



**Western Piedmont**  
Council of Governments

*Creative Regional Solutions Since 1968*

# Avoiding Gridlock: Regional Plans & Strategies

2018 Air Quality Conference

Lenoir-Rhyne University

Hickory, NC

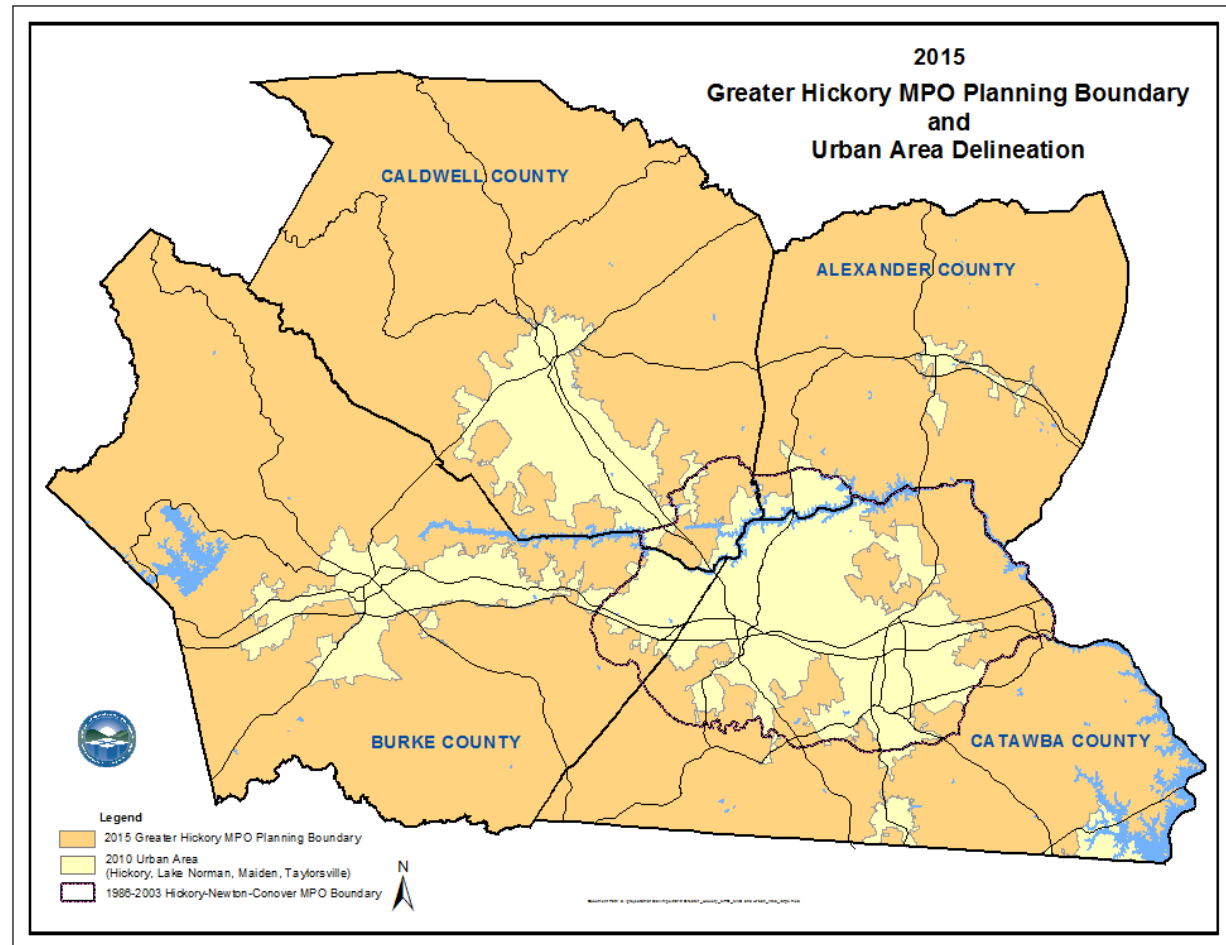
# WPCOG / GHMPO Membership

- Cities and Towns:

- Brookford
- Cahaj's Mountain
- Catawba
- Cedar Rock
- Claremont
- Connelly Springs
- Conover
- Drexel
- Gamewell
- Glen Alpine
- Granite Falls
- Hickory
- Hildebran
- Hudson
- Lenoir
- Long View
- Maiden
- Morganton
- Newton
- Rhodhiss
- Rutherford College
- Sawmills
- Taylorsville
- Valdese

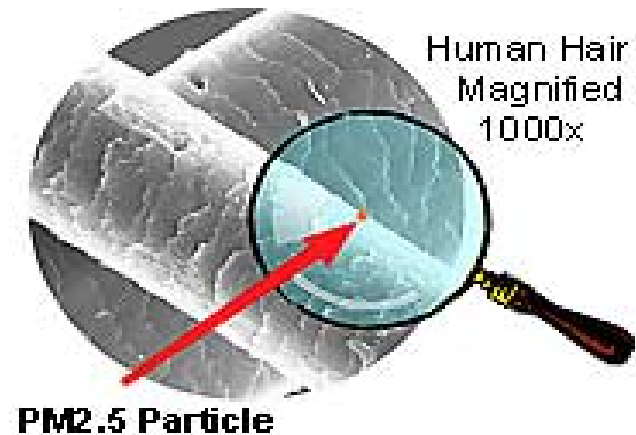
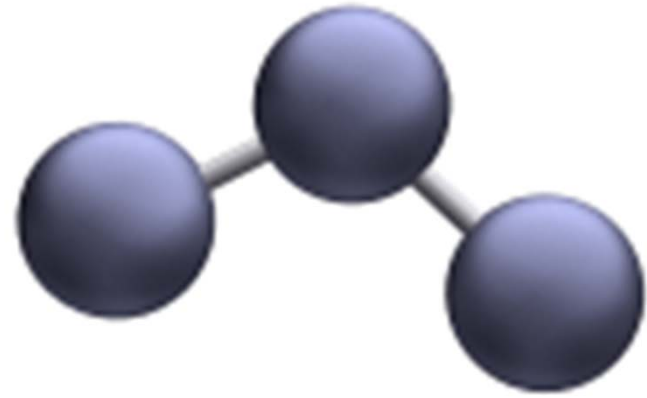
- Counties:

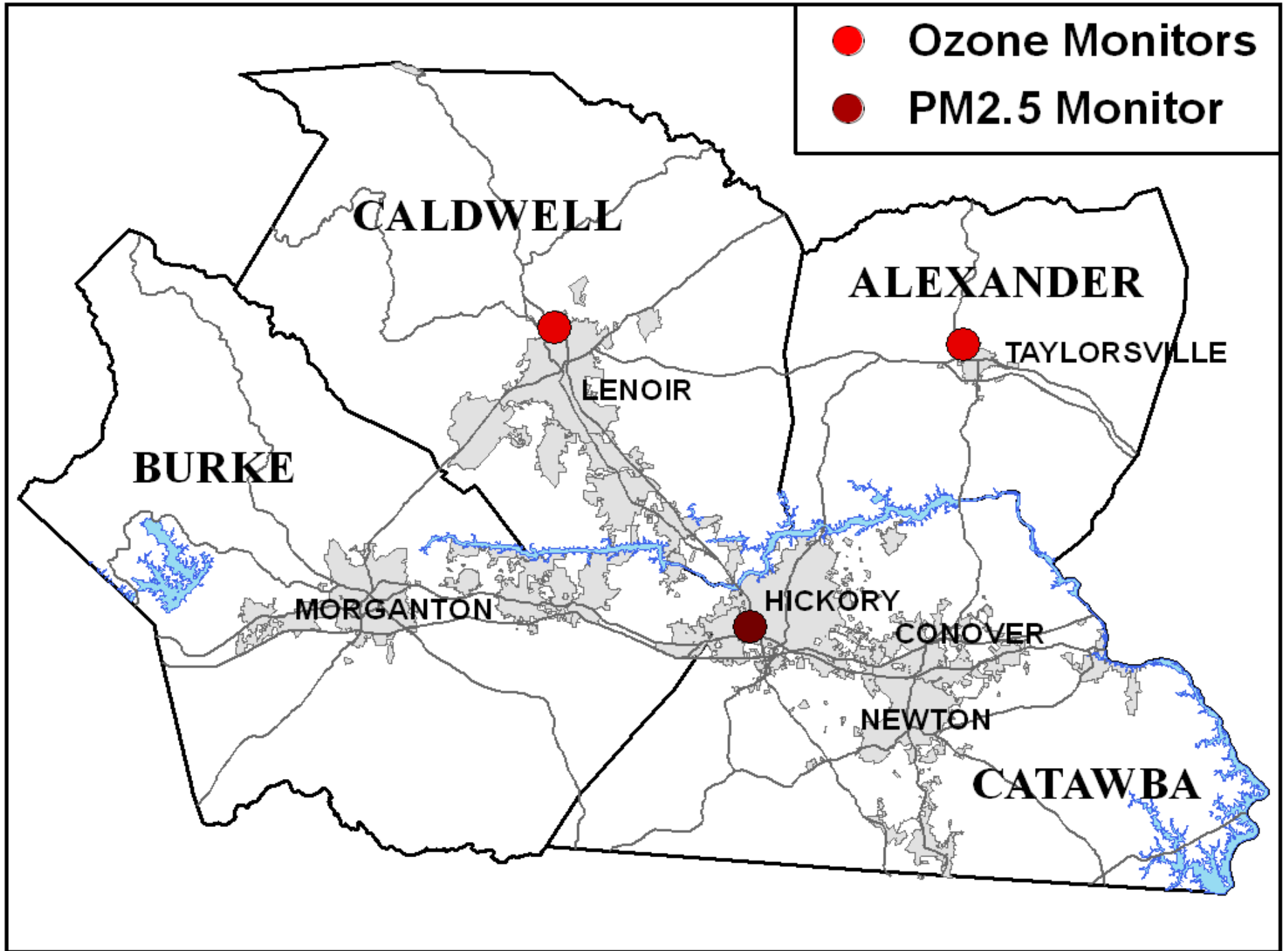
- Alexander
- Burke
- Caldwell
- Catawba



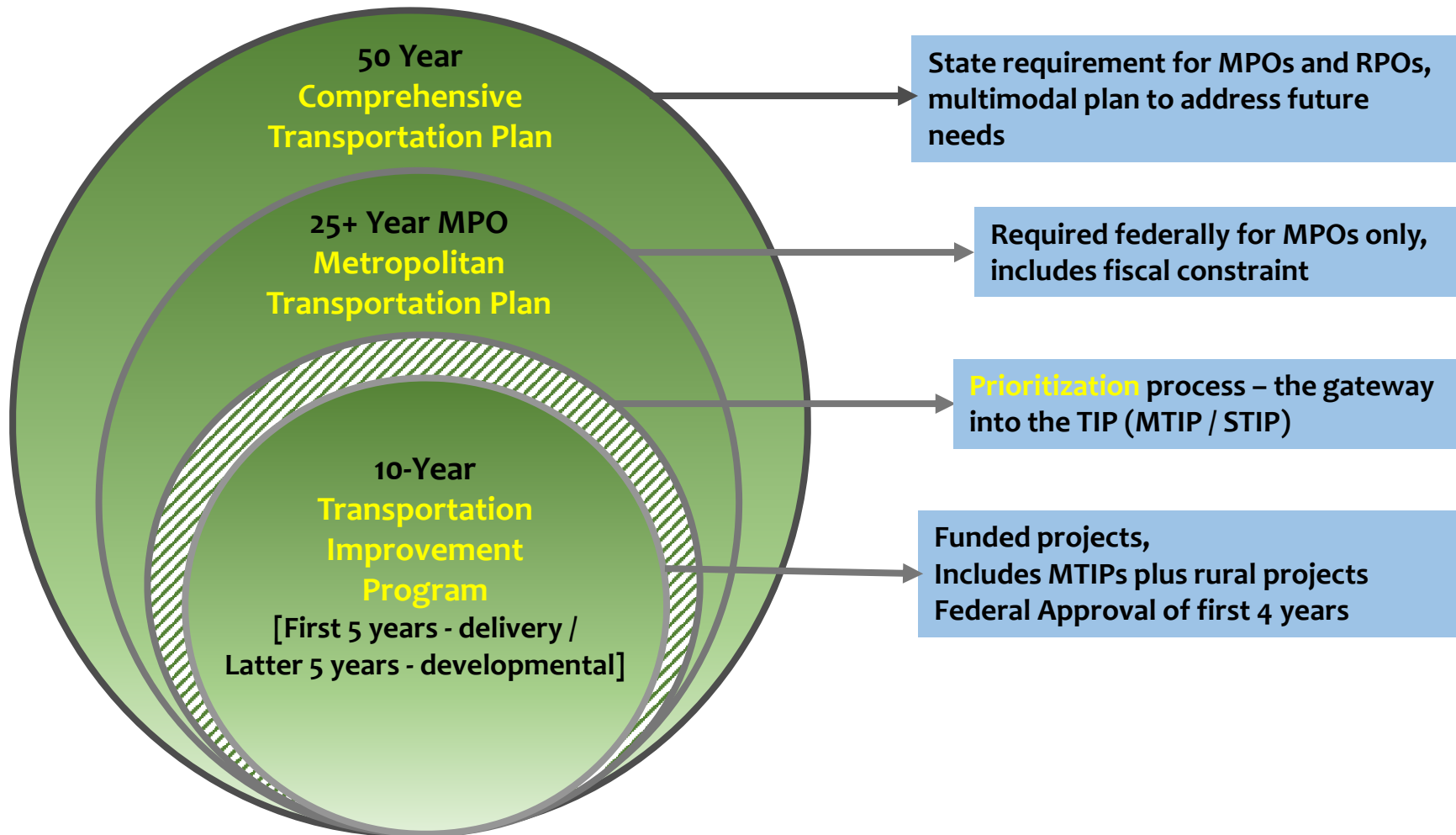
## Major Regional Air Pollutants

- Ground Level Ozone (Smog)
- PM 2.5 (Soot or Haze)
- Mobile sources and inefficient land use account for:
  - >20% of regional PM 2.5
  - 50% of Ozone pollution



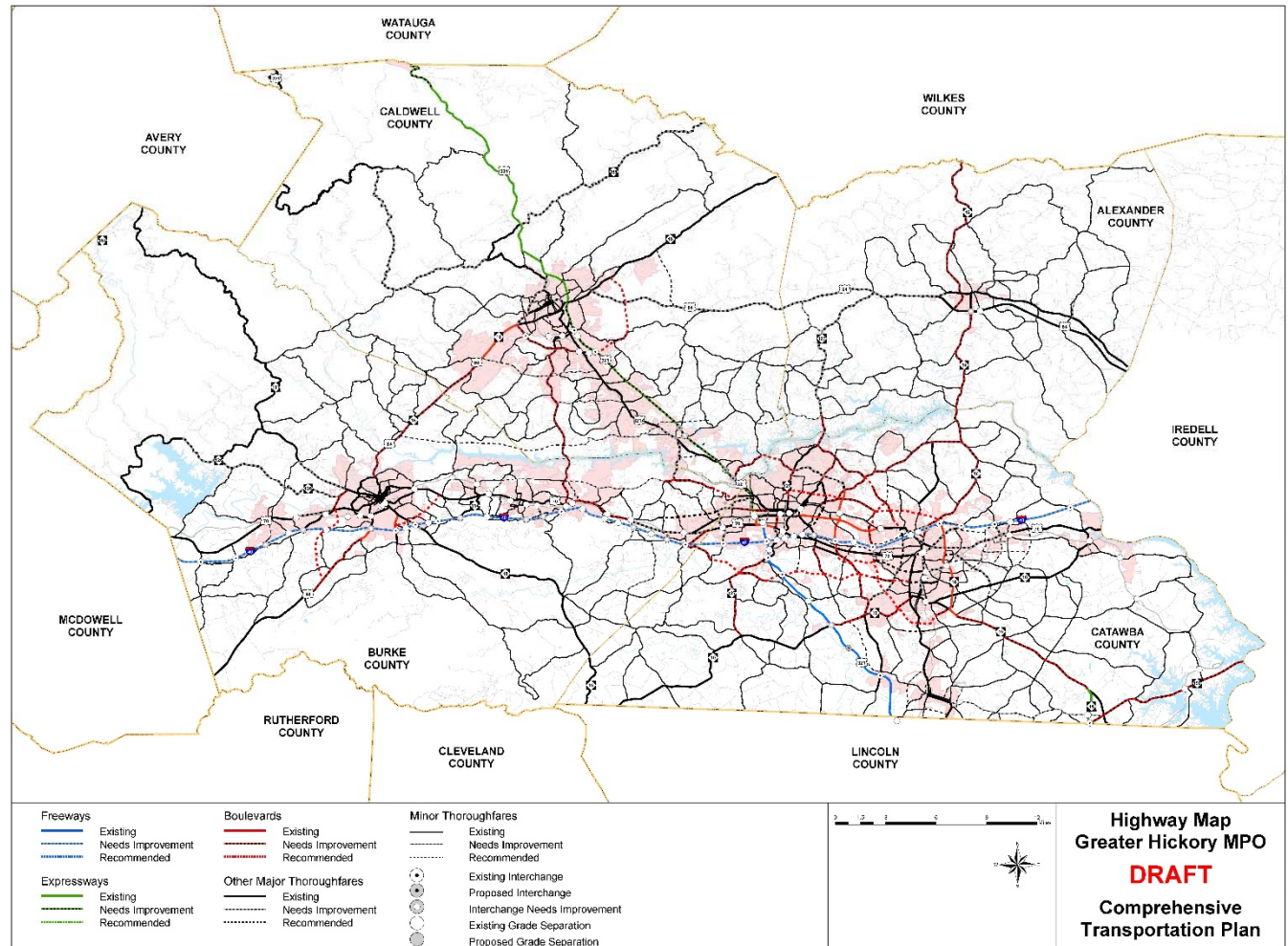


# CTP > MTP > Prioritization > TIP



# Comprehensive Transportation Plan (CTP)

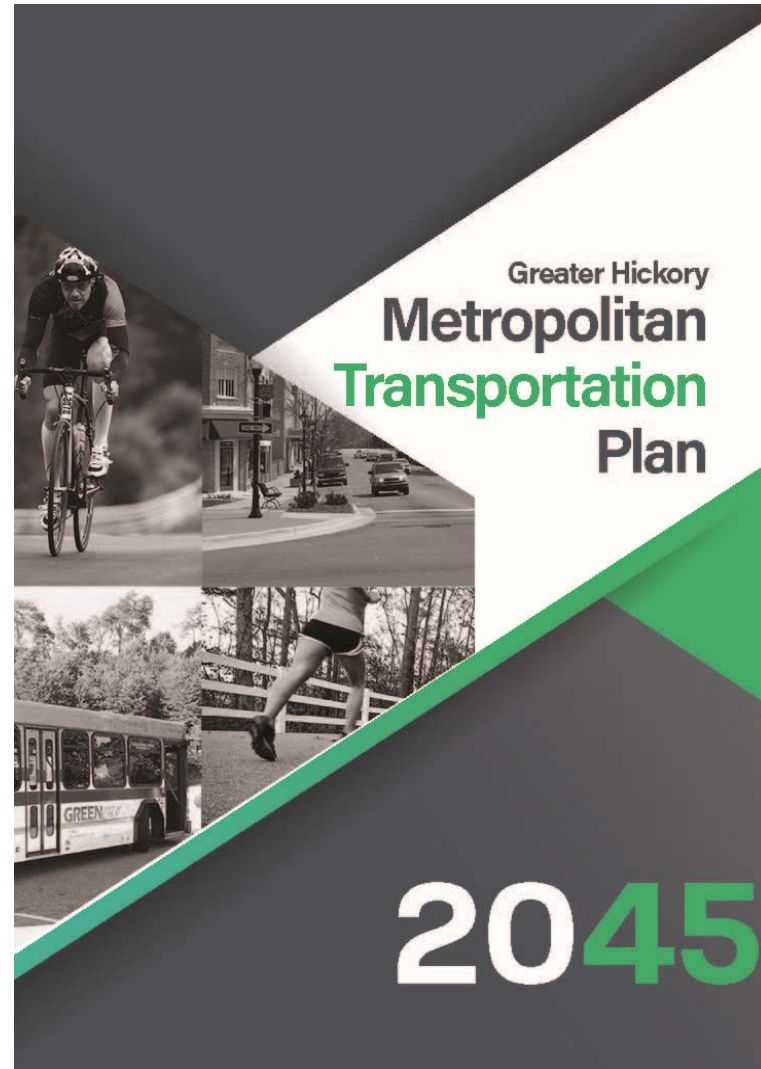
- **Freeways**
  - I-40
- **Expressways**
  - US 321
- **Boulevards**
  - US 70
  - US 64 / NC 18
  - NC 16
  - NC 127 (Hickory)
  - Connelly Springs Rd
  - Malcolm Blvd
  - McDonald Pkwy
  - Springs Rd NE
  - Southwest Blvd
  - Various segments
- **Other Major Thoroughfares**
- **Minor Thoroughfares**





# 2045 Metropolitan Transportation Plan (MTP)

- Update of prior 2040 LRTP
- 30-Year new MTP to 2045
- Fiscally Constrained
- Plan Chapters & Appendices
  - 1. Introduction
  - 2. Performance Measures
  - 3. Existing & Projected Conditions
  - 4. Highways & Roads
  - 5. Financial Plan
  - 6. Public Transportation
  - 7. Bike & Pedestrian
  - 8. Safety & Security
  - 9. Natural Environment
  - 10. Title VI & Environmental Justice
  - 11. Public Involvement
  - 12. Freight
  - 13. Aviation
  - Appendices
    - Project Background
    - CTP Project List
    - Public Comments
    - Congestion Management Process



# Population & Employment

**Table 3-1.**  
**Greater Hickory MPO and Hickory MSA Population Projections, 2015-2045**

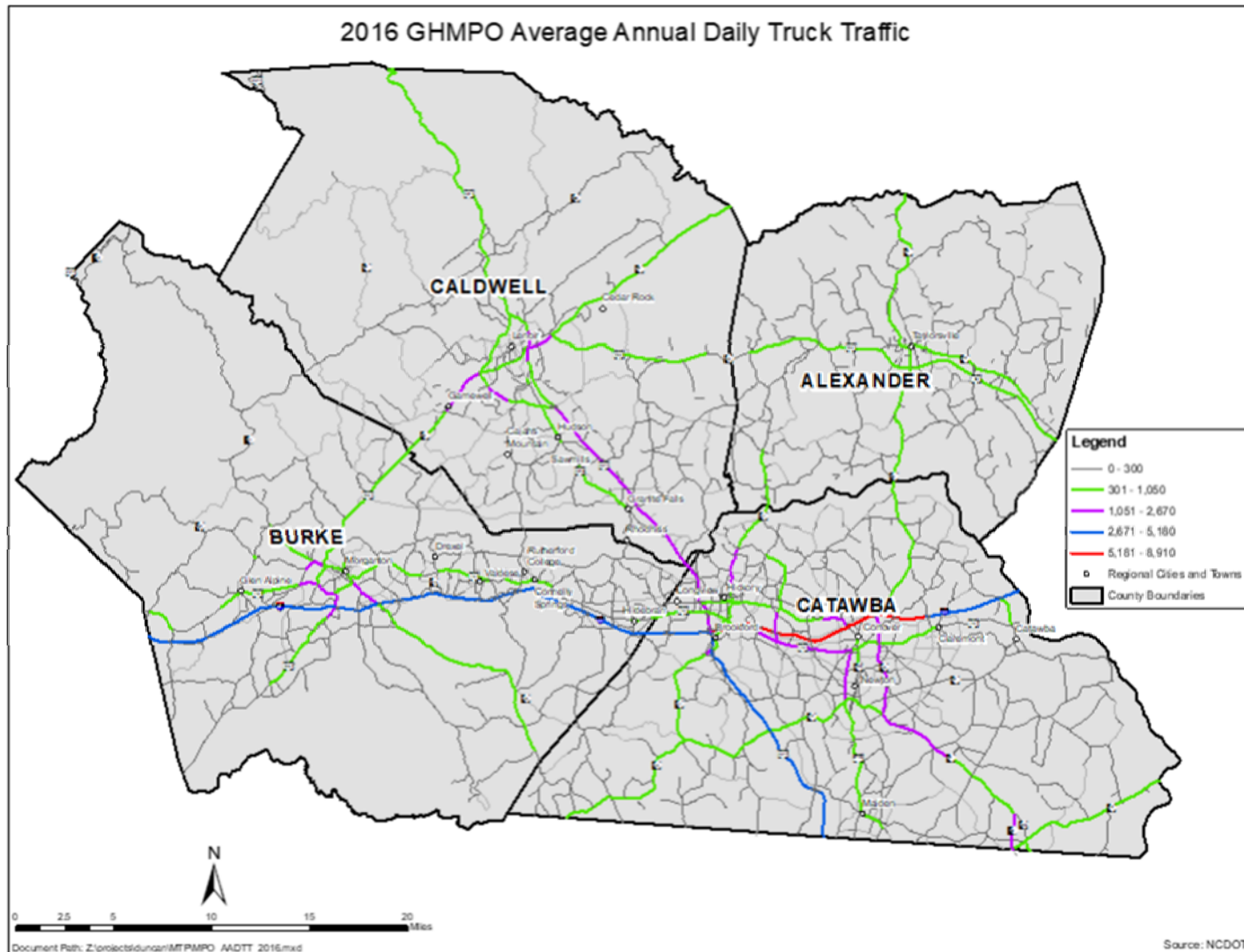
Year	2010	2015	2045	Growth 2015-2045	Percentage Growth 2015-2045	Percentage Average Annual Growth 2015-2045
<b>Greater Hickory MPO Planning Area</b>	365,497	366,023	389,189	23,126	6.3%	0.20%
Alexander County	37,198	38,305	40,400	2,095	5.5%	0.18%
Burke County	90,912	89,139	92,777	3,638	4.1%	0.13%
Caldwell County	83,029	82,397	87,431	5,034	6.1%	0.20%
Catawba County	154,358	156,182	168,541	12,359	7.9%	0.25%
Hickory MSA	365,497	366,023	389,189	23,126	6.3%	0.20%

**Table 3-2.**  
**Greater Hickory MPO Planning Area Employment by Sector, 2015-2045**

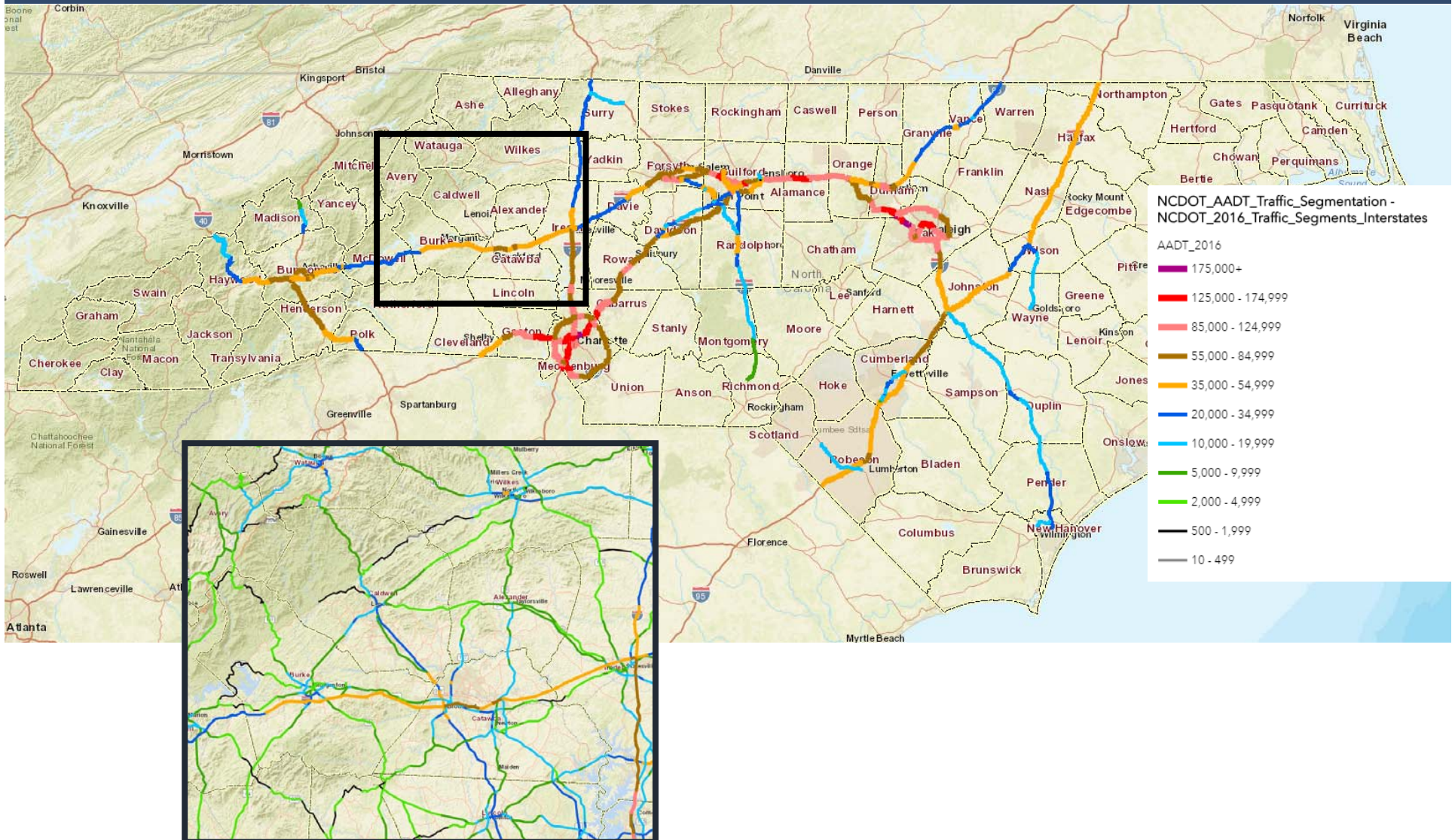
Employment Classification	2015	2045	Employment Growth	Percentage Employment Growth
Industrial Employment	40,829	44,023	3,194	7.8%
Retail Employment	18,319	21,273	2,954	16.1%
Highway Retail Employment	12,149	13,697	1,548	12.7%
Service Employment	49,597	52,019	2,422	4.9%
Office Employment	13,559	13,095	-464	-3.4%
Special Generator Employment	10,819	11,399	580	5.4%
<b>Total Employment</b>	<b>145,272</b>	<b>155,506</b>	<b>10,234</b>	<b>7.0%</b>



# Freight Volumes



# Traffic Volumes

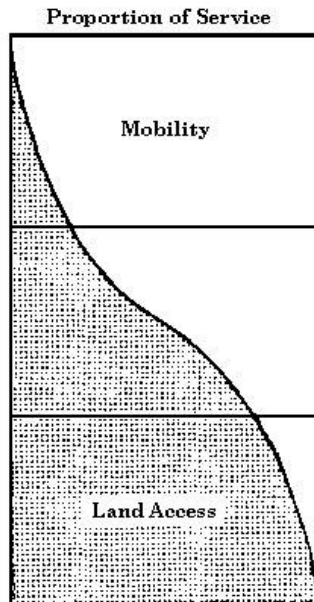


## Measuring Congestion

- Volume / Capacity = Ratio of Actual / Optimal
- Travel Time Index = Ratio of Peak / Free-Flow
- Level of Service = Performance Rating



# Level of Service



Source: FHWA



Source: FDOT LOS Handbook

Posted Speed: 30 mph  
Signals per mile: more than 4.5

Lanes	Median	LOS				
		A	B	C	D	E
<b>Average Daily Traffic</b>						
2	None	**	**	5,200	13,700	15,000
4	Divided	**	**	12,300	30,300	31,700
6	Divided	**	**	19,100	45,800	47,600
8	Divided	**	**	25,900	59,900	62,200

Posted Speed: 35 mph  
Signals per mile: more than 4.5

Lanes	Median	LOS				
		A	B	C	D	E
<b>Average Daily Traffic</b>						
2	None	**	**	5,300	12,600	15,500
4	Divided	**	**	12,400	28,900	32,800
6	Divided	**	**	19,500	44,700	49,300
8	Divided	**	**	25,800	58,700	63,800

Source: CH2M HILL

# Performance Metrics

Top 25 GHMPO Bottleneck Locations: Calendar Year 2016	
Rank	Head Location (approximate)
1	US-70 E @ SR-1476/FAIRGROVE CHURCH RD
2	US-70 W @ LENOIR RHYNE BLVD/8TH STREET DR
3	US-64 E @ NC-18/GREEN ST/STERLING ST
4	US-64 W @ US-70 BUS/W UNION ST
5	US-321 N @ 2ND AVE
6	US-64 W @ US-70/US-64 BUS/W FLEMING DR
7	US-70 W @ US-321 BUS
8	US-64 W @ I-40 (MORGANTON)
9	US-64 E @ US-64 BUS/KIRKSEY DR/SANFORD DR
10	NC-90 W @ SR-1110/LILEDOUN RD
11	NC-90 E @ NC-16/3RD ST
12	US-321 S @ 2ND AVE
13	NC-18 S @ I-40/BUSH DR
14	NC-16 N @ NC-90/W MAIN AVE
15	US-70 W @ US-64 BUS/BURKEMONT AVE
16	NC-10 E @ SR-1003/MURRAYS MILL RD
17	US-64 E @ US-321/BLOWING ROCK BLVD
18	US-70 E @ US-70/E UNION ST
19	NC-18 N @ US-70/FLEMING DR
20	US-70 E @ NC-127/S CENTER ST
21	US-64 E @ US-70/US-64 BUS/W FLEMING DR
22	US-70 E @ LENOIR RHYNE BLVD/8TH STREET DR
23	US-70 E @ NC-18/S STERLING ST
24	NC-18 N @ US-70 BUS/US-64 BUS/MEETING ST/UNION ST
25	NC-10 W @ US-321 BUS/WEST E ST

Source: Probe Data Analytics Suite; RITIS, 2018

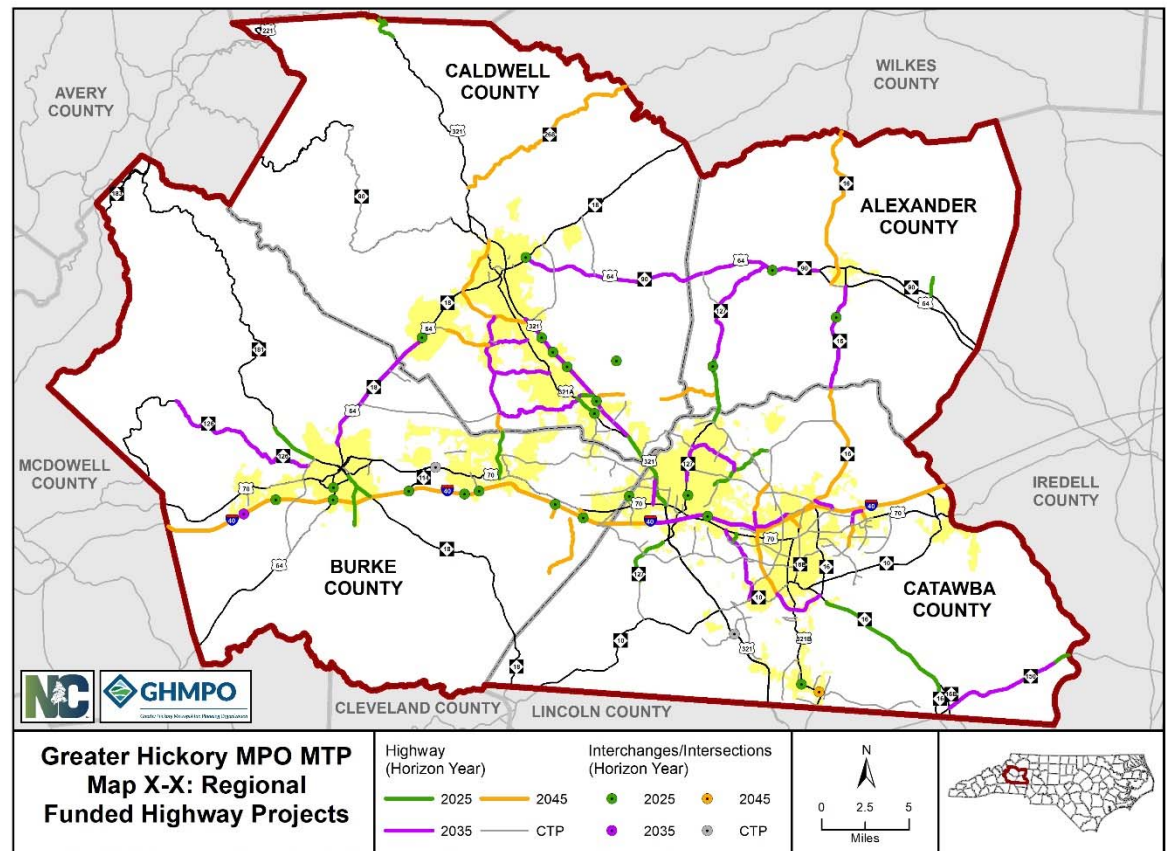
# Project Prioritization

Rank	County	Route Name	From	To	Congestion		Safety	Freight	Plan Consist	Multi-modal	Cost Score	Econ Dev't	Enviro Justice	Total Local Score
					Exist	Future								
1	Catawba	NC 127	8th Ave. NE	30th Ave. NW (SR 1327)	20	10	15	10	10	10	10	10	5	100
2	Alexander	NC 16	Catawba River	US 64	10	10	10	10	10	10	5	0	5	70
3	Caldwell	US 321	Mission Road (SR 1108)	Southwest Boulevard	15	10	0	10	10	10	10	5	0	70
4	Burke	US 64 / US 70	US 70 - West Fleming Dr.	Burkemont Ave.	5	5	5	10	10	10	10	10	5	70
5	Catawba	NC 150	Relocated NC 16	Harvel Road (SR 1902)	10	10	15	10	10	10	0	0	0	65



# Highway Recommendations – Projects

- [Horizon Year 2025](#)
- [Horizon Year 2035](#)
- [Horizon Year 2045](#)



# Highway Recommendations – Widening Projects

- **Horizon Year 2025**

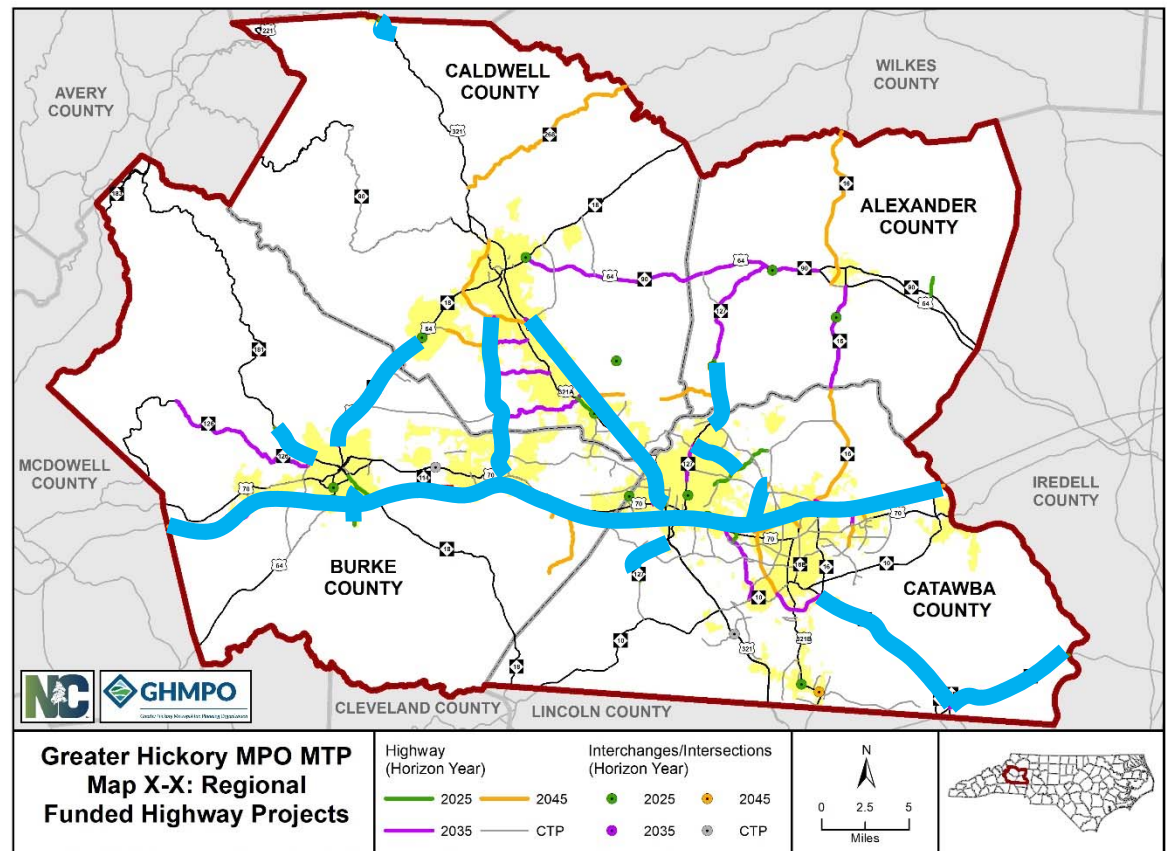
- US 321 Hickory
- NC 16 South
- NC 127 Bethlehem
- NC 127 Mountain View

- **Horizon Year 2035**

- I-40 Exits 123-128
- I-40 Exits 128-132
- US 321 Granite/Hudson
- US 64 / NC 18
- NC 150
- Connelly Springs Rd

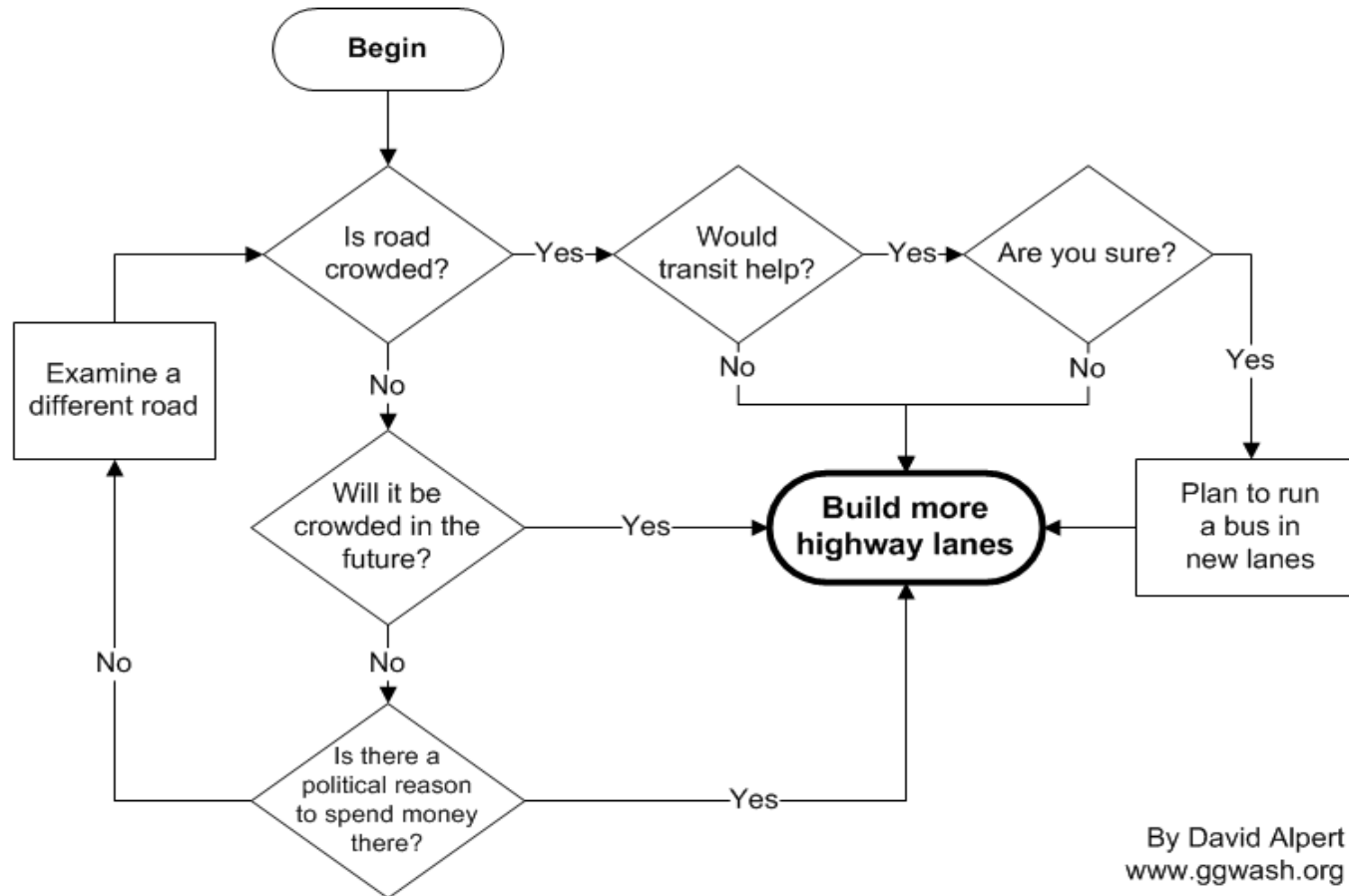
- **Horizon Year 2045**

- I-40 east of Exit 132
- I-40 west of Exit 123
- Malcolm Blvd



# Is Widening Always the Answer?

## State DOT Decision Process

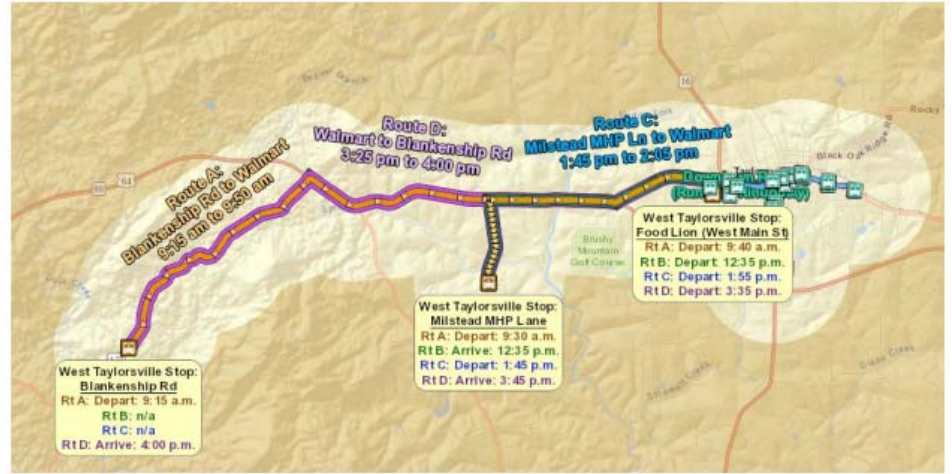
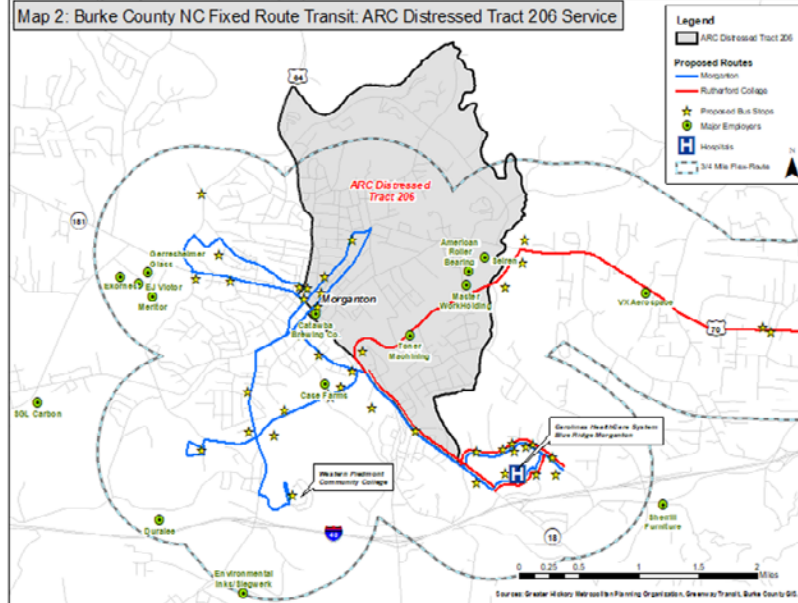


By David Alpert  
www.ggwash.org

Disclaimer: For those not hearing the narrative that went with this slide, it is intended as humor, and is not the actual DOT process.

# Public Transportation

Map 2: Burke County NC Fixed Route Transit: ARC Distressed Tract 206 Service



**Route 1**

**Route 2**

**Routes 3 & 4**

**Routes 5 & 6**

**GREENWAY PUBLIC TRANSPORTATION**

828.464.9444

**BUS STOP**

Ride the bus  
Just One Day A Week

Bus Info Direct  
828-465-7634

Greenway Public Transportation (WPCAT) shall not discriminate in any manner on the basis of race, color, or national origin.

Greenway is an equal opportunity employer.

Greenway Public Transportation | www.mygreenwv.org

Route	Stop	Bus	Bus	Bus	Bus	Bus	Bus	Bus	Bus
ROUTE 1 WEST HICKORY	Greenway Transit Center	8:00 AM	8:00 AM	8:15 AM	8:15 AM	8:30 AM	8:30 AM	8:45 AM	8:45 AM
	West Hickory Senior Center	8:05 AM	8:05 AM	8:20 AM	8:20 AM	8:35 AM	8:35 AM	8:50 AM	8:50 AM
	Greenway Transit Center	8:10 AM	8:10 AM	8:25 AM	8:25 AM	8:40 AM	8:40 AM	8:55 AM	8:55 AM
	Greenway Transit Center	8:15 AM	8:15 AM	8:30 AM	8:30 AM	8:45 AM	8:45 AM	9:00 AM	9:00 AM
	Greenway Transit Center	8:20 AM	8:20 AM	8:35 AM	8:35 AM	8:50 AM	8:50 AM	9:05 AM	9:05 AM
	Greenway Transit Center	8:25 AM	8:25 AM	8:40 AM	8:40 AM	8:55 AM	8:55 AM	9:10 AM	9:10 AM
	Greenway Transit Center	8:30 AM	8:30 AM	8:45 AM	8:45 AM	9:00 AM	9:00 AM	9:15 AM	9:15 AM
	Greenway Transit Center	8:35 AM	8:35 AM	8:50 AM	8:50 AM	9:05 AM	9:05 AM	9:20 AM	9:20 AM
	Greenway Transit Center	8:40 AM	8:40 AM	8:55 AM	8:55 AM	9:10 AM	9:10 AM	9:25 AM	9:25 AM
	Greenway Transit Center	8:45 AM	8:45 AM	9:00 AM	9:00 AM	9:15 AM	9:15 AM	9:30 AM	9:30 AM

**Alternate format is available in Spanish and Hmong.**

Taoj hau kev lahib(ibus) hau lub caij nooj neev musj meej sau lus huab hmoob.

El mapa del sistema de autobuses y horarios están disponibles en español.

Shaded areas in the time-table denote Saturday service.

Source: Greenway Transit.





# Congestion Management

Amount of space required to transport the same number of passengers by car, bus or bicycle.



Car?








Bus?



Bicycle?

(Poster in city of Muenster Planning Office, August 2001)

*Credit: Press-Office City of Münster, Germany*

Comparison of how many vehicles it takes to transport 42 people	<b>1</b>	BUS	
	<b>6</b>	VANPOOLS (7 People Each)	
	<b>14</b>	3-PERSON CARPOOLS (3 People Each)	
	<b>21</b>	2-PERSON CARPOOLS (2 People Each)	
	<b>42</b>	SINGLE OCCUPANT VEHICLES (1 Person Each)	



Source: About Civil

Source: CH2M HILL



**Western Piedmont**  
Council of Governments

*Creative Regional Solutions Since 1968*

# Questions?

Brian Horton, Transportation Planning Manager

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