Regional Transportation Alliance

Toll Express Lanes for the Research Triangle region

Including discussion of possible applications on I-40

Presentation for discussion at Durham-Chapel Hill-Carrboro MPO TAC meeting

Wednesday, December 12, 2012

Toll Express Lanes: Introduction

Regional Transportation Alliance

Managed Lanes

- **Managed lane** – freeway lane with restricted entry
  - Number of people – HOV-2, HOV-3
  - Toll rate – fixed, variable
  - Distance traveled – limited access/egress
  - Vehicle class – truck restrictions

- **Express lane (a/k/a Valu*Express* lane, Express Toll Lane)**
  - Requires electronic payment of variable or fixed toll for entry

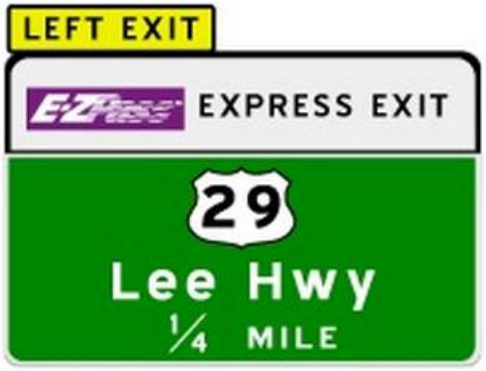
Virtually every market we compete with has or is implementing managed lanes on key freeways

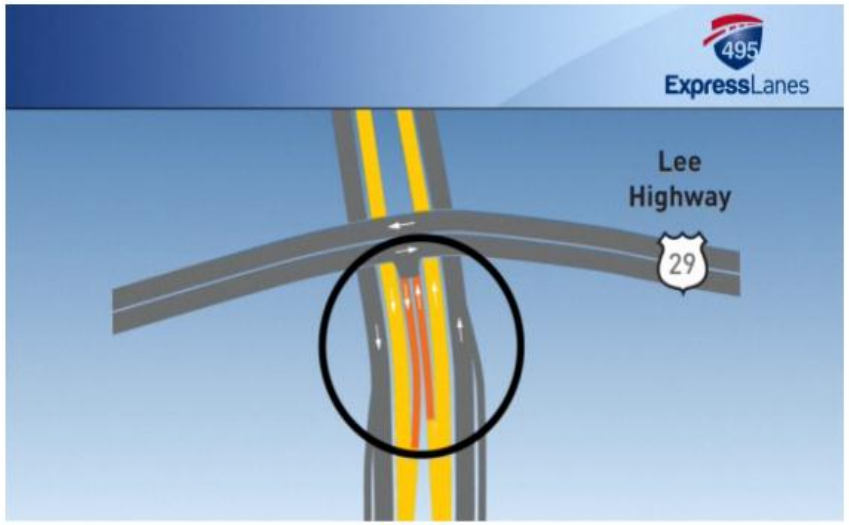
Examples of Managed Lanes in the U.S.

I-85 in Atlanta

Hwy 237 in San Francisco

“495 Express Lanes” in Northern Virginia





Examples of managed lanes in the US

Open to traffic today

• 91 Express Lanes - Los Angeles, CA	**HOT**
• I-15 Express Lanes - Salt Lake City, UT	**HOT**
• I-95 Express Lanes - Miami, FL	**Modified HOT**
• I-270 Express Lanes - Rockville, MD	**Thru; one lane peak HOV**
• I-85 Express Lanes - Atlanta, GA	**HOT**
• I-680, Hwy 237 Express Lanes - San Jose, CA	**HOT**
• I-10 Managed Lanes - Houston, TX	**Toll; peak HOT**
• I-15 Express Lanes - San Diego, CA	**HOT**
• I-25 Express Lanes - Denver, CO	**HOT; segments HOV**
• I-5 and I-90 Express Lanes - Seattle, WA	**Thru; segments HOV**
• I-110 Express Lanes - Los Angeles, CA	**HOT**
• I-495 Express Lanes - N. Virginia	**HOT**

Regional Transportation Alliance

Examples of managed lanes in the US

Under construction

- I-10 Express Lanes - Los Angeles, CA — **HOT, Open 2013**
- I-95 Express Lanes - Baltimore, MD — **Toll, Open 2014**

Proposed

- I-15 Express Lanes - Salt Lake City, UT — **HOT**
- Loop 1 Express Lanes – Austin, TX — **Toll, constr. 2013**
- I-4 Express Toll Lanes – Orlando, FL — **Toll, constr. prop. for 2014**
- Express Toll Lanes – El Paso, TX — **Toll**

Regional Transportation Alliance

Toll Express Lanes: compare w/ HOV, HOT

Regional Transportation Alliance

Limitations of HOV lanes, and by extension HOT lanes

Limitations of HOV

- HOV-2 is free; a trip is not "more free" with a 3rd person or vanpool
- HOV-2 is often parent + child, but they are not "carpooling"
- Free HOV-2 eliminates incentive to redirect less time urgent trips with infants/children to off-peak travel
- HOVs are either 2 or 3 persons and hard to vary demand curve
- HOVs do not provide revenue
- True occupancy enforcement is essentially impossible – less than 20% success in recent study
- Infants in rear-facing carseats count as the second person

Overall benefits of Express Lanes

Express Lanes provide options when on-time travel is essential

- Create a reliable, on-demand option to avoid congestion
- Pricing encourages carpooling and vanpooling without requiring it
- Create an express route for buses without building separate busways or relying entirely on BOSS operation
- Provide revenue which can accelerate construction

"Express Lanes" are the personal travel equivalent of USPS "Express Mail" – paying for faster, more reliable travel for ourselves

Regional Transportation Alliance

Benefits of toll Express Lanes vs. HOV element of HOT

Benefits of toll Express Lanes

- Variable pricing of all vehicles maximizes operational flexibility
- Simpler – no "flex switch" to operate for drivers between HOV, toll
- Far easier to enforce: one price per vehicle class
- Encourages carpooling above 2-person threshold (unlike HOT) – users can always informally split the toll more ways
- True high-occupancy vehicles (e.g., Triangle Transit vanpools) can receive special sticker tags if desired
- Maximizes number of users paying, which minimizes individual tolls

Advantages of buffer-separated express lanes

Benefits of buffer-separated vs. barrier separated lanes

- Very similar footprint to normal freeway cross section (only 4' wider)
- Substantially lower costs
- Little if any additional right-of-way required
- Unlike longitudinal barriers, buffer allows access in emergency
- Provides flexibility – does not commit region to single costly footprint

Benefits of buffer-separated vs. striped double-lines only

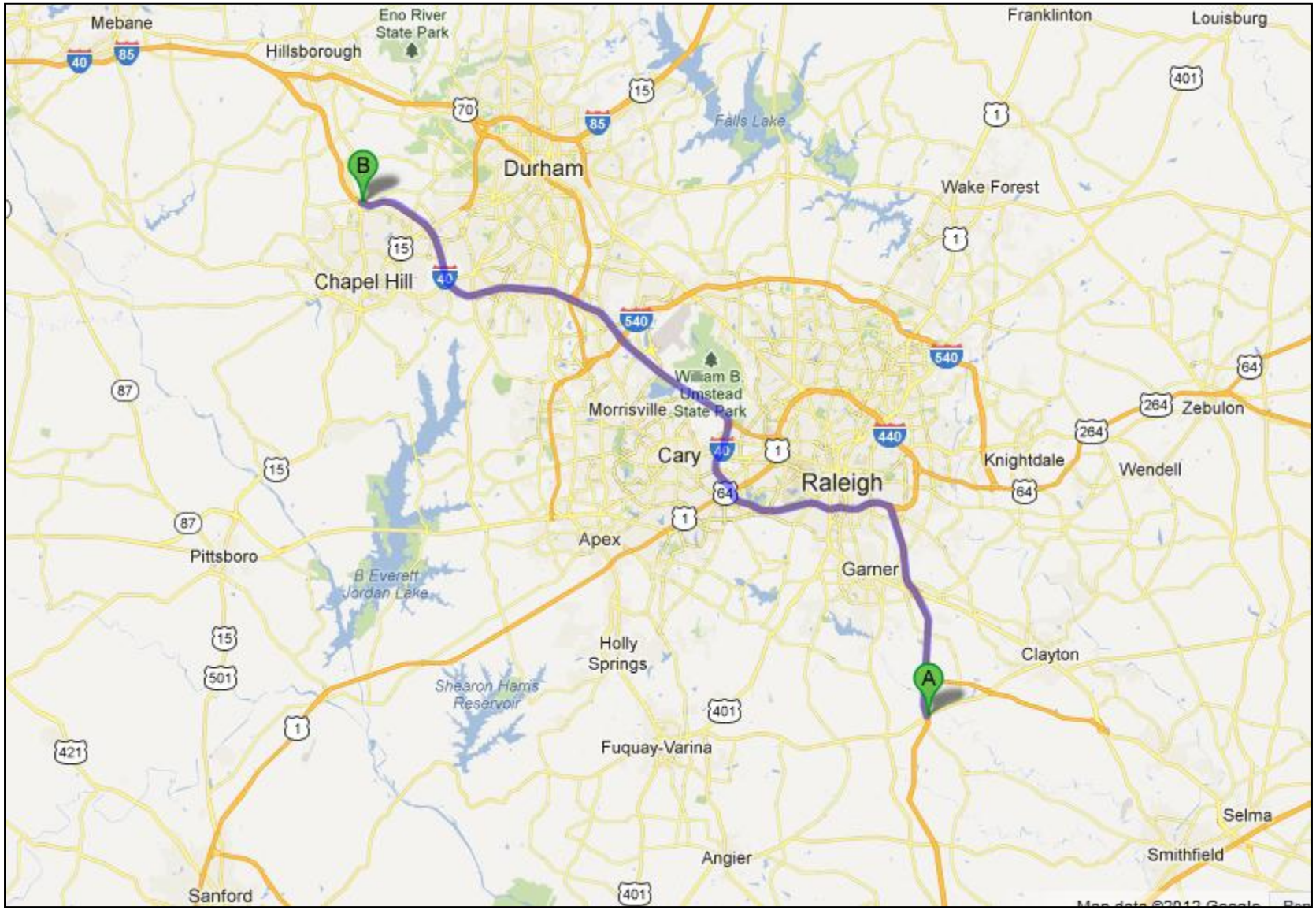
- Improves toll enforcement and minimizes weaving
- Provides separation to minimize friction due to different speeds
- Creates opportunity for new left exits that would otherwise have insufficient exit spacing

Regional Transportation Alliance

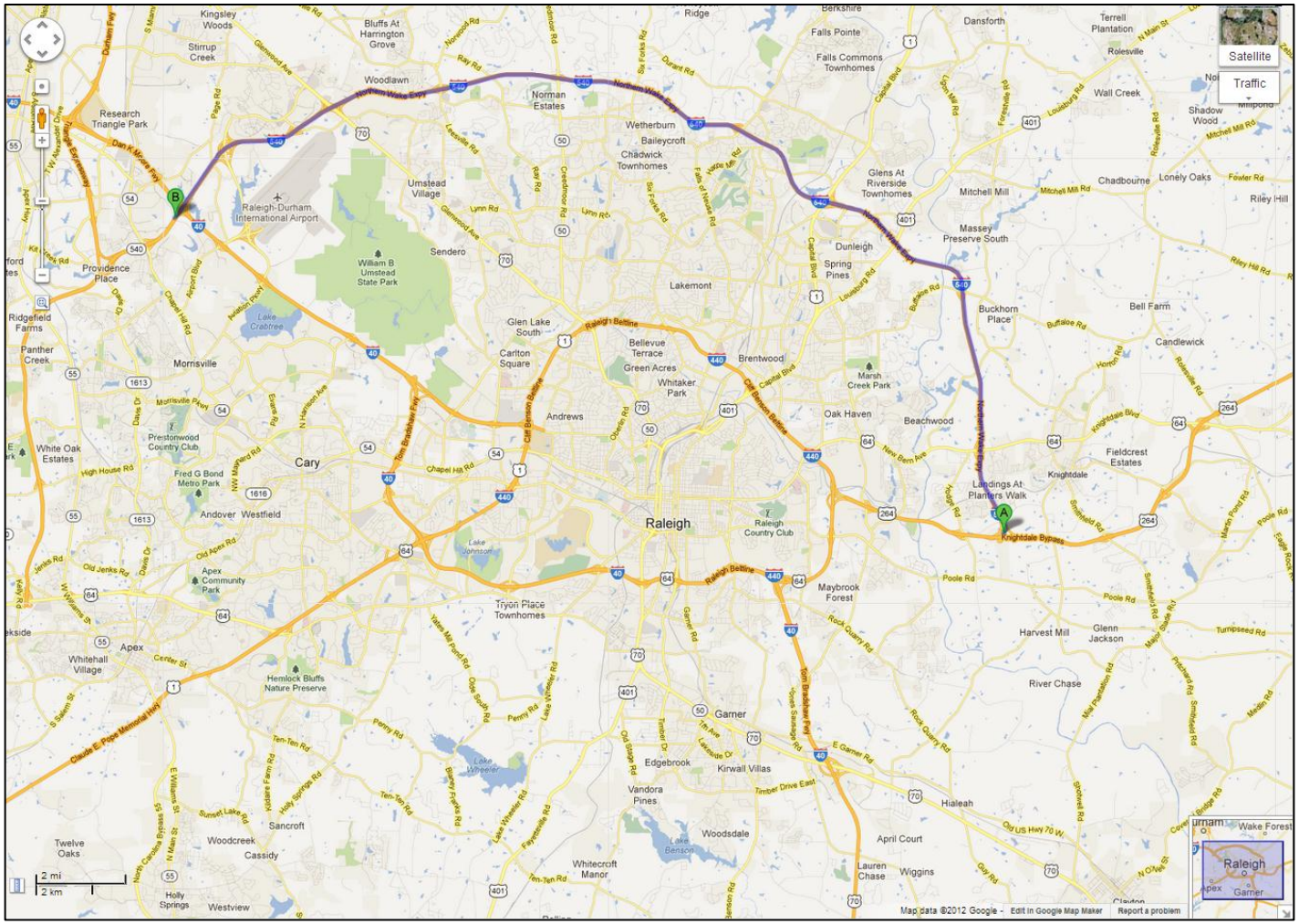
Toll Express Lanes: possibilities in our area

Regional Transportation Alliance

Potential I-40 Express Lanes Corridor



Potential I-540 Express Lanes Corridor



RTA 2012-13 Highway Transportation Priorities

Top RTA priorities for new or expanded freeways

- Triangle Connector to I-85
- Toll 540 Triangle Expressway completion
- US 70 Freeway conversion
- Aviation freeway
- **I-40 widening to 6+ lanes between I-85 and I-95**
- **I-40 Express Lanes/interchanges – staged construction regionwide**
- I-95 statewide improvements

Regional Transportation Alliance

RTA General Policies on Express Lanes

RTA general policies on toll roads that apply to Express Lanes

- Tolls collected on corridor remain on corridor or contiguous toll route
    - Maintain user fee relationship
    - Preserve support for tolls as an option

- Encourage consideration of, but do not require, public-private partnerships

APPLICABLE STATUTES

- All toll revenue would remain on the project itself or on a contiguous toll facility by statute.
- If tolls were to cover some/all project costs, any realized savings would be allocated by the equity formula by statute

Regional Transportation Alliance

RTA General Policies on Express Lanes

RTA policies specific to Express Lanes

- First priority is to create 3 general purpose freeway lanes per direction
- Pursue* toll Express Lanes for 4th or more through lane when widening
- Toll only, not HOV or HOT
- Buffer-separated not barrier to reduce costs, maximize future flexibility
- Consider, but do not require, separate exits for Express Lanes

*** NOTE: Pursue toll express lanes means:**

- Consider opening a new lane (after the 3rd) as express lane – ready to collect tolls on day one
- However, tolls only needed when congestion occurs, with no minimum amount or hours required, as long as federal free-flow performance standards continue to be met
- Tolls could be low or zero day after day if congestion is low
- Variable pricing to manage supply, demand and maintain free-flow

Regional Transportation Alliance

Regional Transportation Alliance

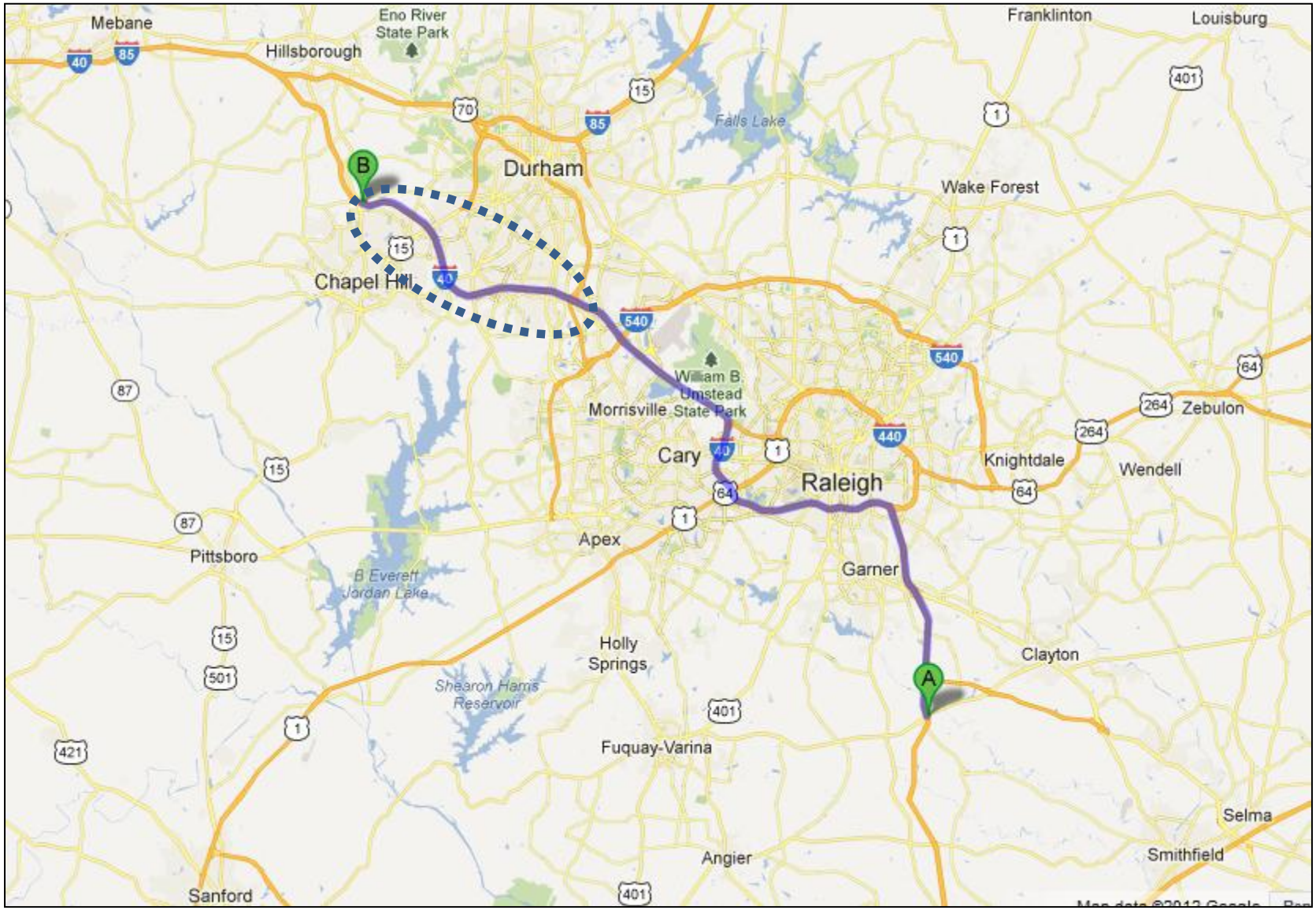
Toll Express Lanes for the Research Triangle region

Including discussion of possible applications on I-40

Presentation for discussion at Durham-Chapel Hill-Carrboro MPO TAC meeting

Wednesday, December 12, 2012

Potential I-40 Express Lanes Corridor ?



I-40 Express Lanes – discussion

I-40 Orange widening (I-3306)

- Planned to widen I-40 from two to three through lanes between US 15-501 and I-85
- This will connect with the existing three lane section between US 15-501 and NC 147/Toll 147
- East of 147 the I-40 freeway is four lanes/direction to Wake Co.

One option to consider as a possibility?

- Consider potential for adding a 4th through lane now as an Express lane
- Lane would terminate at 15-501 if project limits remain same as I-3306
- Could extend east to NC 147 for lane balance reasons and to connect with existing Toll 147 South (every lane on Turnpike is an Express lane)

Regional Transportation Alliance

Implementation costs of Express Lanes for I-3306

Costs

- Incorporating a new 12' lane and new 4' buffer into the design will incur additional costs, perhaps substantial
- Toll collection equipment is also not free
- Incorporating paved buffer and toll technology easier at early stage
- If access only granted at ends of corridor then entry/exit costs may be minimized
- If additional exits were desired (e.g., at existing grade separations, like I-495 in Northern Virginia) then those would incur additional costs

Current funding and Gap funding for I-3306

Funding

- The project is fully-funded project to six lanes
- The amount of gap funding required to pay for the express lane is not known
- If necessary, region could seek language to affirm that all tolls stay on the corridor or a contiguous route, like we did successfully for 540
- If new exits created, those would likely attract additional revenue

Summary of example

If we were to choose to <u>pursue</u> buffer-separated toll Express Lanes:

- The project would need to add a new lane and incorporate a 4' larger footprint, which will cost more than the current plan
- The project would need to incorporate tolling infrastructure costs, and a toll revenue assessment
- The project development process would need to include public outreach about potential operation of 4th lane as a toll Express Lane
- We would need to clarify that this is only about tolling lanes that do not yet exist, and that the proposed lanes would otherwise be untolled
- The simple buffer-separated cross section will not compromise future implementation of a more complex express lanes footprint
- The potential for creating new express left exits to other bridges exists

Regional Transportation Alliance

Regional Transportation Alliance

Toll Express Lanes for the Research Triangle region

Including discussion of possible applications on I-40

Presentation for discussion at Durham-Chapel Hill-Carrboro MPO TAC meeting

Wednesday, December 12, 2012