



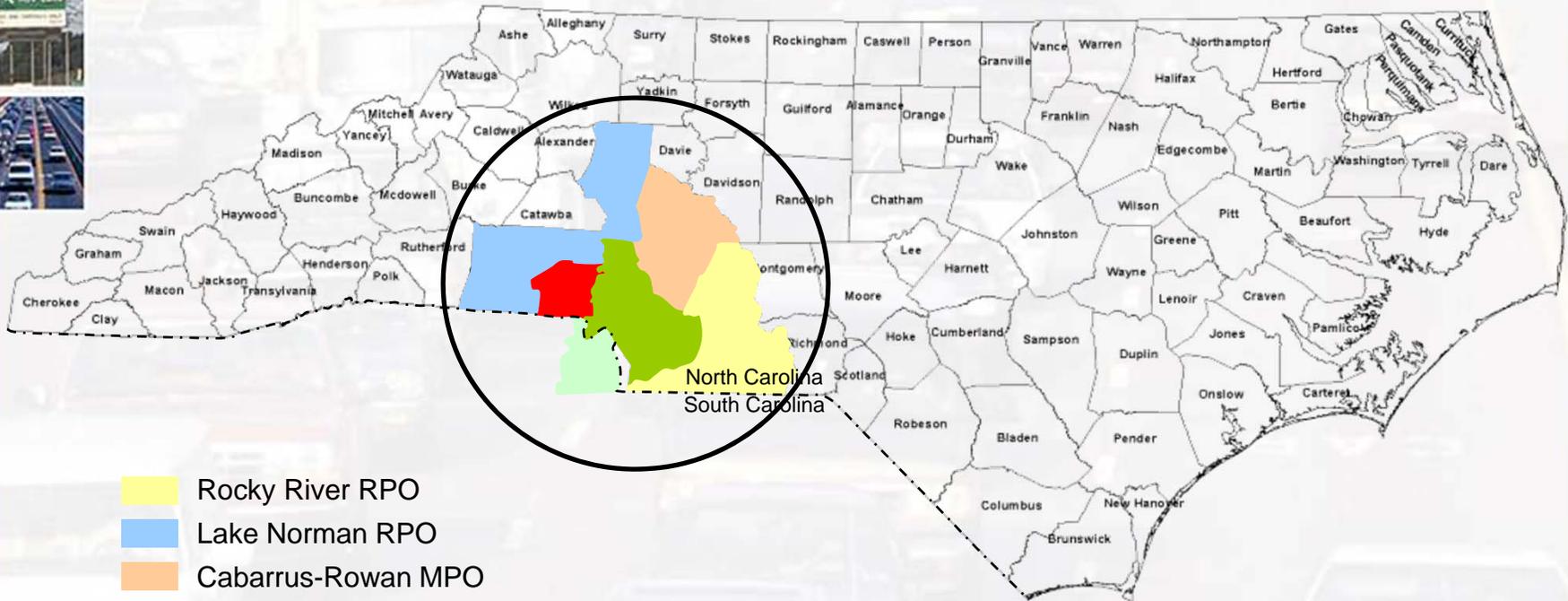
# Charlotte Region *Fast Lanes* Study



**Presentation to the  
Board of Directors  
North Carolina Turnpike Authority**

**March 3, 2011**

# STUDY AREA



- Rocky River RPO
- Lake Norman RPO
- Cabarrus-Rowan MPO
- Gaston Urban Area MPO
- Mecklenburg-Union MPO
- Rock Hill-Ft. Mill Area Transportation Study

# STUDY BACKGROUND



- ◆ Conducted from 2007 to 2009
- ◆ Co-managed by N.C. Department of Transportation and City of Charlotte
- ◆ Analyzed 12 corridors in 10-county region for managed lanes feasibility

# STUDY FUNDING PARTNERS



- North Carolina Department of Transportation
- Cabarrus-Rowan MPO
- Gaston Urban Area MPO
- Lake Norman Rural Planning Organization
- Mecklenburg-Union MPO
- Rock Hill-Fort Mill Area Transportation Study
- Rocky River Rural Planning Organization
- South Carolina Department of Transportation
- Town of Mooresville

# FEASIBILITY STUDY PURPOSE



- ◆ Are there any potential corridors where high occupancy vehicle (HOV), high occupancy toll (HOT) or truck only toll (TOT) Lanes are viable?
- ◆ Where and how these facilities might be connected to form a regional *Fast Lanes* system?

# MANAGED LANE STRATEGIES

- Eligibility/Occupancy
- Access Control
- Variable Pricing
- Active Traffic Management

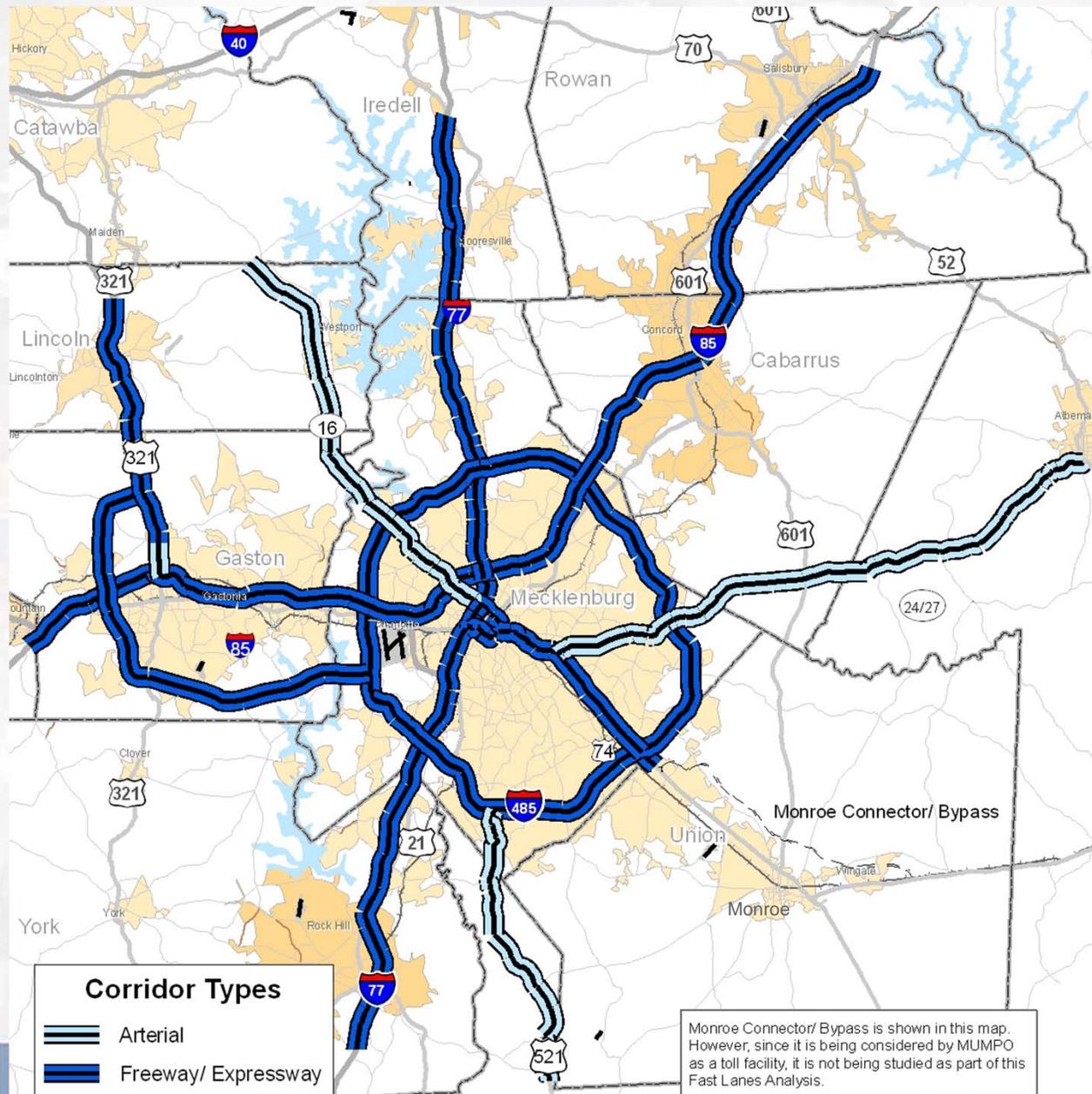


## SIMILAR REGIONAL STUDIES



- ◆ HOT/Truck Only Toll Feasibility Study:  
Atlanta, GA
- ◆ Regional HOT Lane Network Study:  
Bay Area, CA
- ◆ Highway System Investment Study:  
Minneapolis-St. Paul, MN
- ◆ Express Lane System Pre-Design Study:  
Seattle, WA

# STUDY CORRIDORS (340 MILES)



# TWO-PHASE STUDY PROCESS



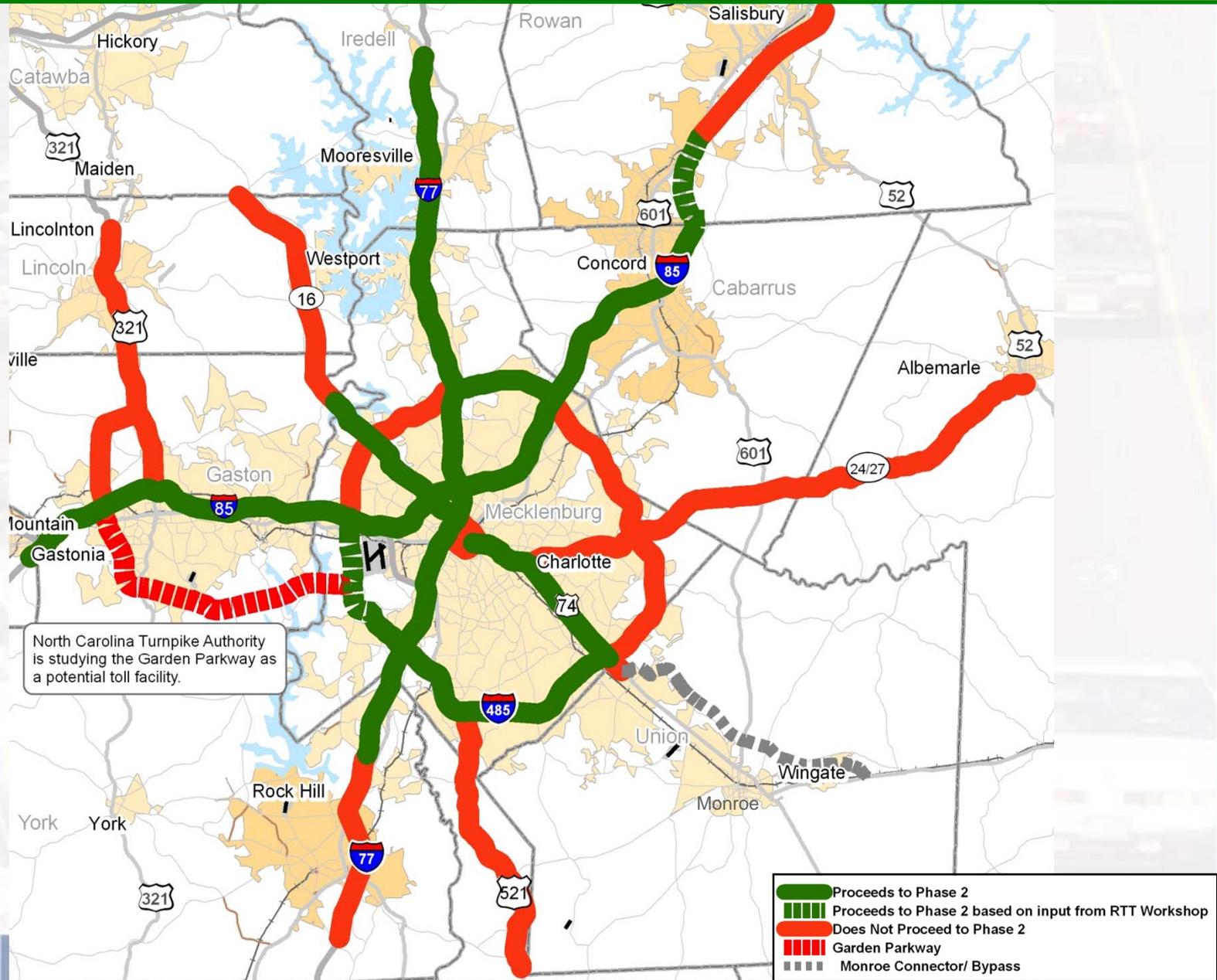
- ◆ Phase 1 screening designed to quickly identify most promising corridors for *Fast Lanes*
- ◆ Phase 2 involved detailed evaluation of managed lanes along most promising roadways

# PHASE 1 SCREENING CRITERIA



- ◆ Presence of Congestion
- ◆ HOV Demand
- ◆ HOT/Truck-Only Toll Demand
- ◆ Physical Attributes

# PHASE 1 SCREENING RESULTS

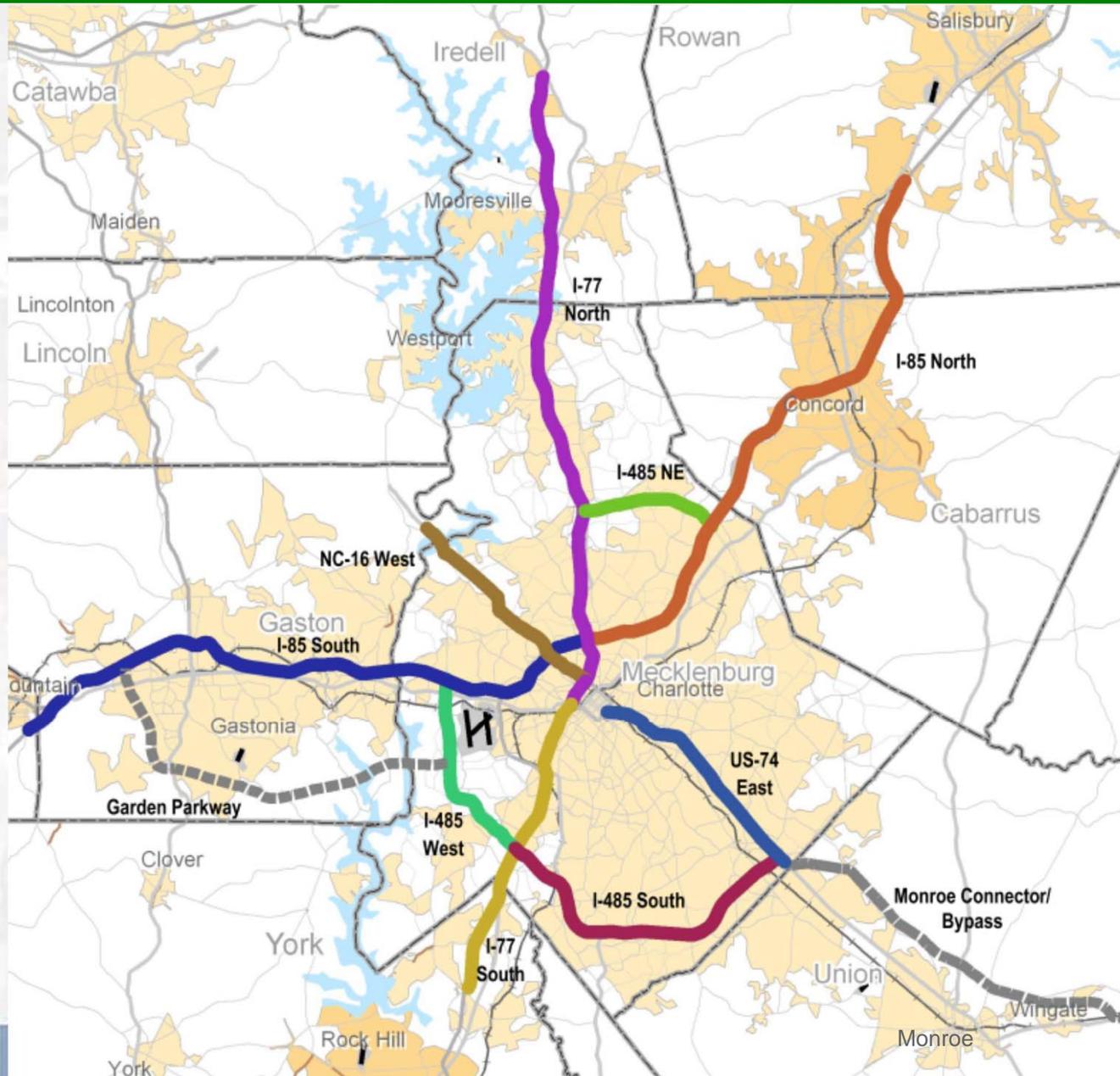


# PHASE 2 CORRIDOR EVALUATION



- ◆ Travel Time Savings from use of *Fast Lanes*
- ◆ *Fast Lanes* Demand (Persons and Vehicles)
- ◆ Projected Revenues Compared to Costs for Potential HOT Lanes
- ◆ Other Projects or Studies Impacting the Timing of *Fast Lanes* Implementation

# PHASE 2 CORRIDORS/SEGMENTS



# HOT LANE REVENUE/COST ANALYSIS

(2008 DOLLARS IN MILLIONS)



CORRIDOR	Length (Miles)	Year 2013			Year 2030	
		Capital Cost	Revenue	O&M Cost	Revenue	O&M Cost
I-85 North	30	\$550-1,200	\$1-4	\$13	\$3-17	\$21
I-77 North	21	\$250-500	\$5-25	\$9	\$10-60	\$15
US-74 East	12	\$225-700	\$2-11	\$6	\$6-20	\$8
I-85 South	28	\$750-1,700	\$6-27	\$12	\$20-95	\$20
NC-16 North	10	\$175-200	\$1	\$4	\$1-3	\$6
I-77 South	12	\$500-800	\$1-5	\$5	\$3-23	\$9
I-485 South	15	\$400-700	\$2-14	\$6	\$3-15	\$13
I-485 West	10	\$225-375	---	\$4	\$1-2	\$9
I-485 NE	6	\$175-300	---	\$2	\$1	\$5

# US-74 EAST



- ◆ Highest HOV demand in 2013 & 2030
- ◆ High-ranking corridor in travel time savings/mile for HOV facility users
- ◆ Revenues exceed O&M cost estimates when HOT lanes are considered
- ◆ Connects to Monroe Connector/Bypass, scheduled to open in 2014
- ◆ On January 14<sup>th</sup>, ULI Panel recommended combining existing BRT/express bus facility with HOV/HOT lanes

# I-77 SOUTH



- ◆ Among best corridors in HOV facility demand in 2013 and 2030
- ◆ Upper limit of revenues equal O&M cost estimates in 2013 when HOT lanes are considered
- ◆ Schedule for implementation likely driven by I-77's re-construction from Center City to I-485
- ◆ NCDOT managed lanes feasibility study getting underway

# I-77 NORTH



- ◆ HOV facility in operation since 2004
- ◆ Significant HOV facility demand in 2013 & 2030
- ◆ Among best corridors in travel time savings/mile for HOV lane users
- ◆ Revenues exceed O&M cost estimates when HOT lanes are considered

## CORRIDOR-LEVEL STUDIES



- ◆ More detailed operations analysis & refined engineering design
- ◆ Demand estimates to reflect corridor phasing & project limits rather than entire *Fast Lanes* system
- ◆ Refined traffic estimates and toll revenue where HOT lanes are being considered
- ◆ More detailed cost estimates based on approved design and lane operations
- ◆ For HOT lanes, comparison of forecasted tolls and costs for facility over its life cycle

# I-77 NORTH CORRIDOR STUDY



- ◆ Study limits were I-85 to Griffith Street
- ◆ Began in February 2009
- ◆ Feasibility for Converting HOV Facility to HOT Lanes and Extending Lanes Further North

## **I-77 STUDY CONCLUSIONS**

### **Convert existing HOV facility to HOT lanes and extend to Cornelius**

- ◆ Northbound HOT lane ends ½-mile south of Catawba
- ◆ Outside General Purpose lane drops at Catawba
- ◆ Southbound HOT lane begins between Catawba & Griffith interchanges

# RECOMMENDED ALTERNATIVE

