



PLANNING BIG!

THE TRIANGLE BIKEWAY

Town of Chapel Hill

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PROJECT LEADERS



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DISCUSSION TOPICS

- > PROJECT BACKGROUND
- > CASE STUDIES
- > STAKEHOLDER ENGAGEMENT
- > ALTERNATIVES ANALYSIS
- > IMPLEMENTATION

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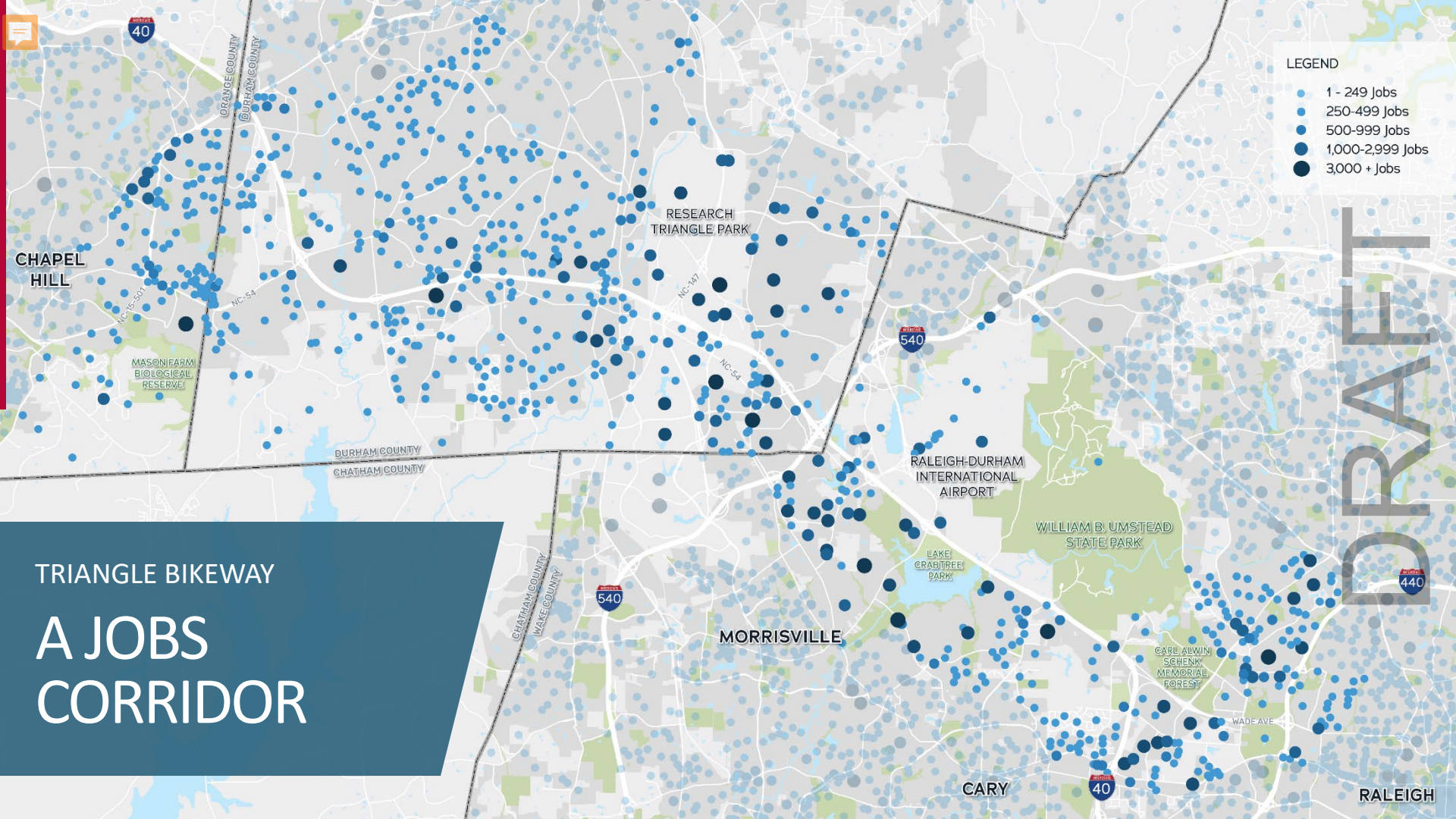


TRIANGLE BIKEWAY

A REGIONAL VISION

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- > Separated from Traffic
- > 23 Mile Study Corridor
- > 3 Counties
- > 7 Jurisdictions



LEGEND

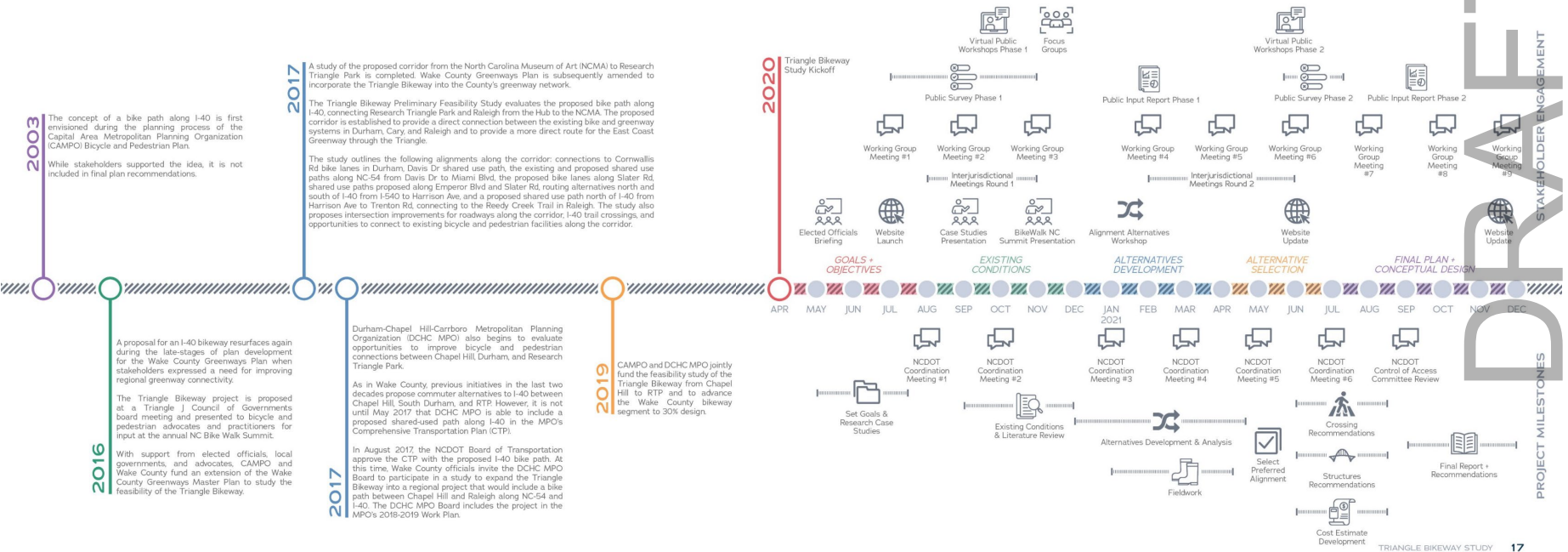
- 1 - 249 Jobs
- 250-499 Jobs
- 500-999 Jobs
- 1,000-2,999 Jobs
- 3,000 + Jobs

**TRIANGLE BIKEWAY
A JOBS
CORRIDOR**

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RALEIGH

TRIANGLE BIKEWAY PROJECT EVOLUTION



2003

The concept of a bike path along I-40 is first envisioned during the planning process of the Capital Area Metropolitan Planning Organization (CAMPO) Bicycle and Pedestrian Plan. While stakeholders supported the idea, it is not included in final plan recommendations.

2017

A study of the proposed corridor from the North Carolina Museum of Art (NCMA) to Research Triangle Park is completed. Wake County Greenways Plan is subsequently amended to incorporate the Triangle Bikeway into the County's greenway network.

The Triangle Bikeway Preliminary Feasibility Study evaluates the proposed bike path along I-40, connecting Research Triangle Park and Raleigh from the Hub to the NCMA. The proposed corridor is established to provide a direct connection between the existing bike and greenway systems in Durham, Cary and Raleigh and to provide a more direct route for the East Coast Greenway through the Triangle.

The study outlines the following alignments along the corridor: connections to Cornwallis Rd bike lanes in Durham, Davis Dr shared use path, the existing and proposed shared use paths along NC-54 from Davis Dr to Miami Blvd, the proposed bike lanes along Slater Rd, shared use paths proposed along Emperor Blvd and Slater Rd, routing alternatives north and south of I-40 from I-540 to Harrison Ave, and a proposed shared use path north of I-40 from Harrison Ave to Trenton Rd, connecting to the Reedy Creek Trail in Raleigh. The study also proposes intersection improvements for roadways along the corridor, I-40 trail crossings, and opportunities to connect to existing bicycle and pedestrian facilities along the corridor.

2020

Triangle Bikeway Study Kickoff

2016

A proposal for an I-40 bikeway resurfaces again during the late-stages of plan development for the Wake County Greenways Plan when stakeholders expressed a need for improving regional greenway connectivity. The Triangle Bikeway project is proposed at a Triangle J Council of Governments board meeting and presented to bicycle and pedestrian advocates and practitioners for input at the annual NC Bike Walk Summit.

2017

With support from elected officials, local governments, and advocates, CAMPO and Wake County fund an extension of the Wake County Greenways Master Plan to study the feasibility of the Triangle Bikeway. Durham-Chapel Hill-Carrboro Metropolitan Planning Organization (DCHC MPO) also begins to evaluate opportunities to improve bicycle and pedestrian connections between Chapel Hill, Durham, and Research Triangle Park. As in Wake County, previous initiatives in the last two decades propose commuter alternatives to I-40 between Chapel Hill, South Durham, and RTP. However, it is not until May 2017 that DCHC MPO is able to include a proposed shared-used path along I-40 in the MPO's Comprehensive Transportation Plan (CTP). In August 2017, the NCDOT Board of Transportation approve the CTP with the proposed I-40 bike path. At this time, Wake County officials invite the DCHC MPO Board to participate in a study to expand the Triangle Bikeway into a regional project that would include a bike path between Chapel Hill and Raleigh along NC-54 and I-40. The DCHC MPO Board includes the project in the MPO's 2018-2019 Work Plan.

2019

CAMPO and DCHC MPO jointly fund the feasibility study of the Triangle Bikeway from Chapel Hill to RTP and to advance the Wake County bikeway segment to 30% design.

STAKEHOLDER ENGAGEMENT

PROJECT MILESTONES

PROJECT GOALS



EQUITY

Prioritize equal access to the Triangle Bikeway for all, through public engagement, project delivery and investment.



CONNECT TO JOBS

Provide seamless connections between the Triangle Bikeway, the regional transportation network, employment centers and local neighborhoods.



SAFETY

Address the safety needs of users of all ages and abilities in the design and development of the Triangle Bikeway.



REGIONAL COLLABORATION

Collaborate with government entities and other regional stakeholders to understand priorities and concerns. Build support of jurisdictional partners for future funding, design, construction and maintenance.



TRANSPORTATION CHOICE

Provide a direct and accessible route separated from traffic as a bicycling and walking option for commuters and recreational users. Make meaningful connections to transit and active transportation networks.



PUBLIC BENEFIT + SUPPORT

Listen to the community to help identify opportunities and challenges. Recommend an alignment that will generate public support and build momentum for future funding efforts.



FEASIBILITY

Utilize locations for the bikeway alignment that are permissable and reduce the time required for implementation. Minimize the impact of the bikeway on environmental features and the natural habitat.



IDENTITY

Create a unique identity for the bikeway that will be instantly recognizable and highlight the regional commitment to both recreational and commuter bicycling to residents and visitors alike.



RESILIENCY

Support mode shift goals and reduce emissions / other transportation-related environmental impacts while expanding access to active living and positively impacting community health.

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TRIANGLE BIKEWAY

CASE STUDIES



- > I-90 Trail
King County, WA
- > US 36 Bikeway
Boulder, CO
- > Path 400
Atlanta, GA
- > Business 40 Sidepath
Winston-Salem, NC
- > Custis Trail
Arlington County, VA
- > Charter Oak Greenway
East Hartford, CT

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CASE STUDIES

US 36 BIKEWAY

US 36 Bikeway was part of a larger CDOT project to create bus rapid transit (BRT) service and tolled express lanes along the busy US 36 corridor. These investments were part of FasTracks, a multibillion-dollar public transportation expansion throughout metropolitan Denver. Additional funding sources included CDOT, FHWA, and Regional Transportation District (RTD). US 36 Bikeway is well used (an estimated 500 daily users) for commuting to work, accessing activity centers, local businesses, transit stations, and to the greater bike network in Denver metro region.

- > Metro Denver, CO
- > Trail Length: 18 miles
- > Constructed: 2015-2016
- > Right-of-Way: 100% in CDOT ROW
- > Cost: \$16.6M



CASE STUDIES

PATH 400

In 2011, public engagement, land acquisition, and data collection began. Key stakeholders include Livable Buckhead, City of Atlanta, GDOT, Marta, and the PATH Foundation. Trail funding sources have included a local sales tax (TSPLOST), state funding and federal grants. The trail will soon extend north into Sandy Springs, connect to the Atlanta Beltline to the south and the Peachtree Creek Greenway to the southwest.

- > Atlanta, GA
- > Trail Length: 5.2 miles
- > Constructed: 2014-2020
- > Right-of-Way: 66% in GDOT ROW
- > Cost: \$28M

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CASE STUDIES

BUSINESS 40 SIDEPATH

Added to the Business 40 Improvement Project, this sidepath will connect several neighborhoods and key destinations (e.g. baseball stadium, hospital, and commercial areas) in Downtown Winston-Salem. Key partners include the City of Winston-Salem, NCDOT, Downtown Winston-Salem Partnership, and Creative Corridors Coalition. Funding sources include several federal (CMAQ and STBG Programs), state (NCDOT's STI Prioritization), and local (bond referendums) sources. Once complete, the sidepath will connect to a growing network of bike facilities and 25 miles of greenways throughout the region.

- > Winston-Salem, NC
- > Trail Length: 1.2 miles
- > Constructed: 2018-2020
- > Right-of-Way: 100% in NCDOT ROW
- > Cost: \$8M-10M



CASE STUDIES

KEY TAKEAWAYS

Ideas from these and other projects that influence the bikeway's design and project development include:

- > Aligning Trails Within State DOT Right-of-Way
- > Strong Connections to Transit
- > Design Elements to Support Effective Commuting (lighting, grade-separated roadway crossings, separate walking and bicycling zones)
- > Establishing Strong Partnerships
- > Prioritizing Large-Scale Transportation Investments

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ENGAGEMENT PROCESS

2020

Triangle Bikeway
Study Kickoff



Elected Officials
Briefing



Website
Launch



Case Studies
Presentation



BikeWalk NC
Summit Presentation



Alignment Alternatives
Workshop



Website
Update



Website
Update

GOALS +
OBJECTIVES

EXISTING
CONDITIONS

ALTERNATIVES
DEVELOPMENT

ALTERNATIVE
SELECTION

FINAL PLAN +
CONCEPTUAL DESIGN

APR MAY JUN JUL AUG SEP OCT NOV DEC JAN 2021 FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

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STAKEHOLDER ENGAGEMENT

BY THE NUMBERS

- > **40+** Bi-Weekly Project Meetings
- > **9** Working Group Meetings
- > **7** MPO Meetings
- > **3** Focus Group Meetings
- > **10** Elected Officials Meetings
- > **20+** Key Stakeholder Meetings
- > **4** Virtual Public Meetings
- > **8** Pop-Up Events
- > **11** Jurisdictional Meetings
- > **4,125** User Surveys Completed

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We are pleased to present the Triangle Bikeway Study. Through the diligent and committed leadership of the Capital Area and Durham Chapel Hill Carrboro MPOs, this study has taken a back of the napkin idea and developed it into a viable, community-supported project that will change our region for the better in the following ways:

Model for Regional Transportation Projects – The Triangle has sometimes struggled to act as one region when advancing transportation projects. The evolution of the Triangle Bikeway is deeply rooted in each community that it touches. This deliberate, distributed model of planning yielded energetic consensus and clear next steps.

Bold Step to Future Proof our Region – With the advent of electric assist bikes, bicycling for transportation is no longer limited to experienced cyclists. People of all ages and abilities are finding the freedom and satisfaction that comes with making trips under their own power. The study also maximizes locations where the Triangle Bikeway route connects to existing and future transit to further expand commuting options.

Low Cost / No Emissions Connections to Job-Rich Corridor – The I-40 corridor is the gateway for thousands of jobs in both professional and service industries. The Triangle Bikeway will provide low-cost access to employment opportunities without increasing traffic congestion on our highways.

Powerful Partnership Model with NCDOT – NCDOT has been engaged and supportive throughout the entire study process. The agency's growing commitment to multi-modal transportation is an essential element to the success of this and other projects seeking to leverage state resources to create safe and vibrant transportation corridors.

The Triangle Bikeway vision is the result of the collective work of citizens, elected officials, staff and advocates across two counties and five municipalities. Over roughly 18 months, nine working group meetings, two extensive public engagement campaigns, over 30 meetings with individual stakeholders and countless work hours have resulted in a vibrant common vision.

As County Commissioners, our charge is to position our communities to thrive, adapt and evolve to maintain our position as one of the best places in the country to live and work. Our challenge to you is to join us in the hard work ahead to make the Bikeway part of our everyday lives in the Triangle. Funding design and construction will require creativity, perseverance, and teamwork across jurisdictions. We look forward to standing with you on Triangle Bikeway ribbon cutting day!



Wendy Jacobs

Commissioner Wendy Jacobs
Vice Chair
Durham County
Board of Commissioners
Chair, DCHC MPO Board



Commissioner Sig Hutchinson
Chair
Wake County
Board of Commissioners
Chair, CAMPO Executive Board

STAKEHOLDER ENGAGEMENT ELECTED OFFICIALS



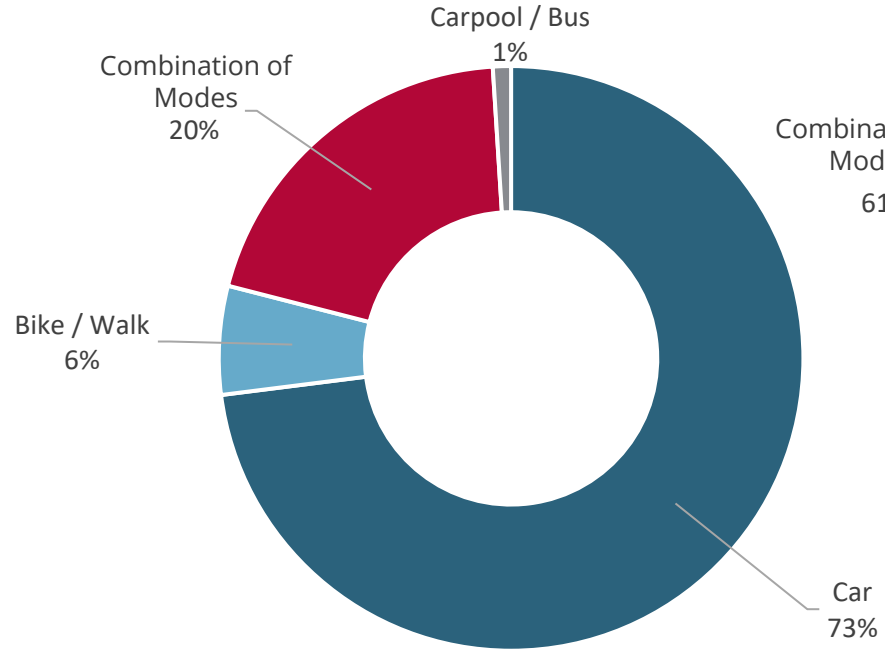
- > Engage Early
- > Avoid Surprises
- > Build Support
- > Coordination Across Jurisdictions

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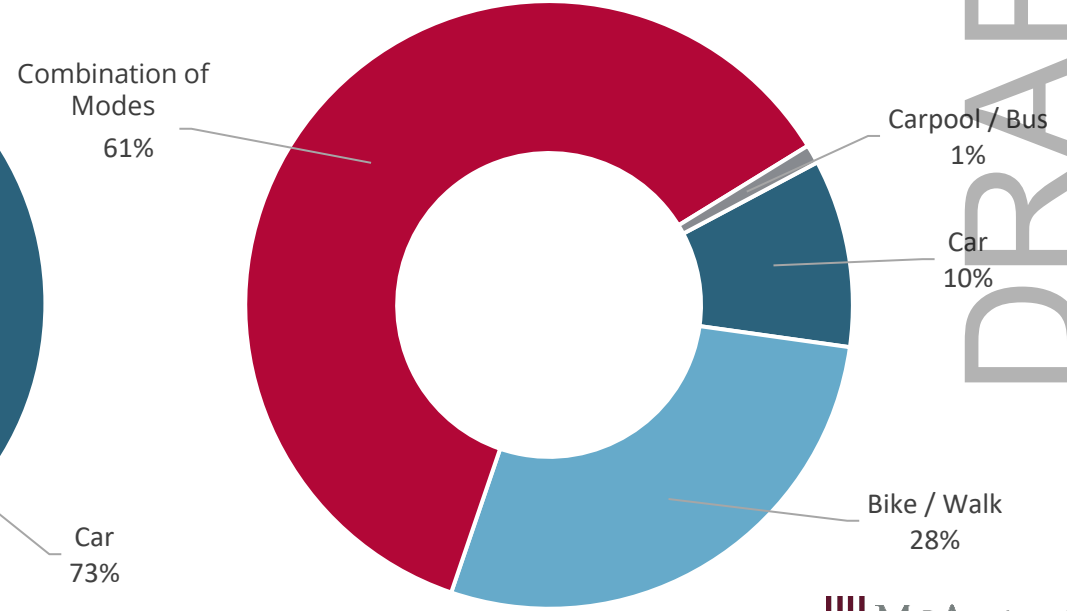


STAKEHOLDER ENGAGEMENT COMMUTE PATTERNS

CURRENT COMMUTE



DESIRED COMMUTE

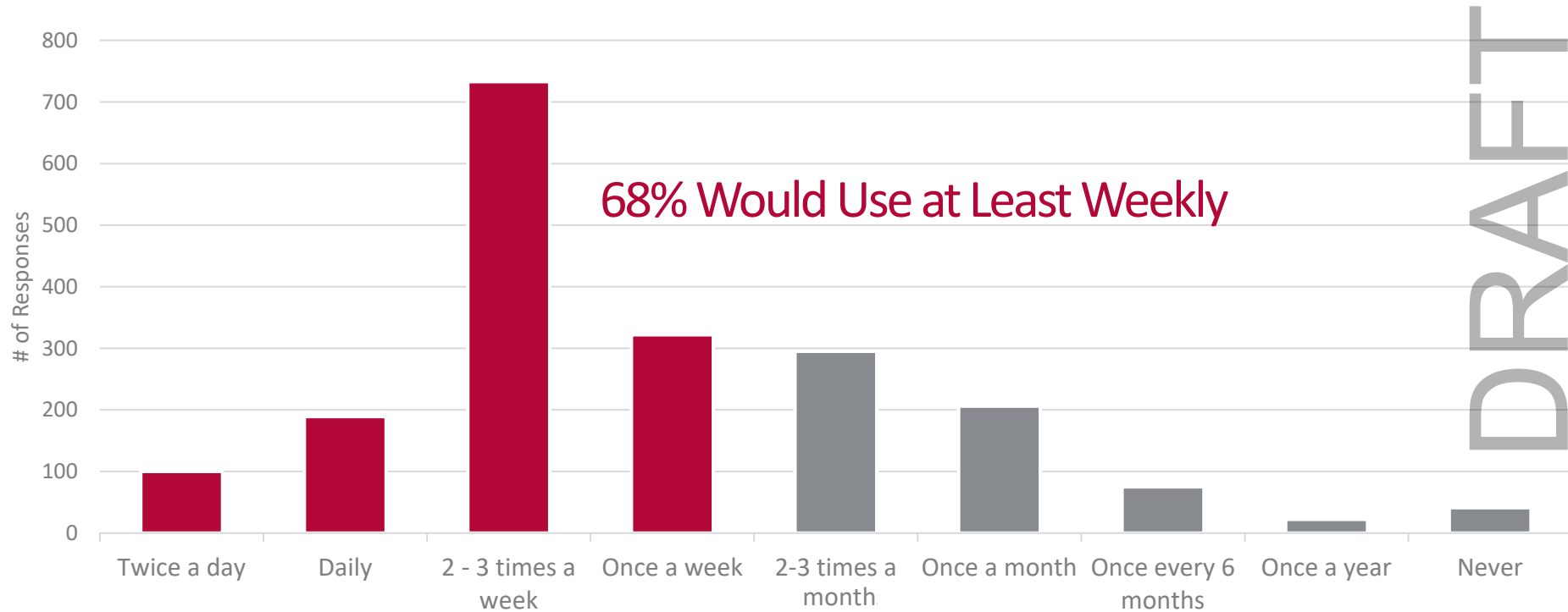


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STAKEHOLDER ENGAGEMENT

FREQUENCY OF USE



OPPORTUNITIES + CONSTRAINTS



ENVIRONMENT

Connect users with natural resources while minimizing impacts to environmental features and habitat.



CONNECTIVITY

Make meaningful connections to transit and active transportation networks as well as employment centers and local neighborhoods.



SAFETY

Address the safety needs of users of all ages and abilities in the route selection and roadway crossing recommendations.



PERMITTING

Consider permitting requirements associated with the route and impacts to project cost and schedule.



CONSTRUCTIBILITY

Evaluate route for ease of construction access, construction methods and impacts to traffic during construction.



REAL ESTATE

Consider required permanent and temporary construction easements on publicly- and privately-owned land associated with the route.



ROUTE EFFICIENCY

Consider directness of route to make user trips most time efficient and minimize overall facility length to reduce construction costs.



FUTURE PLANS

Avoid conflicts with planned roadway projects and consider how route connects to future greenways /other planned bicycle and pedestrian infrastructure.



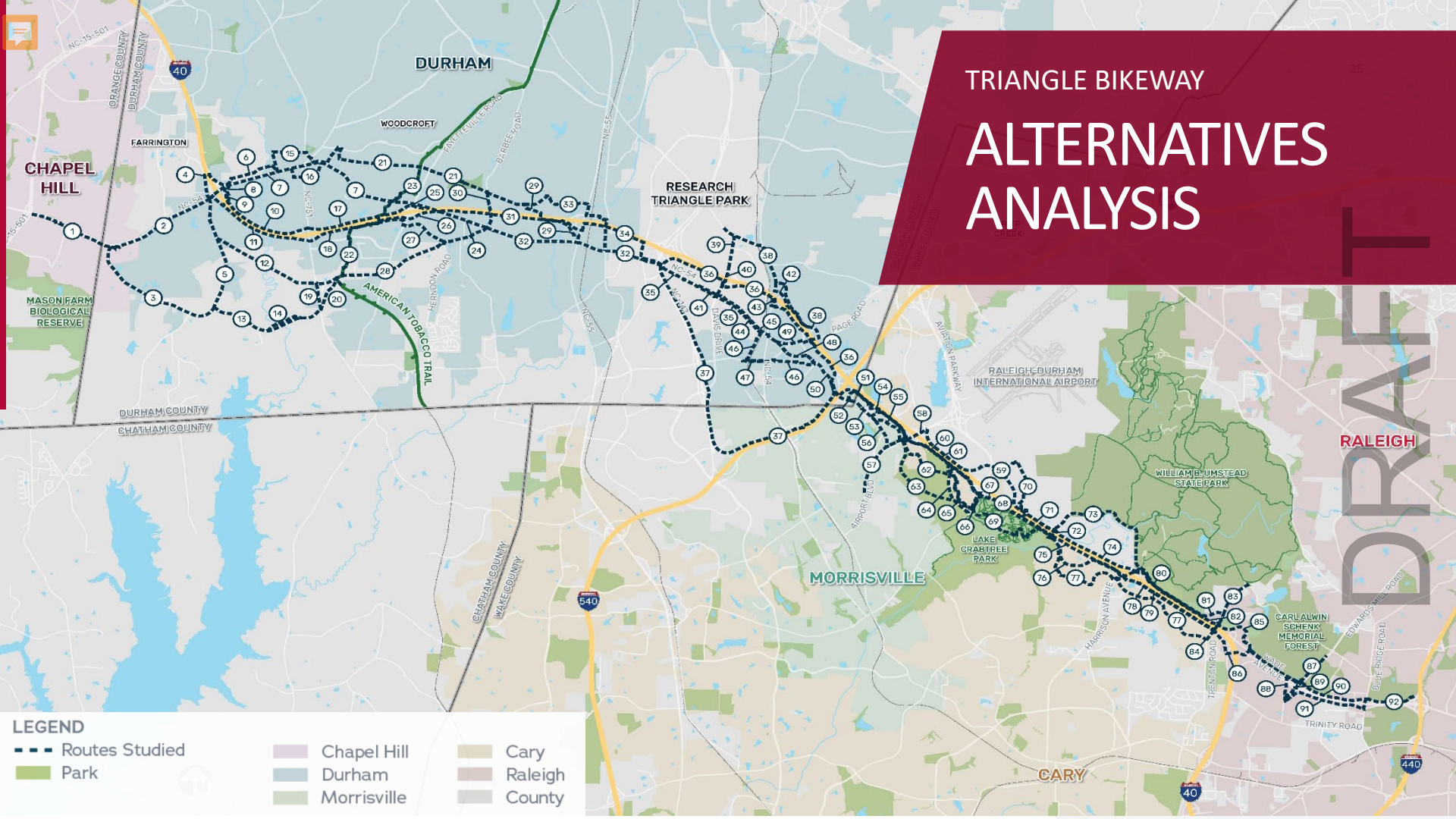
STAKEHOLDER INPUT

Understand interests and concerns from stakeholders throughout the corridor as well as input from the public and the potential impacts on route selection.

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TRIANGLE BIKEWAY

ALTERNATIVES ANALYSIS



- LEGEND**
- Routes Studied
 - Park

- Chapel Hill
- Durham
- Morrisville
- Cary
- Raleigh
- County

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TRIANGLE BIKEWAY

RECOMMENDED ALIGNMENT



BY THE NUMBERS:

23 MILES

8 GRADE-SEPARATED CROSSINGS (BRIDGES OR TUNNELS)

70% OF CORRIDOR WITHIN NCDOT I-40/WADE AVE RIGHT-OF-WAY

17 DIRECT TRANSIT CONNECTIONS

22 DIRECT BIKE/PEDESTRIAN FACILITY CONNECTIONS

186,000 JOBS ALONG THE CORRIDOR

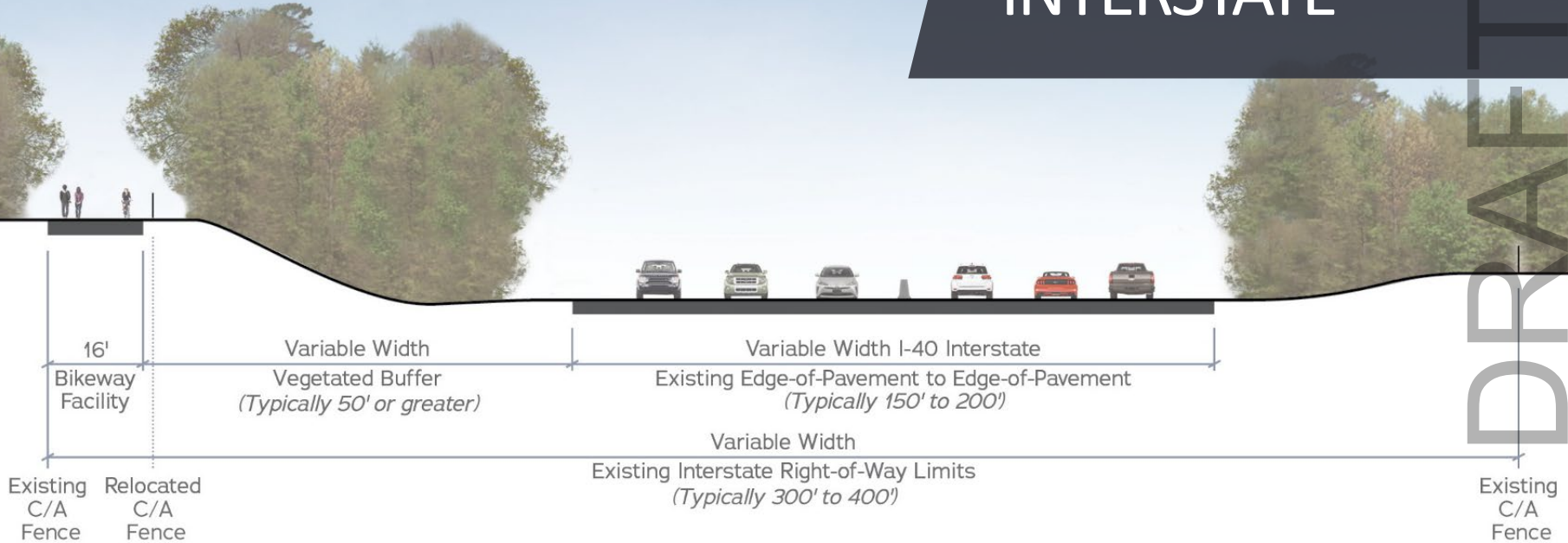
61,000 HOUSEHOLDS IN THE STUDY AREA



TRIANGLE BIKEWAY

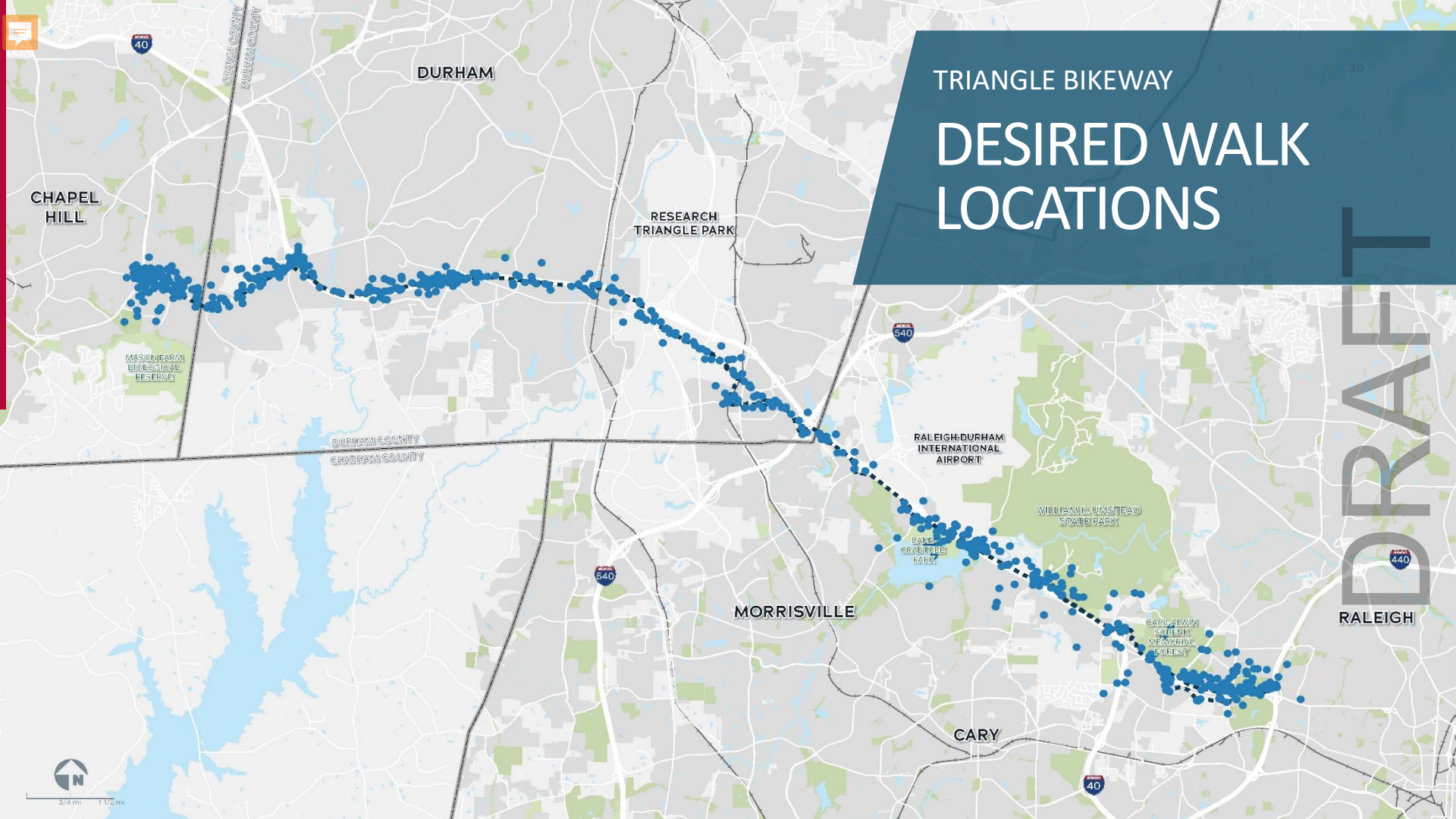
RELATIONSHIP TO INTERSTATE

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TRIANGLE BIKEWAY

DESIRED WALK LOCATIONS



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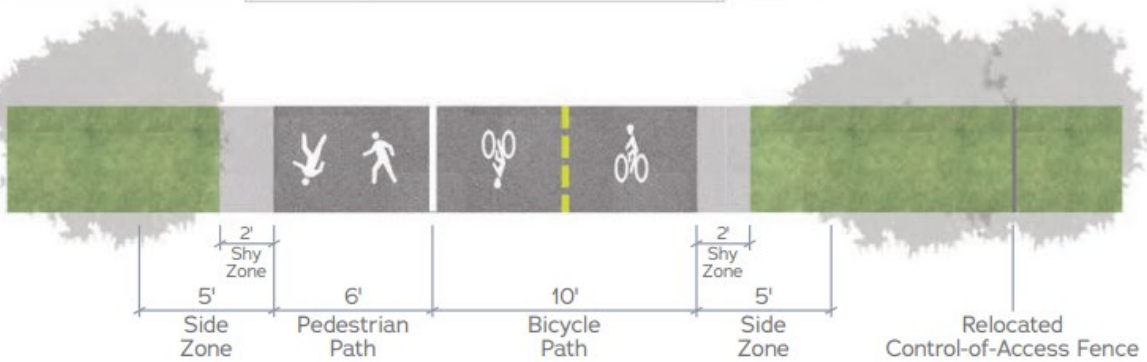
3/4 mi 1 1/2 mi



TRIANGLE BIKEWAY

TYPICAL SECTION





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Separated Use Path - Boulder, CO



Separated Use Path on Libba Cotten Bikeway - Carrboro, NC



Separated Use Path - Long Beach, CA



Separated Use Path on Chandler Bikeway - Burbank, CA

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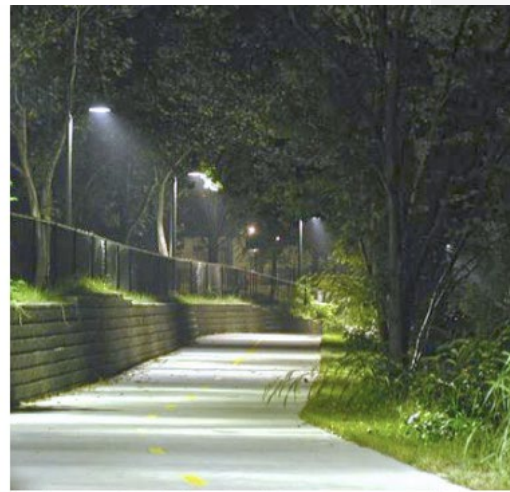


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Lighting



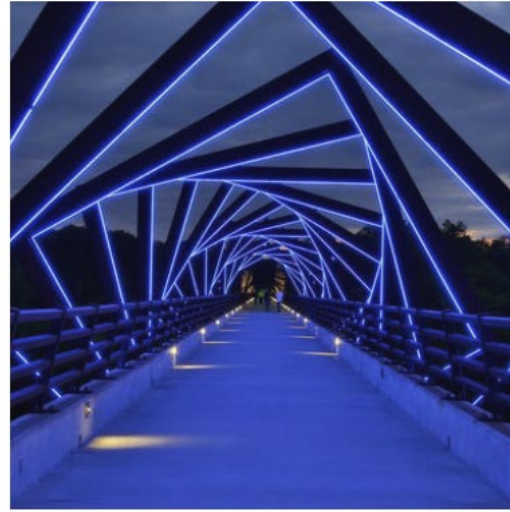
Solar Lighting on Whittier Greenway - Whittier, CA



Lighting on Razorback Regional Greenway - Fayetteville, AR



Colored Lighting at Larissa Underpass - Maroondah, Australia



Colored Lighting at High Trestle Trail Bridge - Madrid, IA

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NOT A TYPICAL GREENWAY

KEY DIFFERENCES INFLUENCING COSTS:

- > **Width of Pavement** – 12' vs. 16' (33% increase)
- > **Lighting** – adds approximately \$225K to \$250k per mile
- > **Grade Separation** – existing culverts vs. new tunnels; shorter span bridges for creeks vs. longer span bridges for interstate/other roadways.
- > **At-Grade Crossings** – increased # of RRFB, PHB, and phasing/other accommodations at existing traffic signals
- > **Maintenance of Traffic** – increased construction interaction w/ high-volume roadways
- > **Fence** – minimal fence/safety rail vs. C/A fence required for entire length along I-40
- > **Pavement Markings** – minimal vs. required along entire length for separating bikes/peds

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CONSTRUCTION ESTIMATES IN TODAY'S DOLLARS

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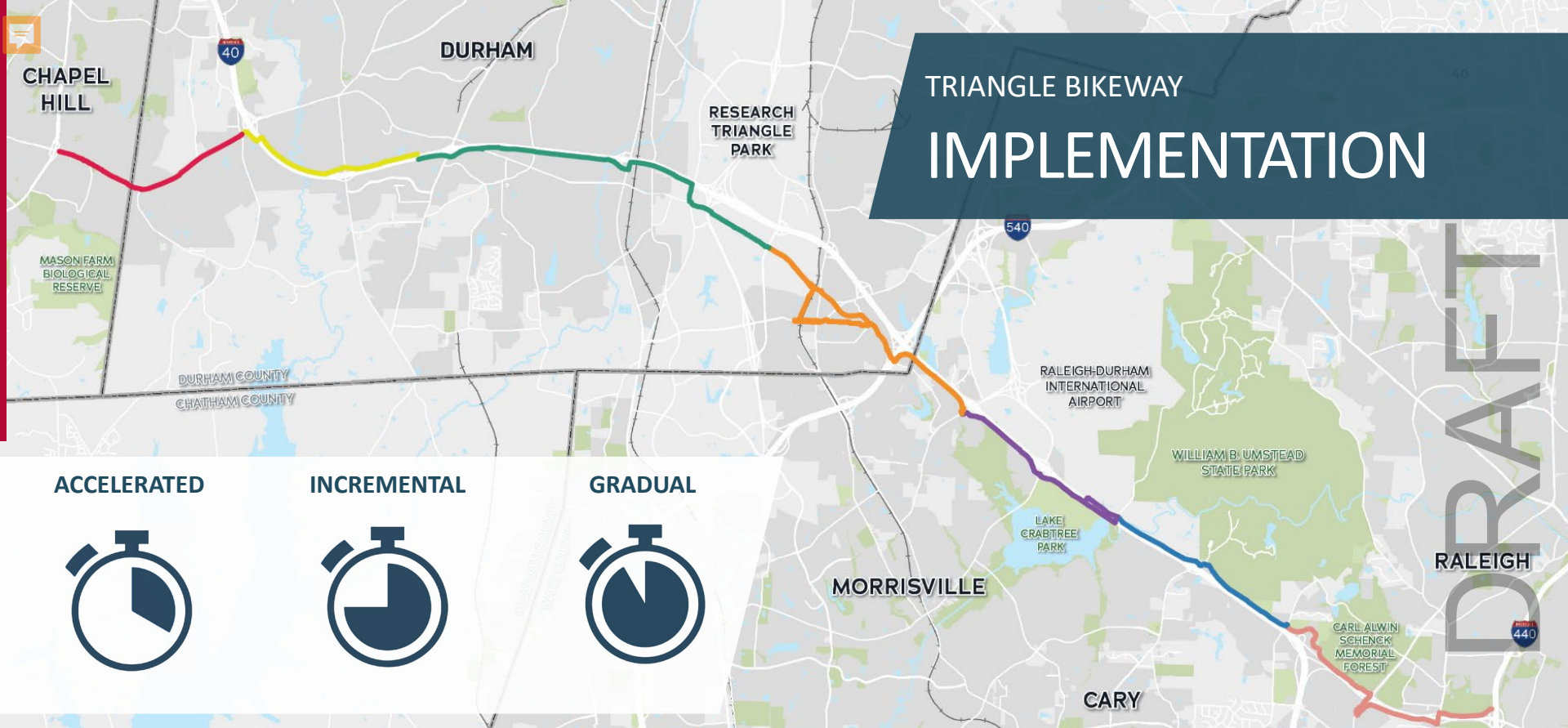
2022 BASE YEAR CONSTRUCTION COSTS:

- > CAMPO Segments – \$45,338,000
- > DCHC MPO Segments – \$63,173,000

Includes: 12% Construction Engineering and Inspection (CEI) and 20% Project Contingency.

Does not include: Right-of-way acquisition; utility relocations; inflation/escalation; additional planning, permitting, surveying, environmental documentation, or design.

TRIANGLE BIKEWAY IMPLEMENTATION



ACCELERATED



INCREMENTAL



GRADUAL



DURHAM-CHAPEL HILL-CARRBORO MPO

CAPITAL AREA MPO

CHAPEL HILL

DURHAM

RTP

DURHAM

MORRISVILLE

CARY

RALEIGH

SEGMENT 1

SEGMENT 2

SEGMENT 3

SEGMENT 4

SEGMENT 5

SEGMENT 6

SEGMENT 7

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MILESTONES

- ✓ Project included in both CAMPO – DCHC MTPs
- ✓ Endorsed by both CAMPO - DCHC MPOs
- ✓ Triangle Bikeway Regional Advisory Committee Established
- ✓ TriangleBikeway.com website lives on
- ✓ Wake County Moving Forward on Accelerated Implementation Path

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TRIANGLE BIKEWAY

IMPLEMENTATION



SCENARIO 1: ACCELERATED WAKE COUNTY PATH

\$5.18M for Design, Environmental & Permitting

- \$4,695,000 Wake County
- \$485,000 Research Triangle Foundation
- RAISE Grant Application
- Schedule to come

DURHAM COUNTY

WAKE COUNTY

SEGMENT 1

SEGMENT 2

SEGMENT 3

SEGMENT 4

SEGMENT 5

SEGMENT 6

SEGMENT 7



TRIANGLE BIKEWAY

QUESTIONS?

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