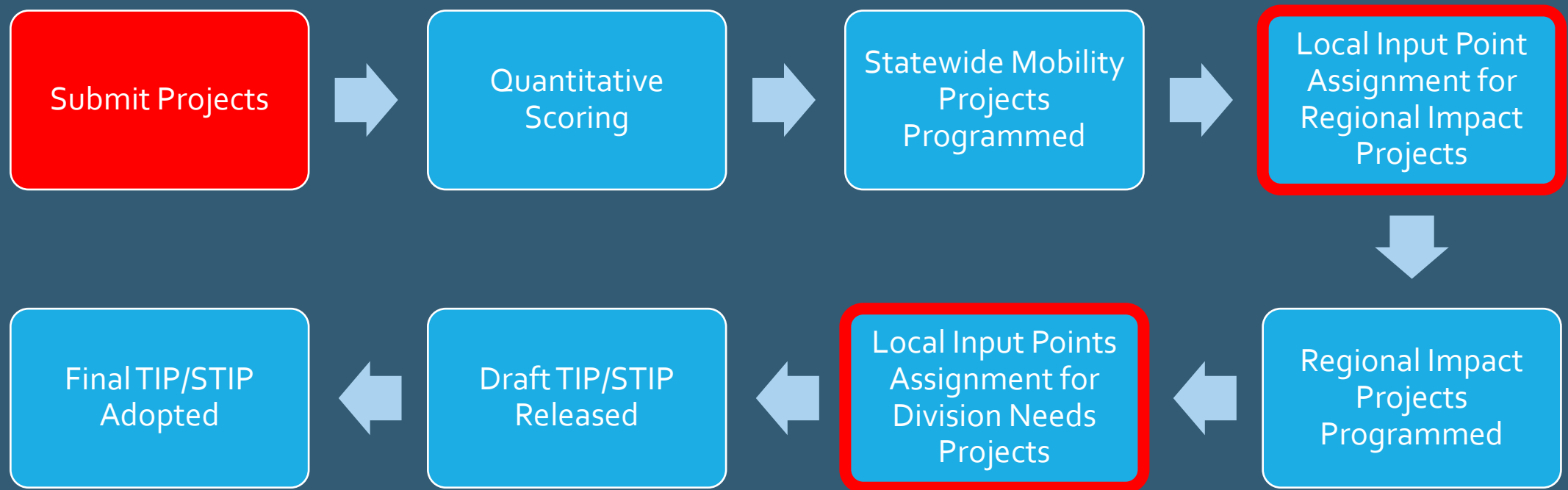
Funding Distributed to
14 Divisions Equally
(7.14% to Division 13)



Outside Planning Organizations Impact All of These Funding Buckets

THE GENERAL PROCESS

SPOT



MPO SUBMITTALS

SPOT

SPOT 7.0

Home / SPOT 7.0

THE PUBLIC COMMENT PERIOD FOR P 7.0 DRAFT PROJECT SUBMITTALS IS NOW OPEN AND WILL CLOSE ON OCTOBER 19TH AT 1:00PM

Public comment can be made using the form below. Comments can also be submitted via phone at (828)-251-6622, via email at mpo@landofsky.org, or at the [October Board meeting](#) (in-person or virtually) which will be held on October 19th at 1:00pm.

[Click Here to See the Draft List of Project Submittals](#)

P 7.0 Submittals Public Comment

Fields marked with an * are required

- 26 Project Submittals by Mode
- Several Capacity Projects
 - I-40
 - I-26
- Numerous Safety Projects
 - Hendersonville Road
 - Tunnel Road
 - Smokey Park Highway
 - Others
- Passenger Rail & Rail Crossings
- Bike/Ped Improvements
- Transit Capital Improvements

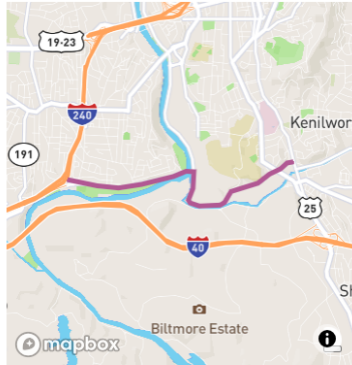
TRANSPORTATION IMPROVEMENT PROGRAM

SPOT

U-4739: I-240 TO NC 81/SR 3214 (BILTMORE AVENUE). WIDEN TO MULTI-LANES WITH NEW BRIDGE OVER THE FRENCH BROAD RIVER.

ADD
COMMENT

SHARE



PROJECT ID
U-4739

PROJECT TYPE
HIGHWAY

MUNICIPALITY
CITY OF ASHEVILLE

COUNTY
BUNCOMBE

LEAD AGENCY
NCDOT

DIVISION(S)
13

LOCALLY ADMINISTERED PROJECT

PRIORITIZATION STATUS
SCHEDULED FOR DELIVERY

ROUTE/ROAD NAME
SR 3556 (AMBOYROAD/ MEADOW ROAD)

TOTAL LENGTH
0

DESCRIPTION
I-240 TO NC 81/SR 3214 (BILTMORE AVENUE). WIDEN TO MULTI-LANES WITH NEW BRIDGE OVER THE FRENCH BROAD RIVER.

FUND OVERVIEW

FUND HISTORY

REVISION HISTORY

	PRIOR	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029
rogram (Any Area)	-	-	\$2,242,000	\$5,382,000	\$5,382,000	\$1,794,000	\$3,700,000
	-	-	\$2,242,000	\$5,382,000	\$5,382,000	\$1,794,000	\$3,700,000
rogram (Any Area)	-	-	-	-	-	\$8,550,000	\$12,385,000
	-	-	-	-	-	\$8,550,000	\$12,385,000
rogram (Any Area)	-	-	\$3,700,000	\$3,700,000	-	-	-
	-	-	\$3,700,000	\$3,700,000	-	-	-

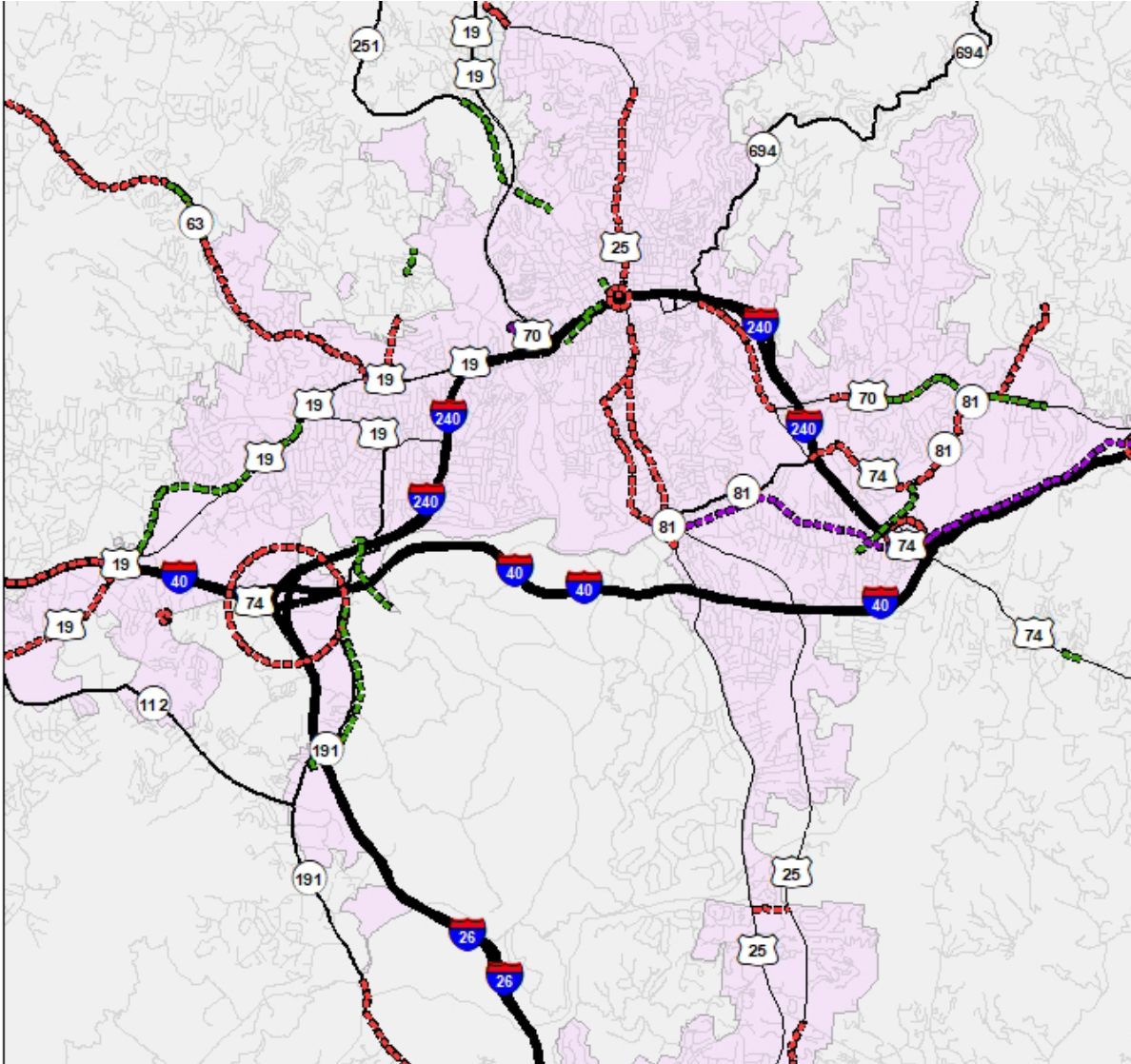
- Federally required document that reflects planned transportation investments
- Requires coordination between NCDOT and the MPO
- <https://frenchbroadrivermpo.org/2024-2033-transportation-improvement-program-tip/>

PROJECT EXAMPLES



SPOT

- I-26 Widening
- NC 191 Widening
- US 64 Modernization
- Russ Avenue Upgrades
- South Main Street Widening
- Deaverview Road Sidewalks
- North RAD Greenway (Partially LAPP)
- Craven Street Bridge Improvements
- I-26 Connector
- Amboy/Meadow Modernization
- Swannanoa River Road Modernization
- Riverside Drive Modernization
- Mills Gap Road Modernization
- Sweeten Creek Road Widening
- Future I-26 Widening



PROJECTS BEING CONSIDERED IN P 7.0

- Sweeten Creek Road Widening (south of Mills Gap)
- Biltmore/McDowell
- Tunnel Road
- Merrimon Avenue
- Reed Creek Greenway Extensions
- WNC Passenger Rail
- Swannanoa River Road (S Tunnel Road to Tunnel Road)
- Hendersonville Road

P 7.0

- Statewide Mobility Projects programmed in May, 2024
- Regional Impact Projects programmed in September, 2024
- Division Needs Projects programmed in March, 2025

IIJA GRANTS



IIJA GRANTS



- Tons and Tons of Discretionary Grants
- Most Likely to be Attractive to the City:
 - -RAISE
 - -Reconnecting Communities
 - -Safe Streets for All
 - -FTA All Stations Accessibility Program



SAFE STREETS FOR ALL

- All implementation projects must be in a Vision Zero/Safety Plan
 - No plan on the books currently qualifies as a Vision Zero/Safety Action Plan, per USDOT requirements
- The MPO is getting started on a Regional Safety Plan that would cover the entire region - \$400,000 Safe Streets for All Grant

RAISE

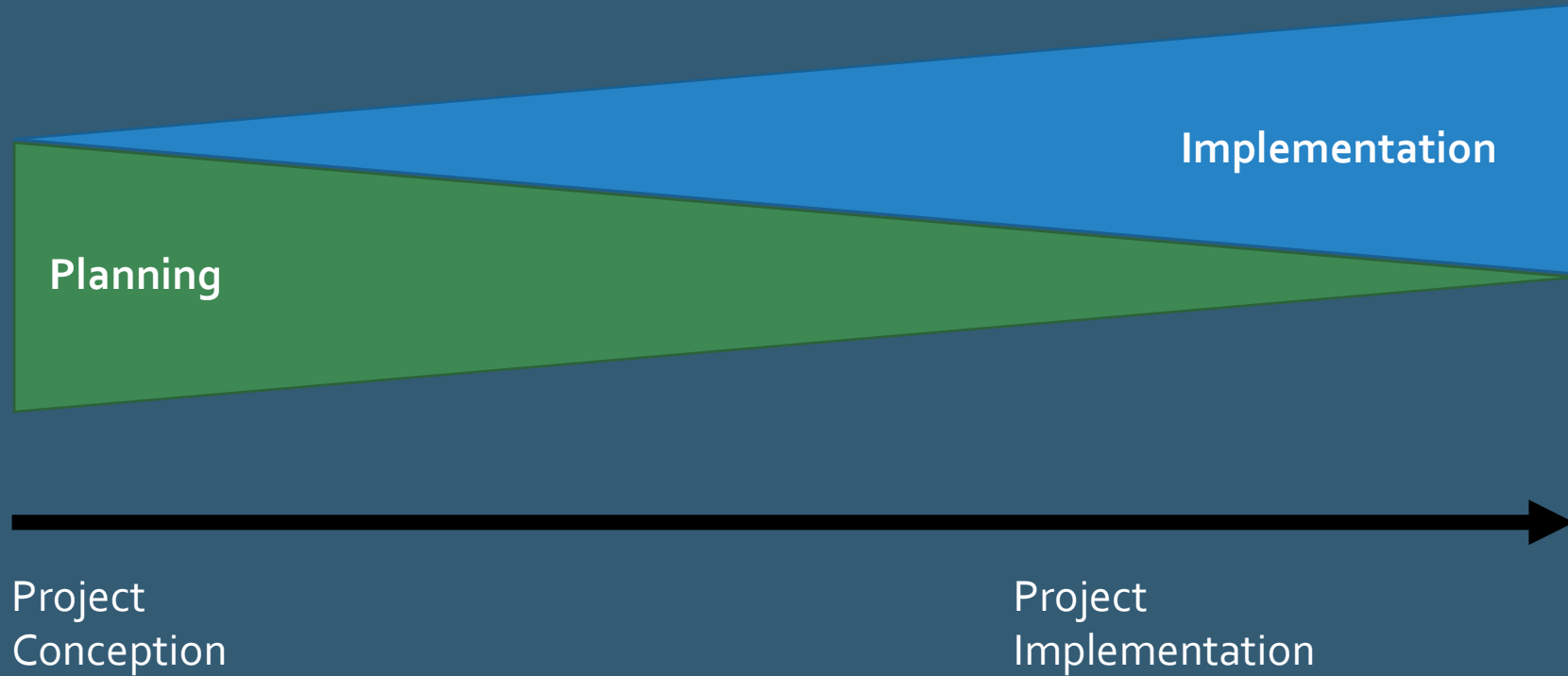
- Ecusta Trail awarded funds in 2023
- RADTIP awarded funds (in multiple rounds)
- Formerly known as TIGER and BUILD

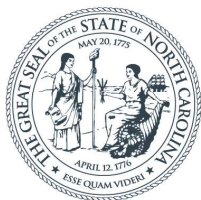


LOCAL FUNDS

- If you can build a project without federal funds. . .do that.
- Fewer regulations, fewer challenges, fewer approvals needed
- Locally-funded projects tend to move faster

ONCE A PROJECT IS FUNDED





NORTH CAROLINA Department of Transportation



Complete Streets & Early Engineering

Hannah Smith, P.E.
Planning Engineer, Division 13

March 7, 2024

Topics

- Complete Streets
 - Policy Highlights and Goals
 - Evolution
- Planning
 - Adopted Plans
 - Complete Streets Project Sheet
 - Express Designs
- Project Development
 - Summary of Project Evaluation Methodology



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.



Complete Streets Goals

- Reduce pedestrian crashes and unsafe conditions
- Improve access and mobility for those without a vehicle
- Enhance quality of life by providing transportation choices
- Ensure NCDOT has an equitable transportation system that works for everyone



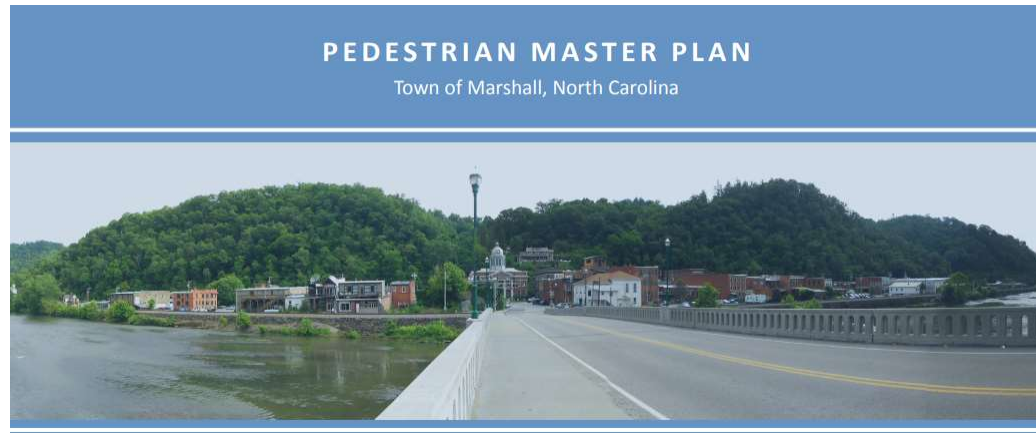
Evolution of Complete Streets and NCDOT

- NC first State to establish a Bicycle Program (1974)
 - Expanded in 1992 to also address Pedestrian accommodations.
- NCDOT Board adopts Complete Streets Policy (2009)
 - Supplemental planning and design guide created
 - Bicycle and Pedestrian Policies continue
- NCDOT Board updates Complete Streets Policy (2019)
 - Rescinded and replaced previous policies and guidelines
 - Integrated into IPD, Roadway Design Manual, and ATLAS (ongoing)
- Bike/Ped Merger with Public Transit to become the Integrated Mobility Division (2019-2021)
- Release of updated methodology for Complete Streets Review (Feb 2022)
 - Workgroups to address policy gaps: maintenance, cost, planning (Summer / Fall 2022)

Planning

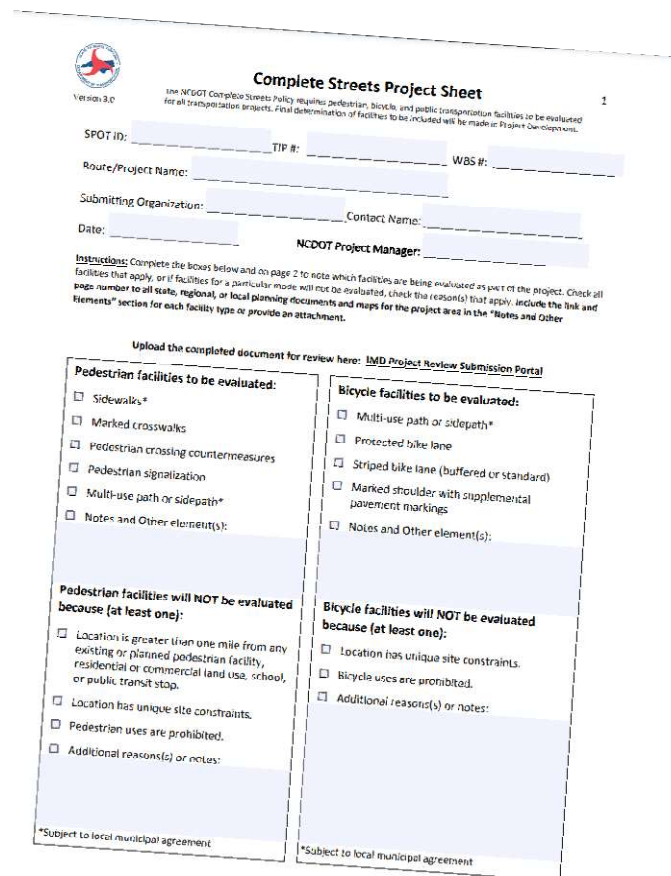
Adopted Plans

- The Comprehensive Transportation Plan (CTP) or Metropolitan Transportation Plan (MTP) will be considered the controlling plan for the identification of nonmotorized facilities to be evaluated as part of a roadway project.
- Other locally adopted plans will be considered so long as:
 1. the planned facility addresses a transportation need and
 2. the planned facility meets NCDOT's design standards



Complete Streets Project Sheet

- CTP Development
 - Outlines the recommended improvement
 - Proposes a typical cross-section for roadway project
 - Explains the identified need for the project
 - Provides Complete Street recommendations
- Strategic Prioritization
- Exceptions to Policy
 - Unique site constraints
 - Distance from existing/planned facilities
 - Bike/Peds prohibited
 - No existing/planned transit service
 - Evaluated by Complete Streets Review Team



The form is titled "Complete Streets Project Sheet" and includes the NCDOT logo. It contains fields for SPOT ID, TIP #, WBS #, Route/Project Name, Submitting Organization, Contact Name, Date, and NCDOT Project Manager. Below these fields are instructions for completing the form, including a note to upload the completed document to the IMD Project Review Submission Portal. The form is divided into two main sections: "Pedestrian facilities to be evaluated" and "Bicycle facilities to be evaluated". Each section has a list of facilities to be evaluated, a list of facilities that will NOT be evaluated because of at least one reason, and a section for additional reasons or notes. The form also includes a footer note: "Subject to local municipal agreement".

Complete Streets Project Sheet

the NCDOT Complete Streets Policy requires pedestrian, bicycle, and public transportation facilities to be evaluated for all transportation projects. Final determination of facilities to be included will be made by Project Development.

Version 3.0

SPOT ID: _____ TIP #: _____ WBS #: _____

Route/Project Name: _____

Submitting Organization: _____ Contact Name: _____

Date: _____ NCDOT Project Manager: _____

Instructions: 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. Include the link and page number to all state, regional, or local planning documents and maps for the project area in the "Notes and Other Elements" section for each facility type or provide an attachment.

Upload the completed document for review here: [IMD Project Review Submission Portal](#)

Pedestrian facilities to be evaluated:

- ☐ Sidewalks*
- ☐ Marked crosswalks
- ☐ Pedestrian crossing countermeasures
- ☐ Pedestrian signalization
- ☐ Multi-use path or sidepath*
- ☐ Notes and 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 reason(s) or notes:

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
- ☐ Notes and Other element(s):

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

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

*Subject to local municipal agreement

Express Designs

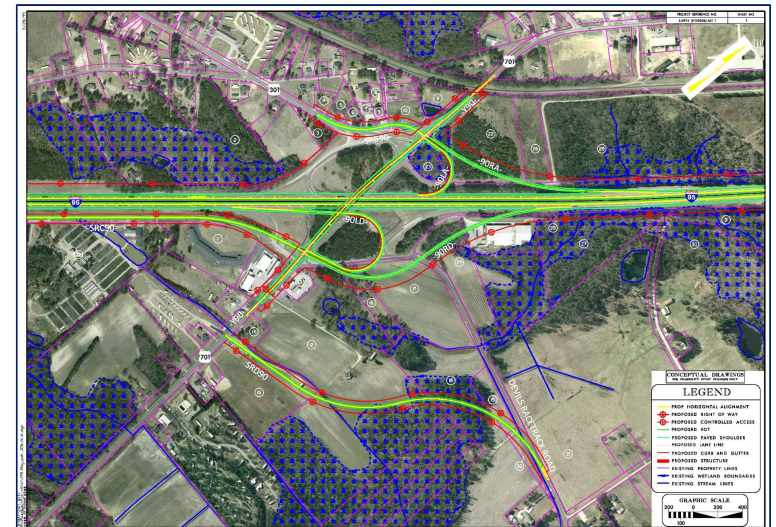
Conceptual designs when projects are in the preliminary planning stage

- 1 to 3 alternatives
- CON estimates based on itemized quantities
- ROW and UTIL estimates based on footprint

Critical to include complete streets elements to:

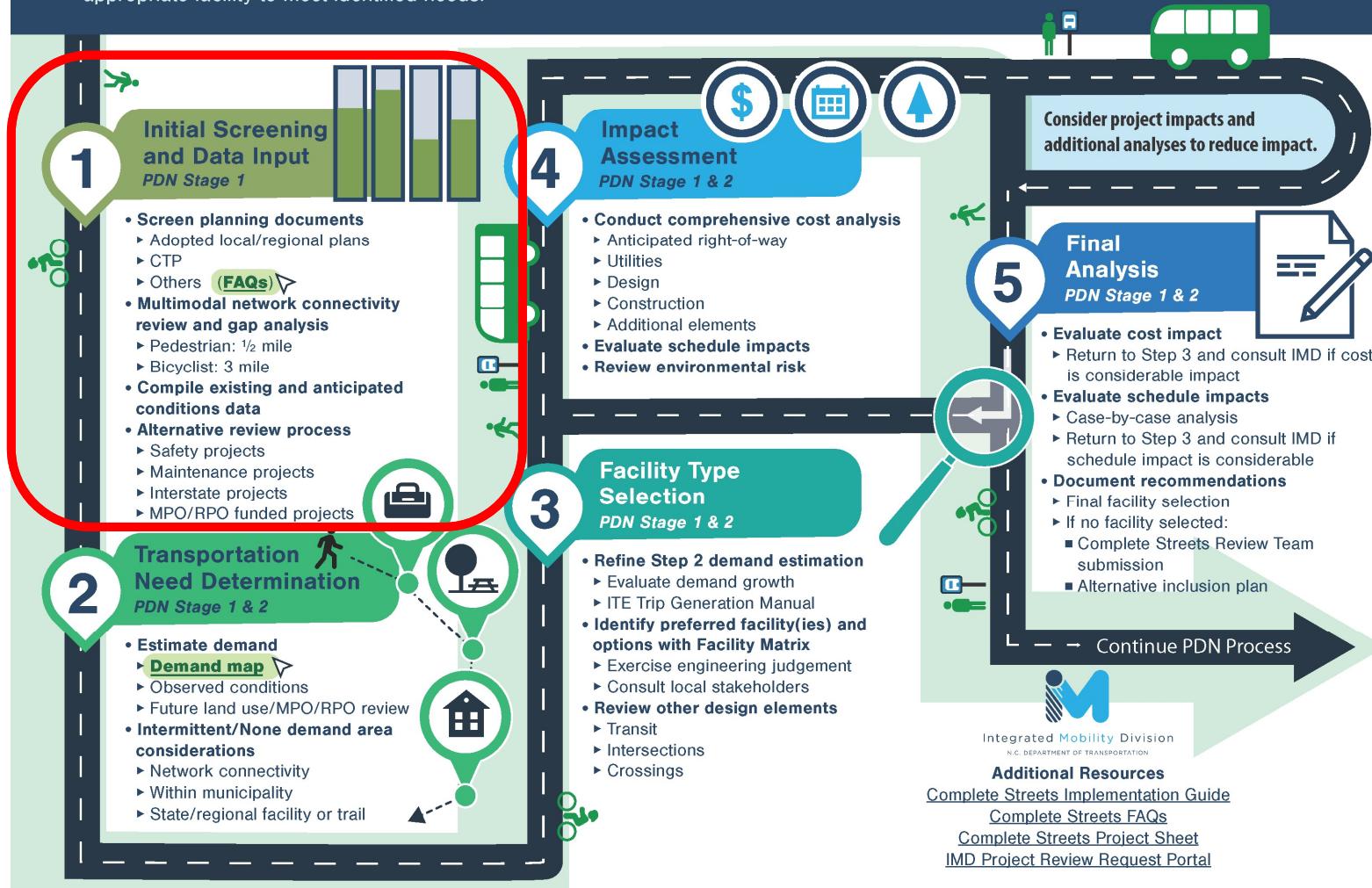
- Ensure reasonable cost estimates and
- Help limit the extent of future cost increases

Performed for Prioritization submittals and new STIP Projects



Project Development

The Complete Streets Project Evaluation Methodology process serves as guidance to aid in the evaluation of highway projects for Complete Streets elements. This guidance is intended to support Project Leads and Managers throughout the PDN stages, beginning with all five steps in PDN Stage 1 and select steps revisited in PDN Stage 2. Project Leads and Managers should supplement this process with local conversations, detailed analysis of conditions, and engineering judgement to design the appropriate facility to meet identified needs.



Thank you!

- Policy and support documents for Complete Streets are available online:
<https://connect.ncdot.gov/projects/BikePed/Pages/Complete-Streets.aspx>

Contact IMD with questions at completestreets@ncdot.gov



Transportation Planning Orientation for New Board Members

Daniel Sellers, P.E.

March 7, 2024

Agenda

- Transportation Planning Division
 - The Branch
 - Collect Traffic Data
 - Data vs Statistics
 - Seasonal Factors
- Traffic Forecast
 - The Purpose of a Traffic Forecast
 - General Forecast Information
 - Travel Demand Models
 - Data Gathered from Community

Transportation Planning Division

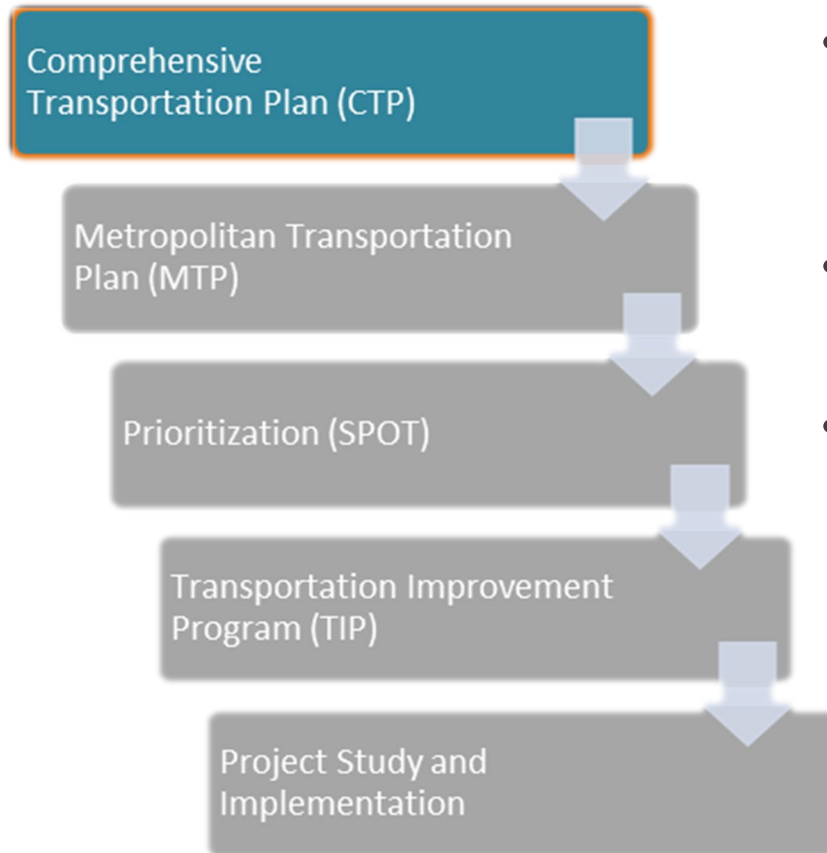
Transportation Planning Division

- Collect Traffic Data
 - Coverage Counts, Truck Counts, Turning Movements, Weigh-In-Motion, Continuous Counts, Project Counts
- Analyze Traffic Data
 - Seasonal Factors, AADT, VMT, HPMS, Traffic Factors
- Project Traffic Data
 - Traffic Forecast, Travel Demand Model, CTPs, MTPs

Transportation Planning Division

- Planning Groups
 - Prepare Comprehensive Transportation Plans & MTPs
 - Liaison between Planning Organizations, SPOT, Congestion Management, Feasibility Studies, FHWA, State Legislators
- Travel Demand Modeling
 - Regional Models, MPO Models, Statewide Models
- Traffic Surveys Group (TSG)
 - Collect Traffic Data, Analyze Traffic Data,
- Traffic Forecasting
 - Project Traffic Data

Where does the CTP fit into the “Big Picture”?



- Very use to thinking about project delivery in a linear process. Experience teaches us otherwise.
- The CTP changes the least often and provides a strong foundation.
- As a Needs based plan, CTPs do not change with funding, or project design, or prioritization, but only with completion and growth.

Collect Traffic Data

Collect Traffic Data

Annual Average Daily Traffic (AADT) volume maps are published annually,

- Once NCDOT has collected data for the entire state.
- Generally, in the fall of the next year.

Collection Schedule

- With more than 44,000 portable traffic count stations throughout the state, usually collects data for Interstate, U.S. and N.C. routes every year.
- Secondary road volumes are collected every two years with approximately half being counted each year.

Traffic volume data in North Carolina's 19 major urbanized areas, is collected on a two-year cycle:

- **Asheville Urban areas counted during even years**

Data vs. Statistics

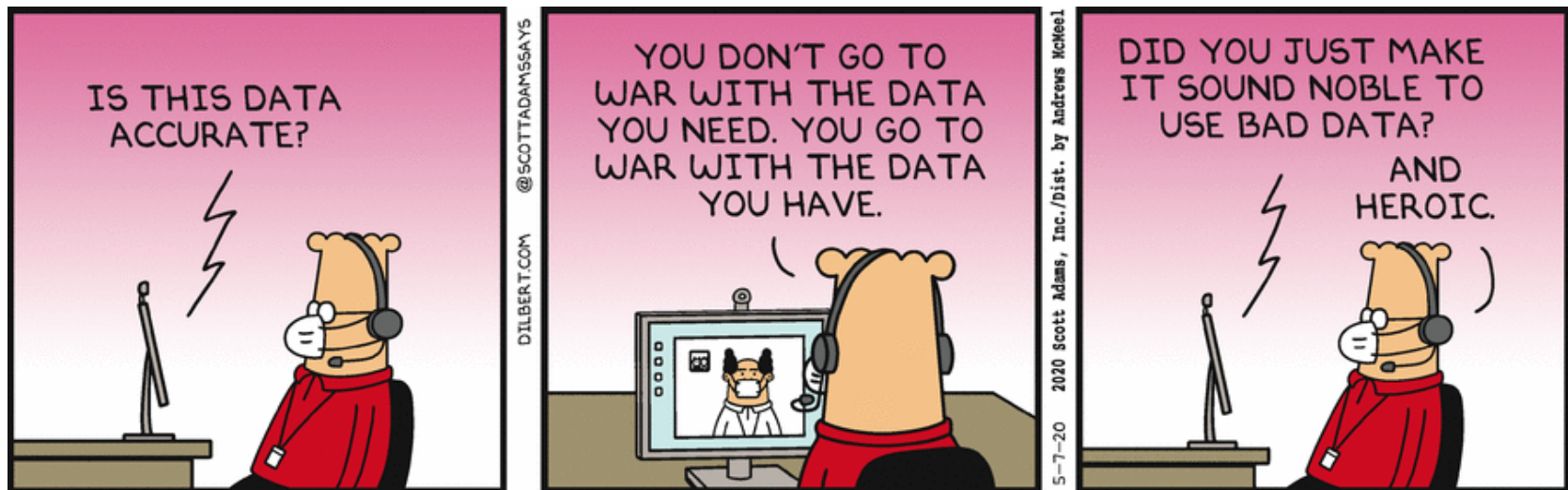
Data vs. Statistics: Definitions

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 uses statistics

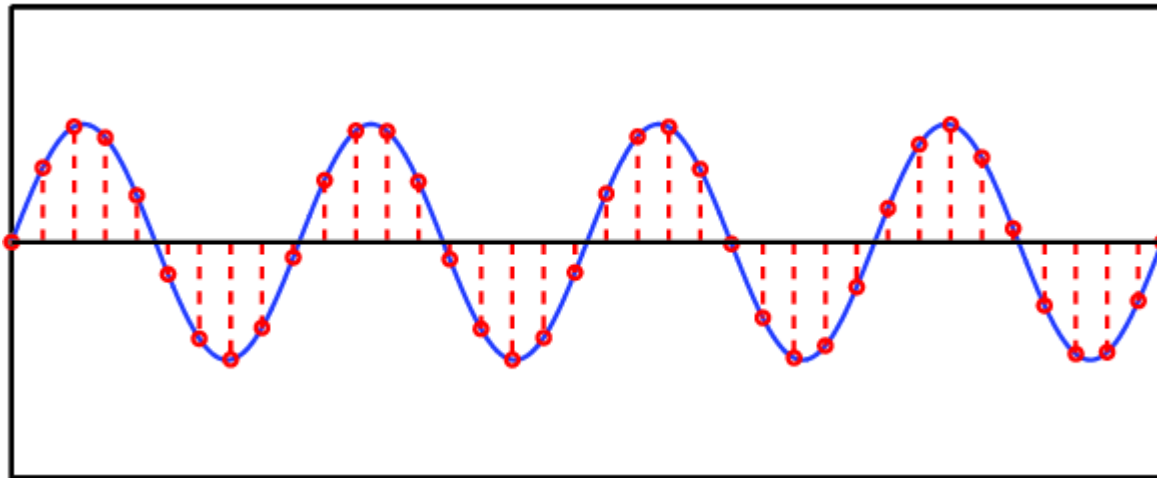
Data vs. Statistics: Definitions

- Traffic Counts are Data
- AADT are Statistics
 - They are a mathematical model to help us understand how many people use a road over the entire year, not just over one or two days
 - No statistic can be 100% accurate



Seasonal Factors

- Seasonal Factors are the qualified relation between a count on any given day, and the expected AADT.
- For example, more people go to the beach in the summer, so the seasonal factor may be less than one. And in the winter when traffic is low, it will be greater than one.
- Each station is assigned to one ATR group based on how well its seasonal pattern matches our Continuous Count stations



Traffic Forecast

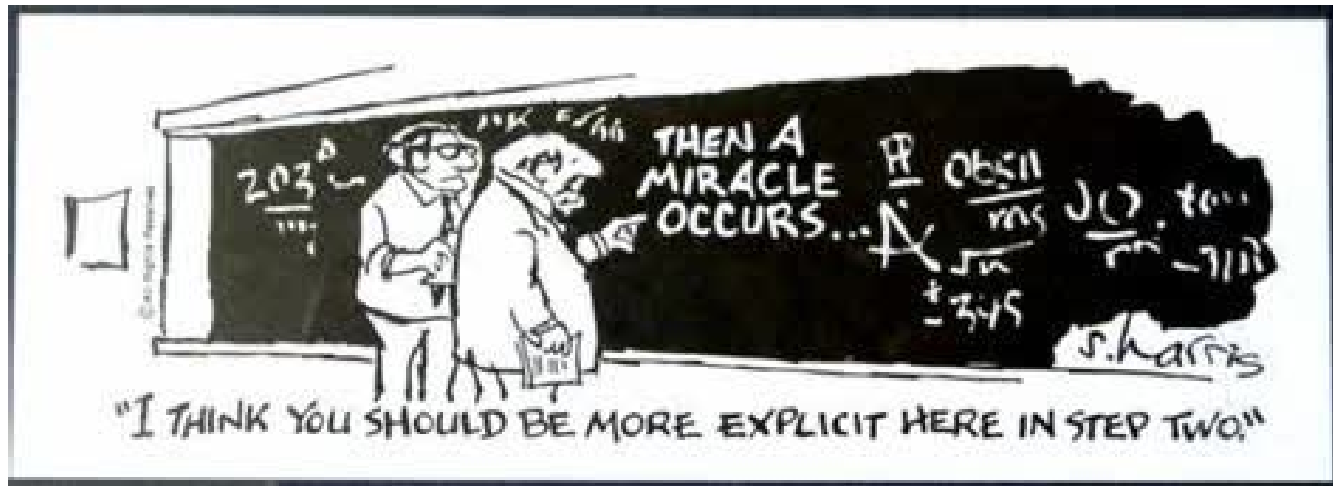
The Purpose of a Forecast

- 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 or 10 years for a region, forecast are good for 5 years for a funded project

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



General Forecast Information

- Requires inputs
 - Current traffic counts
 - Historic AADT
 - Growth trends
 - Land use patterns
 - Known developments
 - Understanding of current traffic patterns
 - Seasonal Variation
 - Data Gathered from the Community
 - Travel Demand Model knowledge
- Produces statistics
 - Base Year AADT
 - Future AADT
 - Turning Movements
 - Design Factors
 - Peak Hour Factor (AM/PM)
 - Directional Splits
 - Heavy Vehicle Percentages

Travel Demand Models

What is a Model?

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



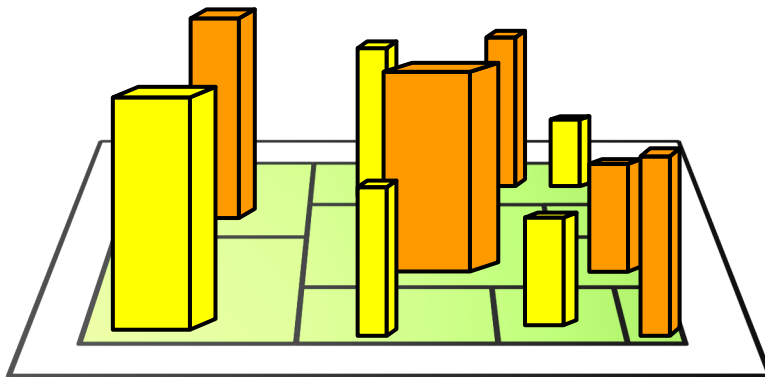
Real World "Object"



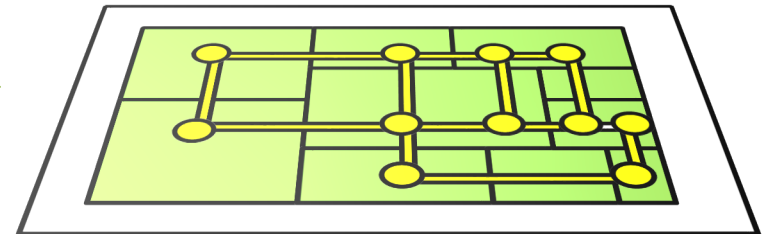
Model

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

Land Use

- NCDOT does not prepare socio-economic projections.
- Socio-economic projections must be produced locally.

Models are just a tool

- Model volumes are never used directly in the forecast.
- All models are wrong, but some are useful.

Data Gathered from Community

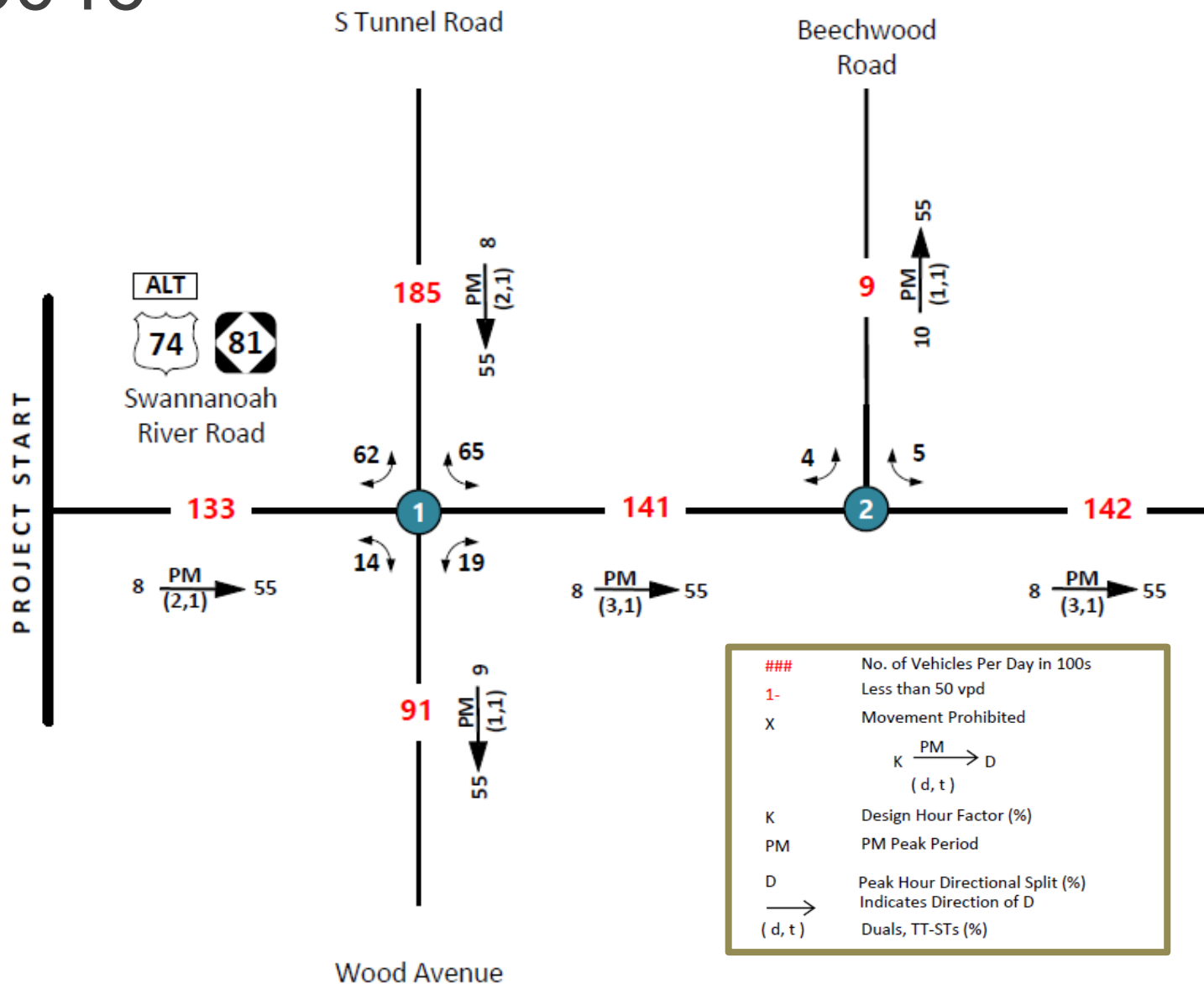
Data Gathered from Community

While forecasters can collect much of the information 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

U-6046



Quotes

Purpose and Limits of Traffic Counts, Forecast, and 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)

“The limitations of a ... system are more interesting than its capabilities.”

Brandon Sanderson, Sanderson’s Second Law (2011), Hugo Award (2013)

The **Downs–Thomson Paradox** states that the equilibrium speed of car traffic on a road network is determined by the average door-to-door speed of equivalent journeys taken by public transport or the next best alternative.

“If busses and trams get stuck in traffic so it can never be faster to take the bus, what happens to car traffic? It in creases, almost indefinitely.”

Jason Slaughter (2021)

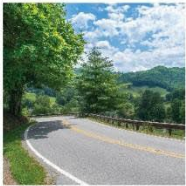
Questions?

Daniel Sellers, P.E.
dc sellers1@ncdot.gov



NORTH CAROLINA

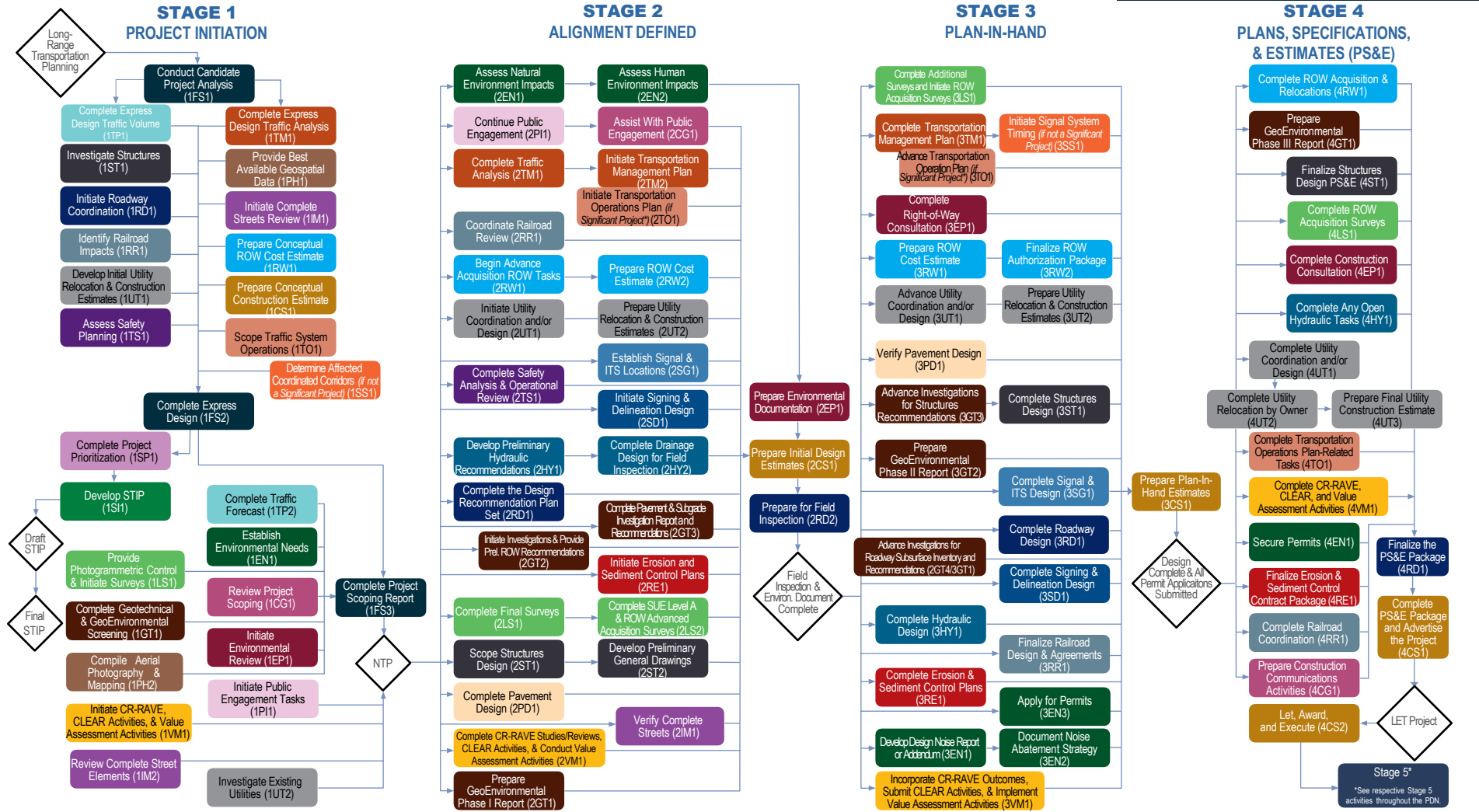
Department of Transportation



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

Steve Williams
CDE, NCDOT Division 14
2024

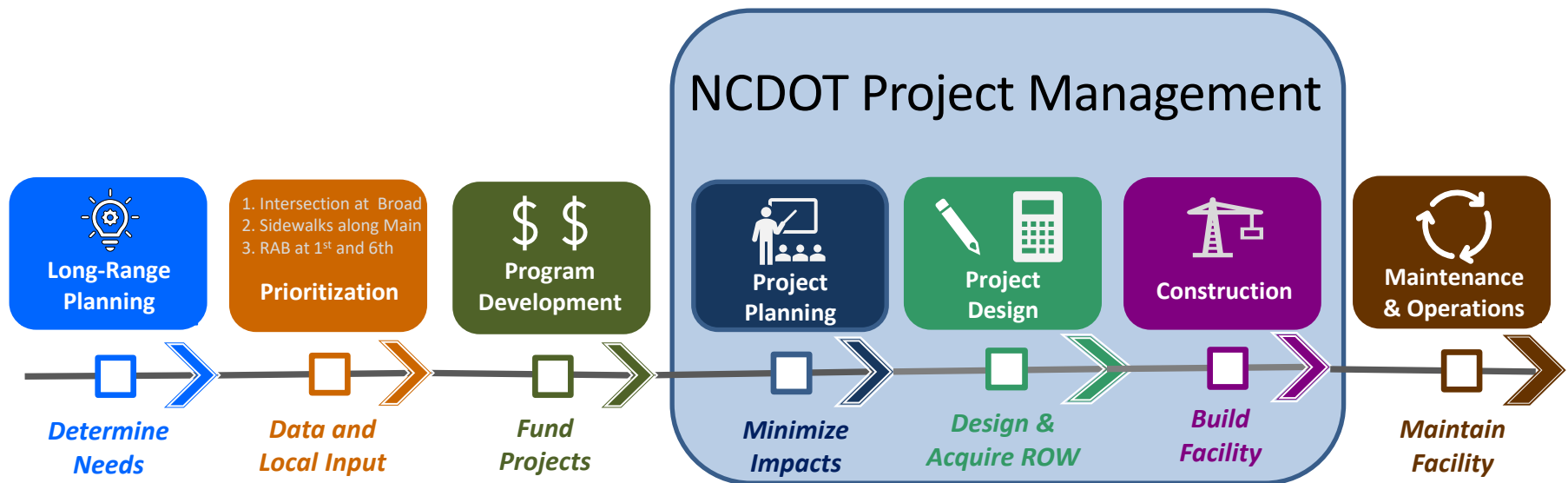
Read First: How to Use the PDN (Click Here)



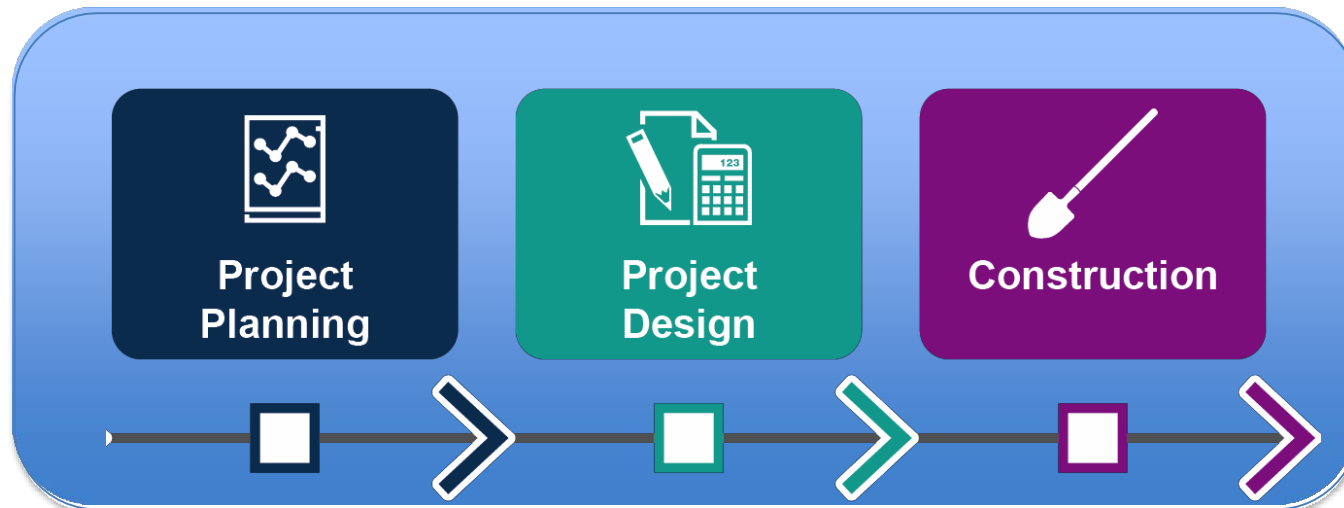
DISCIPLINE LEGEND

- Communication Group (CG)
- Environmental Analysis (EN)
- Feasibility Studies (FS)
- Hydraulics (HY)
- Location & Surveys (LS)
- Photogrammetry (PH)
- Roadway (RD)
- Railroad (RR)
- Signing & Delineation (SD)
- State Transportation Improvement Program (SI)
- Signal System Timing Operations (SS)
- Traffic Management (TM)
- Transportation Planning (TP)
- Utility Coordination & Design (UT)
- Contract Standards & Development (CS)
- Environmental Policy (EP)
- Geotechnical (GT)
- Integrated Mobility (IM)
- Pavement Design (PD)
- Public Involvement (PI)
- Roadside Environmental (RE)
- Right-of-Way (RW)
- Transportation Signals & ITS Design (SG)
- Strategic Prioritization Office (SP)
- Structures Design (ST)
- Traffic Systems Operations (TO)
- Traffic Safety (TS)
- Value Management (VM)

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

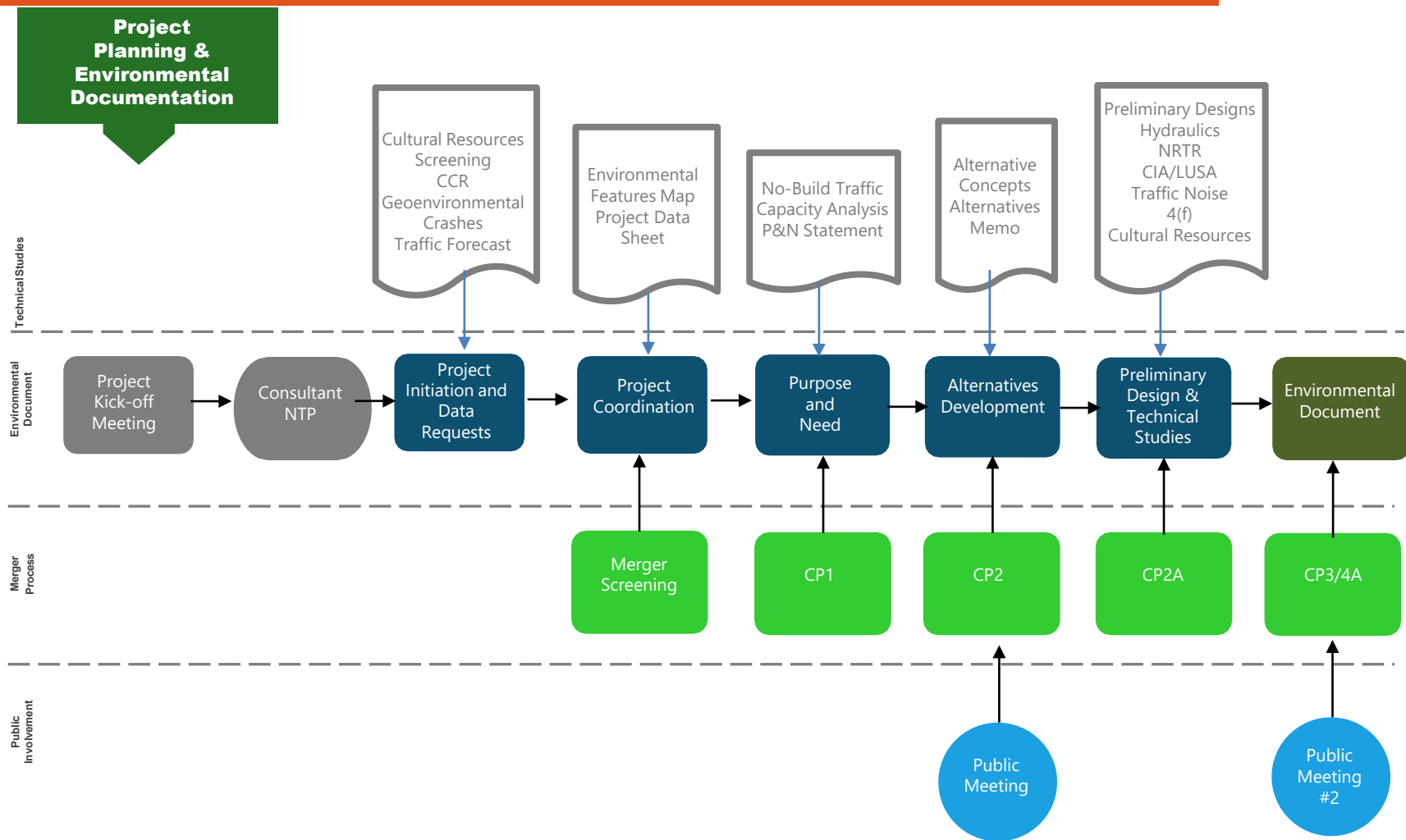
Geotechnical
Engineering

Utilities

Traffic

Construction

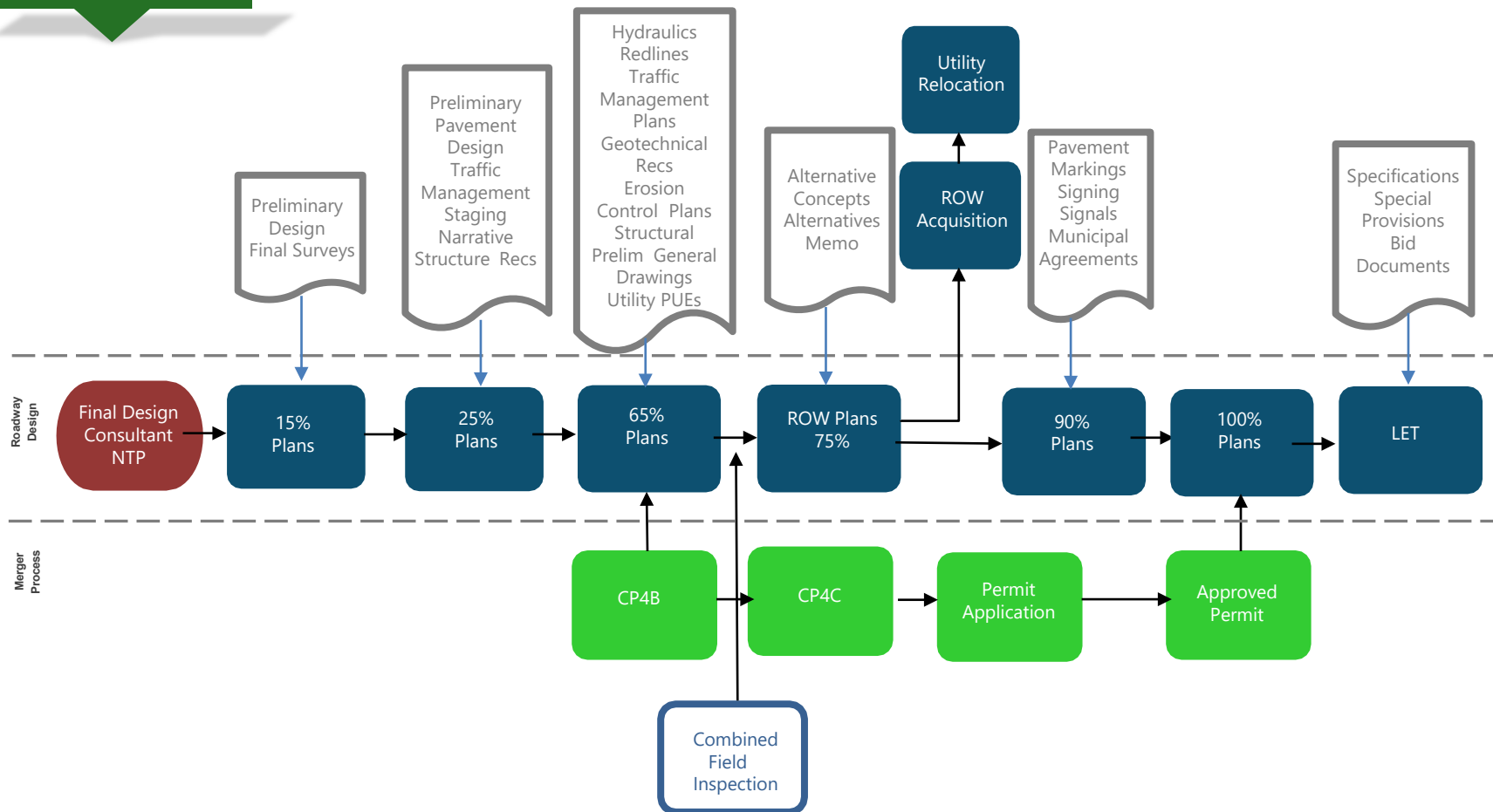
Project Development Process Maps

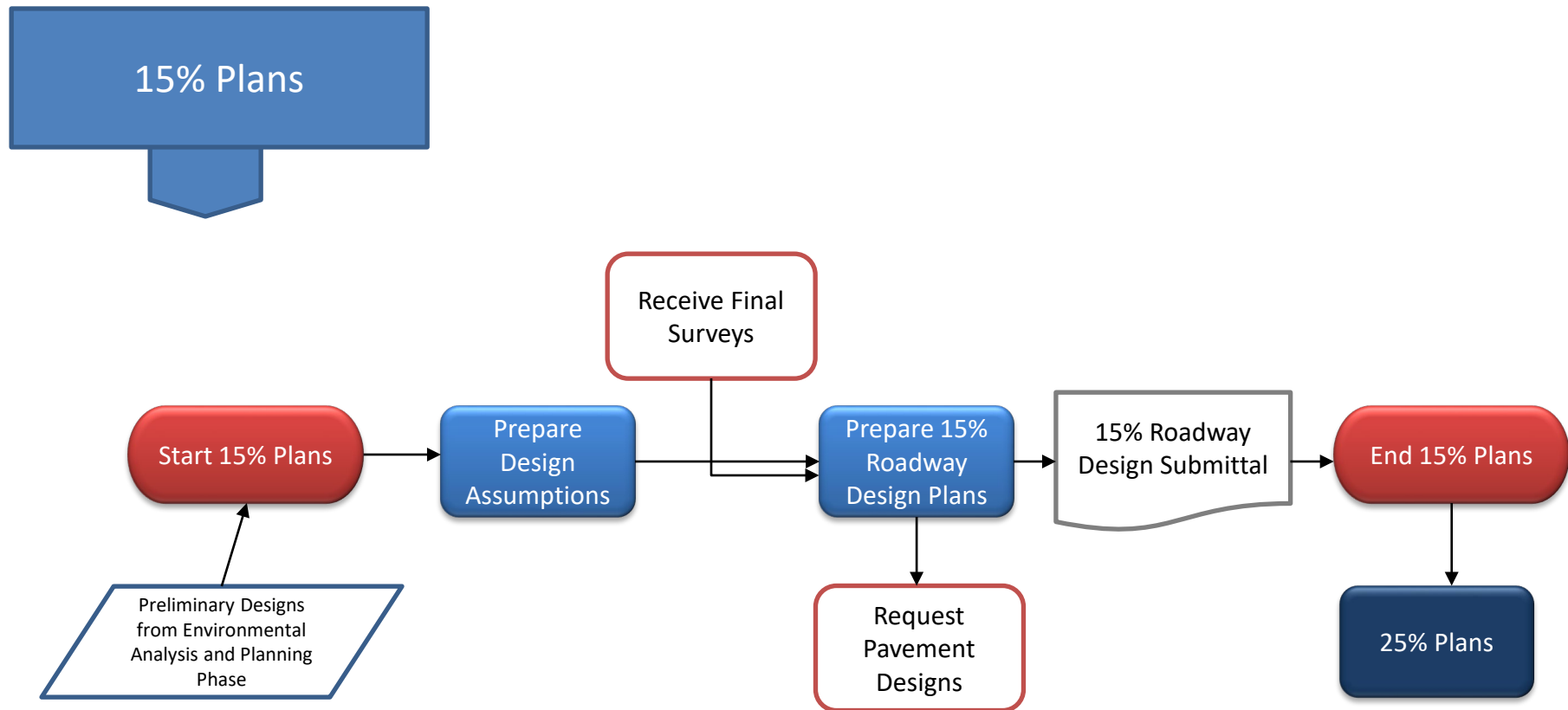


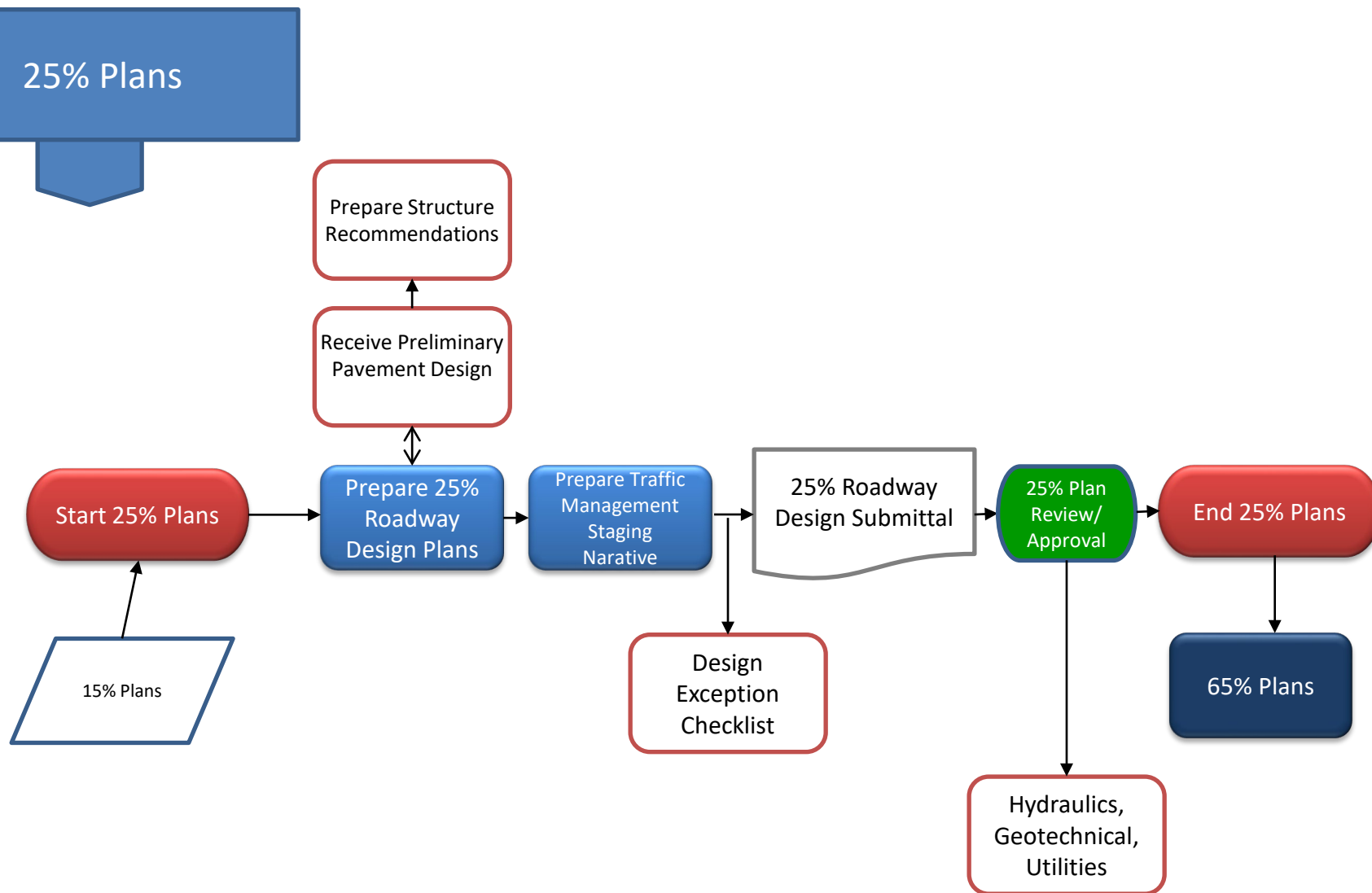
NOTE: ALL PROJECTS SHOULD BE EVALUATED TO DETERMINE APPLICABLE STEPS

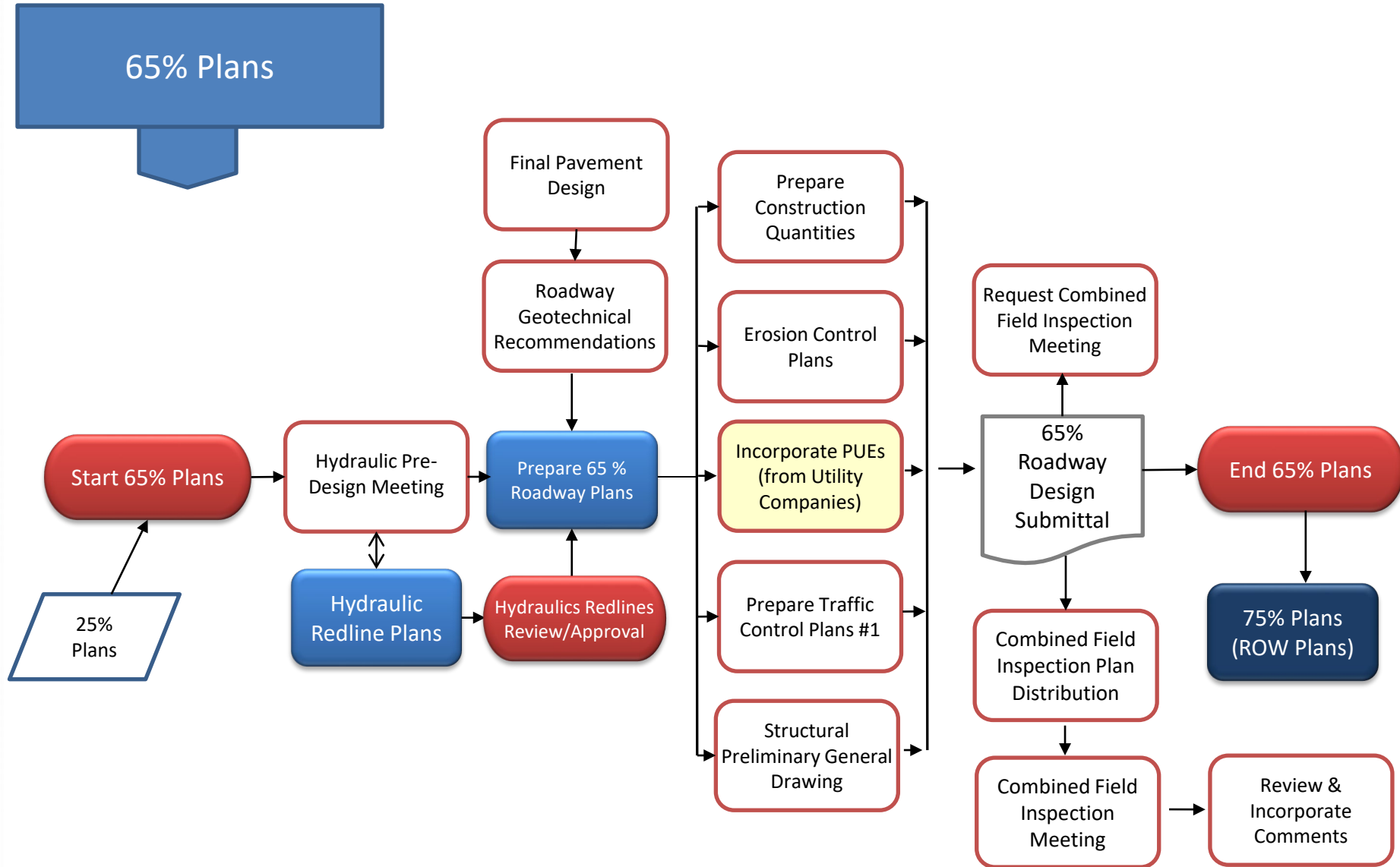
Project Development Process Maps

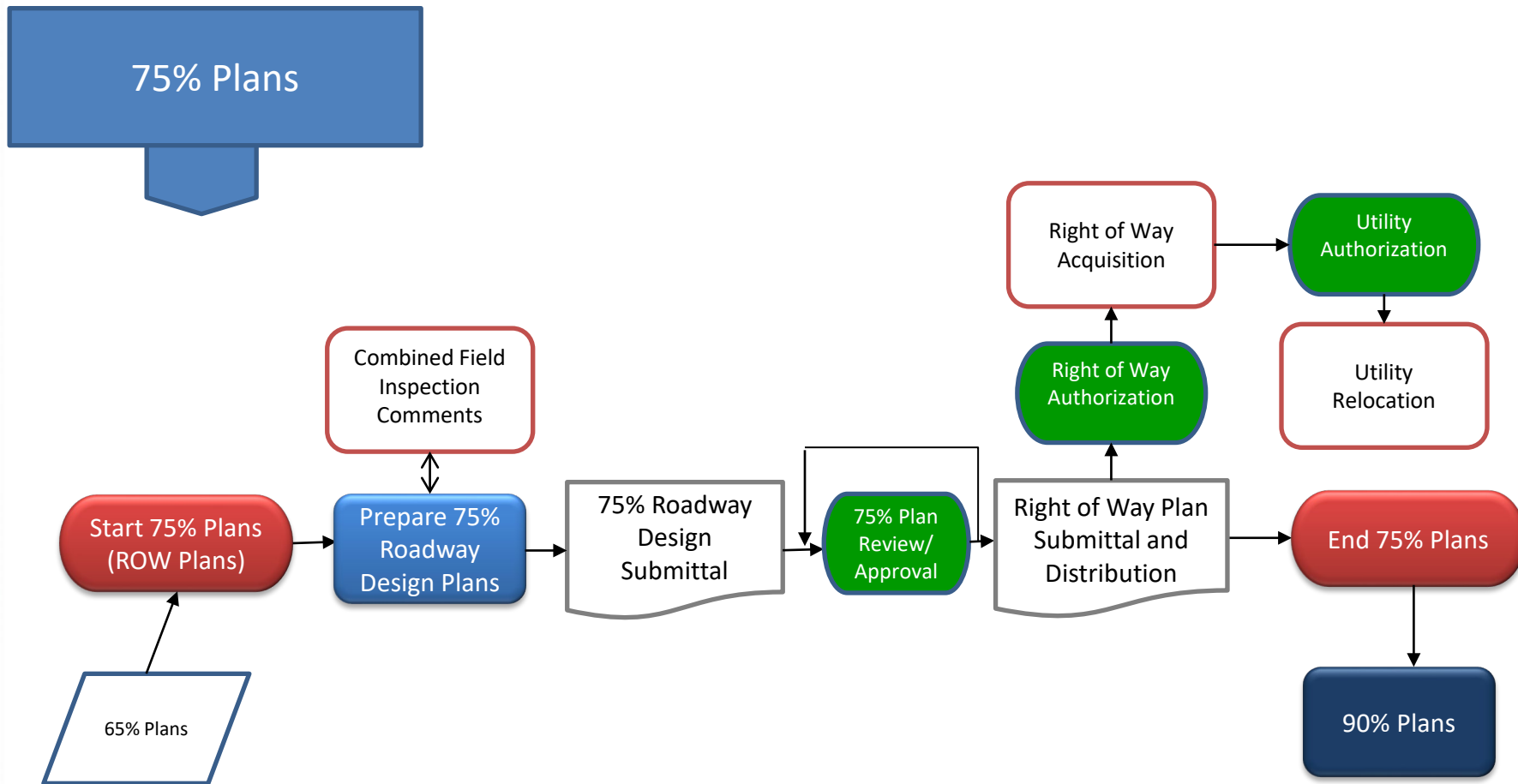
Final Design



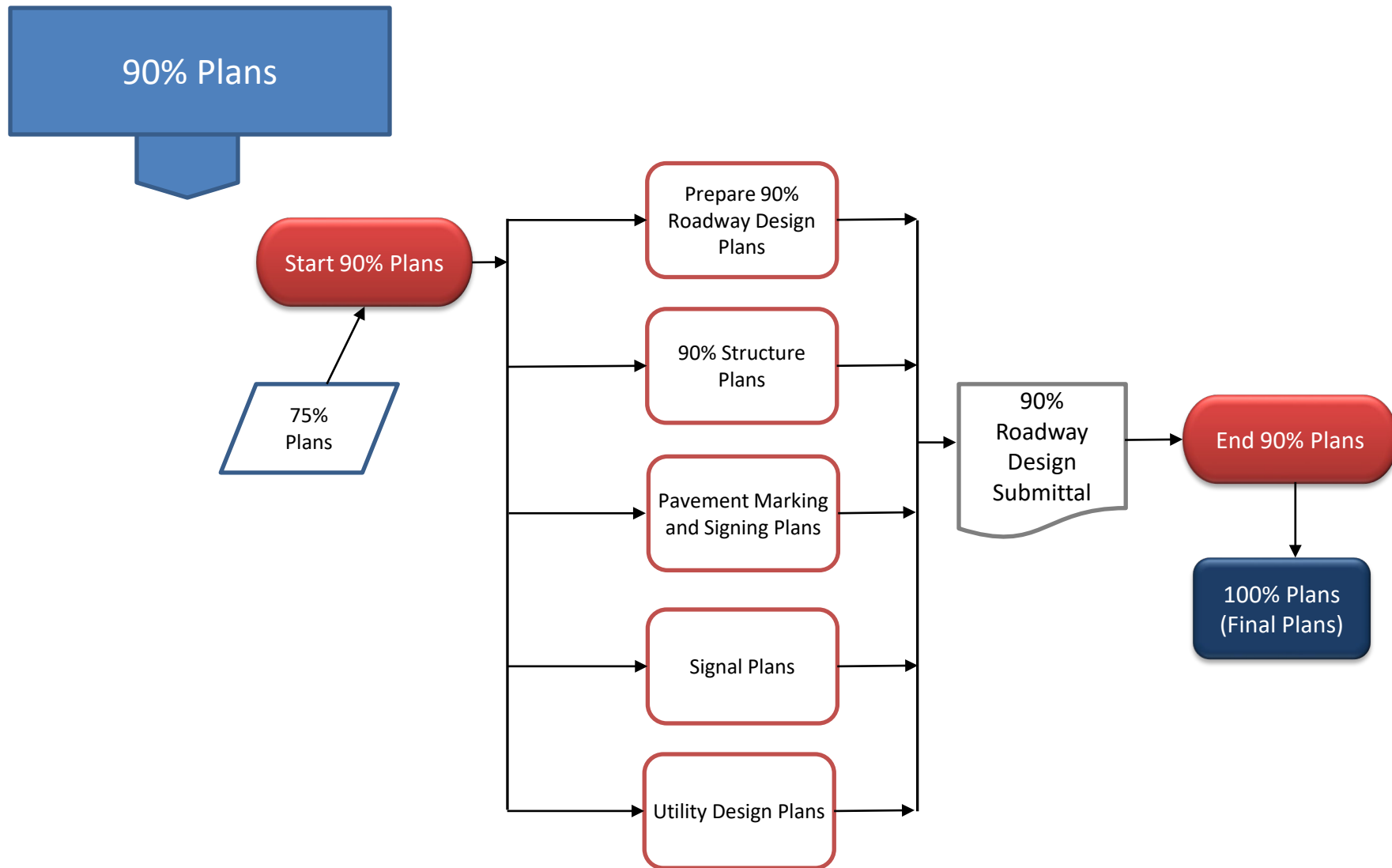




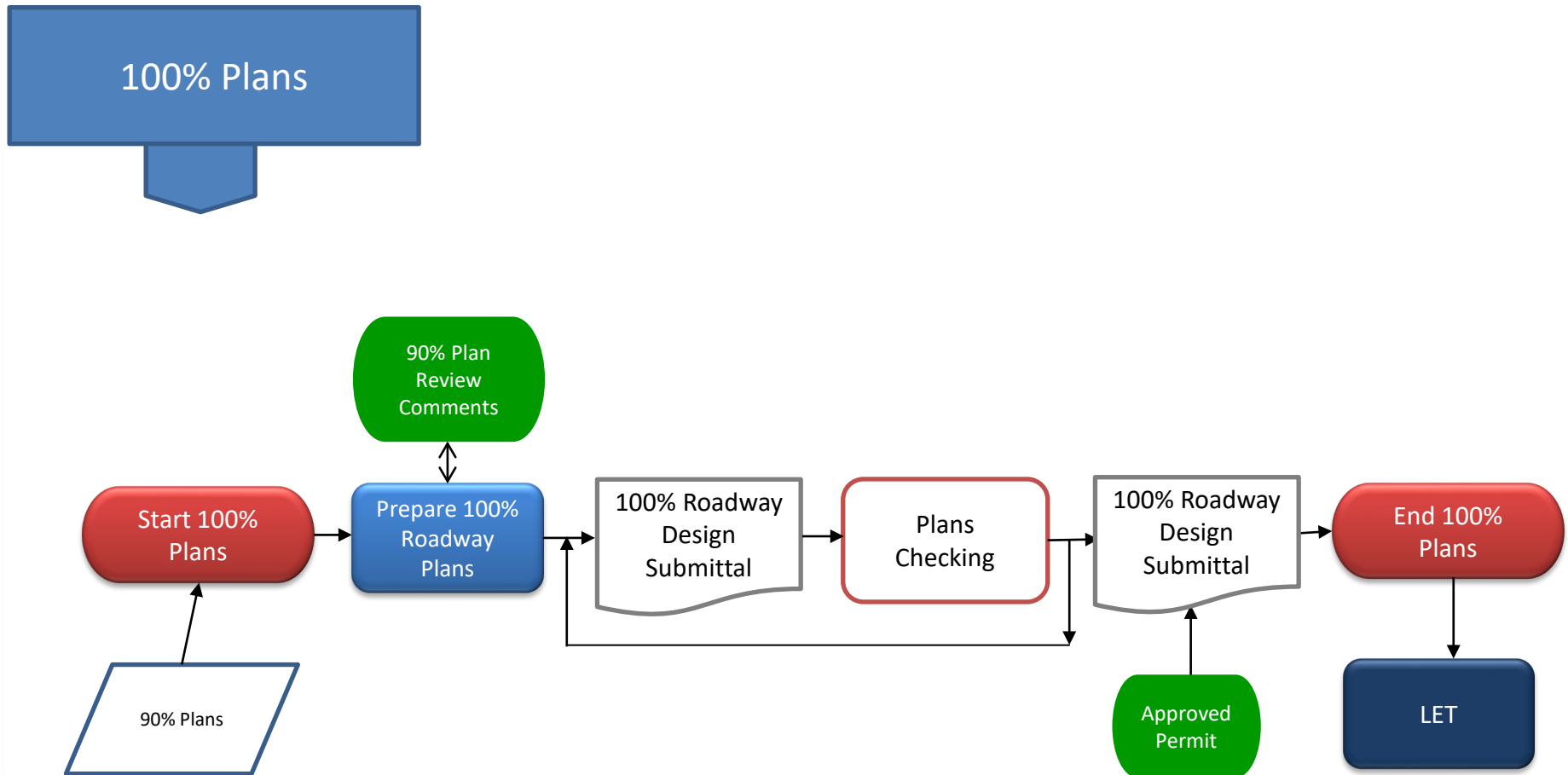




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WHY?

- 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

