Charlotte Region Fast Lanes Study



Regional Technical Team Meeting #5

November 20, 2008





REVIEW OF PHASE 1 RECOMMENDATIONS

STUDY BACKGROUND



Began in June 2007

Co-managed by N.C. Department of Transportation and City of Charlotte

Analyzing 12 corridors in 10county region for managed lanes feasibility

FEASIBILITY STUDY PURPOSE



 Are there any potential corridors where HOV, HOT or Truck-Only Toll (TOT) Lanes are viable?
 Where and how these facilities might be connected to form a regional *Fast Lanes* system?

STUDY CORRIDORS (340 MILES)





CORRIDOR SEGMENTS (39)







PHASE 1 SCREENING CRITERIA



- Travel Speeds
- Volume-Capacity Ratio

HOV Demand

- Persons & Vehicles
- Travel Patterns

HOT/TOT Demand

- Vehicle
- Travel Patterns
- Revenue Potential
- Physical Attributes

PHASE 1 SCREENING RESULTS

					HOV Demand												
				Cong	estion	Per	rson	Veh	icle	HO	T Dema	and	Truck I	Demand	Space	Connectivity	/
Segm	ent Desription	From	TO	AM	РМ	AM	PM	AM	PM	AM	РМ	Toll	AM	PM	Available	Needs	Revenue
	I-277 (Brookshire)	I-77	US-74	•							4		0	0	0	•	
	I-277 (John Belk)	US-74	I-77		•	•		0	0	0	4	•	0	0	0		
	I-485 south	I-77	US-521	•	•			O	0	•	•	•	0	0	4	•	0
	I-485 south	US-521	US-74	0		0	•	Ō	Ō	0	•	O	Ō	Ō	•		0
	I-485 east	US-74	NC-24/27	O	O	0	0	0	0	0	0	0	0	0	•		0
	I-485 east	NC-24/27	I-85	0	•	0	9	0	0	0		0	0	0	4	•	0
	I-485 northwest	NC-16	I-77	•	•	0	0	0	0	0	0	۰			9	•	0
	I-485 northwest	I-85	NC-16	۰		0		0	0	0	۲	٠			4		0
	I-485 west	I-85	Garden Parkway	0		0	0	0	0	0	0	0	0		4	0	0
	I-485 west	Garden Parkway	I-77	•		0		0	0	0	۲	٠	0	0	4	0	0
	I-77 south, York Co	Exit 73, SC	Exit 90 (US-21)					O	0		4	0			٢	0	
	I-77 south	Exit 90 (US-21)	Exit 4 (Nations Ford)	•						4	4		•	•	0	•	
	I-77 south	Exit 4 (Nations Ford)	I-177(Brookshire)							4	4				0	•	
	I-77 existing HOV	I-177(Brookshire)	I-485 north	•	•			0	•	4	4		0	0	0	•	4
	I-77 north, Meck Co	I-485 north	Meck/ Iredell CL	•	•			0	4	4	4	•				•	
	I-77 north, Iredell Co	Meck/ Iredell CL	US-21/I-77			•	•	۰		٥					0	•	4
	I-85 south, west Gastonia	Cleveland/ Gaston CL	Exit 17 (US-321)	•			•	O	0	4				•	4	٢	4
	I-85 south, east Gastonia	Exit 17 (US-321)	Exit 27 (NC-273)	•			•	0	0		•				4	•	•
	I-85 south, outside I-485	Exit 27 (NC-273)	I-485 west	•				•	4				•	•	4	4	4
	I-85 south	I-485 west	I-77					٥	0			•			•	•	4
	I-85 north	1-77	I-485 east					O				O				•	
	I-85 north, outside I-485	I-485 east	Exit 49 (Speedway Blvd)						0	•						4	
	I-85 north, Cabarrus Co	Exit 49 (Speedway Blvd)	Cabarrus/ Rowan CL	•					0			O			4		
	I-85 north, Rowan Co	Cabarrus/ Rowan CL	Exit 81, Long Ferry Rd	•	•	•	•	0	0	0	•	0			4	0	
	US-321 north	US-321 Bypass/ US-321	US-321 Business	0	0	0	0	0	0	0	0	0	0	0	4	0	0
	US-74	I-277	Albemarle Rd						9	4			0	0			
	US-74	Albemarle Rd	I-485 southeast	•	•					4	4	•	0	0	0	٢	4
	NC-16	Lincoln/Catawba CL	Killian Rd	۰	0	0	0	0	0	0	۲	۲	0	0		0	۲
	NC-16, outside I-485	Killian Rd	I-485 northwest	•				0	0	•	•		0	0		•	•
	NC-16, inside I-485	I-485 northwest	I-277 (Brookshire)	•	•							•	0	0			O
	NC-24/27	US-74	I-485 east	•						•			0	0	0		O
	NC-24/27	I-485 east	Cabarrus/ Stanly CL	•	•			•	•	•	•		0	0	0	۲	•
	NC-24/27, Stanly Co	Cabarrus/ Stanly CL	US-52, Albemarle	0	0	0	0	0	0	0	0	0	0	0		0	O
	US-321 south	US-321 Bypass/ US-321	I-85	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	US-521, Lancaster Co	SC-5, SC	SC/NC state line	O	O	•	•	0	0				0	0	O		O
	US-521, Meck Co	SC/NC state line	I-485 south	•	•			•		•		•	0	0	0	4	O
	US-321 Bypass	US-321	I-85 south	0	0	0	0	0	0	0	0	0	0	0	•	0	0
	Gpkwy - south Gastonia	I-85 south	I-485 southwest	0	O	0	0	0	0	0	0	•	0	0		0	0
	I-485 northeast	I-77	I-85	O		0	O	0	0	0	0	O	0			0	0
Legend: O= Fail, O= Below average, O= Average, O=Above average, O = Best							being										

OVERALL SCREENING RESULTS



- About 167 miles (49%) advance to Phase 2 of the study
- HOV and HOT options are feasible on these corridors.
- Some conditional cases carried forward:
 - I-85 assuming major design exceptions
 - I-77 South assuming corridor is rebuilt
 - NC-16 assuming a reversible lane north of I-85

OVERALL SCREENING RESULTS











REVIEW OF PHASE 2 MANAGED LANES DESIGN CONCEPTS

I-85: **8-Lane**, Barrier Separated Shoulder Section (Between Freedom Dr and W. Sugar Creek Rd)















I-77 south: HOV and ETL Options

NCDOT R	ESPONSE ON D	ESIGN EXCEPTIONS					
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION							
	MICHAEL F. EASLEY GOVERNOR	L'INDO TIPPETT	100 C				
	August 18, 2008						
	Mr. Timothy D. Gibbs, AICP Transportation Plancer III Charlotte Department of Transportation 600 E. 4 th Street Charlotte, North Carolina 28202						
	Dear Mr. Gibbs:		100				
	SUBJECT: Fast Lanes – Design Exceptions for Roadwo	sy Segments in the Charlotte Region					
	As requested at the Charlotte Region Fast Lanes Study meeting In Department of Transportation (NCDOT) has coordinated with the P completed it's review for potential design exceptions for typical asc US 74.	eld on May 29, 2008, the North Carolina lederal Highway Administration (FHWA) and stores along Interstate H85, H77, I+485, NC 16 an					
	There is not enough information available today to fully evaluate th section or Shoulder Use lanes along the studied corridors. The P requirements for the transportation corridor and the criteria shall m evaluation of the constrained areas can take place and design area Use lanes must be considered. NCDCT does not conceptually agr Shoulder Use lanes with the FHWA until options that meet AASHT	e need for a design exception for readway typica and Lanes study should evaluate the ultimate well AASHTO standards. Afterwards, an aptions for the typical sections analytic Shoulder ere to pursue design exceptions or approval for to standards have been evaluated.					
	Median widening and outside widening should be considered to ac widths. The attached typical sections illustrate conceptual designs	hieve the desired lane widths and shoulder that may be considered.					
	NODOT strongly desires to work with the Charlotte Region Fastian improved transportation network. If you any questions, please con Engineer at 919-250-4016.	ee Study group to create a quality facility and tact Jay A. Bernett, PE, State Roadway Design					
	Sincerniy, Ala Alamet, PE Stale Roadway Design Engineer						
	JAB Attachment						

There is not enough information available today to fully evaluate the need for a design exception for roadway typical section or Shoulder Use lanes along the studied corridors. The Fast Lanes study should evaluate the ultimate requirements for the transportation corridor and the criteria shall meet AASHTO standards. Afterwards, an evaluation of the constrained areas can take place and design exceptions for the typical sections and/or Shoulder Use lanes may be considered. NCDOT does not conceptually agree to pursue design exceptions or approval for Shoulder Use lanes with the FHWA until options that meet AASHTO standards have been evaluated.

RALDON NC

PALEGH NC 27899-1582

SCDOT MEETING ON I-77

- Arranged by Doug Frate of SCDOT
- Attended by senior SCDOT management
 & South Carolina FHWA staff
- Reviewed national managed lanes perspectives & Fast Lanes study status
- Discussed study implications for I-77 in York County and potential for connecting to Fast Lanes concepts along I-77 north of State line

DISCUSSION OF PHASE 2 PRELIMINARY CORRIDOR RESULTS

HOV 2+ DEMAND IN 2013

(Otrant

Corridors	2013							
Segments	General Purp	ose Lanes	HOV/ Managed Lane					
	Persons	Vehicles	Persons	Vehicles				
I-77 Corridor North of Uptown								
Iredell County	1,600	1,400	800	300				
Iredell/ Meck CL to existing HOV	2,500	2,400	2,200	900				
Existing HOV	2,500	2,300	1,800	700				
Brookshire to John Belk	2,200	2,000	1,300	500				
I-77 Corridor South of Uptown								
John Belk to I-485 south	2,000	1,900	2,000	800				
I-485 south to York County	2,000	2,000	2,300	900				
I-85 Corridor West of Uptown								
Exit 4 in Gaston County to I-485 west	2,200	2,100	2,000	800				
I-485 west to I-77	1,900	1,800	1,500	600				
I-85 Corridor East of Uptown								
I-77 to I-485 east	2,000	1,900	1,800	700				
I-485 east to Cabarrus/ Rowan CL	1,800	1,700	1,500	600				
Rowan County	1,600	1,400	900	300				
NC 16 Corridor: Brookshire Freeway	1,200	1,100	900	400				
US 74 Corridor: Independence Blvd	1,900	1,700	2,100	900				
I-485 Corridor								
New I-485 section between I-77N and I-85N	1,400	1,200	300	100				
I-485 south between I-77 and US74	2,200	2,100	1,200	500				
I-485 west between I-85 to I-77 south	1,300	1,200	300	100				

HOV 2+ DEMAND IN 2030

Corridors	2030							
Segments	General Purp	ose Lanes	HOV/ Managed Lane					
	Persons	Vehicles	Persons	Vehicles				
I-77 Corridor North of Uptown								
Iredell County	2,000	1,800	1,600	600				
Iredell/ Meck CL to existing HOV	2,600	2,500	2,900	1,100				
Existing HOV	2,700	2,500	2,500	1,000				
Brookshire to John Belk	2,300	2,100	1,900	800				
I-77 Corridor South of Uptown								
John Belk to I-485 south	2,100	2,000	2,800	1,100				
I-485 south to York County	2,300	2,200	3,000	1,200				
I-85 Corridor West of Uptown								
Exit 4 in Gaston County to I-485 west	2,300	2,300	2,800	1,100				
I-485 west to I-77	2,200	2,100	2,300	900				
I-85 Corridor East of Uptown								
I-77 to I-485 east	2,100	2,000	2,400	1,000				
I-485 east to Cabarrus/ Rowan CL	2,000	1,900	2,500	1,000				
Rowan County	1,900	1,800	2,000	800				
NC 16: Corridor Brookshire Freeway	1,400	1,300	1,300	500				
US 74 Corridor: Independence Blvd	1,900	1,800	2,800	1,100				
I-485 Corridor								
New I-485 section between I-77N and I-85N	1,900	1,600	700	300				
I-485 south between I-77 and US74	2,100	2,000	1,600	600				
I-485 west between I-85 to I-77 south	1,700	1,500	400	100				

SUMMARY OF HOV DEMAND ANALYSIS

- As many high demand segments inside I-485 as outside on radials
- High demand segments (more than 2,500 pphpl) are:
 - I-77 (Iredell/ Meck. county line to I-485)
 - I-77 (Belk Freeway to York County)
 - I-85 (Exit 4 in Gaston County to west of I-485)
 - I-85 (I-485 to Cabarrus/ Rowan county line)
 - US-74 East
- Lowest demand is on I-485 and outer portions of radials

PRELIMINARY INFORMATION

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Annual toll revenues for 2013 and 2030

- Minimization of travel time and revenue optimization scenarios
- HOV 2+ free, HOV 3+ free or all pay scenarios (ETL)
- Capital cost estimates by corridor segment
 - With design exceptions
 - Using NCDOT design standards
- Operating & maintenance cost estimates by corridor segment

FAST LANES - PHASE 2 SCHEDULE

REPORTS FROM HOV/HOT CONFERENCE & FHWA HOT LANES WORKSHOP

HOV/HOT SYSTEMS CONFERENCE

- September 7-9 in Minneapolis
- 13th International Conference, last held in Minneapolis 20 years ago
- Theme was Partnerships for Innovation
- Sponsored by TRB
- Mid-year meetings of TRB HOV Systems Committee & Joint Managed Lanes Subcommittee
- About 125 attendees

HOV/HOT SYSTEMS CONFERENCE

 General Session on Innovative Partnerships between MDOT and Metro Council

Tour of I-394 MnPASS Project & I-35W
 Bridge Re-construction

HOV Systems Committee Awards

CONFERENCE BREAK-OUT SESSIONS

- What's the HOV/HOT News Across North America?
- Minnesota's Urban Partnership (UP) Agreement
- HOV/HOT Supporting Elements & BRT
- What's Next for HOT Projects?
- HOV/HOT Planning, Design & Operations
- What's Underway in HOV/HOT Facilities?
- HOVs, HOTs & Other User Groups
- UP Agreements & the Congestion-Reduction Program

HIGHLIGHTED PROJECTS

- I-394 MnPass, Minneapolis
- SR-167 HOT Lanes, Seattle
- ♦ I-25 HOT Lanes, Denver
- ♦ I-5 HOV Lanes, Seattle
- Capital Beltway HOT Lanes, Washington
- HOV, HOT & TOT Lanes, Atlanta
- HOV Lanes, Dallas
- ♦ I-95 HOT Lanes, Miami
- HOT Lanes, Los Angeles
- Freeway HOV Lanes, Toronto

FHWA HOT LANES WORKSHOP

- September 9-10 in Minneapolis
- 3rd time that workshop has been held
- Objective is to discuss HOT Lane operations & management strategies
- Designed for transportation professionals responsible for planning, designing, managing & operating HOV or Managed Lanes
- Have CD of workshop presentations

WORKSHOP TOPICS

- Benefits of HOT Lanes
- National Trends
- Lessons Learned from HOT Lane Operations
- Public Outreach & Education
- HOT Lanes Modeling
- FHWA's newest Policy Guidance on HOV & HOT Lanes

WORKSHOP PANEL DISCUSSION

 National Trends in HOV Conversion – Chuck Fuhs, Parsons Brinckerhoff

- Public Outreach for I-25 Express Lanes in Denver – Stacey Stegman, Colorado DOT
- SR-167 HOT Lanes Mark Bandy, Washington State DOT
- Modeling Conversion of HOV Lanes to Managed Lanes – Robert Benz, TTI